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READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Epithelioma, Malignant Disease, New Growth Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria and Sugar; Light, Roentgen, Radium, X Rays; Status Lymphaticus and Thymus; Eye, Ophthalmia and Vision; Bicycle and Cycle; Motor and Automobile; Association, Institution, and Society; Paris, France; Berlin, Prussia, Germany; Vienna, Austria, etc. Subjects dealt with under various main headings in the JOURNAL have been set out in alphabetical order under their respective headings—for example, "Correspondence," "Leading Articles," "Reviews," etc. Original Articles are indicated by the letter (O).

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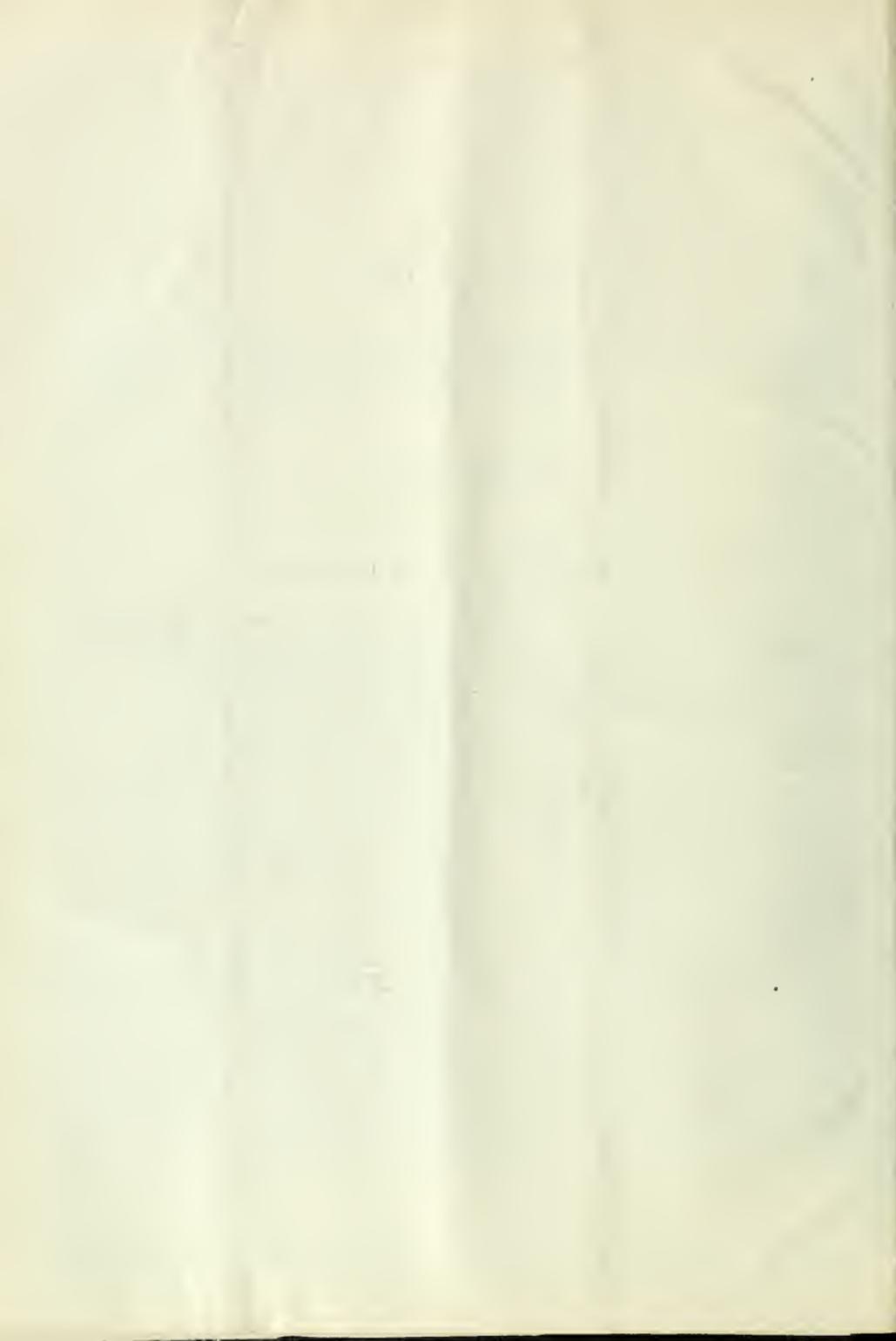


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THE IDENTIFICATION OF THE PATHOGENIC MEMBERS OF THE TYPHOID-COLON GROUP OF BACILLI.

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EVERY year an immense amount of work is done in this country on the isolation and examination of organisms belonging to the typhoid-colon group of bacilli. Much of it is concerned with the routine examination of water, but a considerable proportion is directly concerned with the examination of excreta, and in many laboratories an extensive experience has been gained of satisfactory methods of isolating and identifying the important pathogenic members of the group. This year, however, war conditions have brought about an enormous expansion in the amount of such work, and at the same time exceptional urgency for its rapid execution. Partly as a result of this, there are already engaged in the examination of excreta many workers whose previous bacteriological experience has been mainly concerned with other departments, and who have not hitherto had to deal with the routine examination of large quantities of such material; and their number is likely to increase still further, as we must anticipate a large and progressive increase in the volume of work with the arrival and continuance of the hot weather. Such men have not the time to look up the recorded experience of others, and perhaps not always the opportunity to consult those whose previous work has made them more familiar with the best methods to adopt. It is hoped that the present paper may be of service to them, based as it is not only on the literature but also on the very large experience of this Institute for many years past, both in the identification of the pathogenic organisms and in the rapid examination of large quantities of material.

The typhoid-colon bacilli are all Gram-negative rods which grow freely on ordinary media at 20°-37° C. and do not form spores, and they are subdivided into two main groups, according to their action on lactose. Those which ferment lactose, producing from it acid with or without formation of gas, are labelled with the general name of *B. coli*, and do not concern us further here. They are practically ubiquitous, and many of them are pathogenic in certain regions or under certain conditions, but they do not produce epidemic disease with predominantly intestinal symptoms. The lactose non-fermenters are again divisible into two main groups by their action on gelatin. The gelatin liquefiers pass into the great group of *B. proteus* (some of them, like *B. coli*, occasionally pathogenic), and with these also we are not further concerned. All the organisms of the group recognized as regularly producing epidemic intestinal disease are included amongst the lactose non-fermenters and gelatin non-liquefiers.

The application of these two tests excludes the great majority of the organisms which belong to the colony-typhoid group, and the first elimination is largely effected by the addition of lactose and a suitable indicator to the medium on which the material is plated in the first instance. Thus in MacConkey's medium any organism which has produced acid from the lactose affects the

neutral red in the medium, and the colonies are red lactose non-fermenters remaining colourless. But there is a source of fallacy in the primary subdivision which must be continually kept in mind. There is a fairly extensive group of organisms which are really akin to the lactose fermenters but do not ferment lactose in the first few days of growth. After an interval of perhaps as long as six to seven days' growth on the sugar they produce descendants which do ferment it, but in the first period they are lactose non-fermenters. In practice one must include in the first selection these late lactose fermenters along with the non-fermenters. Before the final diagnosis is made they will have declared themselves, and if it is realized that the first selection has not been absolutely exclusive of all *B. coli*, they rarely cause serious trouble in the subsequent procedure.

This difficulty of variable characteristics is one which runs through the whole of bacteriological classification. The classification is based on certain characters, which in the group consist of behaviour towards certain substances (carbohydrates, gelatin, milk, etc.) and of serological reactions. Probably none of the characters of any particular organism is so absolutely fixed that it cannot possibly be altered. The difficulty, however, is, so far at least as is known at present, only occasionally a practical one. It may be and is possible under certain conditions to induce a typhoid bacillus to ferment lactose, or to breed a Gaertner bacillus which does not produce gas from glucose; but in clinical typhoid or Gaertner infections the one is not in fact a lactose fermenter, and the other produces gas, and in the practical conditions of the present time any organism which does not conform to the characters described may be rejected as not one of the known pathogenic members of the group. (The only exception which is perhaps worth mention here is in the case of *B. paratyphosus A*. This organism normally produces gas from the carbohydrates it ferments, but occasionally the production of gas is very slight or absent on some or all of them. Suspicion will be aroused by the fact that acid is produced only in the sugars attacked by the typical bacillus, especially if gas is present in one or more of them, and an agglutination test will settle the point.)

The genuine lactose non-fermenters and gelatin non-liquefiers, then, are the important group, and of these a table is given. This explains itself. No attempt has been made to make it exhaustive or strictly systematic. It is intended only as a guide in practical work, and is in fact constructed in accordance with the steps recommended for actual procedure later on; but it contains all the diagnostic characters required for the recognition of the pathogenic bacteria, whatever the system of classification adopted. In two instances, namely, the mannite fermenting group of dysentery bacilli and *B. paratyphosus B*, further subdivisions are frequently recommended. These have not been included in the table, because no result of immediate practical importance is gained thereby, but they require some notice.

Mannite Fermenting Dysentery Bacilli.—This is a group where classification presents exceptional difficulties. In the case of infection with typhoid, Gaertner, or the other pathogenic bacilli of the typhoid-colon type, we have to deal with organisms which present a fairly definite and uniform combination of characters. But in the dysentery due to mannite-fermenters such uniformity does not exist.

They are all non-motile and all produce acid on mannite, and of course they do not ferment lactose or liquefy gelatin, but, beyond this, uniformity either of cultural or serological characters ceases. In different epidemics the causal organisms may conform completely to a recognized type, such as Flexner's original bacillus, or they may differ in one or more particulars from any of the types previously established. Under such circumstances detailed subclassification is of no value for our purpose here. If a table were constructed subdividing into groups by the successive application of different tests, it would have a certain value in systematic differentiation, and the separation of a subgroup, that of *B. dysenteriae* Y, by the use of maltose has become in some sort classical. But even the academic value of such differentiation is doubtful because of the uncertainty whether these organisms are stable in the characters they are found at one time to possess or may not change in one character or another from time to time. The system adopted in the table is to regard all organisms which are agglutinated by Y serum as possible causes of dysentery. *B. dysenteriae* Y is an organism very closely related to Flexner's bacillus, from which it differs in the fact that it does not ferment maltose at the time of isolation, and in its variable production of indol. Serum prepared with it is found to agglutinate all the tested strains of clinically pathogenic bacilli except the bacillus of Stroug. It also agglutinates a number of organisms agreeing with the pathogenic bacilli in the mannite and non-motility characters, but differing from them all in one or more respects when other tests are applied, and not yet found in association with clinical dysentery. These minor differences are not sufficient, in view of the want of uniformity in the known pathogenic bacilli, to justify their exclusion from the dysentery organisms, and any organism agglutinating with Y serum should be regarded as a potential cause of the disease.

Strong's bacillus is of rare occurrence. It has apparently been isolated in only one epidemic hitherto (in the Philippine Islands), and can only be finally identified by use of a serum prepared from another strain of the same organism; but it should be looked for, and its characters are given in the table.

B. paratyphosus B.—It is claimed by several English and some foreign workers that a distinction is possible between this bacillus and an organism isolated from attacks of food poisoning. This bacillus, which is known under various names, as *B. suispestifer*, *B. aertryck*, etc., agrees in cultural and ordinary agglutination characters with paratyphoid B, and is considered by many authorities to be identical with it; but a distinction is said to be possible by means of the absorption technique. This procedure, however, can scarcely be carried out in the routine examination of excreta on a large scale, and certainly not by those who are inexperienced in such work.

Agglutination tests may be performed microscopically or macroscopically. The latter method is to be preferred. It takes little or no more time to make the preparations, makes subsequent examination easier and more definite, and allows a final examination to be made even after twenty-four hours without the risk of drying. The test serums should be used in high dilution in salt solution, at least 1 in 500, and preferably 1 in 1,000. Proper controls are essential. Spontaneous agglutination is not uncommon in this group—for example, especially with *B. paratyphosus* B. It should be remembered that with dysentery bacilli the processes of agglutination usually proceed much more slowly than in the case with typhoid, and even with strong immune serum it is advisable to wait several hours before deciding that a test is negative.

METHOD OF PROCEDURE.

This must vary according to the circumstances of the worker, the pressure on his time, the extent of equipment, the quantity of material to be examined, the hour of its arrival and so on, and must be modified to suit the individual. The method first given below is that recommended as desirable wherever possible. It gives a reasonably complete examination of the material, and will lead to the discovery of pathogenic organisms if present in as great a percentage of cases as is practically attainable. It involves a considerable but, except in periods of great stress, quite practicable expenditure of time and material on the first day of isolation of the colonies. By concen-

trating the greater proportion of the work on each sample or batch of samples on the day succeeding their receipt, it greatly lightens the subsequent labour and clears the way for the investigation of subsequent samples. In circumstances of great urgency or pressure full examination may not be possible. An abbreviated technique must then be adopted, but this involves missing a number of cases discoverable by the fuller method. Such abbreviated methods are given below.

1. Plate the suspected material on MacConkey's medium (bile-salt neutral-red lactose agar), and incubate at 37° for at least eighteen hours. If no colourless colonies are present by that time, replace in incubator for twenty-four further hours and examine again.

2. Colonies must be selected from uncrowded parts of the plates. It is best, until experience has been gained, to select colonies differing in appearance. Pick off five colourless colonies and emulsify each in a few drops of sterile broth. If time allows subsequent inoculation of the sugars, etc., the same day, incubate the broth emulsions for two to three hours before proceeding; if not, proceed at once to inoculate from each emulsion a set of eight tubes, containing mannite, glucose, saccharose, dulcitol, broth, litmus milk, gelatin, lactose. Grow the gelatin at room temperature, the others at 37°.

3. After twenty-four hours proceed to provisional diagnosis. If all colonies have given identical results, it is unnecessary to examine further more than two; if the results differ, specimens of each kind must be considered.

PROVISIONAL DIAGNOSIS.

Reject all organisms fermenting lactose or liquefying gelatin. The remainder fall into three groups according to their action on mannite.

A. No Change on Mannite.

The only important organism here is *B. dysenteriae* Shiga, and its identification may be completed almost at once. Morgan's No. 1, an organism frequently associated with epidemic summer diarrhoea, should also be looked for.

No Change on Glucose excludes Shiga; such an organism is probably *B. alcaligenes* (and may be definitely diagnosed if the milk is already alkaline, and no change has occurred in the saccharose and dulcitol tubes).

Acid on Glucose without Gas: makes Shiga probable, practically the only other possibilities being some members of the *alcaligenes* group and some water bacilli. Reject any organism which have fermented saccharose or dulcitol, and test the others with Shiga serum. Negative result excludes, positive result identifies, Shiga; confirm by absence of motility on the broth tube.

Acid and Gas on Glucose: without change on saccharose or dulcitol makes Morgan's No. 1 probable; confirm by presence of motility.

There remains for subsequent examination in this section only the confirmation of organisms identified provisionally as Shiga.

B. Acid only on Mannite.

The important organisms here are *B. typhosus*, the group of dysentery bacilli of Flexner type, and *B. dysenteriae* Strong. Inoculate liberally from the broth tube a second broth tube, and incubate for four to five hours, and test for motility. Meanwhile test with typhoid serum all strains except those fermenting saccharose. Positive result identifies; confirm the same day by presence of motility. Test with Y serum those which ferment cane sugar as well as those negative to typhoid serum. Positive result identifies as a member of the Flexner group; confirm the same day by absence of motility.

Amongst the remaining organisms—that is, those negative to both Y and typhoid serum—there may be: (1) Inagglutinable typhoid and dysentery strains; (2) *B. dysenteriae* Strong. These cannot be recognized without further time, and each organism is to be subcultured daily on broth meanwhile.

For subsequent examination in this section there are thus: (1) Confirmation of identified strains; (2) the unagglutinated strains.

C. Acid and Gas on Mannite.

The important organisms are those of the paratyphoid-Gaertner group. Reject at once all which have fermented saccharose or clotted milk. Omit for

the present (but do not yet discard) all which have failed to produce acid and gas on dulcité. With the remainder proceed as follows: Inoculate a salicin tube and add it to the set of eight tubes. Then test each organism with three serums in this order: Paratyphoid B, paratyphoid A, and Gaertner. Positive result identifies. Subculture the negative strains daily.

For subsequent examination in this section there remains: (1) Confirmation of identified strains; (2) consideration of unagglutinable strains and those which had not fermented dulcité.

By this preliminary examination we have recognized within thirty hours of isolation the great majority of the pathogenic bacilli of the group and got rid of a very large number of organisms certainly not pathogenic. The remaining unidentified bacilli may include *B. dysenteriae* Strong, or inagglutinable strains of the other pathogenic organisms. Temporary inagglutinability is a phenomenon which while it occurs in only a small proportion of the cases is yet so frequent in the examination of large numbers that we must be prepared to meet it. It usually disappears on repeated subculture on artificial media.

The subsequent examination must be delayed till the result of the indol and milk tests can be obtained. The interval should be six further days—that is, a week from first inoculation of the sugars, etc. It must begin always with verification of the lactose and gelatin tests.

SUBSEQUENT EXAMINATION.

A. No Change on Mannite.

We have here only to confirm the diagnosis of the organisms identified as Shiga and Morgan. *B. dysenteriae* Shiga does not produce indol, produces no change in mannite, saccharose, or dulcité, and initial acidity in milk is replaced by alkali: it is non-motile. Morgan's No. 1 produces indol, acid followed by alkali in milk, acid and gas on glucose, no change in other carbohydrates (except levulose and galactose), and is motile.

B. Acid only on Mannite.

Confirmation of Previous Diagnosis.

1. *Typoid Bacillus*.—Acid only and permanently in milk, no indol, no action on saccharose, acid only on mannite and glucose, no change on dulcité or late acidity, motile. (Non-motile strains occur, but are extremely rare.)

2. *Dysentery of Flexner Type*.—Test for agglutination with Flexner serum. Positive result places the organism among the close allies of Flexner. Typical Flexner produces indol, acid followed by alkali on milk, acid only on glucose and mannite, no change in saccharose or dulcité, and is non-motile. For further subdivision, *vide supra*.

Examination of Unclassified Strains.

1. *Motile Strains*.—These cannot be dysentery; the only possibility is inagglutinable typhoid. Reject any organism whose characters do not agree completely with those just given for typhoid. Test the remainder with the last subculture on broth and typhoid serum. Positive result identifies definitely; but a negative result with an organism of correct cultural characters must be returned as inagglutinable typhoid. (Preserve such strains for later examination.)

2. *Non-motile Strains*.—Examine the last subculture with Y serum. Negative result leaves the possibility of Strong's bacillus (and non-motile typhoid; note characters). Reject those which have not produced acid only on saccharose. *B. dysenteriae* Strong produces indol, acid on glucose, saccharose and mannite, and should give late clot on milk (*vide supra*).

C. Acid and Gas on Mannite.

Confirmation of Identified Strains.—All these produce acid and gas on glucose, mannite and dulcité, no change on salicin and saccharose, fail to produce indol, and are motile. Paratyphoid A produces acid only and permanently in milk; Paratyphoid B and Gaertner produce acid followed by alkali in milk.

Unidentified Strains.—Reject all which have failed to produce acid and gas on dulcité, and all which do not conform exactly to the above cultural characters of Paratyphoid A or Paratyphoid B. Test with Paratyphoid A serum the last subcultures of those agreeing with Paratyphoid A; and with Paratyphoid B and Gaertner serum those agreeing with Paratyphoid B.

If still negative they are not to be identified as pathogenic, but the strains should be preserved. (*Vide supra* for subdivision of the Paratyphoid B organisms.)

ABBREVIATED METHODS.

These all fail to detect pathogenic organisms in some cases in which the fuller method would have been successful, and the proportion of such failures is greater the more rapid the method. All will detect the greater number, and in periods of stress it is better to examine by a short method in order to cover a larger number of samples. In all of them the first step is to plate on MacConkey's medium and incubate as before for at least eighteen hours.

I.

Pick off five (or more) colourless colonies direct into a mannite tube and incubate till next day. If the result is no change, or acid only, in all tubes, select one only and proceed as follows, according to the action on mannite; if the results differ, take one of each kind:

- No change*. Inoculate a broth tube, and in four to five hours test for motility. If non-motile, test with Shiga serum; positive result identifies.
- Acid only*. Inoculate a broth tube, and in four to five hours test for motility. If motile, test with typhoid serum; if non-motile, with Y serum. Positive result identifies as typhoid or mannite fermenting dysentery.
- Acid and gas*. So many non-pathogenic organisms have this action that it is advisable to inoculate all five organisms into saccharose, dulcité, litmus milk, broth, and gelatin. Next day reject the organisms which ferment saccharose and do not ferment dulcité; and test the others with paratyphoid B, paratyphoid A, and Gaertner serum.

Confirmation of identified strains may be carried out. This method will detect a high proportion of the pathogenic organisms. It misses all inagglutinable strains, and by assuming under (a) and (b) identity of all the five organisms from their action on one carbohydrate, misses a further proportion, and it delays the identification of the acid and gas producers for a further twenty-four hours. It saves the considerable expense of the carbohydrate examination of the (a) and (b) groups, and the labour thereby involved, though more agglutination tests are necessary.

II.

Inoculate five or more colourless colonies into broth, and examine for motility in four to five hours. If motile, test with typhoid, Paratyphoid B, Paratyphoid A, and Gaertner serums. Clinical information may help to determine the order of testing. If non-motile, test with Shiga and Y serums. This is probably the best method when the full examination is impossible. It omits more inagglutinable strains than the last, but is rapid, economical, and will detect most of the pathogenic organisms present.

III.

Test by agglutination with the six serums colourless colonies taken straight from the plate, guiding the order by clinical information. Examination of the preparation directly it is made will frequently show the presence of motility, and save the labour of examining with the dysentery serums, but the absence of motility under these conditions does not necessarily mean that the organism is non-motile. This method of examination is the most rapid of all, but the proportion of inagglutinable strains missed is still higher under these conditions.

Various modifications of these methods are, of course, possible, but the full method is recommended wherever practicable, and the second abbreviated method as an alternative. There are several ways in which the experience can save time and increase the probability of finding any pathogenic organisms present. Most important of these is the initial selection of likely colonies, and the appearance of the plate is also of great assistance. The use of large plates or substitutes, on each of which two or more samples can be plated at the same time without mixing, saves a great amount of sterilizing, washing, pouring, etc. The use of plates already warmed on inoculation increases markedly the size of the colonies at the time of examination, and enrichment media for preliminary incubation may increase the chance of detecting the organisms.

sought. But modifications of this kind cannot be discussed in this paper, and must be left to the individual himself to work out.

Copies of this paper with, if desired, the table mounted on card, may be obtained from Dr. Henderson Smith, Lister Institute, Chelsea Gardens, London, S.W.]

The Croonian Lectures

ON

TRYPANOSOMES CAUSING DISEASE IN MAN AND DOMESTIC ANIMALS IN CENTRAL AFRICA.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON,

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LECTURE II.—GLOSSINA MORITANS: TRYPANOSOMA BRUCEI: WILD GAME.

In my first lecture an attempt was made to introduce the subject—the trypanosome diseases of man and domestic animals in Central Africa—by a few introductory remarks on trypanosomes generally, and their classification; and also by a short description of their carriers, the tsetse flies. In this lecture I propose to deal with one of the species of trypanosomes more in detail, describing its morphology, its pathogenic action on various animals, its carrier—the tsetse fly, *Glossina morsitans*—and the reservoir of the virus—the wild game.

TRYPANOSOMA BRUCEI.

The first species of Group A is *Trypanosoma brucei*, and it will be convenient to begin with it, as it is also first chronologically.

That is to say, it was the first pathogenic trypanosome discovered in Central or South Africa, and if you will allow a short autobiographical digression, I shall relate the circumstances leading up to the discovery.

Investigations in 1894-96.

Shortly after I arrived in South Africa in 1894, the late Sir Walter Hely-Hutchinson, the then Governor of Natal and High Commissioner of Zululand, asked me to go to the north of Zululand in order

to report on an outbreak of disease, called nagana, which had broken out among the native cattle.

Travelling at that time was no easy matter, as the railway into Zululand had not been constructed. My wife and I left Pietermaritzburg on October 27th, 1894, going by mule wagon; we arrived seven days later in Eshowe, the capital of Zululand. There an ox wagon was provided, and in it we trekked to Ubombo, a magistracy in the north of Zululand, and in the centre of the affected district. This was reached, after a month's journey, on November 24th, 1894.

Fig. 1 represents the small wattle and daub hut which was provided for living in. The verandah was used at first as the laboratory, but afterwards, with the aid of the natives, a special hut was built. Shortly after we arrived

some of the affected cattle were brought in by the natives. As I had just come from the Army Medical College, Netley, where I had been teaching bacteriology for five years, it was natural that a bacteriological examination of the blood and organs of the infected cattle should first be made. This proved negative.

About this time (1894) the study of the blood had become popular, thanks probably in great measure to Ehrlich, and it was the fashion to make elaborate examinations of the red and white blood corpuscles. To this the discovery of the nagana parasite was probably due. It must be remembered that these parasites are, as a rule, very few and far between in the blood of oxen, and also that our staining methods in those days were rather primitive. After some days of this blood examination it began to be remarked that a curiously-shaped object, different from anything previously found in blood, was sometimes seen lying among the blood corpuscles. At first it was thought to be accidental, due to the carbol-fuchsin stain which was being used, but soon it became evident that it might be a blood parasite. It was then thought that if it was it might be motile in the living state. Fresh preparations of blood were made, and after a long search a rapidly moving object was seen lashing about among the red blood corpuscles. At that time I knew nothing about trypanosomes, and at first thought that the wriggling object might possibly be a small filaria. There were few or no allusions to these haematozoa in medical literature at that time, but when I returned to Natal and had an opportunity of consulting books it soon became evident that the rapidly vibrating body was probably a trypanosome.

But there was as yet no proof that the organisms seen had any causal connexion with the disease. They might well be harmless blood parasites, and they were so scanty in numbers in the blood of the oxen that this might well be so. This led to trying the effect of injecting the blood of nagana cattle into horses and dogs. In these animals the disease is much more acute than in cattle, and the blood swarms with the parasites. In this way it began to be evident that these haematozoa had a causal connexion with the disease.

But at that time there was no suspicion that nagana and tsetse-fly disease were one and the same. It was believed by everybody that the tsetse fly killed horses and cattle by injecting a poison into them. Moreover, these cases of nagana were occurring among native cattle many miles away from the "fly belt." The work was being done on the top of the Lebombo, a range of hills some 2,000 ft. in height, running north and south, about 50 or 60 miles from the coast. Between the

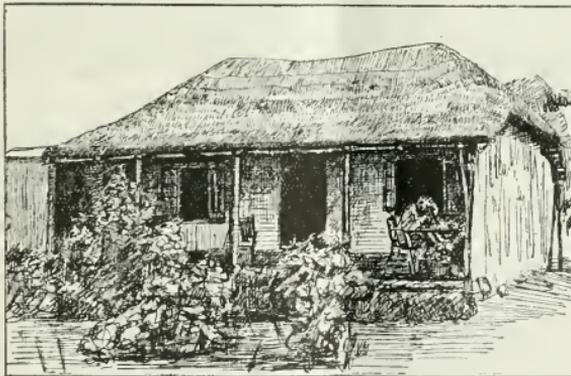


Fig. 1.—Laboratory Hut, Ubombo, Zululand.

hills and the sea there was a low-lying coast plain, some parts of which were infested with tsetse flies. Now, I had read in Livingstone and other African travellers and hunters about the tsetse-fly disease, and was curious to know what it was like. Two young oxen and several dogs were therefore sent down into this "fly belt" and herded among the fly for a fortnight. At the end of this time they were brought back to the hill, and it was a great surprise to find the same parasites in their blood as that found in the nagana oxen. In this way the fact gradually unfolded itself that nagana and the "fly disease" of the travellers and hunters were identical. This, then, was the manner in which the discovery of the part played by trypanosomes in tsetse-fly disease was made.

I arrived at Ubombo on November 24th, 1894, and was

where *Trypanosoma rhodesiense* is found in addition to nagana. In the past nagana has always been regarded as harmless to man, and certainly no harm seemed to



Fig. 2.—*Trypanosoma brucei*; Zululand, 1913.

come to those who lived or travelled in "fly country." To this it may be answered that it is only within recent years that microscopic examination of the blood of such cases has been made. Many cases of death occurred among hunters and explorers which were usually put down to malaria, but it is possible some of these may have been due to infection by nagana. This is a question

which I will not pursue further; time and further knowledge are wanted before a completely satisfactory answer can be given. But it must be understood that in the following description of *Trypanosoma brucei*, *Trypanosoma rhodesiense* is included.

So much for the history of the nagana parasite. Let us now consider the distribution of this trypanosome in Africa.

Geographical Distribution of Trypanosoma brucei.

The distribution of the nagana parasite, *Trypanosoma brucei*, in Africa, is shown in the map published to illustrate my first lecture (p. 1074). It will be seen that *Trypanosoma brucei* and the disease caused by it—nagana—are widely distributed in Africa, extending from the Sudan to Zululand, and from the Gambia to Zanzibar; in fact, it is the most widely distributed pathogenic trypanosome in Africa.

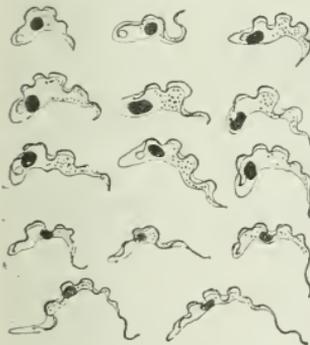


Fig. 3.—*Trypanosoma brucei*; human strain; Nyasaland.

It may be that in the future strains of nagana in widely separated parts of Africa may be found to differ from each other sufficiently to enable them to be ranked as separate species. As a matter of fact, the nagana of Togoland has lately been named *Trypanosoma togolense*, and that of Uganda *Trypanosoma ugandae*. But until more is known of these varieties I think it better for the sake of simplicity to include them all under one specific term.

In the map here given (p. 6) the districts of Central Africa are shown in which up to the present cases of this disease in man have been discovered.

Morphology of Trypanosoma brucei.

The Zululand strain of *Trypanosoma brucei* we had sent to us in Nyasaland in 1913 from Pretoria, in order to compare it with the Nyasaland human strain—the *Trypanosoma rhodesiense* of Stephens and Fantlham—is shown in Fig. 2. This trypanosome is dimorphic or polymorphic. This merely means that between the shorter and longer forms a greater diversity of shape is found than in the

species belonging to the other groups. The short forms are broad and stumpy in appearance, and have no free flagellum, whereas the long are much more slender in appearance, and have a well-marked free flagellum.

In the living and unstained preparations this dimorphic character can be readily made out, and the parasites are seen to be actively motile, although they do not move far from one place, they have little or no power of translation. The long and slender are very similar in shape and appearance to *Trypanosoma gambiense*, but the short forms have often broader and blunter ends.

In well stained specimens the protoplasm of many of the trypanosomes shows granules, especially in the anterior portion of the cell. The nucleus is oval in the long and slender, and round or oval in the short and stumpy. One peculiarity about the nucleus of this species is that it is frequently placed far back in the body of the organism. This peculiarity is only found in the short forms, never in the long. The percentage of these so-called posterior nuclear forms is often large—even as high as 50 per cent. The micronucleus is small and round, and situated on an average 2 microns from the posterior extremity in the long and slender forms and 1.4 microns in the short and stumpy. The undulating membrane is well developed and thrown into bold folds and undulations.

The flagellum in the long and slender averages 5.8 microns (maximum 11, minimum 2). There is no free flagellum in the short and stumpy forms.

From the drawings (Figs. 2, 3, 4, and 5) it is abundantly evident that the *Trypanosoma brucei* of Zululand 1894 and 1913, of Nyasaland, and of Uganda are all identical in morphology. I would especially call attention to the Zululand 1894 drawings. These are taken from the original preparations made in Zululand in that year. An attempt has lately been made to make out that the original nagana parasite was a monomorphic species. These drawings, made from the old preparations, absolutely disprove this.

One useful point in the morphology of these strains has not yet been mentioned—I mean the length. From Table I (p. 8), which gives the length of various strains of this species, it will be seen that the measurements of trypanosomes, taken from widely separated parts of Africa, come out fairly regularly. The human strain is the longest, having an average length of 24.2 microns, whereas the Zululand 1913 strain is the shortest—21.0 microns. It is rather remarkable that the wild game and the wild *Glossina morsitans* strains should have resulted in exactly the same measurements.

The breadth of the long and slender averages 2.76 microns, the intermediate 3.25, and the short and stumpy 3.53.

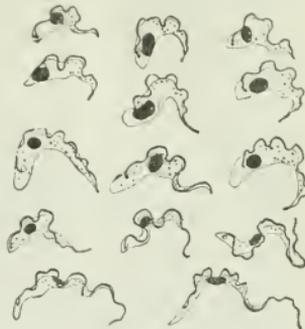


Fig. 4.—*Trypanosoma brucei*; Zululand, 1894



Fig. 5.—*Trypanosoma brucei*; Uganda, 1908.

TABLE I.—Giving the Length of the Various Strains of this Species.

Source of Strain.	Average.	Maximum.	Minimum.	Remarks.
Human, Nyasaland	23.5	38.0	14.0	Various, 6,220
Human, Nyasaland	24.2	38.0	15.0	Rats, 3,000
Wild game strain ...	22.6	35.0	15.0	Rats, 2,500
Wild <i>G. morstians</i> strain	22.6	35.0	15.0	Rats, 2,500
Zululand 1913 strain	21.0	35.0	12.0	Various, 1,000
Zululand 1894 strain	22.8	35.0	13.0	Various, 700
Uganda 1909 strain	23.6	34.0	15.0	Various, 160

SUSCEPTIBILITY OF ANIMALS TO TRYPANOSOMA BRUCEI.

Having described the morphology of this species and having shown that the various strains found in Uganda, Nyasaland, and Zululand are absolutely identical in appearance, I will pass on to the second part the pathogenic action of this trypanosome on various animals.

Many mammals, including man, horses, mules, donkeys, oxen, goats, sheep, monkeys, dogs, and many others, are attacked by this parasite. Birds and the cold-blooded vertebrates, such as crocodiles, lizards, and frogs, are quite unaffected by it.

A single trypanosome seems to be just as efficacious in setting up infection as a million, and it does not seem to matter whether the kind of trypanosome injected is one of the long and slender forms or one of the short and stumpy.

As I have mentioned already, passage through one species of animal usually heightens its virulence towards that animal. At the Army Medical College, when the nagana trypanosome begins to kill rats in two or three days, it is usual to pass it a few times through the rabbit, which has the effect of materially lowering its virulence towards the rat, and making its passing through the rat less irksome.

In regard to modes of infection, it is extremely easy to infect an animal through the skin; it is usually sufficient to dip a needle in infected blood, and merely to scratch the skin of the experimental animals. There is evidence also that infection may take place through the mucous membrane; dogs are sometimes infected in this way through eating infected meat, but it is possible that in these cases there is some scratch or wound of the mouth.

Experiments have been published to show that infection can even take place through unbroken skin, but this must be a rare accident, else why have we escaped infection who have made hundreds of *post-mortem* examinations on cases of sleeping sickness in man and other animals.

In nagana I think we are safe if we lay down as a rule, that the infection is conveyed in nature, in the vast majority of instances, by the bite of the tsetse fly.

Table II gives the average duration in days of the

TABLE II.—Giving the Average Duration in Days of the Disease Caused by Various Strains of this Trypanosome.

Strain.	Man.	Horse.	Oxen.	Goats and Sheep.	Monkeys.	Dogs.	Rabbits.	Guinea-pigs.	Rats.
Human	90		134	42	26	34	28	67	30
Wild game				46	38	41			32
Wild <i>G. morstians</i> ...			Reed.	54	38	29	47	81	26
Zululand, 1913		38	310	77	29	18	33	44	27
<i>The Number of Animals Employed.</i>									
Human	?		1	?	20	25	7	15	21
Wild game				5	9	13			6
Wild <i>G. morstians</i> ...			2	16	14	25	3	10	19
Zululand, 1913		3	1	7	8	17	8	10	23

disease caused by various strains of this trypanosome, also the number of animals employed. It will be seen that this disease runs a fairly rapid course in man, killing him,

as a rule, in three or four months. This, as we shall see, is in marked contrast to the much more chronic course of the Congo sleeping sickness caused by *Trypanosoma gambiense*. In horses, donkeys, and mules, nagana runs its course on an average in thirty-eight days. No opportunity of studying the disease in horses occurred in Uganda or Nyasaland, as horses are very seldom seen in these countries. In the ox the disease is chronic and a certain proportion recover. In the other animals it may be said broadly that the disease runs a fairly similar course, and that little or no difference in the virulence is seen between the different strains.

Nagana is, as a rule, a fatal disease, and this is shown in Table III, from which it will be seen that no recoveries

TABLE III.—Percentage of Recoveries in various Animals infected with *Trypanosoma brucei*.

Strain.	Man.	Horse.	Oxen.	Goats and Sheep.	Monkeys.	Dogs.	Rabbits.	Guinea-pigs.	Rats.
Human	0		80%	0	0	0	0	0	0
Wild game				0	0	0			0
Wild <i>G. morstians</i> ...			100%	6%	7%	4%	0	0	0
Zululand, 1913	0		83%	0	0	0	0	0	0
<i>The Number of Animals Employed.</i>									
Human	?		5	29	20	25	7	15	21
Wild game				5	9	13			6
Wild <i>G. morstians</i> ...			2	17	15	26	3	10	19
Zululand, 1913		3	6	4	8	17	8	10	23

have been reported up to the present in man. In oxen 80 and 83 per cent. of recoveries are noted. The number of animals employed, however, is so small that these figures are not reliable. With the exception of the oxen almost all the other animals die. Out of 318 employed in these experiments only 3 recovered.

From its action on animals, then, just as from its morphology, it is apparent that *Trypanosoma brucei* as it occurs in Zululand differs in no way from the Nyasaland strain, called by Stephens and Fantham *Trypanosoma rhodesiense*. It is true that cases in man have not been reported from Zululand, nor from the Sudan, Uganda, or British East Africa, but I expect this hiatus will be filled up within the next few years.

It is true that Dr. Taute tried to infect himself with *Trypanosoma brucei* got from the wild game in Portuguese East Africa, and is of opinion that his failure proves that the trypanosome of man and of wild game are different species, but even this does not disturb my belief that the nagana parasite and that causing disease in man in Nyasaland are one and the same. It is of course possible that there may exist in Nyasaland a separate species of trypanosome confined to man and exactly identical in morphology and action on animals with the trypanosome found in the surrounding wild game and the wild fly; it may be possible, I say, but it is highly improbable.

THE CARRIER OF TRYPANOSOMA BRUCEI.

Having described the morphology of the *Trypanosoma brucei*, and its action on animals, I now come to the question how this protozoan is conveyed from the sick to the healthy. In Zululand, when it became apparent that nagana and tsetse fly disease were identical, experiments were made to find out if the fly was the carrier of the disease, or merely a concomitant of the low-lying unhealthy country. It was commonly believed by the Zulus that their cattle contracted the disease by drinking out of the same waterholes as the wild game. Healthy horses, therefore, were sent for a few hours into the "fly country," muzzled in such a way that they could neither eat nor drink while there, but they contracted the disease. On the other hand, bundles of grass and supplies of water brought from the heart of the "fly country," and fed to healthy horses on the top of the hill, failed to infect; but tsetse flies brought up in cages from the low country and placed straightway on healthy animals were found to give

rise to the disease. By these and other experiments it was proved beyond question that the tsetse flies, *Glossina morsitans* and *pallidipes*, were carriers of nagana, and one of the first questions which presents itself is, What proportion of the wild tsetse flies found under natural conditions are infected?

THE INFECTIVITY OF WILD TSETSE FLIES (*GLOSSINA MORBITANS*).

When in the "fly country," and being bitten by tsetse flies, it is interesting to know how many times one may be bitten without encountering an infected fly.

Methods Employed.

The method employed in Nyasaland in studying the infectivity of the wild flies was as follows: Native boys were employed in catching the flies in the low country, and these were brought up the same day to the camp in small cages by a native cyclist. Each cage was fed on three healthy animals; the first day on a monkey, the second on a dog, and the third day on a goat. To ensure to some extent that each animal was fed on by every fly, the flies were fed daily for nine days, three times on each animal. It is doubtful, however, whether, even with these precautions, every fly did feed on all three animals.

The number of flies in each cage averaged about sixty, and as each animal was fed on by three different sets of flies, each monkey, dog, and goat ran the gauntlet of some 180 flies. If any animal became infected with *Trypanosoma brucei*, it was reckoned that there was only one infective fly in the batch. There may, of course, have been two or more. The method was not very accurate, but probably near enough for practical purposes.

The result is shown in Table IV, and, as will be seen,

TABLE IV.—Proportion of Tsetse Flies (*Glossina morsitans*) naturally infective with *Trypanosoma brucei*, in Nyasaland.

1912.	No. of Flies Fed.	Mon- key.	Dog.	Goat.	1912.	No. of Flies Fed.	Mon- key.	Dog.	Goat.
Jan. 20	296	-	-	+	May 17	190	-	+	-
" 24	370	-	-	-	" 24	113	-	-	-
" 29	280	-	-	-	" 29	120	-	-	-
Feb. 2	295	-	-	-	" 29	230	-	-	-
" 9	220	-	-	-	" 29	320	-	+	-
" 13	200	-	-	-	" 29	240	-	-	-
" 16	195	-	+	+	" 29	100	-	-	-
" 21	170	-	-	-	" 31	175	+	+	-
" 26	170	-	-	-	June 2	300	-	-	-
Mar. 2	140	-	-	-	" 6	210	-	-	-
" 9	165	-	-	-	" 7	230	+	+	+
" 14	100	-	-	-	" 11	150	-	-	-
" 17	160	-	-	-	" 18	135	-	-	-
" 22	205	-	-	+	" 25	90	+	+	-
April 3	135	-	-	-	July 3	95	-	-	-
" 10	275	+	-	-	Sept. 5	70	-	-	-
" 15	330	-	-	-	" 27	25	+	-	-
" 18	200	-	-	-	Oct. 29	87	+	+	+
" 28	180	-	-	-	Nov. 5	145	-	-	-
" 23	230	-	-	-	" 11	150	-	-	-
" 23	140	-	-	-	" 18	157	-	-	-
" 26	100	-	+	-	" 21	95	-	+	+
" 27	260	-	-	+	" 25	180	-	+	+
May 3	155	+	-	-	Dec. 3	180	-	-	-
" 3	95	-	-	-	" 6	198	-	+	+
" 8	330	+	+	-	" 11	155	-	+	+
" 9	120	-	-	-	" 16	113	-	-	-
" 13	50	-	-	-					
" 14	250	-	+	+	Total...	10,081	9	14	11

there were 56 experiments, in which 10,081 tsetse flies (*Glossina morsitans*) were employed. In the 56 experiments *Trypanosoma brucei* was found 20 times (35.7 per cent.); 9 monkeys, 14 dogs, and 11 goats were infected. This gives a proportion of 1 in 500 or 2 flies per 1,000 caught in the sleeping-sickness area, Nyasaland, infective with nagana. This is only allowing one infective fly to each series of flies fed on the experimental animals, and is therefore the irreducible minimum.

Months and Seasons.

From these experiments it is also seen that these infective flies occur all the year round, and are just as numerous during one season as another.

To conclude, then, in regard to the natural infectivity of *Glossina morsitans* with this species of trypanosome, it may be said that if a man is bitten by a tsetse fly in the sleeping sickness area of Nyasaland, it is 500 to 1 against his taking the disease, since only 1 in every 500 flies is infective with the specific parasite.

Cycle of Development.

I ought now to describe the cycle of development of the nagana parasite in the tsetse fly, but as this development is identically the same as that of *Trypanosoma gambiense* in *Glossina palpalis*, and as the cycle was first worked out by us with the latter, it will be better to defer the description of this cyclical development until we come to discuss *Trypanosoma gambiense*. I shall therefore now pass on to consider the reservoir in order to answer the question, Whence does the tsetse fly obtain the nagana virus?

The Reservoir.

In Zululand in 1896, when it became certain that nagana or tsetse fly disease was conveyed to the animals by the fly, the question arose as to where the fly obtained the virus. In the Zululand fly country there were no natives, since cattle could not live there, and with the Zululand cattle stand for everything. There were therefore no horses, oxen, goats, or dogs suffering from nagana from which the fly could obtain the parasite.

But the place being a Government Reserve, was swarming with wild animals on which it was evident the fly fed, if one of these animals was shot in the "fly country," many tsetse would often be found still feeding on the dead body. This led to the examination of the buffalo, koodoo, wildebeeste, and other wild game found in the district. As soon as an animal was killed a quantity of its blood was sent off, by a native runner, to the top of the hill, where it was injected into a healthy dog. Smears were also made and examined microscopically. In this way it was proved both by animal experimentation and direct microscopical examination that the blood of many of these wild animals contained the same trypanosome as that which gave rise to nagana. The mystery of the reservoir was cleared up.

Since 1896 further observations have been made regarding the presence of these parasites in the blood of wild game in different parts of Africa—on the West Coast, in Uganda, and notably in North-Eastern Rhodesia by Kinghorn and Yorke. In Nyasaland we also examined the wild game with some care, and I shall now proceed to describe the results.

Trypanosomes found in the Blood of Wild Animals Living in the Sleeping Sickness Area, Nyasaland.

The method of examining the blood of wild game was much the same as that used in Zululand. When an animal was shot a small quantity of its blood was taken in a sterilized bottle containing potassium citrate to prevent coagulation. Smear preparations were made at the same time. As the animals were often shot thirty or forty miles away from the camp, a motor cycle was used to get the blood up the hill as quickly as possible. When the blood arrived at the laboratory it was at once injected into a goat, a monkey, and a dog. In this way 180 specimens of blood of wild game living in the fly area were examined, and 57 were found to harbour pathogenic trypanosomes (32 per cent.).

This is, however, probably much below the actual percentage. A wild animal is only examined once, and that often under unfavourable conditions. If it were possible to examine the same animal several times it is probable that many more would be found infected. The parasites come and go in the blood, one day they may be present the next day absent. The big game live in the "fly country" among swarms of infected flies and are constantly liable to infection and reinfection.

Table V (p. 10) records the number of times *Trypanosoma brucei* was found among the 180 wild animals examined, and the species of game which harboured it. It will be seen that fourteen animals among the 180 harboured the nagana parasite (7.8 per cent.), and that the waterbuck, hartebeeste, reedbuck, and duiker seem to be the most dangerous neighbours to man, for 23 per cent. of the waterbuck, 14 per cent. of the hartebeestes, 16 per cent. of the reedbuck, and 14 per cent. of the duiker had *Trypanosoma brucei* in their blood. If, then, my contention that this parasite found in the wild game is the cause of Nyasaland sleeping sickness be proved to be true, then it is abundantly obvious how dangerous these wild animals are to man; and it must be borne in mind that in this Nyasaland fly area *Trypanosoma brucei* is only one of the pathogenic species of trypanosome found in the wild game.

TABLE V.—Showing the Number of Times *Trypanosoma brucei* was found among the 180 Wild Animals Examined and the Species of Game which Harboured it.

Species of Animal.	Number Examined.	Number Infected with <i>T. brucei</i> .	Species of Animal.	Number Examined.	Number Infected with <i>T. brucei</i> .
Eland ...	10	0	Deer ...	7	1
Seble ...	5	0	Buffalo ...	9	0
Waterbuck	13	3	Lion ...	1	0
Koodoo ...	3	0	Hyena ...	3	0
Bushbuck	10	0	Elephant	2	0
Hartebeeste	35	5	Warthog	33	1
Roadbuck	19	3	Wild cat	3	0
Oribi ...	26	1	Porcupine	1	0

Three other species pathogenic to the domestic animals are also found—*Trypanosoma pecorum*, *Trypanosoma siniae*, and *Trypanosoma caprac*—*Trypanosoma pecorum* in 14.4 per cent.; *Trypanosoma siniae* in 1.7 per cent.; and *Trypanosoma caprac* in 11.1 per cent. of the wild game examined; therefore I do not think I was using too strong language when I wrote in a report to the Royal Society:

It is self-evident that these wild animals should not be allowed to live in "fly country," where they constitute a standing danger to the native inhabitants and the domestic animals. It would be as reasonable to allow mad dogs to live and be protected by law in our English towns and villages. Not only should all game laws restricting their destruction in "fly country" be removed, but active measures should be taken for their early and complete blotting out.

It must be strictly borne in mind that this only refers to wild animals living in "fly" areas. No pathogenic trypanosomes have up to the present been found by the Commission in the blood of animals living in fly-free areas.

NERVE SUTURE FOR BULLET WOUNDS.

BY

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AND

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WHILE acting as consulting and operating surgeons to the French army during the last six months, we had many opportunities of seeing cases of nerve injury caused by modern weapons, and we performed several operations for their relief. In only two cases, however, were the patients under our observation for a sufficient length of time to allow us to judge the results of these operations. The following is a short account of these two cases:

CASE I.—Bullet Wound of Ulnar Nerve.

A. P., a soldier wounded at the Marne by a rifle bullet, September 7th, 1914, was seen by us in December. He then had two unhealed wounds on the front and back of the inner side of the left forearm, about 2 in. below the elbow; the X rays showed a united fracture of the ulna with several sequestra and small pieces of metal, probably pieces of the mantle of the bullet. There was complete loss of function of the ulnar nerve, paralysis of the muscles with claw-contraction of the three inner fingers, and loss of sensation of the ulnar side of the hand and inner two fingers back and front.

An operation was performed on December 18th for the removal of the sequestra and pieces of metal, after which the wounds healed rapidly.

On January 19th, 1915, a vertical incision was made over the course of the ulnar nerve for about 4 in., the nerve was exposed above and below the seat of injury, and then traced through a dense mass of fibrous tissue. There was continuity between the two segments of the nerve, but in the region of the wound there was a large, somewhat oval mass of tissue, almost as hard as cartilage, and the upper part of the distal segment was greatly wasted. It was necessary to remove nearly 1 in. of tissue before nerve fibres could be found on the cut surface of either end. In spite of freeing the proximal end of the nerve up to the internal condyle and the distal end for several inches, and flexing the wrist and fingers, it was found impossible to bring the cut ends into contact, and they were finally sutured together, leaving a gap of about 1 centimetre between them.

Two relaxation sutures of No. 1 silk were passed at some distance from the cut ends, which were then sutured with No. 1 and No. 0 silk; although there were over a dozen strands of silk bridging the gap between the two ends of the nerve. The operation wound healed normally, and the flexion of the wrist and fingers was gradually reduced after the first fortnight; massage, movements, and electrical stimulation (both faradic and galvanic) were then started and continued until the patient's discharge from the hospital early in May.

Within two months of the operation there was good voluntary power of contraction of the flexor carpi ulnaris, and on rolling the ulnar nerve under the finger between the internal condyle and olecranon a tingling sensation was felt down to the base of the little finger; before operation this sensation had only been felt down to the level of the wound. From this time on improvement was continuous, and on his discharge from hospital, about 3½ months after the operation, motor power had returned in the flexor carpi ulnaris, probably in the flexor profundus digitorum (shown by his better power of flexion of the phalanges), there was commencing response of the intrinsic muscles of the hand to faradic stimulation over the course of the ulnar nerve, and sensation had returned completely with the exception of the little finger, though tingling could be felt to the tip of this finger on stimulation of the nerve above the point of suture. The characteristic deformity of the hand had almost entirely disappeared.

Between the time of injury and the operation the patient stated that there had been no change in the condition of his forearm and hand, and during the month he was under our observation between the two operations there was no change, except a slight increase in the deformity, although he was daily receiving massage and electrical treatment.

CASE II.—Bullet Wound of Musculo-spiral Nerve.

B. D., a soldier, was first seen by us on December 28th, 1914. He had been wounded by a rifle bullet on the outside of the right arm above the elbow, about 4 in. from the elbow. He was treated at a hospital close to the front. While there he had, about five days after he was wounded, a severe hæmorrhage, for which an operation was performed to stop the bleeding, and at the same time the musculo-spiral nerve was sutured. Whether the nerve had been divided by the bullet or was cut during the operation we were never able to discover.

When the patient came under our care he had a large oblique incision, nearly healed, running upwards, outwards, and backwards for about 4 in. from the outer part of the front of the elbow. There was complete loss of power of the extensor muscles of the wrist and fingers, and loss of sensation over the area of distribution of the radial nerve. He was treated by massage, movements, and electricity (both faradic and galvanic). At the end of two months sensation was commencing to return, and at the end of April he was transferred to a special hospital for mechanotherapy. Sensation was then normal, and he was able to raise the hand when prone from the fully flexed position to the straight position. Power of extension of the fingers was almost, if not quite, non-existent.

The improvement in this case was not so marked as in the other, but this may be explained probably by the fact that the patient did not seem to take so great an interest in his own treatment and cure, and therefore made less voluntary effort to recover the lost movements.

In only one case did we have an opportunity of suturing a nerve at an early stage after injury.

CASE III.—Bullet Wound of Ulnar Nerve.

Soldier, wounded March 25th, 1915, by a rifle bullet which passed through the inner side of the right forearm just below the middle, fracturing the ulna. On admission to hospital, three days later, there was loss of sensation of the little finger, back and front, with paralysis of the intrinsic muscles of the hand supplied by the ulnar nerve. As the loss of sensation was only partial we hoped that the nerve was only slightly injured and that recovery would be rapid, and massage and electrical treatment were commenced after a few days.

At the end of three weeks the condition was in no way improved and well-marked contraction had commenced in the three inner fingers. On April 14th, therefore, an incision was made and the nerve exposed in the region of the wound, which had healed. It was found that about three-quarters of the nerve trunk had been divided and that the cut ends were considerably separated and turned backwards into the muscles. There was a great deal of soft granulation tissue surrounding the injured portion of the nerve, which would in time have formed the very dense, hard, fibrous tissue we found in all the cases operated on at a late period after injury. The cut ends were freed and sutured together with silk without interfering with the undivided portion of the nerve. When this patient was last seen, about six weeks after operation, there was no appreciable change in his condition.

In another case only a portion of the nerve was divided, but it did not come under our care till several months after the injury.

CASE IV.—Bullet Wound of External Popliteal Nerve.

A soldier in the front line was wounded in August, 1914, by a bullet which entered just behind the border of the biceps tendon and fractured the femur. There was some loss of power in the

muscles of the anterior tibio-fibular compartment with marked foot-drop, the paralysis was not absolutely complete, and sensation, though dulled, was not wholly lost over the region supplied by the musculo-cutaneous and anterior tibial nerves.

The condition of this patient's leg had remained stationary for several months in spite of massage and electrical treatment. On February 25th, 1915, an incision was made exposing the external popliteal nerve behind the knee. There was a large thickening of the nerve at the level of the joint, and just above this a branch nearly half the size of the nerve apparently passed into the biceps tendon. This proved to be a divided portion of the nerve firmly adherent to the tendon. It was separated and the trunk of the nerve freed for about 2 in. from the abundant fibrous tissue which was present; the nerve was then split vertically in the thickened portion, and as what appeared to be nerve fibres were found, the branch was implanted in the split and the nerve sutured together over it. This case was transferred to another hospital for special treatment a few weeks after operation, before there was time for the appearance of any change in the condition.

In two cases of division of the musculo-spiral nerve one was divided just above the bend of the elbow by a rifle bullet, and in the other the nerve was divided in the middle of the arm and the case was complicated by a comminuted fracture of the humerus. In another case the ulnar nerve was divided by a bullet close to the junction of the upper and middle thirds of the forearm. These three cases were not seen by us until several months after the receipt of the injury and were transferred to other hospitals too soon after operation to allow of any improvement taking place before we lost sight of them.

We saw a few cases with wounds in the neighbourhood of large nerves, which showed only temporary signs of loss of function; in these the loss of sensation was only partial and the paralysis was not absolute, and the symptoms cleared up within a fortnight. These cases may be spoken of as nerve concussion, the nerve not being materially injured, its function being interfered with or lost for a short period.

CONCLUSIONS.

From our experience of these cases we have drawn the following conclusions concerning nerve injuries caused by modern missiles:

1. The function of a nerve may be interrupted without material injury, in which case the loss of function is only partial and returns early, probably always within a fortnight or three weeks.
2. When a nerve is partially or wholly divided loss of function is marked and permanent, and may even tend to increase. In these cases it is useless to expect spontaneous regeneration owing to the distortion and separation of the cut ends and the great development of dense fibrous tissue which appears to follow in all cases.
3. When a nerve is divided, the sooner an operation for its suture is performed the easier it is and the greater the likelihood of an early cure. In cases, however, where the wound is septic, it may be advisable to allow time for the wound to heal.
4. Even when nothing has been done for several months, there is still a chance of a successful result if late suturing is undertaken, so that no case need be looked upon as necessarily hopeless.

LOCALIZATION OF FOREIGN BODIES BY X RAYS.

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THE method of localization which I use in this hospital (described in a paper to be published by the Röntgen Society) may be of interest to your readers. It is simple and accurate, and abolishes measurement and calculation.

If, during the two exposures of an ordinary localization, an opaque body lies at the same depth from the plate as the foreign body whose position is required, then the shadow displacement of this control body is of course equal to that of the foreign body. As the depth of the foreign body is initially unknown it is necessary for the control body to exist at all possible depths, and for its various points to be recognizable from their shadows. I fulfil these conditions by using as the control a sort of miniature ladder with lead wire rungs, parallel and equi-

distant, but oblique, as shown in Fig. 1. The step distance is 1 cm., and the length of each rung 3 or 4 cm. The ladder is set up with its plane perpendicular to the photographic plate and its end AB as close as may be to the plate. Its position is chosen so that the two shadows of the rungs thrown on the plate in the two exposures of the localization lie one on each side of the base of the ladder, as in Fig. 2, a tracing from a negative. Thus any two corresponding points in the pattern are immediately referable to the point on the ladder whose shadows they are—for example, the points marked by dots and referred to as A_1 and A_2 are the shadows of a point half-way along the third rung, that is, of a point 2.5 cm. from the plate. Now the distance $A_1 A_2$ is equal to the distance $X_1 X_2$, between corresponding points of the shadows of the foreign body, which is therefore also 2.5 cm. from the plate.



Fig. 1.

The procedure, then, to determine the depth of the foreign body, is to set off the distance $X_1 X_2$ with dividers, transfer the latter to the ladder pattern, and find there the points $A_1 A_2$ showing the same displacement. Of course, care must be taken that $A_1 A_2$ is parallel to $X_1 X_2$, and that A_1 and A_2 are on the two shadows of the same rung—that is, are shadows of the same point on the ladder. The distance (if any) from the plate to a fuse-wire cross on the skin can be similarly found and deducted from the previous measure to give the net depth of foreign body below the skin. Usually, as in Fig. 2, the plate is close to the skin, and there is no deduction to be made.

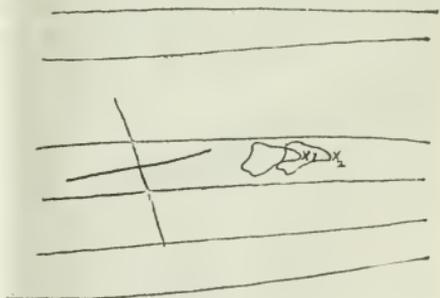
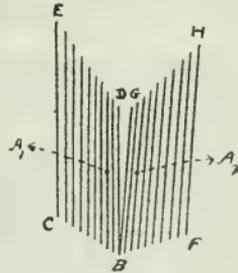


Fig. 2.

If the fuse-wire cross has not been set exactly over the position of the foreign body by one of the usual screen methods, the point on the plate which is exactly over the foreign body can be found by Barrell's method, using the vertical lines through the two ends of the lead rungs instead of two vertical cylinders. That is to say, the lines CB and ED are produced; they meet at a point on the plate vertically over the focal spot of the target in the first position of the bulb. The lines FB and HG similarly intersect in the corresponding point for the second position

of the bulb. The two points thus found are joined respectively to X_1 and X_2 , and the intersection of these last lines is vertically over the point of the foreign body which casts the shadows X_1 and X_2 .

The ladder can be affixed immediately to a plate facing in any direction, and can be used with any type of apparatus. The procedure is quick and simple, and could be used at the bedside in case of need. The distance from plate to anticathode and the distance the bulb is moved are not required; the shadow displacement has not to be measured, but merely set off with compasses and matched, a simpler and more accurate proceeding. The estimation of depth can be easily made to a millimetre without any measurement whatever, and the one plate carries the complete data of localization of all foreign bodies whose shadows fall upon it. The instrument is made by Messrs. Newton and Wright, 72, Wigmore Street, W.

NOTE ON THE TREATMENT OF THE SYMPTOMS ARISING FROM INHALATION OF IRRITANT GASES AND VAPOURS.

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(From the Physiological Laboratory of the University of London, South Kensington.)

INTRODUCTION AND MODE OF EXPERIMENT.

THE following observations deal with the early stages of the bronchial and bronchiolar obstruction set up by inhalation of irritant gases.

They represent a preliminary account of unfinished work, and are given so early partly on account of immediate call for treatment of the condition in question and partly on account of the striking failure of treatment *via* the blood stream.

The animals employed were cats, initially anaesthetized by ether, then pithed through the foramen magnum, and supplied with air by a method of artificial respiration, previously devised by Golla and Symes, which has already been described in full detail.

The principle of the method is as follows: The lungs are made to dilate rhythmically by rhythmically diminishing the pressure on their outer surface by means of a pump, the piston of which produces the same pressure changes in the pleural cavity as are produced normally by the diaphragm. As in spontaneous breathing also, the lungs are emptied by their elastic recoil.

The condition of the airway (bronchioles) was recorded by a sensitive membrane manometer connected with the trachea. This shows, as in spontaneous breathing, negative pressure (downstroke) during inspiration and positive pressure (upstroke) during expiration.

Obstruction of the airway is indicated by diminished amplitude of the respiratory tracing, whilst conversely augmented amplitude of the tracing shows relief of the obstruction.

The "gas" (bromine vapour) was administered through a tracheal cannula. Its usual effect was rapid obstruction of the airway. Less commonly the obstruction came on gradually, several minutes elapsing before the tracing was reduced to one-half of its initial amplitude. In some cases profuse bronchorrhoea appeared in the course of an hour.

In all cases the relief afforded by intravenous injection of broncho-dilator drugs has been little or nothing, whilst the same (or similar) drugs administered by inhalation have consistently given relief, which, though not always great, has at times been considerable. The relief shown in the figure is moderate in degree and of short duration.

The drugs so far tested are the following:

Amyl Nitrite.

Injected intravenously, in suspension in normal saline, or subcutaneously without dilution, this body has given no relief. Inhaled, it has at times produced slight and temporary dilatation of the airway, but has more than once appeared to increase bronchorrhoea.

Atropine.

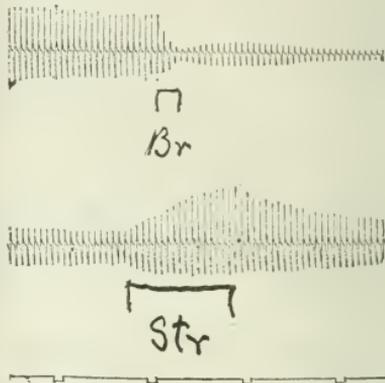
Atropine sulphate, in intravenous doses ranging from 0.5 mg. to 10.0 mg., has been without effect on the airway.

Adrenalin.

Intravenous administration of 0.1 mg. of adrenalin chloride has, on one occasion, afforded slight and temporary relief, but in the majority of cases has been without benefit.

Stramonium.

Intravenous injection of an infusion of stramonium leaf was without effect. Inhalation of the fumes from the smouldering powdered leaf, on the other hand, has consistently relieved the obstruction. The degree of relief depends, obviously, on the amount of fume inhaled. With respiration diminished by pronounced obstruction the relief is consequently small; but when the force of (artificial) respiration is augmented, and pulmonary ventilation thereby increased, stramonium fumes produce considerable and lasting dilatation of the airway.



The upper tracing shows bronchial spasm produced by bromine vapour, the middle tracing its relief by stramonium fumes, and the last gives the time 15 minutes.

Lobelia, Tobacco, Opium.

Pulv. lobeliae eo. (Martindale), a powder containing a little lobelia in addition to stramonium, has also worked well, though, up to the present, it has not seemed more efficacious than the stramonium alone.

Fumes from smouldering tobacco (or snuff) have also dilated the airway.

Opium fumes have been found to give relief. The dilatation has not been great but has, once, proved relatively lasting.

Chloroform.

Chloroform vapour has on one occasion distinctly increased the obstruction. On no occasion has it appeared to give relief.

DISCUSSION OF RESULTS.

The failure of atropine injections to relieve the respiratory obstruction was surprisingly complete. In view of this failure and of the equal non-success of stramonium infusion and of adrenalin, contrasted with the efficacy of stramonium and other fumes, it appears that the bronchial circulation was largely, if not completely, arrested by the bromine vapour, and that relief was only afforded by direct contact of the remedies with the bronchial (and bronchiolar) mucosa. The efficacy of the stramonium fumes indicates further that muscular spasm is a factor in the obstruction.

Of the drugs that have been tried stramonium has, so far, been the most successful. Mixed with a little nitre it is readily ignited and smoulders freely. The fumes should, for obvious reasons, be inhaled through the nose rather than through the mouth. Overdosage from absorption of the active principles—atropine, hyoscyamine, hyosine—through the pulmonary alveoli will be shown so clearly by thirst, by dilatation of the pupil, and by acceleration of the pulse, that dangerous dosage should be readily avoidable. Moreover, it may be anticipated that early and

repeated administration will diminish the distressing bronchorrhoea of the later stages of gas poisoning.

Lobelia, tobacco, and perhaps opium, may fairly be tried, either alone or with stramonium. The objections to the use of opium fumes are obvious and serious. But in the absence of relief from other sources, and given adequate ventilation of the ward, these objections do not suffice to debar a careful trial.

For the reasons given above both chloroform and amyl nitrite appear to be objectionable, and their use, if adopted, should be carefully watched.

Conclusions.

The respiratory obstruction set up by inhalation of irritant gas is relieved by inhalation of stramonium and other fumes.

Treatment through the blood stream, either *via* the mouth or by injection, appears to be inefficacious.

REFERENCE.

¹Golla and Symes. *Journal of Pharmacology and Experimental Therapeutics*, v. 1913, p. 92.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TECHNIQUE OF ANALGESIA IN INTRANASAL SURGERY.

AN article under the above heading appears in the *JOURNAL* for June 26th, and in it the use of cocaine and adrenalin for intranasal anaesthesia is deprecated, and a complicated and lengthy technique advised. Now, for the past five years I have operated, both in private and in hospital, upon the turbinal bones and nasal septum, under cocaine-adrenalin anaesthesia, without a single bad result that could in any way be ascribed to the anaesthetic, and, what is more, without any of the symptoms, such as marked excitability, difficulty of breathing, etc., that Dr. Wilson describes.

My technique is simple: The nose is packed with ribbon gauze soaked in a mixture of 20 per cent. cocaine and adrenalin—equal parts of each—half an hour before the time fixed for the operation. The patient walks to the operating theatre, the packing is removed, the operation is performed, and, after the nose has been plugged with Simpson's sponge splints and half an ounce of brandy and 10 grains of aspirin have been administered, the patient returns to bed. In this way I have operated on some 75 private patients, including some members of our own profession, and some 150 hospital cases, and in no single case have I ever seen any after-sickness or has any case had to have stimulants administered. In hospital practice the patients remain in until the plugs are removed on the following day, and in private I arrange for the operation on a Friday, and they return to their work on the following Monday or Tuesday.

Some twelve months ago I was persuaded to try quinine-urea anaesthesia in these cases, and my results were most unsatisfactory, as not only is the sloughing more, but it leads in some cases to post-operative haemorrhage. In conversation with an American nasal surgeon recently he told me that for these reasons urea-quinin anaesthesia was dying out in the States.

My apology for taking up so much of your space is that it seemed that my results were so much at variance with Dr. Wilson's that they would be of interest. With my technique the whole operation, from time of packing to the return to bed, does not occupy more than an hour, whereas with Dr. Wilson's an hour and twenty-five minutes elapses before the operation commences.

I may add that my technique is not in any way original, but is the one in ordinary use at the Eye and Ear Infirmary here.

Liverpool.

ADAIR DIGHTON, F.R.C.S.

Paris Médical states that a medical officer who has recently returned from the front tells the following story. A wounded German was taken to an ambulance which was soon afterwards shelled. The French staff was naturally indignant at this violation of the laws of civilized warfare, but the comment of the "cultured" Teuton was: "It is quite natural. Why didn't you remove your Red Cross flag?"

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

BOMBAY BRANCH.

A CLINICAL meeting of the Branch was held on March 26th, Lieutenant-Colonel ASHTON STREET, I.M.S., in the chair. The CHAIRMAN showed: (1) A specimen of *Ruptured spleen* successfully removed by him; (2) a case of *Molluscum fibrosum* where he had removed a small and a large tumour; (3) a specimen of *Sarcoma of the testicles*; (4) a case of *Sarcoma of the eye*. Miss A. M. BENSON, M.D. showed a boy, aged about 9, who had *Superficial nodules on the shins, elbows, and on the back of the forearms*, of two years' duration. Dr. SORAE K. ENGINEER showed: (1) A *Cluster of bronchi and their branches with the trachea of a fowl*. They had been palmed off by a quack as the mass of haemorrhoids removed by application of specific medicines. (2) A case in which the *Intramuscular injection of salvarsan* (Italian preparation) worked satisfactorily. (3) Various photographs of *Tuberculous lesions*. Dr. S. B. NAYAK showed skiagrams, one of which indicated *Very early phthisis pulmonalis* by the peculiar malposition of the cardiac shadow, and in this case no physical signs were then made out. Dr. F. D. BANA showed a simple *Electroscope for nasal and oral work* improvised by him. Dr. A. POWELL showed specimens of *Aortic aneurysm and brain tumour*. Professor Y. G. NADGIR took the members round his anatomical department and exhibited some excellent specimens dissected by him.

Reports of Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF DERMATOLOGY.

At a meeting on June 17th, Dr. J. J. PRINGLE, President, in the chair, Dr. E. GRAHAM LITTLE showed (1) a middle-aged lady suffering from *Mycosis fungoides*, the initial phase of which had been diagnosed as psoriasis, and for which x-rays had been applied over almost the entire body surface. The tumour formation followed the x-ray treatment, and Dr. Little thought there was causal connection between the two conditions. The PRESIDENT, Dr. SIBLEY, Dr. PERNET, Dr. DOLE, Dr. SEQUEIRA, and Dr. ADAMSON considered the development of tumours to be fortuitous, and urged continuance of the x-ray treatment as being the only method of controlling the tumour growth. (2) A boy, aged 12, who was in a condition of profound cachexia accompanied by excessive diarrhoea and a very extensive *Pigmentary follicular eruption over the trunk and limbs*. Dr. LITTLE suggested the diagnosis of pellagra. Dr. PARKES WEBER thought Addison's disease more likely. Mr. STEEBING showed, for Mr. LAMING EVANS, a case of *Acute linear atrophy of the skin in the lumbar region*. The patient exhibited no toxicæmic manifestations, but had been inoculated against typhoid last October. The case was discussed by the PRESIDENT, and Drs. ADAMSON, PARKES WEBER, ABRAHAM, GRAHAM LITTLE, and WALSH. Dr. STEEBING also showed a case of *Hydroa aestivale* of mild type in a girl, aged 14, the typical seasonal variations of which were unusually marked. The case was discussed by Dr. PARKES WEBER, Dr. ADAMSON, Dr. PERNET, and the PRESIDENT. Dr. PHINEAS ABRAHAM brought forward a case of *Oriental sores* in a young man dating since February, 1915, and contracted in the Persian Gulf, where he had suffered much from mosquito bites. The sores had been successfully treated by scraping and pure carbolic acid. Sections from the case exhibited characteristic Leishman-Donovan bodies. The case was discussed by Mr. T. P. BEDDOES and Dr. PERNET. Dr. J. A. NIXON (Bristol) exhibited a man, aged 23, with deep *Universal pigmentation of the skin and mucous membrane of the mouth*, of six years' duration, accompanied at its onset by severe dyspepsia and neurasthenia. The pigment was always increased by exposure to the sunlight. Dr. NIXON thought there probably had been some lesion involving the supra-

renals or solar plexus. Dr. SEQUEIRA referred to a case presenting similar pigmentation who had all the signs and symptoms of pernicious anaemia; great improvement, however, took place, even as regards the pigmentation, under arsenical treatment. Dr. PARKES WEBER supported Dr. Nixon's view that the patient had had Addison's disease, and the PRESIDENT shared this opinion, having had a similar case under his observation. Drs. ABRAHAM, WALSH and SIBLEY also spoke. Dr. FERNET showed (1) a typical case of *Morphoeic sclerodermia* on the thigh of a girl, aged 14. (2) An *Extra-genital primary syphilitic sore on the wrist* of a boy, aged 15, with a characteristic, generalized, syphilitic eruption. Dr. PARKES WEBER showed a woman, aged 67, who presented *Blue staining similar to tattoo marks* over the seats of the injections into the arms and front of the chest. She had been an habitual morphinomaniac for forty years, and he attributed the colour of these spots to some iron substance derived from the needle of the hypodermic syringe. There were also a few small cheloids, upon the rarity of which in Europe Dr. Weber commented as compared with their frequency among the Chinese and black races. Dr. E. A. COCKAYNE (introduced by Dr. PARKES WEBER) exhibited a child with *Congenital sclerodermia and sclerodactylia*. The child was hydrocephalic, but the Wassermann reaction was negative. Dr. WEBER and Dr. ADAMSON confirmed the exhibitor's diagnosis of true congenital sclerodermia rather than that of sclerema neonatorum. Dr. DAVID WALSH showed a *Case for diagnosis*, with microscopic sections, in a man aged 25, who had a nodular eruption on the right side of the forehead, with some atrophic pits and scars. Dr. J. M. H. MACLEOD regarded the case as allied to acne agminata, a view which was shared by Dr. ADAMSON, Dr. A. M. H. GRAY, and the PRESIDENT. Dr. J. H. STOWERS brought forward: (1) A very well-marked case of severe *Lichen planus atrophicus* affecting the back of the neck of a young woman; (2) a well-marked case of *Adonoma sebaceum*. Dr. S. E. DORE showed a woman, aged 43, with *Folliculitis decalvans* and associated lichen spinulosus of the body which closely resembled a case shown at a recent meeting by Dr. Graham Little, in which the diagnosis of Davier's disease had been discussed, but negated after microscopic examination. Dr. LITTLE, Dr. ADAMSON, and Dr. MACLEOD discussed the case. Dr. A. EDWARDS exhibited a case of circinate and atrophic *Lichen planus*, in a woman aged 30, of one year's duration, accompanied by intense itching. The PRESIDENT suggested x rays to allay the irritation.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

At a meeting on June 25th, the President, Mr. ASLETT BALDWIN, in the chair, Professor ARTHUR KEITH delivered the Cavendish Lecture, taking as his subject *Alimentary stasis*. An examination of Auerbach's (mesenteric) plexus showed that at all parts of the alimentary canal it was a composite tissue, containing nerve cells, numerous fine nerve fibres, and an abundant third element—a form of branched cell which in its structure and staining reaction seemed to be intermediate between nerve cell and muscle cell. Apparently the plexus effected direct unions with the muscle cells through the third or intermediate element. The nodal tissue in which the heart beat arose and the bundle by which the impulse was distributed in the heart he regarded as of the same nature as Auerbach's tissue. At points where movements commenced in the alimentary canal Auerbach's tissue was particularly abundant, in some cases forming nodes. Physiologists had shown that every part of the alimentary canal had its own rhythm and was always in a state of rhythmical contraction. Further, it had been shown that in the duodenum, jejunum, ileum, and proximal part of the colon the intrinsic rhythm decreased from the commencement to the end of each segment. The lecturer regarded the alimentary canal as divisible into seven rhythmical segments or zones, just as the heart was divisible into two zones—auricle and ventricle. It was at the junction of the two zones of the heart that interruption of rhythm was most liable to occur, giving stasis or "back-pressure" in the veins. Interruptions of the rhythm of the alimentary canal might be expected at similar junctional points. A review of the

observations of radiologists showed that the usual sites of stasis were at such junctional regions—the junction of the oesophagus and stomach, of the stomach and duodenum, of the duodenum and jejunum, of the ileum and caecum, of the proximal and distal colon, and the junction of the colon and rectum. Professor Keith thought that all forms of alimentary stasis would find a satisfactory explanation when more was known of the motor mechanism of the canal musculature.

After the lecture, which was most enthusiastically received, the members and guests adjourned to the rooms of the Post-Graduate College, where a conversation was held, including medical and surgical exhibits.

Rebivus.

THE BRITISH DOCTORS ABOUT NAPOLEON'S DEATH.

DR. ARNOLD CHAPLIN's painstaking researches into everything concerning the last illness and death of Napoleon entitle him to be regarded as the chief historical authority on the subject. His first book was reviewed in the BRITISH MEDICAL JOURNAL of December 12th, 1912 (p. 1761). He has now supplemented his account of the final scenes of the tragedy of St. Helena by short biographical accounts of Dr. Thomas Shortt and some of the other medical men who were in attendance, mostly from original sources.¹ Shortt was a descendant of the Thomas Shortt to whom Sydenham dedicated his treatise on gout. He also played a part in the last scene of the life of a monarch. Bishop Burnet in his *History* says: "Shortt, another physician who was a papist, but after a form of his own, did very much suspect foul dealing in the death of Charles II, and talked more freely of it than any of the Protestants durst do at that time. But he was not long after taken suddenly ill upon a large draught of wormwood wine which he had drunk in the house of a popish patient that lived near the Tower who had sent for him, of which he died." Another Thomas Shortt was physician to George II, and published *An Essay proving beyond doubt that the Chevalier Charles Stuart was not and could not be the son of James II of England and Seventh of Scotland*. The Thomas Shortt who was at St. Helena was born near Dumfries in 1788, educated at Edinburgh, and, entering the army as a surgeon, saw much foreign service. In 1815, at the end of the great war, he was appointed physician to the forces in recognition of his services, but placed on half-pay although only 30 years of age. In those days, as at present, men often gained the experience of a lifetime before they reached middle age. Shortt settled in practice at Edinburgh, and in 1819 was appointed Physician Extraordinary to the king in Scotland. In 1820 he was ordered to St. Helena as principal medical officer to the king's forces, with care of the establishment of the Honourable East India Company and the civil population. Shortt came on the scene at St. Helena when the disputes about the illustrious captive had reached their height. The British Government had insisted that the climate was healthy, and that Napoleon's illness was being exaggerated by those about him. The expression of a different opinion by any British doctor was punished by dismissal, or such marks of official displeasure as made the position very unpleasant for the offender. The painful story of the intrigues and petty annoyances which vexed the last hours of the great Emperor need not be repeated. Although Shortt never saw Napoleon, Dr. Chaplin thinks it not unlikely that Scott owed to him many of his facts concerning the conduct of the British authorities during the last three months of the captivity. After the death of Napoleon, Shortt left St. Helena and returned to Edinburgh. In 1828 he was appointed physician to the Royal Infirmary and lecturer on medicine. He was also managing director of the Royal Lunatic Asylum and inspector of madhouses in Scotland, and physician to the fever hospital in Edinburgh. He died in the Isle of Wight in 1843.

Dr. Chaplin gives sketches of the lives of George Henry

¹ *Thomas Shortt (Principal Medical Officer of St. Helena). With Biographies of some other Medical Men associated with the Case of Napoleon from 1815-1821.* By Arnold Chaplin, M.D. London: Stanley Paul and Co. 1914. (Cr. 8vo, pp. 70; two portraits. 2s. net.)

Rutledge, Walter Henry, James Roche Verling, Archibald Arnott, Barry O'Meara, Francis Burton, and Alexander Baxter, all of whom had some connexion, direct or indirect, with the case. Rutledge was the junior surgeon present at the autopsy and was selected to keep guard over the body to prevent any tampering with it. The one whose name is best known now is Barry O'Meara, whose *Life from St. Helena* made a great noise when it was published. Dr. Chaplin says that "of all the memoirs dealing with St. Helena (it) easily holds the first place for interest and literary merit." Our own opinion, however, inclines rather to that of Lord Rosebery, who describes it as the most worthless of all the books written on the subject. A more dignified figure is that of Archibald Arnott, who was called in at Antommarchi's request when it became clear that the case was serious. The Emperor conceived a warm regard for him, and before his death presented him with a gold snuffbox; he also ordered his executors to give him 600 napoleons in recompense for his services. When Napoleon noticed that the gold snuffbox bore no mark of identification, he scratched an N. on the lid with a penknife. Napoleon also gave Arnott a copy of Cox's *Life of Marlborough* for presentation to his regiment, the 20th Foot. It was directed, however, that the books should be returned because they bore the Imperial title. Apparently the regiment was unwilling to give them up, for they were sent home with an appeal to the Duke of York, then Commander-in-Chief. He replied that "Such a gift from Napoleon was most gratifying to him, and that the safe detention of Napoleon was sufficient testimony that the regiment had done its duty, and the presentation of the books was a satisfactory and flattering acknowledgement that a delicate and difficult duty had been performed in a generous and gentlemanly spirit." Dr. Chaplin says the books are now in the archives of the officers' mess of the first battalion of the Lancashire Fusiliers. Francis Burton was a cousin of the famous physician Graves. Having some skill in making casts he moulded the head of Napoleon. The cast, however, disappeared, and nothing more was heard of it till 1833, when Antommarchi claimed it as his own. This moulded Graves to deliver a lecture (published in the *London Medical Magazine* of July 18th, 1835), in which he brought forward proofs of the fact that Burton had taken a mould of Napoleon's face after Antommarchi had failed.

Dr. Chaplin's book should be read by all who wish to know the details of a historical episode which has many points of medical as well as general interest. It is a necessary addition to the *apparatus criticus* for the investigation of a subject which will doubtless continue to fascinate students of the byways of history.

POISONOUS GASES IN WARFARE.

The Poison War,² by M. A. A. ROBERTS, is a collection from various sources of a good deal of interesting information with regard to the uses of poisonous gases and missiles by the Germans, some notes on explosives and sprays of burning liquid, with a good deal of padding. The chapters into which the book is divided are called Articles I to VI, and, although it is not so stated, they read as though they had been written somewhat hurriedly for the lay press. According to Mr. Roberts, at least three poisonous gases have been used—chlorine, nitrogen peroxide, and carbon monoxide; but he speaks of sulphur dioxide and bromine as also being employed. Some of the principal details of the properties of these gases are given, and apparatus suitable for the liberation of certain of them is described. The author further remarks that "the fact that they" (the Germans) "intend to utilize poisonous asphyxiating gases in naval engagements will be unknown to the general public," and he gives a rather unintelligible description of plant for the liberation of such gases at or near the surface of water; this is illustrated with a drawing, and it is stated that in order to retain the pipe by which the gas is to be delivered under the water, it is attached to floats, and the floats are kept below the surface by means of buoys attached thereto. In the drawing the buoys are represented as floating just below the surface of the water, while the "floats" are below them and attached to them

by chains; this seems to show that the description of the apparatus has been given without sufficient consideration. In considering the gas to be used in this way, Mr. Roberts states that, unless the nozzle giving off the gas is allowed to protrude a few inches above the water surface, chlorine could not be utilized, owing to its solubility, and that bromine forced through a little water would lose a considerable percentage of its toxic qualities, but that sulphur dioxide would be easy to generate and might be more readily employed with the nozzle at or in close proximity to the surface. This does not appear to indicate a very profound knowledge of the properties of the substances mentioned, since sulphur dioxide is many times more soluble in water than chlorine, and bromine, being an element, cannot lose a considerable percentage of its toxic qualities by being forced through a little water. Other loose statements of this kind occur throughout the book, which, nevertheless, is of interest and value as a collection of some of the chief statements from reports from the seat of warfare as to the means being used by the enemy.

Mr. Roberts insists that the Germans have been deliberately employing poison since the beginning of the campaign, and long before they began to discharge clouds of chlorine or other gas. In making this statement he refers particularly to the production of carbon monoxide from shells, and also to the fact, which appears to be well established, that their shrapnel bullets have rough surfaces, and are packed in the shell with a powder consisting chiefly of phosphorus; we commented on the latter fact some time ago, and expressed the opinion that the phosphorus could not well be employed for any other purpose than that of inflicting far more dangerous wounds than would be caused by shrapnel bullets alone, and this is the view taken by Mr. Roberts. A good deal of historical material referring to the practice of poisoning in past times, extends from *Pepys's Diary* as to the interest taken by Charles II and his courtiers in the chemistry of that era, and a good deal of similar matter in the book are really of no interest, and merely serve to dilute the actual information given. The various explosives chiefly in use now are described somewhat briefly; in connexion with trinitrotoluene, it is stated that "Toluene is a colorless liquid obtained from resins such as tolu, the latter being the product of a South American tree; some of the medicinal preparations of this resin are well known to the public, as 'balsam of tolu' and 'Friars balsam,'" but there is no indication that toluene is derived from coal tar, which is of course its sole commercial source. Mr. Roberts thinks it necessary to point out that picric acid has nothing to do with picric acid, the latter of course being mentioned under lyddite, but this is hardly sufficient reason for describing the way in which picric acid is used as a fish poison. The opinion is expressed that the blowing up of the battleship *Bulwark* last November was due to spontaneous decomposition of cordite.

In another chapter the projection of jets of petrol, either set on fire at the moment of discharge or ignited after it has reached the trenches by means of incendiary shells, is described, and special correspondents are quoted to show that this horrible method has been employed and with considerable effect. A short reference to the precautions to be adopted against poisonous gases includes the recommendation of a solution of 5 oz. of sodium hyposulphite, and 1 oz. sodium carbonate or bicarbonate dissolved in water, with the addition of 1 oz. of glycerine, in which respirators are to be soaked. Some interesting statistics are given showing the percentages of total casualties and the proportion of killed to wounded in a number of battles and campaigns of the past, while a series of short appendices contain extracts from the several Hague Conventions dealing with the use of asphyxiating gases and contact mines.

GLYCOSURIA AND DIABETES.

The large volume of nearly two hundred pages which has been published by Dr. FREDERICK M. ALLEN, a Research Fellow of Harvard Medical School, under the title *Studies Concerning Glycosuria and Diabetes*,³ is difficult to criticize or even to analyse adequately. It represents the results of three years of research and study, and

²*The Poison War*, By Alfred A. Roberts. London: William Heinemann. (Demy 8vo, pp. 144; 10 illustrations. Price 5s. net.)

³*Studies Concerning Glycosuria and Diabetes*. By F. M. Allen, A.B., M.D. London: H. Milford, Oxford University Press, 1911. (Roy. 8vo, pp. 197; 16 figures. 38s. net.)

incorporates numerous original experiments on animals. The author has endeavoured to obtain information concerning the physiology of sugar, the origin and nature of diabetes, to produce a satisfactory reproduction of human diabetes in animals and to try various methods for modifying the disease thus produced. We admire the results permitted by the large financial resources possessed by some of the American medical schools and sincerely respect the industry and single-minded purpose with which American students are devoting themselves and their private means to researches which offer no prospect of pecuniary advantage. We commend this volume to all who are interested in the sugar problem; they will find that Dr. Allen propounds many questions and has earnestly tried to find answers to them. These may in many cases appear to be altogether at variance with clinical experience, but we will not rashly undervalue them on this account. His work deserves, and we are sure will receive, careful consideration, but it is startling to be assured that there is no limit to the tolerance for glucose, that sugar is not a diuretic, that hyperglycaemia does not cause glycosuria, that excess of sugar in the blood has no harmful effect, that human diabetes is in most cases a functional disease of the nervous system manifesting itself by its effect on the pancreas, that the liver is without specific importance in relation to diabetes, and that fat storage is not increased by hyperglycaemia. The author believes that sugar normally exists in the blood in combination and applies the ambocceptor theory, the side chains being supplied in health by the pancreas. In diabetes insipidus he suggests there is a deficiency of ambocceptors for sodium chloride, and that these may be normally supplied by the hypophysis. The book is not provided with an index, but has a full table of contents.

The year before last we spoke favourably of a little book on diabetes by Dr. A. SOPP.⁴ As was then pointed out, it is primarily intended for the use of patients, and there is no disease in which it is more desirable that the physician should be assisted by the intelligent co-operation of the patient, who will follow the instructions given much more carefully if their intention is understood. But there is much in the book that any medical practitioner may read with advantage, and the tabulated information at the end is so useful that we may again express our regret that no such useful little work exists in the English language. Dr. Sopp mentions hedisit (lactose of glucoheptonic acid), a comparatively newly introduced sweetening agent, but, as he admits, its sweetness is so slight that it is not of much practical value for this purpose. As a carbohydrate it may be employed, but it would be an expensive food. It is soluble in water, and the dose recommended is 10 grams daily, or 30 grams every third or fourth day. We are glad to see that in this edition the author recognizes the value of potato as a useful form in which a certain proportion of the carbohydrate should be given, and he especially draws attention to the possibility of combining a good deal of fatty matter with these vegetables.

NOTES ON BOOKS.

The first fasciculus of *Injuries and Diseases of Human Bones*,⁵ as demonstrated by series of specimens in a Russian museum, treats of fracture of the surgical neck of the humerus. Professor H. TURNER describes the four plates, which are highly instructive to the surgeon as well as to the student. The first shows the upper end of a normal humerus and the disposition of the epiphysal lines. There are two photogravures and a good diagrammatic outline drawing, lettered, and with explanatory letterpress. The second plate represents a fracture of the surgical neck in the adult, seen from before and behind. The line of fracture corresponds to the former epiphysal line. The displacement of the head of the humerus is

indicated by means of a skiagram, and, as in Plate I and in the succeeding plates, there is an explanatory outline drawing. In Plate III another specimen of fracture of the surgical neck is shown. The dislocation is much more marked and there is abundance of callus, which has assumed a definite form for physiological or static purposes. The skiagram in this plate is most instructive. Bony buttresses run from the callus down to the middle third of the humerus. The fourth plate shows a fracture running along the same line. Professor Turner explains how it demonstrates the transformation of the callus for future physiological service, the injury being apparently as severe as in the previous specimen, but more recent.

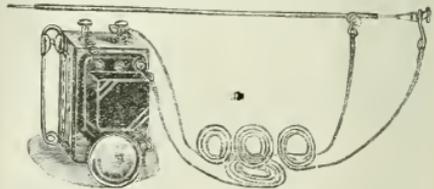
The heroine of Mrs. FLORENCE L. BARCLAY'S story, *In Hoc Vinco*⁶ shows a belief in German respect for the Geneva Convention which seems to prove that it was written very early in the present war, before the enemy's flagrant violation of the articles of that agreement had destroyed such belief for ever. But the sanctity of the Red Cross flag forms a peg on which to hang a very touching little story which originally appeared in *King Albert's Book*. The author of *The Rosary*, it is said, has perhaps more readers than any novelist in the kingdom; and this story, which is partly founded on fact, gives plenty of scope for those qualities which have made her name a household word in thousands of British homes.

⁶*In Hoc Vinco: The Story of a Red Cross Flag*. By Florence L. Barclay. London and New York: G. P. Putnam's Sons, 1915. (Cr. 8vo. pp. 18. 1s. net.)

MEDICAL AND SURGICAL APPLIANCES.

Electrophone Bullet Probes.

AN electrophone bullet probe has been designed by Dr. Charles Finch, F.R.C.S., Consulting Surgeon to Gravesend Hospital, who has sent us the following description: It consists of a silver tube, 8 in. or 9 in. long, of the size of a No. 3 catheter, lined with india-rubber, and a central wire or core. The tube is connected with one terminal of an electric bell and battery combined, and the core with the other terminal. When the tube and core both touch the bullet, or any metal body, the bell rings. The core is freely movable within the rubber-lined tube, so that it can be made to project about 1 in. at the lower end.



This enables a bullet to be discovered when the tube is not end-on to it, but passing it on one side of a sinus; then, by projecting the core and slowly withdrawing the probe, one can get a ring at the moment they both touch the bullet. In this way it is possible to map out the position and size of the bullet or foreign body. The probe is readily dismantled for sterilizing purposes. I have found this little instrument of great service in locating bullets and shrapnel, and even wire, especially when imbedded in bone; and it has given valuable negative as well as positive evidence in some doubtful cases. It can be obtained at a very reasonable price from Messrs. Maw, Son, and Sons, Aldersgate Street, London, E.C.3.

Dr. David Findlay, Medical Officer in Charge Electrical Department, West End Hospital for Nervous Diseases, has also sent a description of a telephone probe. It consists of a rod of silver insulated from a sheath of the same metal; these form the two electrodes of an electric circuit, and are attached to a plug by insulated wires encased in rubber tubing. In the lid of the box are fixed the plug holder, a specially wound telephone and a dry cell of the flash light pattern. The latter when exhausted can be replaced at the cost of a few pence. When the plug is in its holder an electric current will be established on the probe being inserted into a wound, contact taking place between rod and sheath through the moist surfaces. Any disturbance of the flow, or interference with the lines of force of the current, as when a piece of metal is touched

⁴Die Zuckerkrankheit (Diabetes Mellitus), ihre Ursachen, Wesen und Bekämpfung. Von Dr. Med. A. Sopp. 2. verbesserte u. erweiterte Auflage. Würzburg: Curt Kabitzsch. 1914. (Post 8vo, pp. 80. M. 1.50; Cart. 1.80.)

⁵Поврешденија и Болести Костел Теловоука по Данноен Хирургическог Музеја Императорског Воено-Медицинског Академије. Part I. (Injuries and Diseases of Human Bones as Represented by Specimens in the Surgical Museum of the Imperial Military-Medical Academy.) By Professor H. Turner. Petrograd, 1915. (Pp. 14; 4 photographs.)

by the probe, will be indicated by a noise in the telephone. The chief points claimed for this probe are its simplicity and efficiency, and that it is not liable to get out of order. There is nothing to fix on the head of the operator, nor on the body of the patient. The noise in the telephone is quite audible to everyone in the neighbourhood. The probe can be bent as freely as the ordinary surgical probe, and with its connecting wires and plug forms a unit that can be sterilized by boiling. Messrs. Down Brothers have the instrument in hand.

THE DIFFERENTIATION OF MENTAL DEFECTIVES.

A NUMEROUSLY attended conference, organized by the National Association for the Feeble-minded, was held at the Guildhall on June 25th. The proceedings were opened by the LORD MAYOR, who expressed his interest in the subjects for discussion from their social, administrative, and educational aspects.

On his departure the chair was taken by Sir H. BRYAN DONKIN, M.D., F.R.C.P., who, in his opening remarks, spoke of the practical character of the conference, its promoters hoping that its deliberations would help to clear some of the misapprehensions met with as to the application of terms which usage had rendered ambiguous, such as that of "feeble minded," which had been applied—(1) to the whole class of mental defectives (an acceptance which until lately had prevailed in America), and (2) to the highest subdivision only as set forth in the definitions of the Mental Deficiency Act. Certain tests for measuring intelligence, of which those of Binet and Simon had been most in evidence, had been propounded; and it would be for the meeting to discuss their practical value in classification, excluding on the present occasion the consideration at any length of the etiological aspects of the subject.

The first paper read was by Dr. ROBERT HUGHES, School Medical Officer, Stoke on Trent, setting forth the means he had proved serviceable in diagnosis, amongst which he laid stress on the systematic examination of the sense organs, describing simple appliances for this purpose found useful in his psychiatric department to supplement the Binet-Simon and Montessori tests. He also gave some particulars of the results of treatment in his school clinic.

Mr. W. H. WINCH, M.A., District Inspector of Schools, L.C.C., testified to the value of the Binet-Simon tests in classification in schools, contending that under guidance and supervision teachers were competent to apply them. He admitted that the system was by no means perfect, and had suggested certain modifications to render them more suitable for English children.

Dr. BOUTLENGER (late of Brussels), Director of the Farm Colony for Defectives at Waterloo, compared the differences he had noticed in English and in Belgian children respectively, and testified generally to the value of the Binet-Simon tests in the differentiation of defectives.

Dr. W. A. PORRS (Birmingham) discussed the subject of tests in childhood best calculated to throw light upon capacity for useful work such as in the future would lead to self-support. He emphasized the importance of the following as criteria: (1) Ability; (2) strength of will and character; (3) good health; and (4) pluck; the absence of one or more of these attributes proving a serious handicap. Luck as to employers was also a factor not to be overlooked in the attainment of success. From his experience as chairman of the Birmingham After-Care Committee, and later as medical officer to the Mental Deficiency Committee, he cited cases both of success and failure, incidentally mentioning that some who had passed through special schools were serving with the colours—efficiently so far as he knew.

Dr. ALLAN WARNER (School Medical Officer, Leicester) spoke of the value of a uniform examination of the feeble-minded for educational purposes, and described in detail the system he had found serviceable in determining educability.

Dr. R. LANGDON-DOWN (London) discussed the practical application of the Binet tests. He regarded the system as on the whole the best yet devised for standardization of intelligence, though he thought it in some respects susceptible of improvement. He read, on behalf of Dr. W. B. Drummond of Edinburgh, a paper entitled "Binet-Simon tests as a means of grading mental defectives under the Mental Deficiency Act," in which the opinion was

expressed that these tests would be found of great assistance to the medical expert in all cases of suspected imbecility and feeble-mindedness. Though some modifications might be necessary, the system was fundamentally sound. According to Binet, a child of 9 years or upwards must be adjudged defective if his intelligence, as ascertained by the tests, is retarded by 3 years.

In opening the discussion on the foregoing papers, Dr. SUTTLEWORTH referred to the fact that some confusion existed with regard to the certification of children for special schools, which he thought still rested upon the definitions in the Elementary Education (Defective and Epileptic Children) Act of 1899 rather than upon those of the Mental Deficiency Act, which did not become operative till the age of 16. The test of fitness for admission to a special school was incapacity to receive benefit from instruction in an ordinary school, with presumptive capacity for benefiting by special instruction. This differed from the condition underlying the definitions of the Mental Deficiency Act, which presupposed original and permanent defect. The special school, indeed, formed the testing ground as to this, and the yearly application of the Binet-Simon tests was of great value in this connexion. The particular tests were admittedly empirical and the system had not reached finality. Still they were helpful in assessing a child's intelligence, and combined with expert clinical observation furnished valuable results. They must, however, be applied without bias from extraneous knowledge of the child's educational performances, and for this reason he did not think their application should be left with the child's teacher, though of course educational progress had also to be considered. As Goddard put it, the examinee must be regarded simply as *x*, the value of which had to be ascertained. Children should certainly not be sent to special schools simply because they did not keep pace with ordinary scholastic standards; physical ailments and other retarding causes must be taken into account and if possible corrected. Some retarded infants benefited by an extra year or so in infant departments; for others education in intermediate classes for backward (as distinguished from defective) children was desirable; and open-air schools seemed specially adapted for such cases. Parents as well as teachers should always be invited to special school examinations, though it was generally advisable that the Binet-Simon tests should be applied independently of them.

Mr. H. HOLMAN (late H.M. Inspector of Schools) called attention to the need of applying sensorial tests (as long ago advocated by Seguin) and of testing the neuro-muscular condition of the fingers, so important in manual training. Canon ROWNTREE (York) emphasized the motto "*festina lente*" both as regards the testing and training of defective children, and deprecated stringent forms.

Dr. J. LETHIA FAIRFIELD (L.C.C.) criticized some of the Binet-Simon interrogatories, thinking them puzzling to adults and incomprehensible to children. Mrs. KNOTT-BOWER emphasized the importance of women taking part in the examinations.

Subsequently papers were read by Drs. SHERLOCK (Darent), H. W. SINCLAIR (ESSEX), and GORING (BRISTON Prison), and the proceedings closed with a vote of thanks to the Chairman (proposed by Sir WILLIAM CHANCE, Chairman of the National Association), and to Miss Kirby, the Secretary.

An extensive and interesting exhibition of the products of industrial training at various institutions was on view in the Council Chamber corridor.

THE Egyptian Government has issued a return of births and deaths occurring in the principal towns, governorates, and chief towns of provinces of Egypt during 1914. It records 76,322 births (not including 2,774 stillbirths) and 58,641 deaths. The birth-rate is slightly below that of 1913—44.6 as against 45.1—but the natural increase is somewhat greater, for the death-rate has fallen from 35.2 to 34.3. Typhus is responsible for the largest number of deaths attributed to infectious diseases, the total number of cases being 9,350, the provinces of Daqahalia and Beheira each returning more than two thousand, with 2,531 deaths. Small-pox is represented by 6,788 cases and 1,568 deaths, and measles produced 5,045 cases with 2,272 deaths. Only 219 cases of plague were reported, 59 of these from Port Said. Typhoid was responsible for 1,965 cases and 612 deaths. The estimated population (July 1st, 1914) was 1,710,857.

British Medical Journal.

SATURDAY, JULY 3RD, 1915.

OVERTIME AND EFFICIENCY.

In the published returns given in the White Paper "Particulars of Time Worked in Week ending April 13th, 1915, among shell workers," it is stated that no less than three-quarters of the workers are doing overtime, that is, more than the forty-eight hours a week which is considered to be the ideal amount for the maintenance of national health and efficiency. Nearly 10 per cent. are working eleven hours a day for a seven-day week, or over thirteen hours a day for a six-day week. Thirty-six per cent. are working ten or over ten hours a day for seven days a week, or twelve or over twelve hours a day for six days a week. A quarter of the men are to be regarded as slackers doing less than fifty-three hours a week; it must be borne in mind that probably nearly all these are less efficient, being elderly or debilitated, or men of weak characters, intemperate, taken on to replace the efficient, the young, strong, and great-hearted men who have enlisted.

The danger of impelling the best of the workmen who remain to average ten hours a day for seven days a week is obvious, and among the appointments made by the Minister of Munitions we look for that of a Medical Board for controlling the hygiene of the munitions factories. A Central Liquor Board has, it is true, been established, but this Board has powers only to deal with the sale of alcoholic liquor, and the provision of canteens where food and non-alcoholic drinks can be obtained. What is urgently needed is a committee of experts to advise on the length of shift, the periodicity of the night and day shifts, the number and duration of short periods of relaxation during the shifts (the elevens and fours of the agricultural labourer), the maintenance of the Sunday and other holidays, and the ventilation of the factories.

The transport of workers to and from the factories should also be looked after, so that they are least exhausted by travel, and facilities provided for visiting seaside or country by which their vigour may be recuperated. As Mr. Bonar Law said at Shrewsbury, the sons of the so-called idle rich have nobly sacrificed their lives on the battlefield, but we ask how much of this sacrifice may be traced to the neglect of national hygiene.

If failure of the supply of munitions in truth has increased the toll of the dead brave, that failure is due not only to lack of present organization, but to past bad government, which has allowed the unguided exploitation of the land and the building of slum cities. Now the operative is called upon to give his utmost in the time of the nation's need, and while the strength of the best workers is impaired by the

conditions of their daily life—bad housing, lack of open spaces and of amusements other than those provided by the brewer and distiller—the number of wastrels, shirkers, and slackers is the fruit of the culpable neglect in the past of town planning and disciplined physical drill of youth. Let he who sits in his club and abuses the operative perform the operation of putting on his collar and tie once every two minutes for ten hours a day, and for six days a week, then he will have some idea of the monotony of the machinist's daily task. It is done reflexly, and the operative fortunately finds relief in sight of and speech with his fellow workers. But if the work, in spite of its monotony, demands the strict attention of hand and eye, if the operative must not merely mind the machine but work strenuously with and guide it, mark and correct any error made by it, then truly exhausting is the task, and most unwise the demand for overtime.

Physiological need for rest forbids the utilization of overtime to any advantage. The tired worker must go slow, impelled by Nature's call. The Sunday holiday is physiologically right; it is found to pay in reckoning the output of work. The man who is over-driven and nervously exhausted finally breaks down, and takes weeks to recover. Overtime spent in factories badly ventilated and artificially lighted is, we believe, one of the most fruitful sources of phthisis.

In his enlightening book on the *Principles of Scientific Management* Frederick Winslow Taylor tells us that systematic "soldiering," or "ca' tanny," is the cause of the world's output being reduced by one-half of what it might be were every operative to work with his full zeal and power. "The causes of this are," he says, "briefly, that practically all employers determine upon a maximum sum which they feel it is right for each of their classes of employees to earn per day, whether their men work by the day or piece. Each workman soon finds out about what this figure is for his particular case, and he also realizes that when his employer is convinced that a man is capable of doing more work than he has done, he will find, sooner or later, some way of compelling him to do it with little or no increase of pay." If this be true, then it is each man's interest to see that no job is done faster than it has been in the past. If a workman has seen the price per piece of the work he is doing lowered as a result of his having worked harder and increased his output, he will regard his employer as an antagonist. He will have no more "cuts" in the price of piecework if "soldiering" can prevent it. The operative comes to regard the over-zealous quick worker as a traitor to his class, and enforces the reduction of his output to the traditional level.

The whole principle of management and relation of operative to employer seems to be at fault, and by the principles of the modern scientific management, under which no less than 50,000 workers are now working in America, the work of every man is fully planned out by the management at least one day in advance, and each man receives (in most cases) complete written instructions, describing in detail the task which he is to accomplish, as well as the means to be used in doing his work. This task specifies not only what is to be done but how it is to be done and the exact time allowed for doing it. And whenever the workman succeeds in doing his task right, and within the time limit specified, he receives an addition of from 30 to 100 per cent. on his ordinary wages. The tasks are carefully planned, so that both good and careful work are called for in their performance,

† The percentages were as follows:

Working over 90 hours a week	...	...	...	94.37 per 1,000
" 75.80	"	"	"	86.77
" 70.75	"	"	"	177.45
" 65.70	"	"	"	130.0
" 60.65	"	"	"	155.27
" 55.60	"	"	"	100.96

and in no case is the workman called upon to work at a pace which would be injurious to his health. The task is so regulated that the man is well suited to his job and will thrive and grow happier and more prosperous.

Under ordinary management, practically the whole problem is "up to the workman," while under scientific management fully one half the problem is "up to the management"—the choice of the right man for the job, the tools suitable for it, the right use of the tools, the periods of work and of rest, etc.

By the selection of men suitable in temperament and by proper spacing of their work and rest periods, Mr. Taylor, at the Bethlehem Steel Company, raised the work of loading cars with pig-iron from $12\frac{1}{2}$ to $47\frac{1}{2}$ tons per man per diem, and the selected men earned 60 per cent. more wages than before and worked contentedly. The law was worked out that when pig-iron is being handled (each pig weighing 92 lb.) a first-class workman can only be under load 43 per cent. of the day. He must be entirely free from load during 57 per cent. of the day. As the load is made lighter a man can remain a larger percentage of the day under it. Scientific management sees to it that the right periods of load and rest are observed. In the case of shovelling, Mr. Taylor worked out that the right load for each shovelful for effecting the maximum work was 21 lb. Different-shaped shovels were therefore supplied, so that the load should be 21 lb. whatever the material handled. The time period of the act and best way of shovelling were worked out from the observation of first-class workmen and all other workmen trained by the management in their ways.

Scientific management is strikingly seen in the case of girls employed to examine steel balls used for bearings, and picking out defective ones. Mr. Taylor selected those girls who, on testing, showed the shortest reaction time in the recognition of a letter momentarily shown by a moving shutter arrangement. He shortened the length of their shifts and instituted resting periods to avoid eye strain, and set up a system of overlooking to secure accurate work. The result was that 35 girls did the work formerly performed by 120! The girls averaged 80 to 100 per cent. more wages. They worked eight and a half, in place of ten and a half, hours a day, and secured a Saturday half-holiday and four recreation periods during each day. They were even allowed to take two days off at the time of their monthly period. The accuracy of the work done was two-thirds greater, there was a material reduction in the cost of inspection, and most friendly relations established between management and employees, which rendered labour troubles or a strike impossible.

The nation is now in the throes of a cataclysmic war waged with perhaps the most highly organized community of men the world has yet seen. The chief defects in the management and care of the operatives cannot now be righted. Their need for scientific management and garden cities cannot be met. Industrial England has built itself up blindly, guided by little else but the zeal for private gain. The sin of the slums tells heavily against us; biological laws cannot be broken without paying the penalty. The nation must reap as it has sown. When we win through at heavy cost—the penalty of the governing class is the loss of their sons—we must put the national workshop in order under scientific management, and turn the mean streets into garden cities.

MEASLES AND THE PROBLEM OF FILTERABLE VIRUSES.

MEASLES is one of the most mischievous of diseases, not only because it causes annually a large number of deaths, but because it strikes at the foundations of national life; it attacks the young, kills many out of hand, and leaves many others an easy prey to those lymphatic disorders which open the way to tuberculosis, or to a condition of general debility and lack of tone, which means stunted growth. Scarlet fever is only less deadly because it is not quite so limited to childhood and early youth. That measles and scarlet fever are due to a *contagium vivum* no one doubts, but bacteriology has not been able to clear up the etiology of measles, and its results in scarlet fever are doubtful. It has told us little for certain about whooping-cough, another deadly disease for the same reasons that measles is deadly, nor about mumps, nor, finally, about small-pox or chicken-pox.

The Registrar-General in his report for 1913 states that the death-rate from measles in persons under the age of 15 years was 932 per million living, and in children under 5 years of age 2,430; for whooping-cough the rates were 482 and 1,340 respectively. The actual number of deaths from measles was 10,644, and from whooping-cough 5,458. In commenting on these figures Dr. T. H. C. Stevenson, the superintendent of statistics, remarks that, however calculated, the rate for measles in 1913 was a fairly low one; but he adds the significant observation that this was "to be expected from the fact that the rates for the two previous years were both above recent averages." The rate of mortality from whooping-cough was also very much lower than any previously recorded—it was less than half what it was ten years ago. But we have no sort of assurance that this diminished rate will continue.

These diseases—measles, scarlet fever, and whooping-cough—dissimilar as they are in symptoms and severity, have this in common, that ordinary bacteriological methods, which have been so successful in elucidating the etiology of typhoid fever, cholera, and many other diseases, have failed to identify the nature of the living contagion to which the former must be due. But bacteriological methods have given birth to the idea of filterable viruses, of which that of epidemic anterior poliomyelitis is, perhaps, the most familiar. The hint thus afforded has been taken, and many investigations have been made, without, as yet, any conclusive results. A scheme has now been sketched out for an attack on the problem of measles from this direction in a London laboratory.

The memory of Mr. Marcus Beck, surgeon to University College, in whose character and teaching many men of a generation now growing old found inspiration, has been perpetuated very suitably—for he was a pathologist first and a surgeon afterwards—by a laboratory called after him, which is in the charge of the Royal Society of Medicine. When the society built its new home it included in it a well-designed and well-equipped laboratory. The good work which was being done in it was interrupted by the war, the workers being called away to military service. The laboratory has been idle for some months, but this waste of its resources is now to cease and the facilities it provides are to be devoted to a serious attack on the problem of the filterable viruses, beginning with measles, because that disease is, from the social point of view, so serious a menace and because it is always with us, so that the work need never be stopped for want of material.

The Royal Society of Medicine has been fortunate

in securing the services of Sir Ronald Ross as honorary director of the Marcus Beek Laboratory and director of this particular research. He has already enlisted Dr. Cropper as haematologist, but is in want of a bacteriologist, who, owing to the demand for medical men by the War Office, must be a woman. Lady Durning-Lawrence is making an annual contribution to defray the upkeep of the laboratory; and the expenses of this particular research will be borne by the Medical Research Committee, which disposes of the research penny ear-marked under the Insurance Act. The research has a direct bearing upon the war, because experience both at home and in France has proved that the army must expect to have to deal with a large number of cases of measles among the young men recently recruited. Until clear notions as to the nature and natural history of the virus are obtained, methods for checking the spread of measles must remain empirical, and it has to be confessed that they have not hitherto been, either in civil or military life, remarkably successful. It is not, indeed, expected that the problem will be solved very quickly, but it is well that it should be taken in hand without delay, for even experimental science provides its surprises. As has been said, measles is always with us, and the work should not, for this reason, be stopped for want of material; but Sir Ronald Ross appeals for the help of medical men practising within easy reach of the laboratory at the Society's house at No. 1, Wimpole Street, and asks them to let him know of cases of measles which could be used for this intensive study of the disease. We hope that his success in dealing with this new and urgent problem may be as great as that which attended his researches into the causes of malaria and the natural history of the haematooxon to which it is due.

WAR REGISTER FOR THE PROFESSION.

The efforts of the Association to stimulate recruiting for the R.A.M.C. through the medium of its Divisions and Branches have been very successful, thanks to the way in which the honorary secretaries and other local officers have entered into the spirit of the appeal, and to the assistance given by the Scottish Committee of the Association acting in conjunction with the Scottish Medical Emergency Committee. The Special Committee of the Association at its last meeting came to the conclusion that what was now wanted more than anything else was some means of registering every member of the profession in the United Kingdom in his relation or possible relation to the war. In reaching this decision the Committee was helped greatly by the experience of the War Emergency Committee of the Metropolitan Counties Branch, which has for some time been engaged in the collection of information about all the members of the profession in the metropolitan area. Instructions were given to set about the preparation of a register for the rest of the country which would enable a bird's-eye view of the whole profession to be taken and would give a definite answer to the question in which every member of the medical profession must be interested—namely, how far are the members of the profession doing their duty in the great times in which we live? The details which it is proposed to collect will be seen from a paragraph in the Supplementary Report of Council which appears on page 2 of the SUPPLEMENT of this week, and the readers of that paragraph will readily perceive what a valuable document the register will be when completed. We understand that the secretaries of Divisions and of local War Emergency Committees who have been asked to furnish all the information at their disposal have responded in the most encouraging and enthusiastic manner, and the foundations of the register

are being well and truly laid. It will doubtless be necessary, after the local secretaries have done their work, to appeal to the individual members of the profession as to whom no information is at that stage forthcoming, and it is hoped that every member of the profession when applied to will cheerfully and promptly furnish the particulars which will enable the war register of the profession—the first of its kind, we believe—to be an accurate record of what the profession is doing, or is prepared to do, in connexion with the war.

THE SCOTTISH MEDICAL MUSTER ROLL.

The Scottish Medical Service Emergency Committee has now issued the further comprehensive circular letter dealing with the general position in Scotland, the early appearance of which was mentioned in a paragraph on the subject in the SUPPLEMENT for last week (p. 333). The new circular reiterates the intention of the committee to give special attention to offers for whole-time service, believing that arrangements regarding part-time service will best be made and, where necessary, readjusted by those possessing a close knowledge of the circumstances of each individual area. It is hoped to raise in Scotland 400 medical men for whole-time service. It is believed that the graduates and licentiates of July will contribute about 100; of the remaining 300, some will be expected to be ready for duty if required in August, an additional number in September, and a further contingent in October. By thus making successive calls the Emergency Committee hopes that the disorganization of civil practice may be prevented and time allowed for devising adjustments to meet the new conditions. It is intended to make the first call on July 20th, when the number of men required for the August contingent from each Division will be notified. The Committee expresses the opinion that it is neither desirable nor necessary that transfers should be made from the insurance lists of doctors absent on war duty save in very exceptional circumstances, such as have nothing to do with the absence of the practitioner in question. The Committee advises that no practitioner should accept such an application without having previously consulted some local body representative of practitioners in his area. The concluding paragraph of the circular points out that those who cannot serve the country directly with the forces can do so indirectly by placing themselves at the disposal of the Emergency Committee to act as locumtenens. There are young men in remote districts eager to join the R.A.M.C. who are prevented from doing so because they can get no substitute, and can find no neighbour near enough to do their work. If a man, himself too old to serve, will take the place of one of these young men, and thus allow him to go, he will indirectly contribute one to Scotland's 400. The circular has been submitted to and approved by the Director-General. All communications should be addressed to the Convener, Emergency Committee, Royal College of Physicians, Edinburgh.

RESEARCH DEFENCE SOCIETY.

The annual general meeting of members and associates of the Research Defence Society was held at the house of the Royal Society of Medicine on June 30th. In the absence of the President, Lord Lamington, on military service, Major-General Sir Reginald Falbot took the chair. Among those present were Sir William Church, Sir James Reid, Sir John Tweedy, and Sir David Ferrier. The report of the Committee, which was presented by the Chairman, Lord Knutsford, stated that with the help of the War Office they distributed about 350,000 copies of their four-page leaflet, "Protection Against Typhoid Fever." This leaflet had also been translated into French. In October, with the approval of the War Office, they instituted popular lantern lectures to soldiers on wound infection and on the infective diseases, with special reference to the protective treatment

against typhoid fever. These lectures had been very successful. In December the Society presented to the Admiralty for the use of the Fleet, a complete series of 114 lantern slides, with printed catalogue, books of reference, etc. Sir Arthur May, Director-General of the Medical Department of the Royal Navy, kindly arranged for the circulation of these slides, so as to afford one or more special lantern lectures to each battleship. Their opponents, except for the signally unsuccessful attack on the protective treatment against typhoid fever, had been very quiet during the past year. Sir Reginald Talbot, in moving the adoption of the report, paid a glowing tribute to the work of the Royal Army Medical Corps and the civilian doctors among the sick and wounded. The report of the Honorary Treasurer, Dr. F. M. Sandwith, stated that, in spite of a slight falling off of subscriptions, donations, contributions from branches, and sale of literature, doubtless owing to the war, the balance in hand at the close of the year was greater than it had ever been before. Both reports were adopted unanimously. Sir William Osler, in proposing the re-election of the Executive Committee, enumerated the advances in preventive sanitation that had taken place during the last fifty years. He said that never in the history of the British Empire had there been a war in which disease had played so small a part. Among two and a half million men there had only been a thousand cases of typhoid fever. Speaking of preventive inoculation, he said it was impossible to conceive order, baser, and more harmful ignorance than was displayed by those people who were opposing inoculation. He thought the outlook was good so far as disease went in this war. With care they were not going to have the tragedy of the South African War, of the Civil War in America, or of the Napoleonic wars repeated. Sir Alfred Keogh, who was to have spoken, was at the last moment prevented from attending. The motion for the re-election was seconded by Sir Frederick Macmillan and passed unanimously. After the business of the meeting Dr. Andrew Balfour gave a demonstration with the cinematograph on the protective treatment against typhoid fever and cholera.

PERNICIOUS ANAEMIA AND SPINAL DEGENERATION.

DR. BYRON BRAMWELL has recently published¹ an interesting study on the association of pernicious anaemia with subacute combined degeneration of the spinal cord. The occurrence of such degeneration in patients with severe anaemia was noted by Leichtenstern in 1884; it is probable that the "ataxic paraplegia" described by Gowers in 1886 included a number of cases of this condition. The more recent writers on the subject of subacute combined degeneration—Collier, Russell, Oppenheimer, for example—give no clear definition of the anaemia present in these patients, describing it as either primary or secondary, alternatively. Dr. Bramwell has seen and recognized five cases of this peculiar form of spinal degeneration, and he remarks that in all of them the anaemia was pernicious anaemia. In one the nervous signs and symptoms were present for three years before the blood changes characteristic of pernicious anaemia made their appearance, when, apparently as the result of acute intoxication, rapid destruction of the blood took place, and the characteristic clinical features (confirmed by *post-mortem* examination) of pernicious anaemia developed. The degeneration appears to be uncommon in pernicious anaemia; Dr. Bramwell has seen 140 cases of this disease, but only four of them developed subacute combined degeneration. The anaemia, he notes, may either precede, develop coincidentally with, or follow the appearance of the nervous symptoms; and both diseases he holds to be the result of the formation of a toxin (or toxins) in the body.

¹ *Edinburgh Medical Journal*, April, 1915.

From the point of view of differential diagnosis he emphasizes the fact that disseminated sclerosis is commonest between the ages of 20 and 25, and is comparatively rare after 35; whereas subacute combined degeneration has much the same age distribution as pernicious anaemia, and very rarely develops before the age of 35.

EPSOM COLLEGE.

THE annual general meeting of the Governors of Epsom College was held on June 25th. Sir Henry Morris presided and among the governors present were Sir William S. Church, Sir Shirley F. Murphy, Dr. Frederick Taylor, and Dr. Guthrie Rankin. In presenting the annual report and the income and expenditure account Sir Henry Morris stated that four of the masters had taken temporary commissions, and over 400 Old Epsomians were serving with the Forces; amongst them were 290 officers in the Royal Navy, the Regular Army, the Special Reserve, the Territorial Force, or holding temporary commissions. In the roll of honour of Old Epsomians were included 11 who had been killed in action, 2 who had died in hospital, and 19 who had been wounded. Fourteen Old Epsomians had been mentioned in dispatches, 1 (since killed) had been awarded the Distinguished Service Order, and 3 had been awarded the Military Cross. In the name of the Governors he thanked the Honorary Local Secretaries and the British Medical Association for the large sums of money they had collected for the Foundation during the past year. The annual report stated that two new pensioners' funds had been founded, one by the late Mrs. Bridget Sarah Greewood, and the other by the late Dr. Burney Yeo. The list of successes at examination showed that the school had well maintained its character for efficiency. Sir James Reid proposed a vote of thanks to Sir Henry Morris for the great services rendered to the College as Treasurer; this was seconded by Sir Frederick Needham, and carried by acclamation.

IN THE BRITISH MEDICAL JOURNAL of May 8th it was announced that the French Académie des Sciences, after considering a report presented to its secret committee by M. Adolphe Carnot, had passed a resolution removing from its membership four of the German "intellectuals" who signed the manifesto which excited such indignation throughout the learned world. Among them were Dr. Wilhelm Waldeyer, professor of anatomy, and Dr. Ernst Fischer, professor of chemistry, in the University of Berlin. The Académie de Médecine has now followed the example of its sister society. At a meeting held *in camera* on June 22nd, a report presented by Professor Blanchard, proposing that all Austro-German associates and correspondents should be deprived of the privileges of membership, was considered. As a result of the deliberations the names of the four German associates, Professors Roentgen of Munich, Behring of Marburg, Fischer of Berlin, and Ehrlich of Frankfurt, were expunged from the list. The question of ten Austro-German correspondents, many of whom are of Slav nationality, was reserved.

Medical Notes in Parliament.

Money, Munitions, and Men.

THE business brought before the House of Commons by the new coalition Government is of enormous importance, but does not call for any extended notice here. Of the new loan it will be sufficient to say that the magnitude of the sum which must be borrowed and the rate of interest make it certain that even if the war were unexpectedly to come to an end before the whole sum now authorized by Parliament is expended, taxation must be for many years heavier than anything to which this country has been accustomed.

Mr. Lloyd George, in introducing the Munitions Bill, made a speech of the utmost gravity; the keynote was struck in the opening sentences, in which he impressed on

the Home and on the country that the toll of life and limb levied by the war, the amount of exhaustion caused by the war, economic and financial, and ultimate victory or defeat depended upon the supply of the munitions which the rival countries could produce to equip their armies in the field. That was the cardinal fact of the situation in this war. The Germans had established a superiority due to a predominance in the materials of war. When they were driving the forces of the Allies before them in any quarter it was due to the same cause, and when the Allies were making progress in any part of the line it was due to the fact that in that sector of the battlefield the Allies had a predominance of munitions of war. This country had an undoubted superiority in men—not merely a superiority in numbers, but in quality. Therefore it was purely a question of equipping them with the necessary amount of material to support their valour. It was stated, he said, on good authority that the Central European Powers were turning out a quarter of a million shells a day, very nearly eight millions a month. The problem of victory was how to equal and surpass that tremendous production. Any obstacle, any mismanagement, any hindrance, any indiscipline, any prejudice, or any delay in the mobilization of our resources at the earliest possible moment must postpone victory. After explaining the provisions of the bill, he said, in the course of an eloquent peroration: "One of the pillars of good government is the security that evil-doing shall be punished. That is equally true in the sphere of international government. Valour alone will not achieve that end. Otherwise our great army would have accomplished it. It is not enough that three millions of young men have offered their lives to their country. It depends upon us at home to support them with skill, strength, and every resource of machinery and organization at our disposal so as to drive the conviction into the hearts of nations for all time to come that those governments who deceive their neighbours to their ruin do so at their peril." Mr. Hodge, speaking on behalf of trade union representatives, said that he had been able to agree with all the proposals. He was followed by Captain Guest (Dorset E., Liberal), who was home on short leave after ten months in France. The nation, he said, still seemed to fail to grasp the meaning, size, and significance of the war. He asked whether the members of the small and-war party of this country imagined that if it did not win the war there would be a civilized British society in which they could air their views and carry on their daily life. Our opponents if they won had no intention of making peace with us, but meant to destroy us as the race they feared most. After Captain Guest, Mr. Asquith intervened to deprecate discussion on compulsory service at that moment. In the course of the debate Mr. Wedgwood (Newcastle-under-Lyme, Liberal), who has come home wounded from the Dardanelles, laid emphasis on the fact that every machine gun saved men's lives. The Germans were holding their trenches with very few men armed with machine guns; when lining trenches it was necessary to have one hundred rifles to equal one machine gun. Other members engaged in criticism of the War Office, and Mr. Lloyd George briefly replied. The debate was resumed on June 23rd, and finally, in response to an appeal by Mr. Asquith, the bill was read a second time without a division.

Mr. Long introduced the bill for national registration under the ten minutes rule on June 29th. The justification for it was, he said, to be found in the language used by the Prime Minister when he said, "We have one paramount duty to perform—to bring to the service of the State the willing and organized help of every class of the community." That, Mr. Long believed, represented the view held by the country and the overwhelming desire of the great majority of the people. The bill proposed compulsory registration of the people, male and female, between the ages of 15 and 65. The registration would be local, conducted by the borough and urban and rural sanitary authorities, under the control of the Local Government Board, with the advice and assistance of the Registrar-General, as in the case of the census. The forms would call for particulars as to age and employment, and each person would be asked to state whether he or she would be prepared to volunteer for any form of labour with which he or she was specially acquainted

other than that in which he or she was engaged. A certificate of registration would be issued, and he hoped and believed that that certificate would be regarded as a badge of honour. After a protest from the incorrigible Mr. Ginnell, who said that he would resist registration if it applied to Ireland, the bill was brought in by Mr. Long, amid general cheers, and read a first time.

The Local Government Board.

The President of the Local Government Board, Mr. Walter Long, on the vote for the Local Government Board on June 24th, made a statement dealing especially with the work the department had done in connexion with the war. Incidentally he said that when he first went to the Board in 1886 its estimates amounted to £174,000, in 1904, the last year in which he had been connected with the Board, they had risen to £220,000; this year they were £360,000, of which £50,000 was a new vote secured by his predecessor for the care of infantile life. Between 1886 and the present time the staff had increased from 400 to 990; of these 200 had volunteered their services and were now serving with the army, either abroad or in this country. The work the Board had been called upon to do in connexion with the war had reference chiefly to sanitary questions, the provision and maintenance of hospitals, and the provision of food supplies; twelve medical inspectors were constantly at work, and had paid 730 visits to nearly 500 different places where troops had been quartered. The object of these visits had been in the first place to prevent undesirable billets being selected; secondly, to secure satisfactory sanitary services in respect of water supply, sewerage, etc., for the troops; and thirdly, to see that there should be adequate hospital accommodation for infectious diseases, and prompt action taken both by the local and military authorities. In the prevention of conditions which might be dangerous to the health of the troops, the Local Government Board, the local authorities, and the War Office had worked cordially together, and as the event showed, with satisfactory results. The department had been instrumental in supplying no fewer than 30,000 beds. Local authorities had done good work not only in the actual provision of beds for the soldiers, whether wounded or sick, but also in many cases, in order to supply accommodation, they had pooled their resources, and had taken in the inmates of establishments in adjoining unions. The War Office had expressed its thanks for the assistance given by the Local Government Board in these directions, and especially for the co-operation which the food inspectors of the medical department had been able to give. After dealing with the necessity for economy in local administration, Mr. Long referred to the special committee to deal with distress arising out of the war, and said that its policy had been guided by the principle that it was its duty to prevent, if possible, suffering as a consequence of the war, rather than to relieve it after it had been created. He believed there was no foundation for the apprehension which had been expressed in some quarters that there had been a sudden increase in infantile mortality due to want of proper nourishment or proper care. It was true that there had been an increase in mortality in the early stage of infant life, but it was traceable to particular diseases—measles and whooping-cough—which seemed to account for it all. In the course of the debate Sir G. Toulmin complained that boards of guardians were slow to adopt matters recommended by the inspectors of the Local Government Board, and asked in how many unions women had been appointed as infant life protection visitors. Mr. Crooks paid a tribute to the marvellous progress made by the Local Government Board in the treatment of pauper children—a matter which had been placed on a sound foundation by Mr. Long himself. Touching on the question of vaccination officers' fees, he expressed a wish that the department would issue an order enabling local authorities to pay them by salary. Sir Godfrey Daving drew attention to the question of what should be done for men permanently incapacitated from serving in the army, and for all except the very lightest employment. The number of men permanently incapacitated was, he believed, already over 2,000, and he hoped the Local Government Board would consider carefully whether these men could not be assisted to obtain employment, perhaps in the way of light

work, in the various great departments of the State. He feared that unless a scheme was carefully devised and carefully administered the problem would be found almost insurmountable. After some further discussion, the Parliamentary Secretary of the Local Government Board (Mr. Hayes Fisher) replied on the debate. The suggestion to pay vaccination officers by salary, he said, commended itself to the President of the Board, but it might not be possible to carry out the suggestion this year. In regard to the care of the health of women and children, he expressed the opinion that economy was necessary, but that much could be effected if encouragement and full scope were given to voluntary efforts.

Duty-free Alcohol in Hospitals.—A most interesting proposal was made by the Chancellor of the Exchequer in a clause in the Finance (No. 2) Bill to allow hospitals to receive duty-free alcohol in the preparation of tinctures and other articles used for medical purposes in the hospital, or to have repaid the amount paid in respect of alcohol contained in, or used in the preparation or manufacture of, tinctures or other articles bought for the purpose of medical articles bought for purpose of medical use in the hospital. On the face of it, this was a concession which the medical profession would naturally, in the absence of any serious drawbacks, have been delighted to welcome. Unfortunately, the Government had not thought it necessary, so far as is known, to consult any bodies representative of the medical and pharmaceutical professions, and when the clause was brought to the notice of the British Medical Association and the Pharmaceutical Society of Great Britain it was seen to be so drafted as to offer opportunities for serious abuse. As is the case with all Government measures at the present moment little time was given for consideration, and the two associations, after consultation, sent letters to the Chancellor of the Exchequer pointing out some of the difficulties they foresaw if the clause went through as drafted, and asking that the matter should be postponed and the whole question of the use of duty-free alcohol in medicine referred to a special committee for consideration and report. The letter of the Association will be found on page 20 of the SUPPLEMENT. Members of the medical profession will hardly need to be told that the Association would not have taken this step if it had not felt that the dangers to the community and to the medical profession more than counterbalanced the gain to the hospitals. The two associations took steps to interest a number of members of the House of Commons in the question, and various amendments were put down on the paper by Sir Philip Magnus, Mr. Glyn-Jones, Mr. King, Mr. Hogg, Mr. Barry, and Mr. Rawlinson, the effect of which, if adopted, would have been, it is believed, materially to diminish the risks of the clause if the Government persisted with it. The clause was debated in the House on Tuesday last, when Mr. Glyn-Jones, in a lucid and convincing speech, which evidently interested the House as the speech of a man who thoroughly knew what he was talking about, detailed the objections of the two associations, and urged that the matter should be postponed until it had been more thoroughly considered. As a result the Chancellor of the Exchequer withdrew the clause, promising to bring it up on the report stage in the hope that in the meantime it would be possible to amend it so as to satisfy the objectors. The chief speech made against postponement came from Sir Henry Craik, who was not convinced by the arguments that had been adduced by the two associations, and thought it rather ungracious on their part to oppose what he thought was a very generous concession on the part of the Government to thoroughly deserving institutions. Sir Henry did not seem to realize that the two associations were compelled by a sense of duty to object, not to the concession, but to the pressing through at very short notice of a clause considered to be of wide-reaching importance, as to which the organized bodies of the two professions chiefly concerned had not been consulted. Opposition also came from Mr. Jonathan Samuel, of Stockton-on-Tees, who, speaking as one interested in hospital management, strongly deprecated the cheapening of alcohol for medicinal purposes. The debate clearly showed that the British Medical Association and the Pharmaceutical Society were thoroughly justified in

asking for delay, and it will also, we hope, have the effect of showing the Government the wisdom, in matters of this kind, of ascertaining beforehand the opinion of bodies which are strongly interested, and which could be relied upon to give the Government the benefit of expert advice.

Royal Army Medical Corps (T.F.).—Mr. Forster informed Sir J. Lonsdale on June 23rd that he was not yet in a position to make a statement with regard to an increase in the pay of officers of the R.A.M.C. (T.F.), so as to make their emoluments correspond with those of the medical officers of the regular and new armies.

Pay of Lieutenants R.A.M.C.—Mr. Horner asked, on June 24th, what was the total pay, with allowances, of a man in the Royal Army Medical Corps holding the temporary rank of lieutenant in the regular army and the pay, with allowances, of a man holding a lieutenant's rank in the Royal Army Medical Corps Special Reserve, and what were the reasons for the difference in pay. Mr. Forster said that the civil surgeon serving under a special contract, with the rank of lieutenant, received 24s. a day, inclusive of all cash allowances. The Special Reserve officer of lieutenant's rank received pay and allowances of 17s. at home and 20s. in the field. The latter was serving on an engagement made in advance, at the pay of the regular officer, as in all other branches of the Special Reserve. The former was engaged on an emergency contract.

Science and the War.—On June 28th the Prime Minister, in answer to Sir Philip Magnus, said that opportunities would arise for the desired discussion on the organization for the purposes of the war of the services of Fellows of the Royal Society and other scientific bodies, and of the professors and staffs of universities and technical schools, and of the scientific and technical resources of the laboratories and workshops of such institutions. In reply to Mr. E. Jones, who on June 23rd asked a question as to chemical laboratories, Mr. Tennant said that the laboratories of the War Office Research Department were available for research in relation to the properties and effects of gases, oils, and dangerous fluids, and that practically all the laboratories in the country had been placed at the disposal of the War Office which had a large chemical staff of highly qualified men. In reply to Sir John Jardine, who asked on the following day whether in order to deal with such matters as poisonous gases, poisoned wells, and new explosives commissions in the army had been given to persons skilled in chemistry, and whether Fellows of the Institute of Chemistry were eligible for such commissions, Mr. Tennant said that arrangements had been made to employ on such duties, both as officers and non-commissioned officers, a number of persons having these qualifications. Fellows of the Institute of Chemistry were eligible for commissions for this purpose.

Optical Instruments.—Sir William Bull asked, on June 21st, whether any application had been made to the Royal Institution for the temporary use of a laboratory in the institution for conducting certain scientific experiments in connexion with the supply of optical instruments for the forces under the direction of a member of the staff of the Northampton Polytechnic Institute, whose services the governors of that institute had agreed to place at the disposal of the War Office; and, if so, whether the managers of the Royal Institution had expressed their willingness to afford facilities for such experiments to be conducted in the laboratories of the institution, as suggested by the War Office? Mr. Tennant said that the facts were substantially as stated in the first part of the question. The communications received from the Royal Institution did not amount to an offer of help or an expression of readiness to lend assistance. Arrangements for the experiments which the War Office had desired to carry out by means of the good offices of the Royal Institution were subsequently made with Dr. Grant Ogilvie, of the Science Museum, South Kensington. In reply to a subsequent question by Sir Philip Magnus, Mr. Tennant said he would have to inquire why it had become necessary to seek some other place for the performance of these experiments than an institution where all the apparatus and equipment existed.

German Attacks on British Towns.—In reply to Mr. Kellaway, on June 24th, Mr. Bruce, Parliamentary Under Secretary, Home Office, said that, as stated in reply to a question on February 22nd, the number of civilians killed and injured in the bombardment of the Hartlepoons, Scarborough, and Whitby by hostile warships was 127 killed and 567 injured. There had been altogether fourteen attacks by hostile aircraft, extending over wide areas, and chiefly directed against undefended towns, villages, and country districts. The total casualties in these raids were: Killed, 56, of whom 24 were men (all of them civilians), 21 women, and 11 children. Wounded (so far as could be ascertained), 138, of whom 86 were men 35 women, and 17 children.

Medical and Surgical Treatment of the Wounded.—On June 24th Mr. Lynch addressed a series of questions to the Under Secretary of State for War with regard to the treatment of wounds. The first related to motor theatres, and asked what objections there were to their employment, and whether the best features of the Belgian system which had given excellent results would be submitted to study with a view to adoption. Mr. Tennant replied that motor operating theatres were not considered necessary, as facilities for carrying out operations were available as near the front as was deemed advisable. The Belgian practice had been duly considered. Mr. Lynch's second question had reference to a discussion in the French Academy of Medicine in the course of which differences of opinion as to the value of antiseptics in infected wounds was shown. Mr. Tennant replied that the discussion in question had been considered by the British consulting surgeons in France, and a report on the result of their experience in the treatment of both infected and non-infected wounds had been prepared for circulation through all military hospitals. Mr. Lynch's third question was whether the mode of treatment proposed by Sir Watson Cheyne by means of cresol paste had given satisfactory results, and if not whether its use had been discontinued in the army service. Mr. Tennant replied that the results obtained by the use of cresol paste had not been satisfactory, and its use had been discontinued. The fourth question was as to the rate of mortality due to abdominal wounds on the western front, and in cases of compound fractures in which it had been found necessary to sacrifice the limb. Mr. Tennant replied that the information was not available.

Colour Blindness (Dr. Edridge-Green's Researches).—Mr. Lynch asked on June 23rd whether Dr. Edridge-Green was at any time requested by the Board of Trade to submit an efficient test for colour blindness; whether, as a result of considerable experimentation and original research, Dr. Edridge-Green devised that form of lantern which was now employed in the official tests in the navy, and which, after slight modifications, was adopted by the Board of Trade; whether the Board offered to Dr. Edridge-Green any reward or acknowledgment of his services; and whether, in view of the importance of the material results which had followed from Dr. Edridge-Green's scientific researches, he would be recommended for a suitable reward. Captain Pretzman (Parliamentary Secretary to the Board of Trade) said that Dr. Edridge-Green was at no time requested by the Board of Trade to submit a test for colour blindness. The lantern adopted by the Board for testing colour vision was not devised by Dr. Edridge-Green, but was devised by a Departmental Committee appointed in 1910 to investigate the question of sight tests. As regards the remainder of the question, the answer was in the negative. Mr. Lynch asked Captain Pretzman to again personally look into the question on the ground that the Board of Trade had simply taken Dr. Edridge-Green's invention and slightly altered it. Since the days of Thomas Young he was the only British man of science who had contributed valuable work in this particular field of research. Captain Pretzman replied that he had that morning looked into the question, and his information did not tally with Mr. Lynch's statement, but he would look into the matter again.

Small-pox Outbreak at Oldham.—Mr. Long stated on June 28th, in reply to Mr. Hodge, that though the first recognized case of small-pox in the recent outbreak at Oldham

was admitted to the hospital on February 25th, it would appear that the first case of the disease, from which all the others could be traced, was in an unvaccinated girl, whose illness was not originally recognized as small-pox. All the cases had mild attacks of the discrete type, and none were fatal, and most of them were in the hospital for comparatively short periods. There was nothing to show that the outbreak was connected with any insanitary condition.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE CENTRAL COMMITTEE.

A MEETING of the Central Committee was held on Thursday, June 24th, when the further details of the proceedings of the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés were discussed. The last meeting of the Belgian Committee of which details had been received was that of April 29th, when it may be remembered that the total subscriptions announced amounted to Fr. 65,000 and the total expenditure to about Fr. 34,000, leaving in hand a little over £1,200. At that meeting the proposal to make monthly grants to the indigent was adopted.

The Distribution of Funds in Belgium.

At the meeting on May 6th subscriptions were announced bringing the total receipts up to Fr. 65,803. On that date there remained in hand £800. The interesting announcement was made that Messrs. Elliman and Co. of Slough had authorized M. Delacre to receive on behalf of the Belgian Committee the sum of £304 due to him from a Belgian creditor, and that the creditor had sent the money.

At that meeting the subcommittee presented a report dealing with monthly grants to medical men. The first list included the widow of a doctor who had been shot—she is completely ruined; six medical men at Dinant whose property has been destroyed; three other doctors in different districts in the same condition; and the widow of a doctor who was homeless. The committee unanimously approved monthly grants of 200 francs in all cases. M. Breuglemans reported on two cases, one of a physician and one of a pharmacist, in whose case these grants had already been passed. He reported that the physician was living "as a day labourer, apparently by casual work or by jobs under a manager; in any case, he who once lived in plenty not long ago, is now in a very lonely plight, his family finds shelter under other roofs, and he himself, at an age when the spring is gone out of life, has to exist as a dependant." Notes of similar cases of cruel hardship were furnished, sufficiently proving to what excellent purpose the Belgian Committee is able to put any funds which the British Committee can send to it.

At the meeting of the Belgian Committee of May 20th additional subscriptions brought the total receipts of the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés to 75,000 francs. Grants amounting to 4,000 francs had been made during the previous fortnight, leaving in hand about £1,000. Different members of the committee had received letters of gratitude from those helped, and some photographs of the premises of ruined doctors were laid on the table. Dr. Laruelle read a report on four cases of doctors requiring assistance. All had lost their homes, and their furniture and professional plant had been burnt or destroyed; three of them were practising in entirely ruined districts. Dr. Laruelle, in recommending immediate grants, said that it was proposed later on to suggest monthly allocations for these men, as their means of existence would remain precarious. The grants were voted accordingly. Mr. Breuglemans reported on the position of two pharmacists. One of these, having two sons at the war, had, by mortgaging his property, rebuilt his house to prevent it falling down, and had acquired some stock on credit. For the time being he was carrying on business in premises which had been lent to him. The premises of the other had been completely burnt out, and he had to support a wife and child from a business carried on in a ravaged district, where the heads of families had been killed, leaving their dependants to charity. "Medicines are," said M. Breuglemans, "for the

most part supplied on demand, to be paid for after the war, and the medical funds of manufacturing works are no longer running." M. Coppez, who had seen many of the sufferers, said that it was clear that the assistance given was most valuable, and would have to be renewed in most cases after July. Notice, however, would have to be given to those whom it concerned that the grants were for their sustenance, and must not be used, as had happened, to pay insurance premiums. The President of the Belgian Society reaffirmed the necessity of retaining money for urgent cases, and the method of keeping the British Committee informed regularly of the cases helped was set down for future discussion.

A statement of accounts received by the British Committee through Professor Jacobs was read, showing that on June 10th about £700 remained with the Belgian Committee unexpended, from which £200 have to be deducted for purchase and sale of drugs. This statement of accounts, however, was dated on the day on which a further substantial grant was dispatched to Belgium by the British Committee, so that for the time being the Belgian Committee is again in funds.

The Treasurer's Statement.

Dr. Des Voeux announced that the sum of money received by him up to date amounted to £14,893, but all the local funds had not yet reached the central treasurer. A substantial proportion of this sum is on deposit at the bank and is bearing interest, but the Committee recognized that steady and large subsidies would have to be sent to the Aide et Protection aux Médecins et Pharmaciens Sinistrés, so that efforts to collect money must not be relaxed. Moreover, the supply of clothes to the refugee doctors and pharmacists and their wives was an increasing expense, and the need for distribution in this country might become larger.

THE WEEK'S SUBSCRIPTIONS.

Thirty-first List.

£ s. d.		£ s. d.	
Bournemouth Division, B.M.A. (per Dr. Eleanor C. Boyd, Hon. Secretary) 4th donation—total £123 9s. 6d.)—	0 5 0	Dr. Buck	1 1 0
A. G. M.	2 2 0	Dr. Dyson	2 2 0
Dr. B. Jones	2 2 0	Dr. Griffith	3 3 0
Major F. A. L. Hammond	50 0 0	Dr. Carter	3 3 0
Lord Egerston of Tatton	10 10 0	Mr. Braithwaite ...	5 5 0
Dr. G. Maxwell Simpson		Surgeon Bradburn, R.N.	0 10 6
Goverley Division, B.M.A. (per Dr. W. H. Lowman, Hon. Secretary)—		Aberdeen Division, B.M.A. (per Dr. J. R. Levaek, Hon. Sec.) (2nd donation—total, £44 12s.)—	
Dr. Madley	0 10 6	Professor Marnoch, Drs. Usher, Shirreffs, Stephen, and Aymer	16 12 0
Dr. Collington	0 10 6	North of England Branch of Fund (per Dr. James Don and Mr. A. S. Percival, Hon. Secs.) (5th donation—total, £73 1s. 7d.)—	
Dr. Pocock	0 10 6	Dr. F. Dawson	1 1 0
Dr. Phillips	0 10 6	Dr. E. Walker	1 1 0
Dr. Croft	0 10 6	London College of Pharmacy, Students and Staff (per Mr. R. G. Matthews)	1 17 6
Dr. Lowman	0 10 6	Dr. G. D. H. Carpenter (4th donation—total, £3)	1 0 0
Dr. Newton	0 10 6		
Dr. Kendrick	0 10 6		
Dr. Bellantsme	0 10 6		
Dr. Kendrick	0 10 6		
Dr. Brazil	0 10 6		
Dr. Hawley	0 10 6		
Dr. Orton	0 10 6		
Dr. Bares (collected by) ...	2 2 0		
Dr. Smalles	2 2 0		

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE APPEAL FOR SURGICAL INSTRUMENTS.

Mr. Meredith Townsend reported at the last meeting of the Central Committee that two boxes of instruments, received from the Oamaru General Hospital, New Zealand, were ready for dispatch to Belgium, and that it had been ascertained through the National Committee for Relief in Belgium that surgical instruments are much wanted there.

Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C.

The late Mr. Bernard Roth left unsettled estate of the gross value of £84,843, of which £62,945 is net personality.

THE WAR.

MEDICAL ARRANGEMENTS OF THE BRITISH EXPEDITIONARY FORCE.

[From a Special Correspondent in Northern France.]

CASUALTY CLEARING STATIONS.

The Casualty Clearing Stations I have seen are many, and those that I might see are more; but it is useless to put off a description, for what is true of a few will be true to the end. As our composite army grows in size, so, too, grows the number of clearing hospitals. Officially, the latter title is now banned, but, as will be shown by an account that will reach you later, it is not really inappropriate.

There are, I suppose, about a dozen of them, and at one time they were disposed in three narrowing arcs roughly parallel with the fighting line, but they are mobile units, and move, or will, as the army moves.

As distance counts near the trenches they are generally a long way apart, but sometimes there are two or more of them temporarily at the same railroad. There are times when the enemy's long-distance artillery gropes blindly for something to hurt; and if it thinks it has found it at a place where there happens to be a clearing hospital, then the latter must seek new quarters.

But wherever it may go this is never far from the real front. Just now two or three have been left by the tide, say, a dozen miles from the trenches, and others are at intermediate distances. Some are so close that even in "peace time" their occupants can fairly well gauge what is going on merely by the sounds that reach their ears.

In casualty clearing station parlance, it is "peace time" when only ordinary trench fighting, or an intermittent artillery duel, is in progress, and when men with wounds of all degrees of severity arrive at the rate of 90 or 100 a day.

The motor ambulance conveys bring them in from the various head quarters of the field ambulances serving the divisions occupying the section of the line nearest the village where the clearing hospital is established. There is no fixed hour for their arrival, but in "peace times" this is commonly in the hours between reveillé and midday. The convoy loads then represent the whole of the wounded garnered by the field ambulances between daylight that morning and daylight twenty-four hours previously. But there is really no regularity. Often enough a field ambulance will send straight in by its own vehicles a few men who have been wounded so far from the trenches that it has been possible to pick them up forthwith. Often enough, too, it finds that it can send on in the afternoon men who at daybreak seemed too ill to be moved.

It is at field ambulance head quarters that the first winnowing of the wounded takes place; but the mesh of the sieve is very wide. Well it may be, seeing that the clearing hospitals with all their possibilities are so close at hand. When things are at all active it lets through all but those for whom even another hour or less of movement is for the moment out of the question.

At the casualty clearing stations the sifting mesh is closer; as close as the surgeons choose when things are slack, and just close enough during times of "liveliness" to secure that no one shall be moved basewards by a hospital train without having his first-aid dressing replaced, without having any fracture present adequately splinted, without the patient himself having been made comfortable, and to ensure that all shall be detained who are in a state of serious shock or in whom immediate operation is imperative.

But the number that must thus be detained is commonly not large; probably 70 or 80 per cent. of each convoy can be transferred when a hospital train arrives. This is certain to be the case within twenty-four hours, and practically speaking can be almost as soon as the officer in command of the casualty clearing station wishes. A telegram to the D.M.S. of the army to which his unit is attached will promptly bring him, if need be, not one but a whole series of trains.

The foregoing is possibly one of the reasons why the term "casualty clearing station" has been substituted for the original name of these formations. The word "hospital" suggested not more than is really true of them,

but a more ambitious part than is ever theirs on paper. Officially they are entitled to act as hospitals only so long as they have on their hands patients whom they cannot possibly evacuate.

Primarily each of them is a kind of cross between a funnel and a filter, the wide end facing the trenches, the narrow end fitting into the top end of the line of communications and ensuring that the stream of wounded shall take the right direction. In this way they play towards the field ambulances the same part that the latter do towards the regimental aid posts. Whenever a field ambulance wishes to get rid of its sick and wounded the related casualty clearing station must be prepared to take charge of them forthwith. If necessary it must detach part of its personnel and equipment and send it forward to the place which the field ambulance was occupying. Another like portion may also have to be detached and sent rearwards to form an intermediate station if the distance between itself and the nearest railhead is great. This is the official position of casualty clearing stations and obviously it is not one in which the hospital idea can play a conspicuous part.

But their real present position is different. Thanks partly to the sieglike character of the war, but still more largely to the introduction of motor ambulance convoys and to the substitution of automobile vehicles for 70 per cent. of each field ambulance's wagons, the whole situation has been changed. It has been changed, indeed, so thoroughly that it seems likely that the present statements regarding all medical work done in advance of railhead are destined to be entirely recast or will be held to apply only to warfare in countries where motor transport cannot be freely utilized. Meanwhile the net effect is that though the hospital element is still kept officially in the background and the general equipment of a casualty clearing station is still of such a character as to make it a readily moved unit, it can and does in fact do a good deal of hospital work of the very best kind. The latter fact I may perhaps be able to bring out more clearly in a later letter.

MOBILE LABORATORIES.

Two "mobile laboratories" were sent out by the War Office at the beginning of the war; a third and fourth were added soon after Christmas, and I hear that the early arrival of several others is expected. The title which has been applied to them certainly leaves something to be desired in the direction of specificity of description, but I do not know that there is any single epithet by which their character and aim could be precisely indicated. Still the adjective "mobile" is justified, because it does in fact describe one of their more conspicuous attributes with accuracy.

There is no doubt a strong tendency for the work and the apparatus employed to overflow into buildings near which the laboratories are standing, but the nucleus remains unaffected. It consists in each case of a caravan, fitted up with laboratory benches and racks, and mounted on a motor chassis, so that it can be moved at will to any distance along any passable road. A very hurried move might entail the loss of a certain amount of stores, and possibly of one or two pieces of heavy apparatus—say, an autoclave; but if notice to move were given, say at midday, it would not be surprising to find one of these laboratories again at work by tea-time at some village twenty miles distant from that at which one had first seen it. "Mobile" is, therefore, an appropriate adjective.

As for the difficulty of finding a second epithet which shall equally well describe their work, I have heard pathological, bacteriological, chemical, clinical, and hygienic all used in turn, but none of them is satisfactory. The work of the laboratories is not identical, and that of none of them is quite on all-fours with the work done at laboratories to which any of the epithets mentioned are applied in civil life.

Taken as a whole its work lies mainly in the field of preventive medicine, and on it depend most of the measures adopted from time to time for safeguarding the health of the troops at the real front—that is to say, of those who are either actually in the trenches or resting in billets within what the French call the *zone du feu*. The laboratories are supposed to move as the army moves, and meantime they shift their position at the front from time to

time, though not very often. Two of them have now been stationed for several months past at villages which are the head quarters of various army corps, and within four or five miles of the trenches; another—one which has moved fairly often—is about twelve miles away at a place which is at present the head quarters of the second army, and a fourth is at General Headquarters.

One reason why none of these laboratories requires to move very frequently is that attached to each of them is a kind of tender, which can be either dispatched to bring in specimens or used to take the officer in charge to visit some spot where a problem deemed susceptible of solution by laboratory methods is under consideration. The vehicles supplied for this purpose leave nothing to be desired in point of speed, but being of the two-seater or cycle car variety they bump badly when travelling over the cobbled-paved roads of Flanders, however carefully they may be driven. An equally inexpensive or even still cheaper car of heavier build would probably better suit the work required, which includes at times the conveyance of thin glass vessels.

As for the laboratories themselves, the largest and most caravan-like is one to which reference has several times been made in these notes. It is, in fact, an actual caravan, having been originally built and used as a means of visiting races by a well known motor manufacturer, by whom it was handed over to the War Office last autumn, with a view to conversion to its present purposes. The other three furnish about the same floor space as a full-sized ambulance—say, 50 square feet—but have solid wooden walls and probably greater cubic space, since their roofs seem higher. But of course most of the floor space and much of the cubic space is absorbed by benches, shelves, and equipment. Atmospherically, therefore, they are not ideal workshops, either in warm weather or cold. Each of them is mounted on a high-powered chassis, with a relatively short wheelbase. Consequently the body overhangs 3 ft. or 4 ft., and sways a good deal when travelling. In view of these various facts it would not be surprising to find that any other mobile laboratories sent out were mounted on lorry instead of touring-car chassis. While their mobility would not sensibly be diminished, they would be more steady, and the greater amount of elbow-room and breathing-space provided would make them truly self-dependent units.

The internal arrangement of the bodies is much the same in all cases. They are entered from the end like an omnibus, and the worker moves about between two 6 ft. fore-and-aft benches running under the side windows. At the forward end a partition cuts off about two feet of the total available floor space, and thus provides a separate compartment for apparatus requiring use of constant heat. There are cisterns in the roof and electric as well as natural lighting. Their equipment is in three cases bacteriological, and in the fourth is chiefly of the kind to be seen in the laboratories of water examiners.

THE AUSTRALIAN GENERAL HOSPITALS.

The staff of the No. 3 Australian General Hospital reached England in the ss. *Mooltan* on June 27th. The following are the officers:

Colonels.—T. H. Fiaschi, D.S.O., V.D. (N.S.W.), Sir A. W. McCormick (N.S.W.).

Lieutenant-Colonels.—J. A. Dick (N.S.W.), C. T. C. de Crespiqui, Secretary and Registrar, (S.A.), R. Stawell (V.), S. Jamieson (N.S.W.), A. M. Cudmore (S.A.).

Majors.—J. A. H. Sherwin (V.), W. Trethowan (W.A.), J. Morton (N.S.W.), C. Read (N.S.W.), K. Hughes (A.), J. L. Gibson (Q.), W. G. D. Upjohn (V.), H. Harris (N.S.W.), H. J. Stewart (Q.), K. Smith (N.S.W.).

Captains.—E. A. H. Russell (S.A.), W. T. J. Newton (N.S.W.), R. A. P. Wagh (N.S.W.), A. P. Wall (N.S.W.), A. M. Wilson (V.), W. P. Matthews (N.S.W.), F. H. D. B. Lawton (V.), A. H. Gibson (W.A.), T. L. Anderson (W.A.), D. de Witt Henry (V.), E. Fisher (N.S.W.), F. S. MacInre (V.), B. Stewart (V.), A. Brennan (V.), L. A. Hayward (S.A.), J. Hardie (Q.).

Quartermasters.—Captain Mellyn (S.A.), Lieutenant A. S. Stuart (N.S.W.).

Dispenser.—Lieutenant J. R. Hill (N.S.W.).

By the same boat there travelled also a matron and 79 nurses, and 180 N.C.O.'s and orderlies.

Reinforcements for the No. 1 Australian General Hospital were disembarked at Suez. The officers landed were:

Majors.—H. R. Maclean (V.), H. C. Garde (Q.)

Captains.—G. A. W. J. Knight (V.), J. J. Hollywood (N.S.W.), S. Yeatman (S.A.), L. B. Cook (V.), F. MacDonald (Q.), A. Anderson (Q.), H. O. Teague (W.A.), R. E. McClelland (N.S.W.), H. Alsop (N.S.W.), E. R. Stephen (N.S.W.), A. Dunn (N.S.W.), C. R. Palmer (N.S.W.), E. W. Deane (V.), T. G. Leary (V.), R. W. Cunningham (S.A.), A. J. Murphy (Q.), C. J. Cantor (W.A.), R. E. Dunn (T.).

Eighty nurses and 180 N.C.O.'s and orderlies were landed at the same time for this hospital, and, in addition, 50 nurses specially recruited by the R.A.M.C. in Australia for various Egyptian hospitals.

In addition to the officers above enumerated, Captains R. E. Shuter (V.), F. A. Grey (V.), and Clowes (Q.) have reached this country for service at the convalescent depot at Harefield Park; they were accompanied by about 20 nurses and as many N.C.O.'s and orderlies.

HONOURS.

The following names are additional to those published last week upon whom the King has been pleased to approve rewards for services in connexion with operations in the field:

To be Companion of the Bath.

Colonel M. P. C. Holt, D.S.O.

To be Companions of the Distinguished Service Order.

Lieutenant-Colonel J. Poe, M.B., R.A.M.C.
Major R. V. Cowie, R.A.M.C.
Major T. E. Fielding, M.B., R.A.M.C.
Major F. S. Irvine, M.B., R.A.M.C.
Surgeon-Major B. Pares, Royal Horse Guards,
Captain C. G. Browne, R.A.M.C.
Captain H. StM. Carter, M.D., R.A.M.C.
Captain (temporary Major) H. A. Chisholm, Canadian A.M.C.
Captain T. J. Crean, V.C., R.A.M.C. (Reserve of Officers),
Captain R. Gale, M.B., R.A.M.C.
Captain P. A. Lloyd Jones, M.B., R.A.M.C.
Captain T. H. McKillop, Canadian A.M.C.
Captain O. W. McSheehy, M.B., R.A.M.C.
Captain J. Taylor, M.B., I.M.S., attached 1st Battalion 39th Garwhal Rifles.
Temporary Captain O. Richards, M.D., F.R.C.S., R.A.M.C.

Awarded the Military Cross.

Captain W. Darling, M.B., F.R.C.S., R.A.M.C. Special Reserve.
Captain G. F. Dawson, M.B., R.A.M.C., attached 2nd Battalion Royal Highlanders.
Captain P. Dwyer, M.B., R.A.M.C.
Captain A. K. Haywood, Canadian A.M.C., attached 3rd Canadian Battalion.
Captain H. L. Howell, R.A.M.C.
Captain J. B. Jones, M.B., R.A.M.C.
Captain E. J. Kavanagh, M.B., R.A.M.C.
Captain J. S. O'Neill, M.B., I.M.S.
Captain J. W. C. Stubbs, M.B., R.A.M.C.
Captain H. F. Vellacott, F.R.C.S., R.A.M.C. Special Reserve.
Captain N. T. Whitehead, M.B., R.A.M.C.
Captain H. G. Winter, R.A.M.C.
Lieutenant W. McM. Chesney, M.B., R.A.M.C. Special Reserve.
Lieutenant R. A. Preston, M.B., R.A.M.C. Special Reserve.
Temporary Lieutenant D. D. Craig, M.B., R.A.M.C.
Temporary Lieutenant F. T. Hill, R.A.M.C.
Temporary Lieutenant H. G. Janion, R.A.M.C.
Temporary Lieutenant F. W. James, M.D., R.A.M.C.
Temporary Lieutenant W. H. Lister, R.A.M.C.
Temporary Lieutenant I. C. Maclean, M.D., R.A.M.C.
Temporary Lieutenant P. Smith, R.A.M.C.
Second Class Subassistant Surgeon Ramkrishna Ganpat Shinde, attached 1st Battalion 39th Garwhal Rifles.
Sergeant-Major G. B. Walker, R.A.M.C.
Quartermaster and Honorary Lieutenant J. Carr, West Riding R.A.M.C. (T.F.).
Quartermaster and Honorary Lieutenant H. Dugdale, 3rd East Lancashire Field Ambulance, R.A.M.C. (T.F.).

To be Brevet-Colonels.

Lieutenant-Colonel H. Ensor, D.S.O., M.B., R.A.M.C. Staff.
Lieutenant-Colonel M. H. G. Fell, R.A.M.C. Staff.
Lieutenant-Colonel W. W. White, M.D., I.M.S.

To be Brevet Lieutenant-Colonel.

Major J. S. Bostock, M.B., R.A.M.C.

To be Honorary Majors.

Quartermaster and Honorary Captains W. N. Archibald and A. Lunney, R.A.M.C.

To be Honorary Captain.

Quartermaster and Honorary Lieutenant C. W. Hearn, 3rd Wessex (attached 26th Field Ambulance) R.A.M.C. (T.F.).

Indian Distinguished Service Medal.
2nd Class Senior Subassistant Surgeon Mahadeo Parshad, I.S.M.D., 1st Gurkhas.
1st Class Subassistant Surgeon Narayan Parshad Sakul, I.S.M.D., 112th Field Ambulance.
Leuco Naik Mangli, Army Bearer Corps, No. 8 Co., 113th Field Ambulance.

Decoration of the Royal Red Cross.

Queen Alexandra's Imperial Military Nursing Service.—Matron Miss F. M. Hodgins, Matron Miss H. W. Reid, Matron Miss G. M. Richards, Sister Miss A. F. Byers (Acting Matron), Sister Miss J. A. Congleton, Dr. Storer, Miss M. C. Corbishley (Acting Sister), Sister Miss H. Hartigan, Staff Nurse Miss C. MacK. MacRae (Acting Sister), Staff Nurse Miss K. M. Matthews (Acting Sister), Sister Miss G. M. Smith.

Queen Alexandra's Imperial Military Nursing Service (Reserve).—Miss N. Adler, Miss E. G. Barrett, Miss E. M. Hansard, C. Elston, Miss J. Barclay Smith, Miss L. M. Thurling.
Queen Alexandra's Military Nursing Service for India.—Lady Superintendent Miss F. Y. Watt.

Territorial Force Nursing Service.—Miss H. G. Palin, Miss A. H. Ivins, Miss E. A. Jackson, Miss P. M. Morris, Miss C. Webber.

Civil Hospitals Reserve.—Miss I. E. M. Barbier, Royal Infirmary, Bristol; Miss S. C. Mcintosh, Royal Infirmary, Edinburgh; Miss M. Clark, Royal Southern Hospital, Liverpool; Miss M. A. O'Leary, Dr. Storer's Hospital, Dublin; Miss E. T. Ferguson, Royal Infirmary, Perth; Miss E. Harley St. Thomas's Hospital, London; Miss K. Johnston, City of Dublin Hospital, Dublin; Miss V. M. Kiddle, Guy's Hospital, London; Miss E. M. Le Sneur, University College Hospital, London; Miss M. Oakey, General Hospital, Birmingham; Miss L. O. Peet, Derby Royal Infirmary, Derby; Miss A. Wainwright, The London Hospital, London.

British Red Cross Society.—Principal Matron, Miss N. Fletcher.

Australian Nursing Service.—Matron, Miss I. Greaves.
Canadian Nursing Service.—Matron, Miss E. Campbell.

SIR JOHN FRENCH'S DISPATCH.

The following is a continuation of the list published last week of the names mentioned in Sir John French's dispatch for gallant and distinguished service in the field:

General Head Quarters Staff, etc.

Colonel S. G. Moores, A.M.S.
Surgeon-General T. J. O'Donnell, D.S.O., A.M.S.
Colonel S. Westcott, C.M.G., A.M.S.

1st Life Guards.

Surgeon-Lieutenant E. D. Anderson.

2nd Life Guards.

Surgeon Captain E. J. H. Luxmore.

Medical Service and Royal Army Medical Corps.

Quartermaster-Sergeant W. Andrews, Acting Sergeant-Major W. Argent, Private P. F. Arnold, Acting Corporal F. Avery, Acting Corporal G. F. Bardswell, Sergeant F. P. Barron, Private F. Batchelor, Private J. F. Benson, Private W. T. Blawie, Sergeant V. Butler, Sergeant H. G. Boxall, Acting Corporal G. Burdett, Staff Sergeant W. Busby, Acting Corporal H. Butler, Private J. Cartwright, Private S. J. Chase, Acting Corporal A. Clark, Lance-Corporal W. C. Cook, Staff Sergeant A. Dady, Private V. J. Davis, Private J. G. Deakin, Sergeant-Major E. B. Dewberry, Private F. Emmerson, Private A. Evans, Private H. Floyd, Staff Sergeant J. G. A. Forbes, Sergeant-Major G. A. Gibbs, Sergeant-Major J. Gillespie, Corporal F. Gifford, Private H. Greenwood, Sergeant A. O. Gregory, Quartermaster Sergeant T. Gregson, Private W. H. Hamer, Sergeant G. Harris, Private J. Harrison, Private E. W. Hayne, Sergeant G. W. Herbert, Private P. Horrigan, Sergeant W. Hutchings, Staff Sergeant J. R. Ireson, Staff Sergeant (Acting Sergeant-Major) C. Jones, Private J. Jones, Quartermaster-Sergeant F. E. Knipsey, Private R. N. Knowles, Sergeant-Major E. Larned, Private W. A. Last, Sergeant A. F. Leaney, Private W. Matchin, Sergeant W. H. Mattison, Sergeant J. N. Mercer, Sergeant-Major W. Merchant, Corporal J. Morrison, Acting Corporal H. F. Mulley, Quartermaster-Sergeant P. H. Musgrave, Staff Sergeant P. J. O'Rourke, Private E. T. J. Owen, Quartermaster-Sergeant E. A. Phillbrook, Sergeant R. Pollock, Quartermaster-Sergeant F. Porter, Private A. Foley, Sergeant J. D. Powell, Sergeant H. M. Prince, Quartermaster-Sergeant W. C. Prince, Staff Sergeant G. P. Pursey, Private A. F. Reynolds, Quartermaster-Sergeant C. E. T. Richardson, Corporal R. Roberts, Staff Sergeant W. Robertson, Sergeant H. Russell, Staff Sergeant W. Scott, Sergeant-Major W. H. Scott-Balcock, Sergeant H. W. Seldon, Staff Sergeant E. Sharp, Sergeant-Major F. M. Sharpe, Sergeant E. F. Smith, Sergeant-Major H. Sprinks, Sergeant-Major E. Steele, Staff Sergeant G. P. Steer, Staff Sergeant G. Stubbs, Sergeant H. E. Taylor, Quartermaster-Sergeant J. H. Thomas, Sergeant W. B. Thomas, Private B. P. Thorpe, Staff Sergeant W. S. Tove, Acting Sergeant-Major C. J. Tunn, Staff Sergeant-Major G. B. Walker, Sergeant-Major D. Watt, Staff Sergeant W. Whyte, Private H. Wilkinson.

Q.=Queensland; N.S.W.=New South Wales; V.=Victoria; S.A.=South Australia; W.A.=West Australia; T.=Tasmania.

Royal Army Medical Corps (Territorial Force).

Bickerton, Captain R. E., M.B., 84th Field Ambulance.
 Birl, Major E. B., 26th Field Ambulance.
 Blackwood, Captain W. M. B., 25th Field Ambulance.
 Burgess, Lieutenant R., 24th Field Ambulance.
 Cameron, Lieutenant-Colonel D. A., M.B., 86th Field Ambulance.
 Clayton, Lieutenant J., 2nd London Sanitary Company.
 Draycott, Lieutenant C. N., 1st London (City of London) Sanitary Company.
 Fairbank, Captain H. A. T., F.R.C.S., 85th Field Ambulance.
 Fisher, Major D. L., M.B., 86th Field Ambulance.
 Harrison, Captain W. J., M.B., attached 6th Battalion, Northumberland Fusiliers.
 Hearn, Quartermaster and Honorary Lieutenant C. W., 26th Field Ambulance.
 Mackay, Major W. B., M.D., attached 7th Battalion, Northumberland Fusiliers.
 Price, Lieutenant F. H. N., 2nd London Sanitary Company.
 Sharpe, Lieutenant-Colonel W. S., M.D., 84th Field Ambulance.
 Sprawson, Captain E. C., 3rd Division.
 Waggett, Major E. B., M.B., 85th Field Ambulance.
 Wardle, Lieutenant V. H., 86th Field Ambulance.
 Whait, Lieutenant-Colonel J. R., M.B., 85th Field Ambulance.

Sergeant C. W. Abnett, 81st Field Ambulance; Private H. Boudry, 24th Field Ambulance; Staff Sergeant J. T. Boyes, Lance-Corporal J. Burvill, 32nd Field Ambulance; Lance-Sergeant J. Dalton, 1st West Lancashire Field Ambulance; Corporal (Acting Sergeant) N. A. Dore, 1st London (City of London) Sanitary Company; Sergeant C. D. Dymond, Welsh Border Mounted Brigade; Staff Sergeant J. C. Caswell, Private H. Dominy, 25th Field Ambulance; Lance-Corporal P. Elcock, 26th Field Ambulance; Staff Sergeant W. G. Gotham, 25th Field Ambulance; Acting Sergeant-Major H. W. Gregory, 26th Field Ambulance; Staff Sergeant W. K. Haddingham, 2nd London Sanitary Company; Corporal W. N. Hodge, 83rd Field Ambulance; Sergeant-Major A. E. R. House, 24th Field Ambulance; Sergeant E. Ingleton, 82nd Field Ambulance; Lance-Corporal E. Meigh, 1st West Lancashire Field Ambulance; Acting Sergeant-Major T. W. Parsons, 25th Field Ambulance; Staff Sergeant S. Pickering, 2nd London Sanitary Company; Staff Sergeant S. C. Pocock, 26th Field Ambulance; Private C. B. Royle, 81st Field Ambulance; Private J. St. John, 3rd Welsh Field Ambulance; Private H. C. Sell; Private H. Stapleton, 83rd Field Ambulance; Acting Sergeant R. M. Watchorn, 3rd Welsh Field Ambulance; Staff Sergeant J. J. Webster; Private A. E. Wright, 81st Field Ambulance.

Australian Army Medical Corps.

Lieutenant-Colonel (temporary Lieutenant-Colonel in army) W. L. E. Ennes, C.B.
 Sergeant-Major C. R. Williams.
 Sergeant P. W. Chapman.

Staff, 1st Canadian Division.

Lieutenant-Colonel (temporary Colonel) G. La F. Foster, Canadian A.M.C.
 Captain (temporary Major) H. A. Chisholm, Canadian A.M.C.

Canadian Army Medical Corps.

Ford, Lieutenant-Colonel F. L.
 McPherson, Lieutenant-Colonel D. W.
 Ross, Lieutenant-Colonel A. E.
 Shillington, Lieutenant-Colonel A. T.
 Watt, Lieutenant-Colonel W. L.
 Duval, Major J. L.
 Hardy, Major E. B.
 Bell, Captain F. C.
 Brown, Captain G. B.
 Donaldson, Captain A. S.
 Fraser, Captain J. J.
 McGillibon, Captain R. H.
 McKillip, Captain T. H.
 McQueen, Captain J. D.
 Stone, Captain E. L.
 Haywood, Lieutenant A. K., attached 3rd Canadian Battalion.

Quartermaster-Sergeant G. S. Cooke, Staff Sergeant H. G. B. Butt, Staff Sergeant A. J. B., Milborne, Staff Sergeant A. E. Rosey, Sergeant T. M. Brown, Sergeant J. W. McKay (dead), Sergeant W. B. Smith, Lance-Corporal W. McDonald, Private A. Bartley, Private R. W. Chester, Private J. Dalton, Private C. J. E. Farr, Private W. J. Holloway, Private R. L. Head, Private F. J. Lisney, Private W. M. Leishman, Private A. Millen, Private H. G. Stewart, Private G. B. Tompkins, Private E. Trotter, Private J. G. Youldon.

Indian Medical Service.

Anderson, Lieutenant F. J., 11th Indian Field Ambulance.
 Atal, Major F. P. (killed).
 Bamfield, Lieutenant-Colonel H. J. K.
 Barron, Major R. M., 13th Indian Field Ambulance.
 Boulton, Major H., M.B., D.A.D.M.S., Meerut Division.

Bowle, Evans, Lieutenant-Colonel C. H., M.B., Lucknow Casualty Clearing Station.
 Gow, Lieutenant P. F., M.B.
 Howe, Lieutenant-Colonel H. C. R., M.B., Royal Army Medical Corps (attached).
 Melhuish, Major H. M. H., 112th Indian Field Ambulance.
 Needham, Major R. A., M.B.
 Odium, Major W. H., 112th Indian Field Ambulance.
 O'Neill, Captain J. S., M.B.
 Ozzard, Lieutenant-Colonel F. R.
 Rai, Captain D. H., M.B. (attached 6th Jats).
 Reinhold, Captain C. H., 11th Indian Field Ambulance.
 Sheppard, Captain A. L., M.B.
 Taylor, Captain John, M.B. (attached 139th Garhwal Rifles).
 Trafford, Major W. L., M.B., F.R.C.S.
 Wall, Lieutenant-Colonel F.
 White, Lieutenant-Colonel W. W., M.D., 128th Indian Field Ambulance.

Indian Subordinate Medical Department.

Macqueen, Senior Assistant Surgeon and Honorary Lieutenant K. G. S.
 Holmes, 1st Class Assistant Surgeon J. A. H.
 Maine, 1st Class Assistant Surgeon W. J. S.
 Rodgers, 2nd Class Assistant Surgeon M. C. R.
 Bonche, 3rd Class Assistant Surgeon B. J.
 Cummins, 3rd Class Assistant Surgeon A. W.
 Fox, 3rd Class Assistant Surgeon H. A.
 Fraser, 3rd Class Assistant Surgeon A. G. L.
 D'Arcy, 4th Class Assistant Surgeon A. F. J.
 Hill, 4th Class Assistant Surgeon E. R.
 Perkins, 4th Class Assistant Surgeon J. W.
 Gauri Shankar, 1st Class Senior Subassistant Surgeon.
 Jasudann, S., 1st Class Subassistant Surgeon S.
 Lachmann Das, 1st Class Subassistant Surgeon.
 Muhammad Raza Khan, 1st Class Subassistant Surgeon.
 Narayan-parshad Sukul, 1st Class Subassistant Surgeon.
 Salagram, 1st Class Subassistant Surgeon.
 Ganpat Kanooji Rao Rane, 3rd Class Subassistant Surgeon.
 Raj Singh, 3rd Class Subassistant Surgeon.
 Upendra Kumar Ganguli, 3rd Class Subassistant Surgeon.

Queen Alexandra's Imperial Military Nursing Service.

Matron-in-Chief Miss E. M. McCarthy, R.R.C., Acting Matron Miss A. F. Byers, Matron Miss E. M. Hodgins, Matron Miss H. W. Reid, Matron Miss G. M. Richards, Sister Miss G. M. Allen, Sister Miss S. K. Bills, Sister Miss J. H. Conleton, Acting Sister Miss M. C. Corlishley, Sister Miss H. M. Drage, Sister Miss H. Hartigan, Sister Miss G. A. Howe, Sister Miss E. J. M. Keene, Sister Miss E. M. Lang, Acting Sister Miss C. Mack, MacRae, Acting Sister Miss K. M. Mathews, Sister Miss G. M. Smith, Sister Miss M. Sleenson, Sister Miss M. S. Williams, Staff Nurse Miss D. M. Best, Staff Nurse Miss M. F. Davies, Staff Nurse Miss M. M. Roberts.

Queen Alexandra's Imperial Military Nursing Service (Reserve).

Miss N. Adler, Miss J. Barclay Smith, Miss E. G. Barrett, Miss E. D. Devenish-Reares, Miss C. Elston, Miss E. M. Hansard, Miss B. J. D. Reid, Miss L. M. Thurling.

Territorial Force Nursing Service.

Miss M. A. Brander, Miss H. H. Ivin, Miss E. A. Jackson, Miss P. M. Morris, Miss H. G. Palin, Miss C. Webber.

Civil Hospitals Reserve.

Miss M. W. Bannister (Royal Infirmary, Hull), Miss I. E. M. Barbier (Royal Infirmary, Bristol), Miss M. Clark (Royal Southern Hospital, Liverpool), Miss M. A. Doherty (Dr. Steevens's Hospital, Dublin), Miss E. Fearnley (St. Thomas's Hospital, London) (dead), Miss E. T. Ferguson (Royal Infirmary, Perth), Miss F. Harley (St. Thomas's Hospital, London), Miss A. Healey (Dr. Steevens's Hospital, Dublin), Miss K. Johnston (City of Dublin Hospital, Dublin), Miss V. M. Kiddle (Guy's Hospital, London), Miss M. E. Knight (Westminster Hospital, London), Miss E. M. Le Sneur (University College Hospital, London), Miss S. C. McIntosh (Royal Infirmary, Edinburgh), Miss M. Oakley (General Hospital, Birmingham), Miss L. O. Peet (Derby Royal Infirmary, Derby), Miss A. Wainwright (The London Hospital, London).

British Red Cross Society.

Mr. F. Alexander, Captain E. Daniels, Mr. C. D. Fisher, Principal Matron Miss N. Fletcher, Dr. G. R. Fox, Mrs. Phillips, Miss A. L. Pierce, Dr. J. W. Struthers, Mr. A. C. Valadier, Mr. G. W. Young.

Australian Nursing Service.

Matron Miss I. Greaves.

Canadian Nursing Service.

Matron Miss E. Campbell, Nursing Sister Miss M. P. Richardson.

Queen Alexandra's Military Nursing Service for India.

Lady Superintendent, Miss E. F. Watt, Senior Nursing Sister Miss H. A. M. Rait, Nursing Sister Miss E. Kelso.

CASUALTIES IN THE MEDICAL SERVICES.

NAVY.

Died of Wounds.

DR. F. H. REES, who died on June 21st from wounds received during the operations in the Dardanelles, was the elder son of Dr. Alfred Rees, of Cardiff. He received his early education at the Cardiff Intermediate School, and after completing his medical studies at University College, London, took the degrees of M.B., B.S. London, in 1912. In February he joined the R.A.M.C., but was transferred to the Naval Division at Plymouth as temporary surgeon on February 9th, 1915; after undergoing further training at Blandford he sailed for Malta in April. During the whole of the time he has been in the Dardanelles he was engaged with the land forces amid the desperate fighting which has taken place.

ARMY.

Killed.

Lieutenant Geoffrey Montague Mason Fleming, R.A.M.C., was reported as killed in action in Flanders in the casualty list of June 25th. He took the M.B. and Ch.B. of Dublin University in 1913, and took a temporary commission as lieutenant in the R.A.M.C. from August 16th, 1914.

Died.

Lieutenant Eric Alfred Wright, R.A.M.C., died on June 20th at Alexandria of septic poisoning contracted in attending the wounded, aged 36. He was the only son of Dr. and Mrs. Wright, of Mountsorrel, Romford, and was educated at Felsted School and at Selwyn College, Cambridge, where he took the B.A. in 1899, the M.B. and B.C. in 1904, and the D.P.H. in 1905, also taking the M.R.C.S. and L.R.C.P. in London in 1903. After serving as assistant and senior resident medical officer at the North-West London Hospital, and as house-surgeon of St. Peter's Hospital for Stone, he went into practice at Romford, Essex, where he was medical officer of the Hornchurch Cottage Homes, medical officer to the Post Office, and certifying factory surgeon. He was a sergeant in the London Scottish, went with that corps to France last year, and was with them in their first action at Messines. When their medical officer, the late Captain Angus Macnab, was killed in action, he became surgeon to the battalion. Subsequently he was invalided to England, and took a temporary commission in the R.A.M.C. from December 16th, 1914. In March, 1915, he was sent to Alexandria, where he was serving in the 15th General Hospital.

Wounded.

Lieutenant (temporary) D. Bell, R.A.M.C., Flanders.
Lieutenant W. W. Adamson, R.A.M.C. (T.F.), Flanders.
Lieutenant J. Cowan, R.A.M.C. (Special Reserve), Flanders.
Lieutenant W. H. Shephard, R.A.M.C. (Special Reserve), Flanders.
Lieutenant H. Seddon, R.A.M.C. (T.F.), Dardanelles.
Lieutenant (temporary) A. J. McC. C. Morrison, R.A.M.C., Dardanelles.

Suffering from Gas Poisoning.

Lieutenant R. D. D. Brownson, R.A.M.C. (Special Reserve), Flanders.

SONS OF THE PROFESSION AND MEDICAL STUDENTS.

Second Lieutenant R. B. Buchanan, 5th Battalion Royal Scots Fusiliers, who was recently killed in action in the Dardanelles, was educated at Foyle College, Londonderry, Bedford School, and Edinburgh University, where he began the study of medicine in 1911, and had passed all except the final examination, gaining medals in zoology, practical anatomy, and surgery. He got his commission on October 12th, 1914, and landed at the Dardanelles, with his battalion, on May 30th.

Second Lieutenant Frank Chilton, who was killed at the Dardanelles about June 20th, was the only son of Dr. Charles Chilton, Professor of Biology, Canterbury College, Christchurch, New Zealand. He was a medical student at Edinburgh University, where he was a member of the O.T.C., and, when war broke out, obtained a commission as Second Lieutenant in the 3rd (Reserve) Battalion of the Argyll and Sutherland Highlanders from August 15th, 1914. He went to the Mediterranean on May 20th, attached to the 2nd Battalion, Hampshire Regiment.

Lieutenant Eric K. Colbourne, 1st Berkshire Regiment (of Victoria, British Columbia), died on June 27th of wounds received in action. He was the third son of Dr. and Mrs.

Colbourne of Beckenham, and was 27 years of age. He was gazetted second lieutenant on probation in January last.

Private Wilfred Y. Dawson, 4th Battalion Australian Imperial Force, who was killed in action at the Dardanelles, was the eldest son of Dr. Yelverton Dawson of Southbourne.

Lieutenant Leslie Phillips Jones, of the 9th Royal Berkshire Regiment, died of wounds at the Dardanelles about June 20th, aged 19. He was the third and youngest son of John Phillips Jones of Streatham, and was educated at Mill Hill School, where he was a member of the O.T.C.; at Oriol College, Oxford; and at Bart's, where he was studying medicine. When war broke out he got a commission as Second Lieutenant in the 9th Service Battalion of the Berkshire Regiment from October 17th, 1914; was promoted to Lieutenant on February 8th, 1915; and was sent to the Mediterranean, attached to the 2nd Hampshire Regiment, on May 20th last.

Lieutenant Walter Alfred Leland, 10th Battalion Bedfordshire Regiment, who was killed in action in the Dardanelles, was the eldest son of Dr. and Mrs. Alfred Leland, of Kensington Court, W. He received his lieutenancy last April.

Second Lieutenant Albert Durrell Pank, R.E., died in France on June 20th, aged 19, of wounds received in an accident with a bomb. He was the youngest son of Lieutenant-Colonel Philip Durrell Pank, Bengal Medical Service (retired), and was educated at Wellington, passing from school into the Royal Military Academy, Woolwich. He passed first out of Woolwich in July, 1914, gaining the King's and the Pollock gold medals. He was sent to the Expeditionary Force in France in January, and was attached to the 2nd Field Squadron, 2nd Cavalry Division.

Second Lieutenant Cubitt Noel Rundle, 3rd Battalion South Wales Borderers, was recently killed in action at the Dardanelles. He was the eldest son of Lieutenant-Colonel Cubitt Sindal Rundle, Madras Medical Service (retired), of St. Helier's, Jersey, and was only 19. He got his first commission in the 1st Battalion of the South Wales Borderers on December 23rd, 1914, and was attached to the third (reserve) battalion.

Lieutenant William L. Scott, 25th Battalion Gordon Highlanders, who was killed in France, was a medical student at Aberdeen University. He joined the Gordon Highlanders at Peterhead in December last, when he was appointed a second lieutenant, and left with the battalion in April. Volunteering for foreign service, he went with 15th Battalion to France some months ago, and was promoted to a lieutenancy. He was in his 23rd year, and was the eldest son of Mr. W. L. Scott, solicitor, of Peterhead.

Corporal Geoffrey B. Warde, of the Canadian Contingent, who was killed in France, was the eldest son of Dr. and Mrs. Warde, of Tunbridge Wells. He was 19 years of age.

Charles D. B. Whitty, of the Royal Montreal Regiment, died a prisoner of war at Kerselare from wounds received in action on April 24th. He was the eldest son of Dr. C. J. Whitty of Bath.

NOTES.

THE KING GEORGE HOSPITAL, LONDON.

THE Commandant and Chairman and Committee of the King George Hospital held their first view of the hospital for benefactors and donors on June 30th. The hospital is situated in Stamford Street, next to the Royal Waterloo Hospital for Children and Women, and occupies the building which was designed for the reception of His Majesty's Stationery Office. In his statement of how the hospital came into being, Sir Frederick Treves says that "the building will be memorable not only as a hospital, but also as a record of the sentiment that led to its transformation. It will be a token of the spirit of Red Cross work in England." The scheme arose as the result of co-operation between the War Office and the British Red Cross and St. John Societies. While the War Office has carried out the structural alterations necessary to transform the building into a hospital, the societies have equipped the wards, operating theatres, dispensaries, special departments, chapel, day rooms for the patients, and quarters for the staff; the societies also supply the medical, surgical, and nursing personnel. Thus the hospital, so far as the patient is concerned, is a civilian hospital, equipped and maintained by the generosity of the people of England. The alterations in structure were carried out by the Director of Barrack Construction from plans prepared by Mr. Edwin T. Hall. There are five floors to the building. In the basement are the stores and the x-ray department; on the ground floor are the offices of the commandant and chief officers, waiting rooms, laboratories and dispensaries, barracks which hold nearly 200 orderlies, with a billiard room, reading and writing room, and dining rooms. On this floor also is the chapel, with an altar furnished by Her Majesty Queen Alexandra and Her Royal Highness Princess Victoria. The first floor is devoted to the medical cases; the second, third, and fourth to surgical

cases. There are six operating theatres, each with an anaesthetizing room, sterilizing room, and special stores. The equipment of the hospital was furnished by contributions from various societies and private individuals at the rate of £25 per bed; but this estimate did not include the cost of the operating theatres or the x-ray department and a few other accessories. The theatres and x-ray department were provided by the generosity of the British Farmers' Red Cross Fund. The roof of the building is to be turned into a roof garden, the area of which is about one and a half acres. Here, again, are to be found twenty-four revolving shelters, each capable of seating many men. Undoubtedly the hospital is extremely well equipped, and would suggest a permanent institution rather than one designed for temporary purposes connected with the war. The number of patients to be accommodated will be 1,650; at present only about half the beds are occupied. For this number of patients the actual medical and surgical staff, in addition to the military staff controlling the management, is 149; of these, 14 are on the consulting staff, 33 on the honorary medical and surgical visiting staff, 48 anaesthetists, 4 for the nose and throat department, 13 for the dental, 3 for the x-ray department, 1 for the electro-therapeutic, 4 for the ophthalmic, 4 for the pathological, and 1 clinical photographer. There are 24 resident medical officers. If we may venture to raise one little criticism of the establishment as it stands at present, it is that it would seem to have been constructed on somewhat extravagant lines. It might be suggested that the medical staff, both visiting and resident, could be curtailed without detriment to the patients at a time when there is said to be some shortage of doctors to serve in the army, the more so as it is recognized by those responsible for the institution that in a military hospital the proportion of patients who can sit up and move about is much higher than in a civilian hospital, for the reason that all soldiers, however small the ailment which renders them unfit for duty, are placed in hospital. As regards the equipment of a temporary hospital, it is possible that £4,000 is rather a large sum to spend on the operating theatres and x-ray installation. It is stated that nine and a half acres of linoleum were required for covering the floors; whether this was exactly necessary in the basement and in some of the corridors seems doubtful. The shelters in the roof garden are perhaps a luxury at a time when rigid economy is the order of the day. However, there is no doubt that the needs of the sick and wounded will receive the utmost that science and equipment can give them; and so long as the country can afford it, no one will grudge its soldiers the best that is available.

MILITARY CASES AT BRITISH HEALTH RESORTS.

The honorary secretaries of the special committee of the Section of Balneology and Climatology of the Royal Society of Medicine are issuing a further circular calling the attention of medical practitioners in health resorts in Great Britain to the special Case Record Card, the first issue of which was made by the committee in April. The cards have been approved by the Medical Research Committee, which is charged with the duty of compiling a medical history of the war, and will form part of the statistical records to be used in its preparation. A strong appeal is made to all practitioners, especially those responsible for hospitals and homes for officers and men, to make use of the cards for all military patients, and, in the cases of non-commissioned officers and men, to enter up the regimental number. Further supplies of cards and envelopes can be obtained free of charge on application to Messrs. Adlard and Son, Bartholomew Close, London, E.C. Other communications should be addressed to the honorary secretaries of the committee at 36, Devonshire Place, W. They will be glad to furnish copies of the pamphlet that has been circulated by the War Office and Admiralty, and to receive from local committees or representatives any suggestions which will facilitate the efficient and scientific treatment of war cases at the various British health resorts.

A MOVABLE AMBULANCE HOSPITAL.

Dr. Henri de Rothschild has presented to the French Army Medical Service a movable surgical ambulance hospital consisting of six huts easily put up or taken down. An operating theatre, two wards for twenty-four beds, an isolation ward, and two huts for surgeons and orderlies are provided. The huts are constructed of asbestos sheeting.

INDIA.

Bengal's New Hospital Ship.

The Bengal Volunteer Field Ambulance Corps has provided a shallow draft river barge capable of accommodating 100 beds for river ambulance work on the Shatt-el-Arab, which runs into the Persian Gulf. This is considered at the present moment by the authorities the most useful gift which Bengal can offer as her contribution to the war. The vessel is a two-decker river flat of 400 tons, which was till recently in use as a river transport for troops. It has been converted by the Deputy Director, Indian Marine, into an up-to-date floating hospital, under the direction of the Commandant of the corps, Lieutenant-Colonel A. H. Nott, I.M.S., and the Joint Secretary, Dr. S. P. Savadhikary. On the upper deck there is accommodation for 100 sick and wounded, two fully equipped operation rooms, one for clean cases and the other for septic cases. Between the two there is a sterilizing chamber and an x-ray room fitted with a powerful x-ray apparatus, and contrivances for the electric disinfecting of poisoned wounds. Space is set apart for microscopic examinations, and also for the reception of contagious and infectious cases. On the lower deck are cabins for the Commandant and his officers, accommodation for the men, the electric plant, ice machine, refrigerators, and other conveniences. The motor ambulances will be carried on board as well as a number of stretchers and other means of transporting the sick and wounded. Lifts have been provided for the carriage of loaded stretchers to and from the lower deck. The usual dispensing, dressing, medical, and general store-rooms have been provided. The vessel is lit throughout with electricity, and a number of fans have been fitted up. The vessel carries a full complement of officers and men recruited from the civilian Bengali population, who have been given a thorough training in the military lines at Alipore under the supervision of the Commandant and other military officers deputed by the Government. The cost of equipping and maintaining the unit and hospital will be met entirely from voluntary contributions from the Bengali population. Government, however, is providing the pay of the Commandant and such regular officers as might be lent for the purposes of the unit, and will provide for the transport and rations while on active service. Other officers and the hospital will get no pay, but only a small separation allowance for their families, and a life insurance policy for sums varying from Rs.1,000 to Rs.5,000 according to their rank; they will have free uniforms.

St. John Ambulance Red Cross Gifts.

The Indian Council of the St. John Ambulance Association issued recently a special appeal for comforts and articles of clothing which were required for the unit and hospital in the Persian Gulf. Within six days no less than forty-nine cases of these gifts were shipped for the Gulf.

Special Depot Hospitals.

The Indian Council of the St. John Ambulance Association on April 21st addressed a circular letter to all provincial and local centres on the subject of the thirty-one depot hospitals to be provided for sick and wounded Indian soldiers either directly from Bombay or through other selected hospitals, civil and military. The association has already given assistance in the extra equipment of the military "war" hospitals, and it is now asked to assist these depot hospitals with additional articles. Following the procedure adopted in December, it is suggested that each committee of a provincial or local centre might undertake the provision of the extra equipment for the depot hospitals. A special grant of Rs. 5 per bed will be made by the association.

ITALY.

Dr. George Sandison Brock, Physician to the British Embassy in Rome, states that it is proposed that British visitors and residents there shall completely equip one or more wards, according to the number raised in the thirty-one hospitals being prepared for the reception of the Italian wounded. The Medical Inspector-General, Lieutenant-General Luigi Ferrero di Cavalerleone, has signified his cordial approval of this suggestion. He will be happy to reserve a special ward, or wards, to be equipped by the British colony. All subscriptions, however small, will be gratefully received by Dr. Brock (6, Corso d'Italia), who will also gladly undertake the application of the sums collected to its intended purpose. Subscriptions may be sent to Mr. E. J. Wallman, care of Messrs. Cook and Son, 54, Piazza Termini, who will duly acknowledge their receipt. The heads of the Italian civil and military health departments have decided to equip a hospital for the treatment of mental disorders caused by the war. The hospital, which will contain 100 beds, is to be established at Treviso.

MONTENEGRO.

The Wounded Allies Relief Committee has received a cable announcing that its typhus hospital units, which left England on June 3rd for Montenegro, are to be stationed at Podgoritz and Niksbich. The units each consist of 100 beds with full equipment for surgical as well as for fever work. The medical staff includes three medical women—Dr. Lillias Hamilton, Dr. Isabel Ormiston, and Dr. Constance B. Slater.

MEDICAL OFFICERS WANTED.

31st Notts and Derby Mounted Brigade Field Ambulance,

R.A.M.C.

There are vacancies for three medical officers in the above unit. Must be willing to learn to ride. Also for a transport officer, who should be a medical man or medical student, and

be able to ride well. The unit is being trained and for some time may be billeted here. Usual outfit, allowances, and pay. Applications to be sent to Captain F. R. M. Heggs, Officer Commanding, St. Jude's Parish Room, Mapperley, Nottingham.

2 1st North Midland Field Ambulance, R.L.M.C.

Three officers are urgently required for foreign service only with this unit. Now under canvas at Dunstable. Apply to Lieutenant-Colonel Dawson, Officer Commanding 2 1st North Midland Field Ambulance, Dunstable.

3 1st North Midland Mounted Brigade Field Ambulance, R.L.M.C.(T.F.)

A medical officer is required to complete the establishment of this unit. Applications to be sent to Captain Aven, R.A.M.C.(T.F.), Drill Hall, Nineveh Road, Handsworth, Birmingham.

Ireland.

THE HONAN BIOLOGICAL INSTITUTE.

THE new Honan Biological Institute at University College, Cork, has been completed, owing to the generosity of the trustees of the estate of the late Miss Honan, and forms a handsome group of buildings, situated near the plant houses which were the gift of the late William Crawford of Lakelands. As old members of the college will remember, the biological laboratory was a small building, much too cramped for the teaching of the students, much less for the research work which has always been a feature of the college. In the new building ample room has been provided for the study of zoology, botany, and geology. There are junior and senior zoological and botanical laboratories, as well as research rooms, geological and geographical laboratories, and a large semicircular lecture theatre, lit from the roof, and capable of accommodating about 100 students. It must be a great pleasure to Professor Marcus Hartog (now Professor of Zoology, but for many years Professor of Botany as well) to see this department of the college developing so successfully.

CORK MEDICAL PROFESSION AND THE NATIONAL INSURANCE ACT.

FOR the past two years the members of the medical profession in Ireland have been negotiating with the Irish Insurance Commissioners for increased remuneration for medical certification, but quarter after quarter has passed without the least attempt to improve matters. After discussing the situation most carefully the members of the profession in Cork decided, at a largely attended meeting, to decline to certify under the Act for insurance patients in Cork until the Commissioners revised their terms, and signified to the Cork Borough Insurance Committee the intention of not continuing after June 20th, 1915. It appears, however, that the Borough Insurance Committee has made an urgent appeal to the members of the profession who were on the panel to continue in office for one calendar month, so that the Insurance Commissioners may come to a settlement. The following is the text of the resolution sent by the profession to the Cork Borough National Insurance Committee:

In reply to the resolution received from the Cork Borough National Health Insurance Committee, we desire to state that the resignations of the doctors on the Cork panel from certification are in the hands of the Insurance Commissioners. At the urgent request of the Borough Committee we have held a special meeting to consider the matter, and at the request of the Borough Committee we have agreed that the Cork medical men who are on the panel for certification may extend the date of their resignations to a period of one calendar month from the 26th inst., to enable the Insurance Commissioners to come to a settlement satisfactory to the medical profession in Ireland.

SOUTH DUBLIN UNION AND RATIONS.

THE guardians of the South Dublin Union have been considering the present system of ration allowances, according to which many of the officers now draw food rations as portion of their emoluments; it was proposed that the board should substitute for the allowance in kind a cash equivalent, determined on the basis of a standard year. As regards future appointments, a proposal was made to omit the allowance altogether, but an administrative obstacle was found to exist and the proposal was withdrawn. Accordingly, these officers still hold their

title to draw weekly an allowance which includes in some cases at all events—8 lb. of beef, 13 lb. of mutton, 14 quarts of milk, 7 lb. of sugar, 2 lb. of soap, 28 lb. of potatoes, and 5 cwt. of coal. The last item means 13 tons of coal in a year. It would certainly seem to be time that this strangely generous scale of allowances was revised or stopped.

Scotland.

PROVISION FOR SOLDIERS SUFFERING FROM TUBERCULOSIS.

WE understand that towards the end of March the War Office instituted an inquiry as to whether the Insurance Commissioners for Scotland could relieve them of the duty of making arrangements for the treatment of soldiers discharged from the army suffering from tuberculosis, and indicated that it desired that each case should receive a certain period of institutional treatment, and that thereby the return of the soldier to the position of a civilian should be marked by special consideration. The proposal would also secure the relief to some extent of local authorities and Insurance Committees. As a result of communications between the Insurance Commissioners and Dr. Maxwell Williamson, the Medical Officer of Health for Edinburgh, arrangements were made whereby ten beds in the sanatorium were at once set apart; over these the War Office and the Insurance Commissioners had a "call," and others were promised if these should prove insufficient. By April 1st it was possible to report that the ready response of the various authorities in Scotland had enabled the Insurance Commissioners to inform the War Office that, if asked to undertake the work, they were able to do so. Since then the arrangements have been completed, and the scheme has been working smoothly. The plan adopted at Edinburgh has been as follows: Information is forwarded by the military authorities to the Commissioners in regard to a soldier suffering from pulmonary tuberculosis who is to be discharged from the military centre at which he then is; the Insurance Commissioners then telegraph fully this information to Dr. Maxwell Williamson, and indicate that further information regarding the date and hour of his arrival in Edinburgh will be sent to him; another telegram, usually stating the day and hour and station at which the patient will arrive, is sent, and Dr. Williamson dispatches an ambulance to await his arrival. Since the arrangement was entered into nine cases have been admitted and four discharged. The Insurance Commissioners are to be advised at short intervals of the number of beds from time to time available, and thus the cases can be distributed to various institutions with the least disturbance to their other calls. This matter has also been engaging the attention of the public health authorities in Leith, and at the meeting of the Borough Insurance Committee there on June 18th it was reported that the army authorities were anxious to have removed from military hospitals without delay all soldiers discharged from the army suffering from tuberculosis, and that the Insurance Commissioners had arranged that this would be effected, if possible, by the Committee responsible taking immediate charge of the discharged soldiers, or they themselves doing so pending arrangements being made by the Committee concerned. We understand, further, that Dr. William Robertson, the Medical Officer for Leith, is now making arrangements whereby a certain number of beds in the Pilton Hospital are being set aside for such cases just in the same way as has been done in Edinburgh.

South Australia.

(FROM OUR SPECIAL CORRESPONDENT.)

THE WAR.

By the mail which carries this letter some of the members of the Double General Hospital will leave us. It is to be equipped in England and will be under the command of Colonel Fiaschi, D.S.O., of Sydney, a veteran of the Italo-Abyssinian and Boer wars. The Registrar and Secretary is Dr. de Crespigny, of Adelaide, and Dr. A. M. Cudmore, F.R.C.S., will be surgeon, both with the rank of Lieutenant-Colonel. Amongst the juniors will be Drs. Lank Hayward and E. A. H. Russell, and the Quartermaster is Captain

Medlyn, Secretary to the Adelaide Hospital. Sir Alexander MacCormick will join it in England, and it comprises many of the leading men from the other States. Meanwhile our First General Hospital in Egypt is to be doubled, to contend with the casualties likely to come from the Dardanelles, and Drs. C. Yeatman and Cunningham have been appointed to it; a special Convalescent Hospital has also been formed at Harefield Park. As illustrative of the tendency of Australia to adhere to English traditions, I may mention that these officers are required to have maccas jackets with certain trimmings! Shade of Thomas Carlyle! Red tape and circumspection have undoubtedly been imported into this new land, and they seem to flourish. For instance, with regard to the selection of nurses, many of the best we possess, who as matrons have taught generations of probationers, are considered unfit for service because they have not had the inestimable blessing of a training in a general hospital of a certain size. New Zealand refused to send a nurse because she was a native of South Australia and was trained in Sydney; she has gone to England on her own account and hopes to reach the front. Medical men are also taken from their practices and sent down to camp with absolutely no work to do. A camp here of 3,000 men in training had one day no fewer than eleven medical officers, I am told. On the other hand, as regards the selection of men for hospital appointments, Colonel Fetherston, the Acting Director of the Medical Services, seems to have exercised a very wise discretion in selecting the very best men, and in promoting suitable men to important billets.

The Profession.

Meanwhile it would naturally be thought that those who for various reasons were unable to go to the front would be reaping a rich harvest whilst the ranks of the profession are so depleted. Curiously enough, this does not seem to have been the case. Ever since August work has been slack. But the cause of this does not seem to be so much the war as the drought from which we have suffered, and which at the time of writing seems to have broken up. The losses of sheep, cattle, and horses have been enormous, but the farmers are looking forward to a good season now.

The Branch.

We have already sent the Vice-President to the front and the Secretary; now the President himself is going. Staff Surgeon E. W. Morris—we are mostly captains and majors nowadays instead of doctors—accompanies the Naval Bridging Train, and the immediate Past-President (Dr. Poulton) is reigning in his stead.

We rather anticipated His Majesty's views on abstinence, as the following resolution will show:

That in view of the evidence frequently coming before us as medical men of the dangers to our troops from excessive alcoholism, and hoping to exert influence towards temperance among them, members of this Branch of the British Medical Association are of opinion that in the present national emergency all medical men will do well to become and remain total abstainers during the continuance of the war.

It was carried by a two-thirds majority on February 25th. What effect it may have upon the troops remains to be seen, but what is known as the "dry canteen" system in the camp seems only to make the soldiers reel the more when on leave in town.

Belgian Doctors' Relief Fund.

Our list, which includes subscribers in Broken Hill, was hobby-headed by Dr. J. C. Verco with £50, and already £400 had been transmitted to London.

Canada.

KING'S BIRTHDAY HONOURS.

ON the list of the King's Birthday Honours appear the names of the principals of two Canadian universities—Sir William Peterson, K.C.M.G., and the Very Reverend D. M. Gordon, D.D., C.M.G. Sir William Peterson succeeded the late Sir William Dawson as Principal of McGill University in 1895. He was born in Edinburgh, where he attended first the High School, then the University, going thence to Göttingen, and later to Oxford. Twenty years

ago he went from University College, Dundee, to McGill, where he has done splendid service. He is an ardent Imperialist. Dr. Gordon, the Principal of Queen's University, Kingston, is a Canadian by birth, of Scottish descent. He was born in Pictou, Nova Scotia, in 1845; after receiving his early education at the Pictou Academy he entered the University of Glasgow, and from there went to Berlin. He was ordained a minister of the Church of Scotland in 1866, and, after serving as pastor in Ottawa, Winnipeg, and Halifax in 1894, he became Professor of Theology in the Presbyterian College at Halifax. In 1902 he succeeded the late Principal Grant as head of Queen's University. In 1896 Dr. Gordon was Moderator of the General Assembly of the Presbyterian Church of Canada.

Correspondence.

"HYPERTONIC" TREATMENT OF WOUNDS.

SIR,—With reference to Sir Berkeley Moynihan's letter, in the JOURNAL of May 29th, on "hypertonic" treatment of wounds, I should like to indicate shortly the developments in connexion with this method of treatment which have taken place in some hospitals. A great deal of the success attendant on these developments is due to the unremitting efforts of Colonel C. B. Lawson, who was the first to devise the suppository and solid methods and has been the means of stimulating others to research.

At the beginning, the solution of 5 per cent. sodium chloride and $\frac{1}{2}$ per cent. sodium citrate, which Colonel Sir Almaroth Wright recommended years ago for chronic sinuses, was used. The strength of the solution has been increased gradually, with correspondingly improving results. Other lymphagogic agents, such as glycerine (along with 5 to 10 per cent. sodium chloride and $\frac{1}{2}$ per cent. sodium citrate, C. B. Lawson) and carbolyzed glucose (Beckwith Whitehouse) have been tried with satisfactory results.

The latest and, I think, most successful modification of the treatment is the direct insertion of numerous solid tablets into the recesses of any kind of septic wound and into the meshes of wet gauze (5 per cent. saline) which is lightly packed into the cavity of the wound and made flush with the skin. The wound is, of course, previously freely opened up, cleaned and trimmed, and drained in the usual way by a very large tube which reaches through the gauze pack; into it more tablets may be placed if required. A light superficial dressing is applied and changed daily. The deep dressings may be left sometimes for four to six days. The advantages of this are obvious. The "hypertonic" treatment may be given up in favour of antiseptic dressings when the wound is covered with healthy granulations.

I write this letter to give adequate acknowledgement to the workers concerned.—I am, etc.,

H. M. W. GRAY,
Colonel, A.M.S., Consulting Surgeon,
British Expeditionary Force.

June 3rd.

RESIDENTS AT MILITARY HOSPITALS AT HOME.

SIR,—It is an excellent thing that you have been able to publish some details—presumably from an authoritative source—with regard to the residents at the King George Hospital. I am not a believer in Mr. Lloyd George's view that criticism should be silenced during war time, as I consider that only by criticism can efficiency be secured! And while one side to a controversy is perfectly right in raising questions about apparent extravagance, the other should be quite open in explaining the situation. Both sides should be willing, then, to give due weight to the arguments used.

The view is held that the authorities responsible for the King George Hospital have been unduly extravagant at a time when it behoves everyone in this country to practise rigid economy; and I should like to see the arguments used by these authorities to show that extravagance is necessary for the attainment of efficiency. Critics suggest that, no explanation has been given for attaching to this hospital a resident staff at least twice as large as to most other military hospitals. The note you publish does not, of course, answer this criticism.

While the British Red Cross Society and St. John

Ambulance Association are preparing their explanation, may I point out that, on the details you give, the residents may be divided into two classes—

1. Those ineligible for commissions in the army :

(a) Physically unfit	...	6
(b) Rejected on account of nationality	...	4
(c) English, but no British qualification	...	1
(d) Registered in this country, but of foreign birth	...	1
		12
- II. Those eligible for commissions :

(a) Refused service unless attached to unit of his choice	...	1
(b) Reply of War Office to application for commission delayed too long	...	1
(c) No reply yet received from War Office	...	1
(d) Only able to offer less than minimum period of service	...	4
(e) Over 40 years of age	...	2
(f) Unable for domestic reasons	...	3
		12

May I suggest that, unless the need for a resident staff twice the size of that ordinarily employed is proved, the twelve men in Class II should reconsider their position in view of the present shortage of doctors, and either take commissions or devote themselves to work which will set free men who might join the army?—I am, etc.,

London, W., June 26th. CHAS. BUTTAR.

THE SUPPLY OF MEDICAL OFFICERS.

SIR,—When "Young G. P." wrote to the BRITISH MEDICAL JOURNAL I had intended making some reply, but before I had time to do so I read "Temporary Lieutenant's" protest in your issue of June 12th.

I may be obsessed by this war, so let it stand for my apology in most heartily siding with all "Temporary Lieutenant" said in his letter. Mine would have been stronger. Now "Captain R.A.M.C. (T.)" jumps in and asks questions about age, pay, and points out what pension one's widow would get.

Again the sordid element. If one did not know that dozens of medical men had given up lucrative practices to go and do their bit, one would blush for the medical profession.

This war has divided mankind (English) into one or more strata:

(a) Those who rushed in the moment the country called. Many had nothing to lose, many had nothing to gain but all to lose. England wanted men, and Kipling's immortal line was their motto, "Who dies if England lives?"

(b) Those not so impetuous, but just as keen, just as good. They wanted to be sure that they were required. And, being satisfied, they also put all thought of gain behind, and went.

(c) Those who are waiting to see how much England is going to pay for their services—good men all, no doubt, but lacking that little quality of pure gold which has run through the best of England's sons for centuries. This is not the stamp of man that makes empires.

(d) The rotter, the hanger-on, who hopes to benefit, who would squeal if the enemy came near.

Naturally one does not like to think that he is losing that which has taken him years to build up. But surely the love of country should transcend all else! How otherwise can one hope for success in the greatest struggle that history has ever witnessed?—I am, etc.,

June 28th. A. M. E.

SIR,—As one of those who did not wait until the war came before offering my services, may I lay before you the following facts? They may serve to illustrate the poor encouragement given to those who have borne "the burden and heat of the day" and "given up their scanty leisure in attending drills, etc." For some years I held the commission of surgeon-captain in a Colonial militia force. I received no remuneration for my services, and had to purchase my own uniform. At the commencement of this war I communicated with the War Office and received the usual reply of my name being noted, etc. I have called several times since to remind them of my application, and received more or less the same

answer. Only a few weeks ago, on my name being put forward by an A.D.M.S., I was informed that I was "too old to serve," having reached the retiring age! This information might surely have been conveyed to me in the first instance without keeping me all these months in a state of uncertainty.

I have repeatedly applied to deputy directors A.M.S. for local work—either whole or part time. From them comes the same answer—namely, my name is noted. Meanwhile, I find the great majority of local appointments have been conferred on civil practitioners, and the question of age not taken into account.

Under these circumstances, can any of your correspondents inform me what is the next course to be taken by one who has already done his gratuitous work, and now when the opportunity occurs of gaining some slight return finds himself "crowded out"?—I am, etc.,

June 28th. DISCOURAGED.

SIR,—Some weeks ago I read an article in the BRITISH MEDICAL JOURNAL calling on medical men to assist the Army Medical Department in giving either whole or part time.

I wish to point out, from my own experience as a member of the West African Medical Staff, and the experience of several of my colleagues, that, although in each instance the whole of our time was offered for periods of three and four months, no real advantage was taken of our services.

The War Office would appear to require at least twelve months' continual service, and apparently will not consider a shorter period. It may not be generally known that medical officers of the West African Staff have as much or more experience of active service conditions as the Army Medical Department. Few of our staff have not been at one time or other on active service, where the conditions are exacting and most trying.

A considerable number of men are continually on leave from the various West African colonies, where fighting has been continuous for the past ten months, and are more than anxious when on leave to be taken seriously. Why could not these men and others suitable be sent to the front to relieve medical officers who must in many instances require rest for short periods as much as combatants?

A continuity of service could easily be set up of experienced men home on leave, the army service would benefit by economizing energy, which could be used in emergencies; and when one hears of the very heavy work done now by individual medical officers at the front, and the congested condition of the various dressing stations, it is amazing that more advantage is not taken of all possible assistance.—I am, etc.,

E. A. CHARTERS, Deputy Principal Medical Officer, Nigeria.

Farnborough, June 25th.

Mr. Percival Turner asks us to state that he does not accept two opinions expressed by correspondents recently. Dr. Sampson's statement that locumtenents are unobtainable except at impossible figures is, Mr. Turner considers, too sweeping, as at present men are available at fees of 6 to 7 guineas a week, which for a practice of over 2,700 panel patients, with private work, is not, he considers, excessive. The other statement is that by "Captain R.A.M.C. (T.)," to the effect that a practice is unsaleable until after the war, buyers being non-existent. Mr. Turner says that though buyers are fewer than usual, practices, he finds, are, considering the circumstances, selling fairly well, many men ineligible for service being willing to take advantage of lower prices to obtain practices.

ON THE CURVE OF THE EPIDEMIC.

SIR,—Dr. Percival gives $y = a \cos^2(mt - a)$ as the solution of Dr. Brownlee's differential equation:

$$\frac{1}{y} \frac{dy}{dt} = \log \left[\frac{CD}{N} \left(N - \int_0^t y dt \right) \right]$$

That it is not a solution, however, is seen from the fact that the substitution of $a \cos^2(mt - a)$ for y in the equation

leads to an equation which is not identically true for all values of t , the essential test of a solution.

Owing to a slip in the work of reduction the equation in t obtained by Dr. Percival

$$2m \cot mt = \log CD - \log \frac{a CD}{2N} \left[t - \frac{1}{2m} \sin 2mt \right]$$

is not correct, but in neither its present form nor its amended form is it an identity.—I am, etc.,

Cricklewood, N.W., June 25th.

H. L. TRACHTENBERG.

Medico-Legal.

AN UNREGISTERED DENTIST.

At the Marylebone Police Court on June 22nd, Henry John Goldberg, of 27, New Cavendish Street, W., was summoned by the British Dental Association for taking and using the title of "Dr. Goldberg, Dental Practitioner," implying that he was registered under the Dentists Act, 1878, and also that he was specially qualified to practise dentistry. Mr. MacDonnell the solicitor who appeared for the British Dental Association, said that he proposed to deal only with the offence of using the title "dental practitioner." Goldberg, he said, was unregistered, and, so far as was known, had no dental qualifications recognized in this country. For the last twelve months he had advertised extensively in the leading papers. His claim that he was a dental graduate of the University of Pennsylvania had not been established by official inquiries. Mr. MacDonnell the solicitor who appeared for the British Dental Association, said that he was due to an accident. The defendant was born in Dublin, his father and mother being Russians. The magistrate imposed a penalty of £20, with five guineas costs.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE following candidates have been approved at the examinations indicated:

SECOND M.B. (*Part I. Human Anatomy and Physiology*).—B. F. Anstey, C. C. Bony, W. L. Berry, P. A. Buxton, A. J. Coe, J. C. Connelley, H. Coxi, H. V. Edwards, T. Fernandez, H. D. Gardner, S. V. Goldberg, W. N. Goldschmidt, E. F. S. Gordon, F. Gray, N. B. de M. Greenstreet, C. Griffith-Jones, W. E. Heath, S. L. Higgs, H. W. H. Holmes, H. B. Jackson, R. B. F. Lasdow, P. T. Liang, G. T. Lipschutz, P. C. Livingston, E. E. Llewellyn, N. J. Macdonald, J. H. E. Moore, H. Morrison, J. W. McK. Nicholl, F. C. Odling, S. W. Page, A. H. Pearce, A. V. Peggio, A. A. Prichard, H. E. Rhodes, S. Ridgway, N. Rumbold, A. H. J. Smart, H. G. Taylor, D. L. Tucker, E. B. Verney, M. D. Vint, Y. S. Wap, A. T. Westlake, J. Whittingdale, M. Wong.

THIRD M.B. (*Part I. Surgery and Midwifery*).—E. D. Adrian, G. L. Atwater, F. H. Bruce Smith, H. Maschner, H. H. W. Hales, W. Hillbrook, R. W. P. Jackson, P. E. Liang, R. A. Mansell, W. H. Marshall, C. F. Pedley, R. A. Peters, R. A. W. Procter, W. G. A. Schüddkopf, W. J. D. Smyth, G. R. S. Thomas.

UNIVERSITY OF LONDON.

LONDON SCHOOL OF MEDICINE FOR WOMEN.

ON June 24th Princess Alexander of Teck presented the prizes at the London School of Medicine for Women. The Dean, Miss Aldrich-Blake, who was in the chair, spoke of the large number of old students at work among the wounded at home and abroad, and stated that the entries for next October term already far exceeded the fifty-six of last October. She also referred to the rebuilding and extension of the laboratories and to the success of the appeal made on their behalf.

UNIVERSITY OF DURHAM.

THE following were among the degrees conferred at a convocation on June 22nd:

M.D.—S. T. Cochrane, A. G. Dunn, F. Rahitkens, L. L. Westropa. M.B.—R. A. Hopper, E. E. D. Lau, L. Maseje, A. G. McFarlane, J. E. Measham, J. D. Proud, F. B. Robson, G. G. Strachan, A. G. Taylor.

B.S.—E. E. D. Lau, L. Maseje, J. E. Measham, J. D. Proud, F. B. Robson, C. G. Strachan, A. G. Taylor.

B.V.—A. King.

D.P.H.—A. King.

UNIVERSITY OF SHEFFIELD.

THE following candidates have been approved at the examinations indicated:

THIRD M.B., B.Ch.—F. Gamm, Lydia M. Henry, G. K. E. Inman, Florence E. Millard, W. Sharrard.

FIRST M.B., B.S.—H. E. Finkler, R. E. Ford, Dorothy E. Matthews, R. E. Pleasance, F. Roper, F. L. Smith.

D.P.H.—Hawary B. Beale.

* With distinction in chemistry.

UNIVERSITY OF EDINBURGH.

THE following candidates have been approved at the examination indicated:

FINAL M.B., Ch.B.—J. C. Anderson, J. M. Anderson, J. S. Armstrong, F. W. W. Baillie, T. Y. Barkley, H. J. F. Bruwer, W. M.

Christie, A. G. Clark, T. L. Clark, A. R. F. Clarke, I. A. Clarke, W. A. Cochrane, C. H. Clark, O. Coetzee, M. K. Cooper, M. F. Daniel, M. W. Danzig, D. Dunlop, Henry O. Ferguson, E. L. Gault, A. M. Ghosh, A. W. Gunn, * F. M. Hailey, J. A. S. Henderson, J. Hepburn, Helen G. Hewat, R. M. Hume, E. B. Israel, T. Janakiramiah, O. D. Jarvis, G. S. Johnston, C. W. S. D. Jones, D. H. Jones, Mary E. Kerr, A. J. Kenny, W. J. Kirk, N. B. Laughton, E. Law, R. Lawson, A. L. H. Liu, H. L. H. Liu, P. M. D. Little, J. G. Loudon, * J. E. M. McCartney, Helen M. McCall, W. K. McCall, M. K. McIntyre, Marjory Macnaughton, J. W. Malcolm, D. Mallock, Mary Mering, M. F. McIreing, T. C. S. C. Morton, * J. W. Potter, O. D. Price, W. J. Purdy, A. Ravinini, N. L. Reis, J. W. G. H. Riddell, J. W. Riddoch, J. Rodger, C. Russell, W. Shanks, J. W. Simpson, G. H. Sinclair, F. Solomons, H. Stewart, T. M. J. Stewart, H. Tren, J. Walker, J. W. Watthers, L. H. Verden (B.A.), W. G. Weston, M. E. Willcock, J. M. Wishart, F. G. Wright, C. J. Young.

* Passed with distinction.

UNIVERSITY OF ST. ANDREWS.

THE following candidates have been approved at the examinations indicated:

THIRD M.B., Ch.B. (*Pathology*).—Sheila Bridgford, Annie R. Campbell, Mary I. S. Cuthbert, Kathleen I. David, Mary M. G. Ferguson, D. Fisher, W. A. Fraser, J. Irvine, J. Kincaid, A. M. MacGillivray, C. W. Morrison, Margaret W. Shirlaw, Dora M. Walker.

D.P.H. (*Part II*).—J. C. Robertson.

UNIVERSITY OF MELBOURNE.

AT a meeting of the Teaching Staffs of the University and Affiliated Colleges, held on April 25th, the following resolutions were passed *namque contradicente*:

1. That during the continuance of the war the members of the staff of the university and affiliated colleges pledge themselves to abstain from the use of alcohol, except under medical advice.
2. That the committee to be appointed at this meeting be requested to consider the question whether a university rifle club can be formed with advantage, and whether any other action can be taken in substitution for such a club, or in addition to it; and further, that the members of the teaching staff of the university and the affiliated colleges pledge themselves to encourage volunteering among the members of the university by such means as may be approved by the committee to be formed.
3. Though many special services have already been performed by officers of the university at the invitation of Ministers, it is desirable to make it more definitely understood that such services are available, and therefore that the Council be asked to approach the Federal and State Governments with the suggestion that the members of the staff of the university would be willing to offer their services, as far as compatible with the continuance of university work, to aid or supplement wherever possible, the work of the scientific, technical, or professional branches of the Government departments during the war, on any matters connected with imperial defence, in which their assistance may be useful.
4. That this meeting is of opinion that public lectures under the auspices of the university should be given on the subject of the war, its causes, its importance to Australia, and the political and other problems which will arise from it; and that the council be requested to give its support to this course.
5. That the administration of the above resolutions be placed in the hands of a representative committee, with power to appoint special committees.

Professor Richard J. A. Berry, Honorary Secretary of the Executive University War Committee, adds with respect to the first resolution, that, whilst every member of the staffs was informed of the meeting, which was in consequence largely attended, no attempt was made to force the resolution upon those who were unable to attend.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved at the subjects indicated:

SCURERY.—*J. Braun, *A. Butterfield, *F. W. Chamberlain, *E. M. Drott, *G. J. G. Exley, *J. D. Ferguson, *S. C. Ghose-Dastidar, *S. Joubert, *J. C. Lee.

MEDICINE.—*A. Z. Abnshady, *W. Andrew, *L. Baungarten, *J. J. Braun, *F. W. Chamberlain, *G. J. G. Exley, *S. C. Ghose-Dastidar, *S. Joubert, *W. A. Matthews, *A. L. Robinson, *G. C. N. Younger.

FORENSIC MEDICINE.—*J. Braun, K. M. Drott, S. C. Ghose-Dastidar, S. Joubert, C. A. Morlock-Brown.

MIDWIFERY.—*J. Braun, S. C. Ghose-Dastidar, L. S. Goss, S. Joubert, E. E. Samarawera, T. J. Thomas.

* Section I. † Section II.

The diploma of the Society has been granted to Messrs. J. Braun, A. Butterfield, C. J. G. Exley, J. D. Ferguson, S. C. Ghose-Dastidar, S. Joubert, and J. C. Lee.

The Services.

TERRITORIAL FORCE.

EXCHANGE DESIRED.

LIEUTENANT RONALD B. BARRY, M.B., D.P.H., R.A.M.C.(T.F.), 1st North Midland Field Ambulance, Sherwood Foresters Brigade, North Midland Division, British Expeditionary Force, desires to exchange for four months into the sanitary service in this country. The pay and allowances are those of a lieutenant R.A.M.C.T. A junior medical officer with a temporary commission would be accepted.

Obituary.

FREDERICK HOWARD MARSH, M.A. CANTAB. (HONORIS CAUSA), M.C., Sc.D., F.R.C.S. ENG.,

MASTER OF DOWNING COLLEGE, CAMBRIDGE, AND PROFESSOR OF SURGERY IN THE UNIVERSITY; CONSULTING SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

PROFESSOR HOWARD MARSH, Master of Downing College, Cambridge, died at the Lodge in that college early in the morning of Thursday, June 24th. He was born in 1839 at Homersfield, on the Waveney, near Bungay in Suffolk, and was destined to end his days in East Anglia as Master of a Cambridge college, though the greater part of his life was spent in London as a hospital surgeon and teacher.

From the commencement of his professional education, down to the year when he was appointed professor of

surgery to the University of Cambridge, Howard Marsh was continuously associated with St. Bartholomew's Hospital. He signed the students' book on December 8th, 1858, and became M.R.C.S. in June, 1861. He was appointed house-surgeon to Mr. Skey in 1862, and for several years after the expiration of his term of office undertook many useful non-official duties in the medical school, such as the preparation of microscopical specimens for the lecturers. In 1866 he took the diploma of F.R.C.S., and in 1868 was appointed administrator of chloroform at St. Bartholomew's. In the following year he became surgical registrar to the hospital and demonstrator of anatomy and operative surgery to the Medical School. In 1873 Marsh was elected assistant surgeon, and in 1876 demonstrator of practical surgery, an office he resigned in 1879. He undertook the duties of surgeon to the Orthopaedic Department in 1878, a post which he held for four years. He became joint lecturer on anatomy in 1879, and held that chair until 1889, when he was elected joint lecturer on surgery. Promotion to the senior office, owing to purely accidental circumstances, came very late, for Marsh did not become full surgeon till 1891, eighteen years after he first joined the surgical staff. He held the senior office until his resignation in 1903, on his appointment to Cambridge. On his retirement he was appointed consulting surgeon and a governor of St. Bartholomew's Hospital.

In 1867 an institution, then called the Queen Square House of Relief for Children with Chronic Diseases of the Joints, was founded, in great part through the exertions of Miss Perceval, previously on the nursing staff of the Children's Hospital, and afterwards Howard Marsh's first wife. Marsh was appointed surgeon when the hospital was founded, this being the first appointment where beds were at his disposal. In 1871 the institution was renamed The Hospital for Hip Disease in Childhood, and it is now known as the Alexandra Hospital for Children with Hip Disease.

In 1868, the same year in which he became anaesthetist at St. Bartholomew's, Howard Marsh was appointed assistant surgeon to the Hospital for Sick Children, Great Ormond Street, where he had been house-surgeon three years previously, and the profession knows and his writings show the excellent use he made of that appointment. He became full surgeon in 1879 and consulting surgeon in 1888.

Howard Marsh was closely connected with the College of Surgeons from 1889, when he was selected Hunterian professor of pathology and surgery. He was a member of the Court of Examiners from 1892 to 1895, and in 1892 was elected a member of the Council, and, after re-election in 1900, held his seat till 1908, having served two entire terms of office. In 1902 he delivered the Bradshaw lecture. He was twice vice-president—namely, in 1898-9 and in 1901-2. Howard Marsh was an honorary member of the Royal Academy of Medicine of Ireland and a cor-

responding member of the Orthopaedic Association of New York.

Howard Marsh was President of the Metropolitan Branch of the Association in 1903, and in 1904 President of the Section of Surgery at the annual meeting of the Association at Ipswich, when in a short address he turned attention to the importance of the two subjects selected for special discussion, subdiaphragmatic abscess, introduced by Sir Rickman Godlee, and the treatment of simple subcutaneous fractures, introduced by Sir W. H. Bennett. He reminded surgeons that whilst the latter subject was important, since fractures were so common, the former must not be neglected, because, though rare, any doctor might come across a case in the course of his career, and the diagnosis and treatment of this type of abscess were difficult.

In September, 1896, Sir George Humphry, who held the Chair of Surgery at Cambridge, died, and the appointment was left vacant till the summer of 1903,

when Howard Marsh was elected Professor of Surgery. It happened that he was born in 1839, the very year in which Humphry entered St. Bartholomew's Hospital as a student. Marsh resigned his appointment at St. Bartholomew's Hospital and removed to Cambridge. He was made a Fellow of King's College, and in 1907, four years after his appointment as Professor of Surgery, he succeeded Dr. A. Hill as Master of Downing College. Marsh paid much attention to university matters beyond the limits of his official duties. His name was on the electoral roll of the university; he was a university member of Cambridge Town Council, a member of the Watch Committee, and a Justice of the Peace. He also became colonel of the R.A.M.C.(T.), Eastern District, and encouraged the Boy Scout movement. At the same time, consistently with his tastes and habits when young, he took an active interest in university and college games and encouraged the undergraduates by his teaching that learning—especially medical learning—should be manly, and must therefore be fortified by participation in manly sports. He proved most efficient in his purely



Photograph by

FREDERICK HOWARD MARSH.

Photograph by Frz, London

professional work, undertaking the fitting and equipment with surgical appliances and instruments of a large room in the new medical schools.

Howard Marsh's talents did not include that skill and high capacity for bold and novel operative measures which distinguished so many of his contemporaries, but his strong point, like that of his teacher Paget, was clinical surgery, especially manifested in his judicious treatment of diseases of the bones and joints. He made free use of those mechanical appliances of other surgeons which he found beneficial in treatment, without troubling much about modifications, but his name came to be associated with the knee splint which he devised, made with lateral steels, jointed so as to prevent rotation, and with a reclining couch, the main feature of which was the firm horsehair padded mattress. As a member of the Council of the College of Surgeons, Marsh took part in medico-political business, though he had none of those qualities which make a strong councillor. He was among those men who promoted the admission of women to medical degrees and diplomas, but opposed the medical provisions of the Insurance Act, as he believed that they would encourage inefficient dispensary treatment.

Howard Marsh was an able writer as well as a keen clinical observer. In 1867 there appeared in the third volume of the *St. Bartholomew's Hospital Reports* an admirable monograph "On tracheotomy in children, its methods, its dangers, and its difficulties." He had enjoyed much experience of the operation when he was house-surgeon at the Ormond Street Hospital for Sick Children, and one remarkable feature in this communication was a table showing, not only in figures but also in circles, the relative diameter of the trachea and cricoid in children. He found, from accurate measurements of twenty-nine subjects, that in children the diameter of the cricoid is almost invariably less than that of the trachea, indeed in his series there was but one exception, and in that case the diameters were equal. Marsh's literary work, however, related more to bones and joints than to the surgery of the respiratory tract. Already, a year before the excellent memoir on tracheotomy in children was published, an article by him appeared in the second volume of the same reports, "On the prejudicial effect of inter-articular pressure in joint disease; and the application of continuous extension, by means of a weight, as a remedy for this condition." This paper, like the memoir on tracheotomy, was based on observations made by the writer when he was house-surgeon at the Children's Hospital. It is well worth study by surgeons specially interested in the history of the surgery of hip-joint disease. They will see that Marsh taught the extension treatment when it was far less understood than is the case to-day, and that he based much of his clinical principles on the teachings of *Lectures on Rest and Pain*, which had then recently appeared. They are, we trust, still held as standard surgical literature. The author was John Hilton, who, when Marsh wrote the article in question,

was as deeply admired as a sound teacher of clinical surgery as he was dreaded by candidates as a severe examiner in Lincoln's Inn Fields. Hilton, as we are in a position to know, was admitted by Marsh to be a great inspirer of right principles in the treatment of joint disease, especially through his teachings on the necessity of the separation of the diseased surfaces of the bone by extension. We all know what further developments of hip-joint surgery occurred in the United Kingdom, America, and elsewhere, not many years after the publication of Marsh's article on the evil effects of interarticular pressure. Marsh himself taught and wrote a great deal about the surgery of bones and joints after the appearance of this first-fruits of his knowledge. In the fourth volume of the *Reports* he published notes on diseases of the joints, based chiefly on cases under observation in the hospital during the previous year. He also contributed a paper on manipulation or forcible movement as a means

of surgical treatment (a subject previously much investigated by his master, Sir James Paget) to the fourteenth volume of the *St. Bartholomew's Hospital Reports* (1878). Two interesting papers on bone and joint surgery appeared in the *JOURNAL*. The first was a memoir read in the Section of Surgery at the London meeting of the Association in 1895, on the pathology and clinical history of some rare forms of bony ankylosis, published with some instructive drawings in the *JOURNAL* (1895, vol. ii, p. 1087). The second, which will be found in the *JOURNAL* of 1896, vol. ii, p. 181, was a clinical lecture on displacements and injuries of muscles and tendons. This article, too, is enriched by some good illustrations showing the relation of the peroneus longus and the tibialis posterior to the ankle joint.

In 1889 Howard Marsh, as Hunterian Professor of Pathology and Surgery, delivered at the College of Surgeons three lectures on tuberculosis in some of its surgical aspects,

which appeared in abstract in our second volume for that year. In the third of these lectures he declared that he believed that it was then recognized by most surgeons that, although the immediate result of excision of the knee in children might be all that could be desired, the wound not rarely healing by primary union, the ultimate result was unsatisfactory.

In the Bradshaw Lecture delivered before the Royal College of Surgeons in December, 1902, he dealt with "infective arthritis"—a wise choice, for he was a recognized authority on diseases of the joints; whilst in those very same years when he was in his prime bacteriology had become an established branch of pathological science. Marsh reminded his audience that he was speaking to them just fifty years and one day after Lord Lister became a Fellow of the College. The lecturer insisted on the importance of a discovery made by Weichselbaum in 1888. That authority found that the *Diplococcus lancetatus* of Fraenkel has the power of producing acute inflammation of the joints. This discovery, so interesting in itself from a purely biological point of view, had already

given a great impetus to the study of infective arthritis. Marsh ably reviewed in detail the different types of arthritis associated with typhoid fever, scarlet fever, influenza, erysipelas, glanders, and other serious but far more obscure general disorders.

The substance of the early papers on joints and bones, with the addition of more matter based on later experience, were incorporated into a separate treatise, which first appeared in 1886 under the title *Diseases of the Joints*, and was translated into German by Dr. Kindervater of Leipzig in 1888. In 1895 a new issue was published, entitled *Diseases of the Joints and Spine*, and in 1910 the third edition appeared, revised and enlarged with the collaboration of Mr. Gordon Watson. A volume of *Clinical Essays and Lectures* was completed by Marsh and issued in 1902, and must not be confounded with the second edition of Paget's book bearing a similar title, in the preparation of which Marsh also assisted. The latter work appeared in 1884. Marsh's volume consisted mainly of collected papers on diseases of the bones and joints. He contributed an article on joints to Treves's *Manual of Surgery*, on fractures and hip diseases to Heath's *Dictionary of Surgery*, and on abscesses to Ashhurst's *International Encyclopaedia of Surgery*. Marsh was an active member of the Clinical Society, of which he was president from 1901 to 1903, and amongst his numerous contributions was a good paper on bone-setting, which was read in 1882. Its subject, like manipulation and forcible movement of joints, had already been under the investigation of Paget, Marsh's teacher, who once delivered an instructive lecture on "Cases which bone-setters cure."

Naturally of a cheerful disposition, Howard Marsh loved field sports, and was known to be a keen golfer. He was a very kindly man, with a gentle voice and a pleasant manner which made him popular with colleagues, students, and patients.

Marsh was twice married. His first wife, Miss Jane Perceval, by whom he had a son and a daughter, was the granddaughter of Spencer Perceval, who, when Prime Minister, was shot at the entrance of the lobby of the House of Commons on May 11th, 1812, by Bellingham, a man with a grievance. Marsh's son, Mr. E. H. Marsh, C.M.G., has been for several years private secretary to Mr. Winston Churchill. Marsh's second wife was Violet Susan, daughter of the late Admiral Sir John Dalrymple Hay.

The funeral of Professor Howard Marsh took place on Tuesday, June 29th; the first part of the service was held in the chapel of King's College. The pall-bearers were Mr. Edward Marsh (son), Sir William Dalrymple Hay (brother-in-law), Mr. T. C. Maurice (son-in-law), representing General Maurice, who is at the front, Professor Sir Clifford Allbutt, Professor C. S. Kenny, Professor J. B. Bradbury, Mr. T. W. Danby, and Rev. Dr. T. J. Lawrence (honorary Fellows), the Provost of King's, and Mr. C. E. Grant. Among those present were Sir William Osler, Dr. W. S. A. Griffith, Mr. H. J. Waring, and many other representatives of medical and other bodies. About 500 Boy Scouts lined the quadrangle at Downing. The interment took place at the Brough Cemetery, Newmarket Road.

A memorial service was also held at St. Bartholomew-the-less, West Smithfield, the congregation including Lord Southwark, Mr. Rawlinson, K.C., M.P., Sir Dyce Duckworth, and Sir William Church.

Sir CLIFFORD ALLBUTT, Regius Professor of Physic, Cambridge, sends us the following appreciation of the late Professor Marsh:

The time of the death of a dear friend is hardly the moment to compose a careful appreciation of his life. While now in Cambridge we are feeling keenly the loss of Howard Marsh, our hearts are occupied in silent sorrow. Notwithstanding, it is at this time that men, especially those to whom he was less well known than to ourselves, desire to learn who he was whom we are lamenting, and to receive inspiration from his example.

Among those of us who are now reflecting upon memories of past friendship, our first thoughts will be of the man; our thoughts of the Professor and Master will come in the second place. Howard Marsh was a man of warm and generous affections, and these were so natural to him that he was as little self-conscious of his own goodness of heart

as of his five senses. It was too much a native part of him to be a matter of taking thought. Three or four times in my life Marsh did me great kindnesses with the least ceremony; indeed, our closer intimacy began with his hospitable reception of my wife and myself in Bruton Street on a great occasion when in London hardly a bed was to be heard of. The same simple goodness of heart was apparent, in the same frank and natural manner, not in his particular kindnesses only, but—what was far more—in his steady and modest devotion to public and private beneficence. Although no one could fail to be aware of the devotion of Howard Marsh to those public causes and ends which are set forth in the obituary notices of him, yet until these were published I was in ignorance of some of the chief of them. From himself they would never have been known; and these duties did not consist only in passing efforts or occasional gifts, but, as those knew best who knew him best, in the far harder continual sacrifice of personal ease and gratification for the succour and solace of those in need and suffering.

In public debate Marsh was always on the side of broad views and generous ideas—I will say "progressive" ideas, though to this day I do not know to which political party, if to any, he belonged. He spoke well, with this breadth of view and with conviction, not always academical qualities; and his literary works and addresses were written in English as excellent as their matter. An interesting side of his strong character would appear occasionally when, feeling things keenly as he did, he might seem for a moment a little stubborn; such an attitude in him was always due to imperfect information; after farther explanations, whether he agreed or not, there was an end to all contention. So it was that no colleague could be more reasonable or courteous.

As professor and examiner Howard Marsh was excellent, indeed admirable. I have generally been present, on his invitation, during some part at least of the examination for the Mastership of Surgery, and so had many opportunities of observing his kindly but searching way of getting at the qualities of a candidate. On one occasion more especially I remember this penetration, and his accomplishment as a skilful and intellectual surgeon. A candidate had described a certain local lesion very accurately, so much so that the two examiners were satisfied. But the professor bade the candidate wait a moment, and then proceeded himself to raise the inquiry into the larger sphere of the general pathology and the deeper meanings of the condition. Here the candidate failed to acquit himself so well; he was unable to rise above the narrower technical aspects of experience.

Of Marsh's scientific work, which was chiefly surgical, I am not competent to speak with authority; this appreciation is for others.

As Master of Downing, at a critical period of its growth, Howard Marsh was of great service to the college. Bright and genial in temper, punctual in his duties, well versed in business, familiar with affairs and in touch also with men and things outside academical circles, he carried his colleagues with him, managed its affairs successfully, and represented it effectively. Downing will find it difficult to fill his place, and where we are to look for a like professor of surgery is a still graver question.

Mr. J. H. MORGAN, C.V.O., adds the following notes on the late Professor Howard Marsh: When Howard Marsh was appointed assistant surgeon to the Hospital for Sick Children in 1868 he was already a very busy man. He was holding the same position at St. Bartholomew's, and lecturing at that school. The work of the out-patients' room was not in those days so arduous as it became subsequently, and it was carried out in a small room on the ground floor of the house, which formerly had been inhabited by the celebrated Dr. Mead. His surgical colleagues were Timothy Holmes and Thomas Smith. He remained in the out-patient department for eleven years, when he was promoted to the charge of a ward. His chief interest was in cases of joint disease, and from the first he was opposed to operating in these cases, and developed to a large extent the treatment by rest and splints. These were made of leather softened in warm water and moulded to the limb, and afterward lined with soft white leather. He was opposed to the practice of excision of joints, particularly of the hip, which was so

strongly advocated and practised by Fergusson of King's College and Croft of St. Thomas's. In this he was certainly a pioneer of the methods which are now so successfully followed at such places as the Cripples' Hospital at Alton and at Berck-sur-Mer in France, where an excision is rarely if ever seen.

FRANÇOIS ALBERT DE THIERRY MOUILLOT,

B.A., M.D. DUBL.,

HARROGATE.

By the sudden death of Dr. Mouillot on June 20th, 1915, Harrogate loses one of its leading practitioners and the medical profession an outstanding representative.

Dr. Mouillot had suffered from glycosuria for some years. Twelve months ago symptoms of angina pectoris developed, followed by pericarditis, and he passed through a long illness, from which he appeared to make a good recovery. A term of residence at Duff House, Banffshire, materially improved his condition, and he resumed work, though with diminished activity. To his friends, however, it was obvious that he was gradually failing, but in spite of his disability he worked on pluckily and cheerfully, till the end came in a sudden painless attack of cardiac syncope.

Dr. Mouillot was born in 1858, and was the eldest surviving son of the late Auguste M. C. Mouillot, of Rathfarnham, co. Dublin. His medical education was received at Trinity College, Dublin, where he had a brilliant career, taking the B.A. in 1877, being senior moderator and gold medallist in mental and moral philosophy; his M.B. in 1880, B.Ch. in 1882, and M.D. in 1896. After graduating he became pathologist and registrar in the Birmingham General Hospital, and later settled in practice in Gorey, co. Wexford, where he remained eleven years. In 1894 he removed to Harrogate, took up spa work, and speedily built up an extensive practice which he maintained to the end. He held the appointment of honorary physician to the Yorkshire Hospital for Chronic Diseases. He was a member of the British Medical Association and a past president and active supporter of the local Division. As co-secretary for some years, he took a leading part in the affairs of the Irish Medical Schools' and Graduates' Association, of which he became president, and later on vice-president, an office he held up to the time of his death. One of the earliest members of the Balneological and Climatological Society, he had an active share in its development, holding the office of co-secretary up to the time of fusion with the Royal Society of Medicine; he became, last year, president of the Balneological Section. Since the beginning of the war he had acted as physician to the Grand Duchess George of Russia's hospitals for wounded soldiers in Harrogate, to which he gave much active and willing service.

Dr. Mouillot was not a prolific writer, but from time to time he contributed to the medical journals papers which were invariably marked by shrewd common sense and clinical acumen. As a physician he was able and painstaking; a man of few words to his patients, but of infinite kindness. He set a high standard of professional conduct, and helped not a little by his example and precept towards lifting spa practice from the slough of empiricism to the higher plane of rational therapeutics. In all that pertained to the welfare and development of the health resort in which he practised, he was ever ready with sound advice and assistance in medical matters.

As a man he was a charming companion; genial, full of wit and humour (derived from his Irish associations), and a racy raconteur. Even-tempered and broadminded to a degree, he was never known to speak ill of anyone. His life was one of hard work, with little regard for self; and his loss will be acutely felt by his numerous patients and wide circle of friends.

He leaves a widow, three daughters, and a son who holds a commission in the Indian Army, and is now on active service in Egypt.

SURGEON-MAJOR W. F. MACTIER,

INDIAN MEDICAL SERVICE.

SURGEON-MAJOR WILLIAM FULLERTON MACTIER, Bengal Medical Service (retired), died at Kinnessburn, St. Andrews, on June 19th, aged 92. He was born in Calcutta on October 1st, 1822, the son of Anthony MacTier, of Dunnis House, Aberdeen, first Commissioner of the Court of

Requests in that city; was educated at Edinburgh University, where he took the M.D. in 1843, and entered the Indian Medical Service as assistant surgeon on December 3rd, 1844, on the nomination of Sir R. Campbell. He became surgeon on March 29th, 1858, surgeon-major on December 3rd, 1864, and retired on September 24th, 1866, nearly half a century ago. With the exception of two years, 1853-55, when he was in medical charge of Simla, his whole service was spent in military employ, his last appointment being that of principal medical storekeeper, Calcutta, in 1863-64, after which he went on furlough, and did not return to India. During the Indian Mutiny he was personal surgeon to two successive commanders-in-chief, Generals Anson and Sir Henry Barnard. He had a fine record of war service—first Sikh war, or Sutlej campaign, 1845-46, with 4th Native Infantry, actions of Mudki, Alwal, and Sobraon, medal with two clasps; second Sikh war, or Punjab campaign, 1848-49, actions of Ramnagar, Saidulapur, and Chillianwala, medal with clasp; Indian Mutiny, 1857-58, siege of Delhi, mentioned in dispatches, medal with clasp.

In General Sir Archdall Wilson's general order of November 5th, 1857, published in the *London Gazette* of December 15th, 1857, is stated: "Amongst those medical officers whose unwearied zeal and superior ability have come prominently before me are . . . Assistant Surgeon W. F. MacTier, M.D., on the personal staff of the late Commander-in-Chief."

Surgeon-Major MacTier was the senior officer of the Indian Medical Service retired list, with one possible exception, that of the centenarian, Surgeon-Major H. B. Hinton, who, if he is still alive (and he is still shown in the *Army List* as living), must now be well over 102. One of his sons, Major H. M. MacTier, of the 39th Gharwal Rifles, was killed in action at Neuve Chapelle three months ago; another son, Dr. W. B. MacTier, is in practice at St. Andrews.

Public Health

AND

POOR LAW MEDICAL SERVICES.

ELECTROLYTIC DISINFECTANT.

A REPORT was recently submitted to the Council of the Metropolitan Borough of Poplar by the Medical Officer of Health, Dr. Frederick W. Alexander, in which he gives the following particulars:

The initial cost of the apparatus, building, etc., in 1906 was £583 10s.:

	£	s.	d.
Initial outlay (plant)	325	0	0
Fittings, etc. (Electricity Department)	71	7	11
Sundries, structural (Electricity Department)	6	6	11
Sundries (Electricity Department)	4	6	11
Structure of dépôt (Works Department)	120	6	11
Sundries	32	4	7
Carboys	23	16	9
	583	10	0

On account of the great demand for the electrolytic fluid the dépôt had to be enlarged and an additional new plant, with electric motor for stirring and switchboard, etc., was installed at the beginning of 1910; with alterations to the first plant it cost in round figures £500. Owing to the extension of the electricity works the whole structure and installation had to be dismantled and was re-erected.

During the working of the apparatus—a period of nine years—many improvements for the municipal success of the installation were made. A very important improvement was introduced for the reception of the fluid from the electrolyzers. For the glass receptacles, which were apt to break, and were very costly, specially made cheap metal drums were substituted. A double cell has been constructed of slate, in such a form that the "creeping" of the current (which comes direct from the council's mains) from one cell to another is prevented. This is a most important point; all slate contains metal, and the current in "creeping" from the electrodes in one cell to the electrodes in the other cell causes erosion to take place, and sooner or later a "dead short" happens, and a new double cell is required. The original slate cells were replaced by others of earthenware, which have been

in use for some years. Electricity, on account of moisture, will even creep with an earthenware cell, and efficiency will be lost; moreover, if the partition of the earthenware cell or tank is not properly glazed, it will in course of time become destroyed by the electrical current (240 volts and 20 amperes) acting upon the fluid which soaks into the unglazed earthenware. Earthenware cells take a long time to make (possibly four months), and it is never certain that in the firing of earthenware there will not be defects in the articles when they are taken out of the kilns. A slate double cell can be made in a few days, is cheap, and as now constructed will not permit the current to "creep" and cross to take place; in this way cheapness, safety, and greater efficiency are combined. The current being taken direct from the council's mains, the expense of a "converter" with its consumption of current and necessary skilled attention is saved.

Since the installation of the plant 381,794 gallons of fluid have been manufactured at a cost for electricity of £401 19s. 3d., and for materials of £345 9s. 11d. (under 3d. per gallon).

Not only is the Public Health Department and the various institutions of the Council (the public baths, etc., and the Works Department as required), furnished with the electrolytic disinfectant, but the institutions of the managers of the Sick Asylum and of the board of guardians (within and without the borough), and also some of the London County Council public elementary schools are supplied with an unlimited quantity free.

The output of disinfectants rose from 54,388 gallons in 1912 to 68,795 gallons in 1914. The average expenditure, including wages for the three years ending March 31st, 1914, was £831. It is to be noted that the war has had the effect of greatly increasing the cost of magnesium chloride.

The fluid, as made in Poplar, is stable for an almost indefinite period, and is suitable either for municipal or commercial purposes. The rendering of quantities of hypochlorite of magnesia electrolytic fluid stable for municipal purposes was the difficulty which had to be overcome with the plant erected in Poplar because no plant was in existence prior to the Poplar plant where this had been done on a large scale.

The work of making electrolytic disinfectant, as carried out in Poplar, has attracted attention elsewhere. Plants have been supplied to Gurnsey, Gateshead, Finland, Buenos Aires, and Rangoon. At Portsmouth a plant has been installed for manufacturing the fluid direct from sea water and rendering it stable by the method adopted in Poplar, and recently the Finchley Council placed an order for an installation.

Medical News.

SURGEON-MAJOR S. C. NOBLE, V.D., J.P., Kendal, has been appointed by the Lord Lieutenant a Deputy Lieutenant for the county of Westmorland.

SIR JOHN LENTAIGNE, sometime President of the Royal College of Surgeons in Ireland, left unsettled estate in the United Kingdom valued at £9,869.

The annual general meeting of the West London Medicico-Chirurgical Society will be held at the West London Hospital on Friday, July 16th, at 5 p.m. The Council will propose that Dr. Leonard Dobson shall be elected president for 1915-16.

At a convocation of the University of Oxford on June 25th the honorary degree of Master of Arts was conferred on Mr. Horatio P. Symonds, F.R.C.S. Edin., surgeon to the Radcliffe Infirmary, in recognition of his services to the Oxford Medical School.

The administration of Brides-les-Bains, sometimes called the French Carlsbad, offers to British naval and military officers free treatment and the use of the baths and springs. The place is an agreeable summer resort in Upper Savoy and stands at an altitude of about 2,000 ft.

At a sessional meeting of the Royal Sanitary Institute, at Yeovil on July 14th, discussions will be opened on water supplies to rural and small urban areas by Dr. W. G. Savage, M.O.H. Somerset, and on the prevention of minor infectious diseases by Dr. A. E. Remmet Weaver, M.O.H. Yeovil.

On June 24th, at the official residence of the French Minister of War, the British Ambassador presented to M. Millardot two ambulance cars in the name of the boys of Eton. These cars, specially fitted for the service of the Chassens Alps (the "Blue Devils" of the French army), bear silver plates with the following inscription:

"A l'Armée Française les élèves du Collège d'Eton (Angleterre) en témoignage de leur admiration. 1915."

A MOTHERCRAFT and child welfare exhibition will be held at the Passmore Edwards Institute, Tavistock Place, W.C., from July 3rd to July 10th. It will be open free from 2.30 to 8.30 p.m. each day. The exhibits have all been arranged by associations or persons interested in the subject, and there will be no trade exhibits. Among them will be a model day nursery, a dental exhibit, and a fly exhibit arranged by Professor Lefroy. Lectures on flies will be given by Dr. Halford Ross and Dr. King Brown, and one on the protection of children against insect-borne diseases by Dr. Louis Saubon on Wednesday, July 7th, at 4.30.

LIEUTENANT-COLONEL SIR COURTAULD THOMSON has been appointed chief commissioner of the Order of St. John and the British Red Cross Society for Malta and the Near East. The secretary and deputy chief commissioner is Major Stockings. On his arrival at Malta Sir Courtauld, who was accompanied by Sir Frederick Treves, visited most of the hospitals, under the guidance of the D.D.M.S., Colonel Slemán.

An appeal signed by, among others, the Bishops of Stepney and Southwark, the Chief Rabbi, Lady St. Helier, and Mrs. Creighton, has been issued for generous subscriptions this year to the Factory Girls' Country Holiday Fund. Owing to the facts that the railway companies do not see their way to make the usual reduction in fares, and that the charge for board and lodging is necessarily greater, the cost for each girl will be increased, and the committee do not think it right to run into debt. Subscriptions may be sent to the Honorary Treasurer, Factory Girls' Country Holiday Fund, 75, Lamb's Conduit Street, W.C.

SIR RONALD ROSS, the honorary director of the Marcus Beck Laboratory of the Royal Society of Medicine, in addition to the request mentioned elsewhere, addressed to the medical profession practising in the neighbourhood of the society's house, 1, Wimpole Street, to let him know of cases of measles where permission could be obtained to take a specimen of fresh finger blood, asks whether it has been observed that vaccination for small-pox is exceptionally unsuccessful if performed on persons who are suffering from or who have recently suffered from measles of either type, or from scarlet fever. He will also be glad to hear from any persons having special knowledge of the sanitary conditions in the Gallipoli Peninsula and neighbouring parts, as he wishes to make an investigation on this subject.

The Grand Pump Room Hotel at Bath was reopened on June 26th. It stands on the site of the old White Hart, where Mr. Pickwick and his friends put up during the first part of their stay near the baths of Blandford. A large number of medical men from London and the provinces, especially from South Wales, were among the guests at an inaugural luncheon and reception, when they were welcomed by Mr. H. J. Thomas of Cardiff, the guiding spirit of the new enterprise. For some years past the closed and derelict condition of the hostel opposite the pump room colonnade has been a note in the Bathonian eye, but the renovated building is now on a scale of luxury such as would make Angelo Cyrus Bantam, M.C., declare himself more than ever satisfied, and delighted, and overpowered. The hotel contains 120 bedrooms, with 15 private suites. The decorations are chiefly in Adam style, the predominant colour note being a warm crimson, while the white enamelling of the 30 bathrooms and of a large portion of the general building is extremely effective. The kitchens also are said to be the finest outside London. The feature of the hotel which calls chiefly for remark, however, is the direct connexion by means of electric lifts with the New Royal Baths. This portion of the corporation bathing establishment—forming, indeed, the lower part of one wing of the hotel building itself—is now in process of reconstruction by the city council. The invalid visitor will thus find it possible to undergo the various bath treatments at the hot mineral springs without the necessity of making the passage of the street. This direct association of hotel and bathing establishment is not unusual at Continental spas. Speeches were made at the luncheon by Lord Willoughby de Broke, Sir Melville Beachcroft, and others, in which the patriotic emphasis had a distinctly local turn. It was stated that Bath has enjoyed a record season, many thousands of treatments having been given freely to the country's fighters suffering from stiffness after wounds, and students of the local chroniclers have pointed out that the same thing happened after the campaigns of Marlborough and Wellington, and that Nelson also went there for recuperation after one of his naval expeditions.

Letters, Notes, and Answers.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 423, Strand, W.C., on receipt of proof.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Attingham, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY and BUSINESS MANAGER (Advertisements, etc.), *Attingham, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisocety, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

TREATMENT OF CHEIROPOMPHOXYL.

"SKIN" asks for suggestions as to treatment of cheiropompholyx, from which he suffers. About every three months vesicles develop on the sides of fingers and thumbs, go on to pustular formation, and become very painful ulcers. He would be glad to know of any treatment which would abort the condition. He has tried painting affected surfaces with silver nitrate in solution but with little benefit. As a holiday is out of the question, he would be glad to know what general lines of dietetic and other treatment might be useful.

LETTERS, NOTES, ETC.

A WARNING.

SOME time ago we had occasion to draw attention to the activities of certain insurance agents who sought to induce doctors to take out a policy with their company, at the same time making a promise, in some shape, that other applicants for policies in the neighbourhood would be referred to them for medical examination. We understand that something of the same kind is now happening in the north of England, and we would advise doctors who may be approached with such suggestion to be on their guard. There is, of course, an ethical side to this matter into which we do not now enter.

RECOGNITION OF CEREBRO-SPINAL FEVER.

DR. ERNEST MILLIGAN, D.P.H. (Long Eaton) writes: I read with great interest the note by Dr. Renault on three cases of cerebro-spinal fever in the issue of the JOURNAL for June 19th, p. 1044, as they confirm the view that cerebro-spinal fever occurs without cerebro-spinal symptoms; in this light the cases published by Dr. Lundie and his fellow workers are also important. In a thesis, written by me shortly after the Belfast epidemic, 1906-8 (see *Practitioner*, June, 1915) I laid stress on this aspect of infection by the meningococcus. The term "cerebro-spinal" applied to the disease is, I believe, misleading, and with a view to the prevention of the disease, I think a less misleading title should be substituted. Some of our leading clinicians could help to this end; such names as "meningococcal infection," "meningococcal fever," "meningococcaemia" or "meningemia," or some other such title, would be less likely to result in mistakes in diagnosing this protean disease.

BADGES FOR DOCTORS' CHAUFFEURS.

A. W., who was mobilized in August in connexion with a Voluntary Aid Detachment, and is now working at a hospital conducted by it, suggests by several means should be found of issuing badges to chauffeurs in the employment of doctors in this country, in view of the urgent demand by the military authorities for motor drivers.

LYMPH LAVAGE OF WOUNDS.

DR. ALBERT WILSON (London) writes: The physiological treatment of war wounds by so-called lymph lavage through the use of saline solutions demands attention to the primary principles of osmosis. Three conditions are necessary: (1) The liquids on either side of the partition must be different, but capable of mixing; (2) the liquids must be of different densities; (3) the membrane must be permeable to at least one of the liquids. The formula of "endosmotic equivalents" was established, and expresses by a number some many parts by weight of water pass through the membrane in exchange for one part by weight of the substance. Obviously the use of the water bath does serious mischief, as the endosmosis is then into the tissues, carrying in septic material; while the use of normal salt solution (3 per cent.) is nil, being balanced by the like density of the lymph. If we use a 5 per cent. solution of common salt, there is only a feeble action from the surplus 2 per cent. The endosmotic equivalent of NaCl is 4.3. Epsom salts is preferable, as the equivalent of MgSO₄ is 11.7; copper

is 9.5. Sugar, even, is better than salt; its equivalent is 7 Alcohol is about the same as salt, 4.2. The French have used alcohol for forty years as a surgical application. It is also very cleansing. It is self-evident that more douching effects nothing. There must be constant application of the solution in both or on pins. The surgeon should remember that this action is physical, not chemical; whereas septicæmia and toxæmia are bio-chemical, and demand different methods. Moreover, such treatment is only of value in the pregranulation stage. Granulations do not absorb; the physiological action of the wound is then phagocytic, and lotions arrest this process. Glycerine has recently been advocated as a dressing for war wounds, and has undoubtedly a very high endosmotic equivalent. If applied pure, endosmosis is rapid. I have used it pure in a few cases. If salicylic acid, 2 per cent.; were dissolved in it, the osmosis would bring this drug into contact, thus destroying all septic organisms, even tetanus. I have for years used this for obstinate ringworm and alopecia; I may say without failure. Its action is that of endosmosis and exosmosis. Glycerine is certainly easy of application to deep, long sinuses, especially down the irregular deep tracks made by shrapnel, which are not always easy to drain. It also soothes pain, and will stand moderate dilution.

DR. JOHN ALCINOR (London) writes: It is generally recognized that salt is a lymphagogue of no small value; douches and gargles containing 5 to 10 per cent. of common salt constitute a useful adjunct in the treatment of catarrhal affections of the nose, mouth, and throat. Glycerine, as Dr. H. J. Holt points out in the BRITISH MEDICAL JOURNAL of June 5th (p. 969), is also a lymphagogue of considerable value. I have used glycerine containing 5 to 10 per cent. carbolic acid or liq. cresol. sap. in a number of cases of endometritis and pelvic cellulitis, with excellent results; a tampon of cotton-wool 3 in. long and 1 in. thick tied in the middle with crochet cotton with loose ends for the purpose of withdrawing it from the vagina, is saturated with this preparation, and inserted through a speculum well up against the os after giving a vaginal douche of 1 in 40 carbolic or liq. cresol. sap. after a period of four to six hours contact, and daily change, enemas which necessitate the use of diapers; the tampon is changed in twenty-four hours and the treatment continued for eight days. The results of this course of treatment are loss of pain, cessation of purulent discharge, a healthy appearance of the os and surrounding mucosa, and an improved aspect of the patient. It would seem that liq. cresol. sap. is the better anti-septic for the purpose, because of its cleansing properties, its power of inhibiting the causative organisms, and its non-interference with the powerful osmotic action of the glycerine. As there is a certain similarity between endometritis and pelvic cellulitis on the one hand, and infected gunshot wounds on the other, it would seem that a method of treatment which produces good results in the one class of cases would with appropriate modifications produce equally good results in the other class, inasmuch as the underlying principle, which Sir Almroth Wright so lucidly expounded, is the same in both instances. It is with the hope that resorolized glycerine will be given a trial, both as a preliminary dressing and as a systematic treatment of gunshot wounds, that I venture to put forward the suggestion.

BRITISH HEALTH RESORTS.

We have received a letter from Dr. T. D. Luke, physician to the Peebles Hydro-Pathic, protesting against the omission of Peebles from the pamphlet entitled *Notes on Hydrological Treatment and a List of British Health Resorts and Spas*, published under the auspices of the Council of the Bacteriological Section of the Royal Society of Medicine. It is, he says, a place of surpassing beauty, noted as a health resort since the time of Queen Mary, and is at this day well patronized.

THE GERMANIZATION OF DICKENS.

We know the Germans claim Shakespeare as their own; as they admire Dickens, we have no doubt that they are desirous to rule the world, they would like to annex him too. We are sorry that by an unlucky accident the BRITISH MEDICAL JOURNAL should have seen the light as a patriotic contribution to the realization of this scheme. Mr. Crummles was anxious that the British public should know that he was not a Prussian. We are equally anxious to inform our readers that, in spelling the name of Mr. Wemmick as "Wemmick" in our issue of June 26th (p. 1092), we had no desire to Teutonize the author of *Great Expectations*.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive post-*script* letters addressed either in initials or numbers.

TREATMENT OF "GUNSHOT WOUNDS" OF THE KNEE-JOINT.

BY COLONEL H. M. W. GRAY, A.M.S.,

CONSULTING SURGEON, BRITISH EXPEDITIONARY FORCE, FRANCE.

This paper is written in order to draw attention to certain points which have been demonstrated by the surgeons of the British base hospitals in my area—that is, all south of Abbeville—to be of immense importance. In the earlier part of the war the results of the treatment of such injuries left a great deal to be desired. The great majority of such cases as recovered did so with ankylosis. The period of convalescence was usually most painful and precarious.

Such infected injuries were approached with ideas regarding their treatment which, as our experience has shown, are erroneous. The chief of these were: (1) That suppurative infections of the joint demand free and prolonged drainage; (2) that drainage tubes are the best means of procuring this; (3) that these tubes must be large, and must be inserted deeply into the various recesses of the joint, and (4) that strong antiseptic treatment is necessary in order to overcome the infection. These remedies are inimical to a "restitutio ad integrum," because, by their deleterious action, the synovial membrane and cartilages are more or less destroyed, and in most cases the best result that can be hoped for is ankylosis. On the other hand, the importance of certain factors in successful treatment were not grasped sufficiently: (1) That wounds of the knee-joint which are liable to become septic demand immobilization of that joint. Few of such cases arrived at our base hospitals with an efficiently applied splint. Movement of such a knee may turn the scale in favour of sepsis, in two ways—(a) it may favour the entrance of sepsis to a knee previously uninfected, and (b) it may stimulate a virulent, diffuse inflammation instead of a mild, localized one. During after-treatment the splint must be retained for two to three weeks at least. During the later stages gentle passive movement may be made daily. (2) There existed quite a widespread notion that foreign bodies in the joint should be removed "only if they lead to trouble." Fortunately, the fallacy of this view has been demonstrated, and now only those which are imbedded in the bone outside the joint are left alone, if they are not causing trouble. (3) The good effect of excision of the wound of the skin and superficial tissues, or of the whole wound where possible, was not appreciated. This good effect has been well demonstrated in our base hospitals, and, to my mind, the procedure has a profound influence on the subsequent favourable course of the case.

A few amplifying remarks on some of the foregoing points will be allowed.

Foreign Bodies.

The undistorted rifle bullet may perforate the joint without introducing infective material in sufficient amount to overcome the natural resistance of the part, and no inflammation may result. This does not justify neglect to apply a proper splint to the limb in these cases. The broader and more irregular the surface of impact of the foreign body the more likelihood is there of infective material (clothing or skin) being carried in to the depth. Shrapnel bullets, splinters of shell, or distorted rifle bullets may carry distinct "wads" of such material in front of them. The urgency for immediate removal of these foreign bodies increases with their potentiality for carrying in infective material. The size of the foreign body should not be allowed to influence the decision unless in very exceptional cases.

Drainage Tubes.

Since it is so important to remove foreign bodies from the interior of the joint, it seemed a futile proceeding to introduce others, especially when these establish free communication with septic surfaces either of the wound or of the skin, as tubes do. The presence of a tube in the joint, besides exerting a mechanical evil effect on the synovial membrane or cartilages, provides a haven of refuge and a reservoir of pus in which organisms can multiply. "Hypertones" (for example, tablets of sodium chloride and sodium citrate) placed in the tube,

continuous irrigation, or continuous baths, only mitigate—they do not remove—these drawbacks. The tubes should lead down to, but not through, the wound in the synovial membrane, unless the inflammation is so acute that all thought of saving the function of the joint is hopeless. If sepsis in the joint has been acute, it is better to leave the synovial membrane unsutured. This attitude towards the insertion of drainage tubes was stimulated on seeing the results in a few cases of this procedure when carried out at the front, with the object, no doubt, of preventing acute sepsis. In these cases the drains had been inserted with perfect attention to the principles which have been laid down for procuring efficient drainage of the joint, but the results were certainly not satisfactory.

A comparison of the condition in which cases arrived with apparently similar wounds, but which had simply been dressed, made us feel that, if possible, wounds of the knee-joint should not be operated on until they reached a hospital where they could be kept in bed for ten to fourteen days at least after operation.

The Use of Antiseptics.

The opinion is obtaining very firm hold amongst us that any beneficial action which any antiseptic may show in the interior of wounds or of joints is due entirely to its power of inducing "lymph lavage" or "chemiotaxis" or both. The opinion that antiseptics applied to the skin around a wound are of the greatest prophylactic value remains, of course, unshaken. Strong antiseptics in a joint have a deleterious effect on the delicate synovial membrane and on cartilages, which interferes with the resistance and recuperative power of these structures. It is therefore the exception to find that antiseptic dressings or applications in the depths of wounds are used in our base hospitals.

Hypertonic Salt Dressings.

Better and quicker results are found to follow the use of "hypertonic" dressings (see my letter of last week, p. 32). The mode of application varies in different cases. Even hydrogen peroxide is now used practically only to remove very adherent dressings. Regarding the use of injections of formalin-glycerin, iodoform-ether, or ether into the joints, it cannot be said that any one of these agents is better than the other. They do no harm apparently, and they appear to do good, but hypertonic saline solution seems equally efficient.

It would seem desirable that this well-tried and satisfactory "hypertonic" treatment should be more widely employed. If it were, the provision and transport of medical stores would be simplified enormously.

Excision of Wounds.

The excision of the soiled superficial part of deep wounds or of the whole wound, when possible, cannot be too strongly advocated. In other parts of the body *excisio in toto*, no matter at what stage, followed by immediate suture, has, when technique is perfect, resulted in healing by first intention. The advantages of this are obvious. Contraindications need not be discussed here. I look upon results obtained from this procedure as a measure of the claim which any surgeon can make that his technique is perfect! Primary suture is, of course, out of the question in the wounds we are at present considering—free drainage must be provided, therefore the wounds are left open—but secondary suture, when advisable, can certainly be performed at an earlier stage after excision has been made. Aponeurotic structures especially, unless their removal entails disablement, should be cut away. Their superficial parts at least will slough, and such sloughs take a long time to separate. The ragged, possibly soiled, edges of the wound in the synovial membrane should always be snipped away.

Frequency with which Deep Dressings should be Changed.

As I have pointed out in the letter referred to, the first dressing may frequently be left *in situ* for days. If the joint is "quiet" and the dressing free from pus, there is absolutely no necessity to remove it. The wound in the synovial membrane will thus get a chance to heal. In removing the dressing early it is likely to be torn open.

The feeling is gaining ground that the knee-joint, if given a fair chance, has more recuperative power than it has hitherto received credit for. One cannot, however, while giving it a chance to take care of itself, forget the dire results which may follow if septic infection gains the upper hand. Therefore the cases must be watched with the utmost care, and any untoward symptom be fully investigated. It is rare that a quiet-looking knee is going wrong inside unless a wound exists which communicates directly or indirectly with the joint. In that case there will probably be an amount of discharge in excess of what would be expected from the surface wound. If the knee is at fault, prompt and energetic suitable measures must be taken.

Results.

The recent application of the principles which I have discussed has been followed by a great improvement in results, which must be very gratifying to the surgeons concerned. For purposes of comparison I give the results in 10 cases which were admitted from the Neuve Chapelle fight, and treated by what one might call transition methods—that is, the more recent methods were already being tried in some cases. These cases were unselected, and were similar in severity to those which were admitted to all the hospitals in Rouen during the month previous to May 19th, for which period the surgeons furnished me with returns. I append also a *précis* of the treatment employed.

Cases from Neuve Chapelle (March). *Neuvi Methods Applied in Successful Cases.*

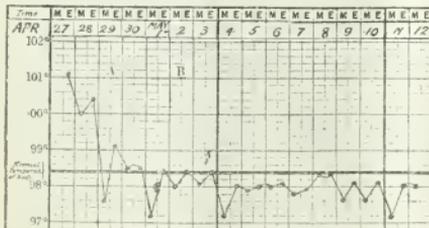
Deaths (in spite of amputation) ...	...	2
Amputations... ..	...	3
Ankylosis ... ..	...	1
Doubtful ... ..	...	1
Free movement when discharged ...	...	3

Cases During Four Weeks Previous to May 19th.

Deaths (in spite of amputation) ...	...	0
Amputations... ..	...	3
Ankylosis ... ..	...	3
Doubtful ... ..	...	2
Free movement when discharged ...	...	28
		36

Synopsis of Treatment.—Excise wound of skin and superficial soiled or necrotic muscle and fascia. Enlarge wound freely if necessary. Remove foreign bodies (previously localized by *x* rays) after possible enlargement of wound in synovial membrane. Flush synovial cavity with 5 per cent. saline solution. Thoroughly remove blood clot. In very acute cases make fresh incision. Trim edges of wound in synovial membrane, suture if sepsis not acute. Insert drainage tube down to but not through wound in synovial membrane. Fill rest of wound fairly firmly with "tablet and gauze" dressing. Inject formalin-glycerin or ether, etc., through fresh puncture. Clean and redisinfect surrounding skin. Superficial dressings, light bandage. Immobilize in suitable splint. If this fails, free arthrotomy, possibly amputation.

Case I.—Second Lieutenant J. Wounded April 25th; admitted April 27th. Temperature 101 F. Lacerated wound 1½ in. on the antero-internal aspect of the right knee. Opening in synovial



a, Superficial dressing changed; b, deep dressing changed.

membrane 1 in. Inner condyle split off. Flattened distorted bullet and clothing lying in tissue, which extended up into the medullary cavity of the femur. Sanguinolent pus discharged

from joint, containing staphylococci and streptococci. Operation April 27th; synovial membrane not sutured; ether injected. First change of deep dressing on May 2nd. Temperature normal on April 30th and subsequently (see chart). *Result:* Movable joint. Wound practically healed when sent to England on May 12th.

Case 2. Private P. W., 1st Argyle and Sutherland Highlanders. Wounded April 18th; admitted April 20th. Left knee. "Transverse" shrapnel wound, shattering patella; shrapnel bullet lodged to inside of patella. Local severe inflammation and effusion (blood and pus; staphylococci). Temperature 100. Operation April 20th: Fragments of patella left a mistake in presence of sepsis; synovial membrane sutured; formalin-glycerin injected. Temperature 98.4-99 till May 8th, when the patient complained of pain and the temperature rose to 101, and smelly pus exuded from the wound in the synovial membrane. Decided to operate on May 12th. Patella excised; joint washed out; synovial membrane again sutured and formalin-glycerin injected—without success. Joint opened up freely on May 17th. *Prognosis:* Ankylosis.

Case 3. Private L., 1st Somerset Light Infantry. Wounded April 28th; admitted May 1st. Right knee. Temperature 99. Transverse shrapnel wound, suprapatellar pouch; fracture splintering; lower end of femur; blood and pus (staphylococci) in joint. Operation May 1st. Synovial membrane sutured; injection of formalin-glycerin. Next day temperature 100.4; since then normal. *Result:* Movable joint.

Case 4. Private C., London Rifle Brigade. Wounded May 2nd; admitted May 8th. Has lain out in the open for five days after being wounded. Right knee. *X* rays showed a piece of shell casing in intercondylar notch. Small wound covered by scab on outer side above patella. Local signs of intense inflammation; effusion; very painful on movement. Temperature 103.6. Operation May 9th: Wound excised; joint washed out (full of greivish clotted material, smelling a Gram-positive bacillus found); foreign body removed; synovial membrane sutured; formalin-glycerin injected. The morning and evening temperatures from May 10th to May 14th were as follows:

	Morning.	Evening.
May 10th	100.2	100.8
May 11th	99.4	99.6
May 12th	98.4	99.6
May 13th	98.6	99.0
May 14th	38.0	99.0

On May 17th the wound was painful, and the temperature went up to 102; there was purulent effusion. Lateral incisions were made, anteriorly and posteriorly. On May 20th the condition was steadily subsiding. *Result:* Probable ankylosis.

Case 5. Private K. A large lacerated wound over the outer tuberosity of the tibia; a smaller one over the outer condyle of the femur. Extensive comminution of condyles. Very septic. Pulse 140, temperature 97. Operation: Knee laid open by transverse subpatellar incision. No improvement. Three days later amputation.

Case 6. Private B. Shrapnel wound on outer side of patella; very septic; purulent fluid exuding. Knee much swollen, very painful. *X* rays showed a bullet in the joint near the spine of the tibia. Operation: Wound enlarged after excision; counter opening on inner side of patella. Foreign body removed; joint washed out—iodoform ether. Tube from wound to wound for two days. *Result:* Movable joint.

Case 7. Private S. Left leg amputated at clearing hospital. Small septic wound in right knee, foul pus exuding. Much swelling and pain. Temperature 102. Operation: Shrapnel bullet deeply imbedded in articular surface of tibia. Condyles much eroded. Joint laid open by transverse subpatellar incision. May 16th, patient doing well; temperature normal. *Prognosis:* Ankylosis.

Case 8. Private McG. Transverse shrapnel wound. *X* rays showed grooving of head of tibia. Much swelling and tenderness. Temperature 102. Syringe removed turbid flaky blood-stained fluid. May 16th, patient doing well; temperature normal. *Result:* Movable joint.

Case 9. Private W. Two wounds (machine gun): one perforated condyle of femur and passed out; the other chipped upper surface of tibia and lodged in the tibialis anterior muscle (*x* rays corroborated). Much swelling and tenderness. Temperature 102. Exploring syringe revealed pus. May 16th, patient doing well; temperature normal. *Result:* Movable joint.

Case 10. Private E. C., 3rd Middlesex. Admitted April 27th. Severe, very septic flesh wound in upper third of right thigh (streptococci; thigh wound also contained *B. perfringens*). Conservative measures no use. May 4th, knee-joint and extensive abscess along thigh laid open by transverse subpatellar incision. May 13th, wound clean, covered with healthy granulations. *Prognosis:* Ankylosis.

Case 11. Shrapnel wound; blood and pus in joint (micro-organisms found, nature, shrapnel in joint. Tube left in wound for two days after operation; fourteen days after discharged to England. *Result:* Movable joint.

Case 12.—Sergeant W. Wounded April 23rd; admitted April 27th. Shrapnel wound; comminution of patella. Operation April 27th: Excision of wound; removal of foreign bodies (bullet and clothing) and fragments of patella; anterior drainage. May 13th, joint gradually settled down; condition very good. *Prognosis:* Ankylosis.

Case 13.—Private S., King's Own Royal Lancashire. Admitted April 22nd. Shrapnel bullet imbedded in inner condyle of femur—left knee—split through articular surface; joint full of blood and pus. Bullet extracted; bone cavity scraped out. Joint washed out with hypertonic saline. Formalin-glycerin. May 13th, patient doing well. *Result:* Movable joint.

Case 14.—Sergeant T., 1st East Surrey. Shrapnel wound in right knee. Synovial membrane torn; bloody pus exuding. Usual operation on April 22nd. On May 7th the patient left for England; wounds clean; no effusion. *Result:* Movable joint.

Cases 15 and 16.—Private R., 1st East Surrey. Shrapnel wounds in both knees; also depressed fracture of skull. Synovial membrane found torn in both knees. April 22nd, usual operation on both knees. May 13th, patient doing well; wounds clean. *Result:* Movable joints.

Case 17.—Private E. G. H., 1st Monmouth (T.F.) Shrapnel wound of left knee. Capsule badly torn. April 24th, usual operation. May 13th, patient doing well; wound clean. *Result:* Movable joint.

Case 18.—Corporal R., Canadian Field Artillery. Shrapnel wound of left knee. Bullet pierced internal condyle and lodged in external. Capsule full of blood clots and pus. April 29th, usual operation; bullet left *in situ*. May 7th, patient left for England; wound nearly healed. *Result:* Movable joint.

Case 19.—Wheeler H., Canadian Field Artillery. Shrapnel wound of right knee.

Case 20.—Private W. S., 4th Yorks. Shrapnel wound of right knee; fragment lodged in head of tibia (fracture into joint).

Case 21.—Bombardier E., Royal Garrison Artillery. Multiple shrapnel in left knee.

Case 22.—Private M., Honourable Artillery Company. Bullet wound of right knee; bullet imbedded in lower end of femur.

In the last four cases it is doubtful if the knee was actually opened. All had much effusion of bloody purulent fluid. All had movable joints when sent to England.

Case 23.—Lance-Corporal D., Canadian Artillery. Gunshot wound of left knee, perforating upper part of joint; no fracture; bloody purulent effusion (Gram-positive cocci). Usual procedure; 10 c.cm. ether injected. *Result:* Movable joint.

Case 24.—Private C., 12th County of London. Shrapnel perforating wound of knee-joint; purulent effusion (Gram-positive cocci). Usual procedure; 10 c.cm. ether injected. *Result:* Movable joint.

Case 25.—Private W., 48th Canadian Highlanders. Perforating gunshot wound of knee-joint; very great effusion; no fracture. Usual procedure; 10 c.cm. ether injected. *Result:* Movable joint.

Case 26.—Corporal L., 2nd D.C. Light Infantry. Perforating gunshot wound of knee-joint; much distension; no fracture. Usual procedure; 10 c.cm. ether injected. *Result:* Movable joint.

Case 27.—Private M., 2nd West Riding. Perforating gunshot wound of knee; no fracture; much distension and severe inflammation around joint; purulent effusion (Gram-positive cocci). Usual procedure; 10 c.cm. ether injected. *Result:* Movable joint.

Note.—In Cases 13-27 I had asked the surgeons of the hospitals concerned to report only those cases which showed signs of acute local inflammation with decided rise of temperature, and which in their opinion would go wrong if not treated according to the method we had worked out. Hence the short notes.

Case 28.—Corporal J. H., 12th London. Admitted May 6th. Shrapnel wound of left knee through ligamentum patellae, with comminuted fracture (T) of head of tibia, communicating with joint; cellulitis in calf. Temperature 104.4. Much distension. Operation May 6th: Aspiration of bloody pus; injection of formalin-glycerin. Abscess in calf opened, and piece of shell $\frac{1}{2}$ in. by $\frac{1}{2}$ in. removed; tube drawn to hole in back of tibia. Anterior wound excised; tube down to hole in tibia; wounds "filled" with hypertonic and gauze. Inflammation gradually subsided. Report on May 14th: Patient looks, eats, and sleeps well; practically no pain; wounds clean; no swelling, no fluid in joint. Knee-joint movable. A similar report was made on May 19th.

Case 29. Private McL., 1st Royal Scots Fusiliers. Wounded May 4th; admitted May 6th. Shrapnel wound of right knee just above patella on antero-external aspect. Temperature 104.7. Much effusion, purulent. Operation May 7th: Fragments of shrapnel removed from joint; usual procedure otherwise; formalin-glycerin injected. Temperature next day 99°. His condition gradually improved, and on May 14th there was no effusion, the wound was clean, and the joint movable. May 19th, similar report.

Case 30.—Private M. Admitted May 7th. Fragment of shell (size of hazel nut) removed from above patella. Purulent effusion. Formalin-glycerin injected. May 10th, aspiration, 1 oz. purulent fluid removed. May 14th, no fresh effusion; wound still discharging, but cleaner. May 19th, no recurrence of effusion. (This patient, a few days after the last report, developed purulent effusion again, which ultimately led to free incision treatment, and later amputation. Possibly another injection of formalin-glycerin might have saved the joint.) *Result:* Amputation.

Case 31.—Private L. Piece of shell removed from inner side of left knee—subcutaneous bursa. Purulent effusion. Formalin-glycerin injected. Fluid did not collect again. *Result:* Movable joint.

The following four cases were treated: (a) Directly in track of wound, by excision of superficial wounds and superficial part of track; removal of foreign body; free incision on each side of patella and suprapatellar pouch. No tubing inserted; no sutures. Spirit dressing, after swabbing out wounds with 10 per cent. iodine. Posterior knee splint and footpiece. (b) Indirectly when infection occurred after fracture of tibia or condyles of femur. Joint opened and effusion removed at point most remote from surface wounds—along lines laid down.

Case 32.—Lance-Corporal H., 2nd King's Own Yorkshire Light Infantry. Admitted May 2nd, and operated on the same day. Temperature 99°. Shrapnel ball in joint; wound on inner side of patella. Great effusion; much clot; condyle fractured (?). Incision on outer side of patella. May 10th, no reaccumulation of fluid; both wounds cleaned well. For the last four days the temperature had not passed 99°. Condition of joint seems most satisfactory. May 19th, similar report. *Result:* Movable joint.

Case 33.—Gunner W., 3rd Canadians. Gunshot wound; (shrapnel) wound of right knee; wound on outer side of patellar ligament. Ball removed. Much muco-purulent effusion. Two lateral incisions besides excision of wound. Whole knee swathed in dressing, wet with spirit. May 15th: For ten days temperature varied between 99.8° and 102°; patient very ill; locally the knee kept remarkably well; for past three days temperature never above 99°. "Looks like making a first-class recovery." May 19th, continued improvement. *Result:* Movable joint. (A periarticular abscess, with stinking pus, developed about June 1st, but caused no trouble in the knee.)

Case 34.—Private M., 2nd Buffs. Admitted May 2nd, with gunshot wound through condyles of left knee. Bone shattered; not marked effusion into joint. Excision of septic wounds—tubes down to site of fractures. Temperature fell gradually. Tubes out on fifth day, when no apparent inflammation in knee-joint. May 19th, condition reported excellent. *Result:* Movable joint.

Case 35.—Lance-Corporal W., Royal Engineers. Gunshot wound (shrapnel) of right knee; septic wound at outer side over head of tibia. Much effusion. Bullet had gone on after opening joint and lodged over external condyle. Usual operation. Bullet not removed at first operation. Tube slung at track removed on fourth day. Bullet removed on May 14th. May 19th, "Perfect recovery seems assured." *Result:* Movable joint.

Case 36.—Sergeant —. This case, which was not fully reported to me, required amputation; hopelessly shattered femur, patella, and tibia—truly an injury of the knee-joint!

There were many other cases of wounds of this joint in the various hospitals in which the effusion gradually subsided without other treatment than rest, with occasionally simple aspiration.

CHALMERS AND O'CONNOR (*Journal of Tropical Medicine and Hygiene*, April 1st, 1915) have described under the name "Pyosis Corletti" a small epidemic of a bullous eruption occurring amongst soldiers at Khartoum. They define the disease as an acute, contagious, bullous pyosis beginning in any region of the body (but not specially affecting the axillary and scroto-crural regions), characterized by the presence of medium-sized and large bullae arising on seemingly healthy skin, and apparently caused by *Aerococcus mollis* (Dyar, 1895). A differential diagnosis must be made between this condition and impetigo contagiosa, dermatitis bullosa plantaris, pemphigus acutus, pyosis mansonii, and Corletti's impetigo contagiosa bullosa. The prognosis is very good, for the disease yields rapidly to vaccine treatment. The authors prepared a vaccine, which was administered in 200 and 450 million doses, with intervals of two to three days between each dose. At the same time local treatment was found useful in expediting the cure. Each blister was pricked, and the exuding fluid caught on swabs dipped in 1 in 1,000 lotio hydrargyri perchloridi. After pricking, the blister should be dusted with some antiseptic powder.

THE PLATING OF GUNSHOT FRACTURES.

BY

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DURING nine months' experience of large numbers of cases in French base hospitals almost every advocated method of treatment has been given a trial, and of these the method with which this article is concerned has given the best ultimate results. It would be a mistake to say that it was immeasurably superior to all others, for there can be little doubt that every surgeon gets the best results from the method to which he has devoted most time and thought; at the same time, a method which has given good results in some hands may be confidently expected to give good results in others, for there is nothing novel or special about it. Indeed it is so ordinary as to be scarcely worthy of record, yet I have not seen it used in any French military hospital that I have visited, nor heard of its use in many English ones.

Considering the subject from a purely theoretical standpoint, there are two main factors to be dealt with: First, there is the anatomical or mechanical injury; secondly, the infective or inflammatory injury. The ideal treatment would be one which enabled us to deal with each of these separate factors as we wish without interfering in the slightest degree with the treatment of the other.

The importance of obtaining an anatomical result as perfect as possible need not be emphasized. Modern surgery has already appreciated the far-reaching effects of even minor defects in anatomical reconstruction, and how closely the functional result depends upon the anatomical. This relationship is especially marked in the case of fractures, and in the compound comminuted fractures so common in gunshot injuries the great difficulty is to obtain a good anatomical result. The two main unfractured portions of the bone are separated by an interval of 2 or 3 inches, in which there is more or less comminution. In some cases pieces of bone are missing, and in others some of the intervening small fragments die, so that there is actual loss of bony substance. The most perfect anatomical results can only be obtained in such cases if the interval or gap is maintained from the first at its original length, for the consolidation which eventually occurs is frequently very imperfect, and secondary operations to increase the rigidity of the bone are needed. Such secondary operations will only lead to disappointments unless the main fragments have been maintained meanwhile in perfect relative position.

Given, then, some method of assuring a good anatomical result, the second part of the problem—namely, the infection—must be dealt with according to the best accepted methods, whatever they may be. Any method, therefore, of splinting the bone which interferes at all with the practice of the numerous methods of dealing with sepsis, or renders difficult the adoption of those accessory treatments such as massage, so important to good functional results, must be considered imperfect. When it is remembered that among the methods of combating sepsis must be included the Bier's bandage, the antiseptic bath, the drip bath, and others necessitating freedom of the limb, the disadvantage of any method of external splinting becomes apparent; add to this the inconvenience of dressing and nursing when assistance is not so abundant as in peace time, and it will be seen that external splints are by no means perfect. In fact, from the theoretical point of view, the internal splint would appear to be the better; but it must next be considered whether it complies with the other essentials—namely, that it assures perfect anatomical result, and does not interfere in any way with the infective process.

As far as anatomical reconstruction goes, it is possible in the majority of cases to obtain a considerable degree of perfection with a plate; but the problem as to whether its application would not increase the damage by opening up further channels for infection, both in the soft tissues and in the bones (chiefly through screw holes), was one which at first caused a good deal of anxiety. A wide experience,

however, has proved that the fresh infection of soft tissues is negligible in view of the already extensive damage, and that fresh infection of the bone does not occur to any extent worthy of consideration. Indeed, in some cases, chiefly of the smaller bones, a previously septic wound has healed completely over a plate. Such results were unexpected, and may possibly be due to the healthy condition of the tissues previous to the injury, for the screw-holes must frequently open up the medulla beyond the primary limitation of the sepsis, and yet necrosis, except of more or less detached fragments, does not occur. Following logically upon these considerations comes the question whether the plates tend to loosen in the presence of sepsis, and, if so, how quickly such loosening occurs. It has already been mentioned that in some cases complete healing actually occurs over a plate; in the larger number of cases, however, the plates do tend to loosen, although not to the extent that *a priori* reasoning would lead one to expect. This loosening does not occur to a degree sufficient to affect the function of the plate until the fragments have become more or less fixed in position (three or four weeks), and even then it still acts as a most efficient method of extension. Appearing to have little effect upon the septic process, the plates may often be left in position for considerably longer periods, frequently becoming consolidated again.

The chief objections, therefore, to the use of internal splints are rather of theoretical than practical interest; and the ease with which the dressing can be manipulated, and massage, etc., applied to the neighbouring joints and soft tissues, can be attained with few other methods of splinting. In view of recent writings upon the sterilization of these wounds soon after they are inflicted, it must be mentioned that in nearly all the shell wounds seen here twenty-four to forty-eight hours after infliction the infection had already got into the tissues, so that it was impossible to adopt any method of immediate sterilization with success.

Practical Difficulties Met With.

Owing to the comminution the plates on the average have to be longer than those used for clean fractures, in order to get a hold of solid bone, and this increased length sometimes makes their application a matter of difficulty, considering the surrounding sepsis and the inadvisability of opening up fresh channels. On the other hand, in many cases, the increased drainage so obtained is advantageous. In other cases the comminution extends over such a length of bone as to render it impossible to apply a plate. In one or two such cases, where the extent of the comminution was not well shown on the radiograph, the attempt at plating had to be abandoned. These cases are always very serious, and usually give poor results, whatever method of splinting is adopted. Occasionally, too, in cases with much comminution, the hold of the plate on the bone has not been good, and it has been found advisable to apply an external divided splint in addition. For this purpose a divided plaster, having a soft iron connecting piece bent to form a handle for manipulating the limb, has been found most convenient. Even in such cases the application of an internal splint has much to commend it, for it takes the place of an extension (often difficult to apply satisfactorily in compound fractures, especially those of the more distal parts of a limb), and by preventing "sagging" of the fragments makes the use of a wide gap in the plaster practicable, and so facilitates thorough and frequent dressing.

Date and Method of Operating.

The actual plating operation is not usually undertaken for four or five days after admission, which time is spent in clearing up the acute sepsis and having radiographs taken. It is essential to have good radiographs in two planes at right angles, for without them it is impossible to reconstruct the exact position of the bones, the amount of comminution, and the shape of the main ends. Unless a very clear picture of the condition of the bone is held in mind, it will be impossible to judge the best position for the plate. To combat the sepsis no routine method has been used, each case has been treated according to the indications. Of the methods more recently advocated, ether has been used with apparent benefit in many cases; an antiseptic dusting powder composed of benzoic acid 25 grams, salol 5 grams, quinine 25 grams, and magnesium carbonate 25 grams, has

also proved of use in very dirty cases after a preliminary cleaning under an anaesthetic. This powder would appear to possess the additional advantage of being slightly analgesic. Hypertonic saline solutions, both with and without corresponding vaccine treatments, have also been used, but apparently, once the sepsis has been limited, the application of a Bier's bandage, or if possible of a suction cup, is more efficient in causing a flow of lymph; it has been constantly used in the treatment of these cases. Sunbaths have been freely used, and injections of colloid gold (so highly commended by the French) were tried in many cases. In the first two there appeared to be marked improvement, but further use showed that these were probably cases of coincidence, for the average results were not equal to those obtained by the use of antiseptic vaccines.

By the energetic pursuit of these methods the sepsis can be considerably reduced after a few days, and at this period the plating is undertaken. The incision, if one is necessary, is designed, failing anatomical contraindications, so that the plate can be applied to the most satisfactory position on the bone. In many cases the original wound only need be enlarged, but, while opening up as little fresh tissue as possible, it is essential to get good exposure and at the same time to have a thought for the future drainage of the wound. The fragments are now replaced as far as possible so as to restore the continuity of the bone. Such fragments as must obviously die are removed, all others being retained. Where several large pieces are completely missing the gap so caused in the bone is carefully maintained and the plate applied to bridge it over. While this preliminary arrangement is being made, the surrounding structures are carefully examined for injury. It is surprising how frequently injuries are discovered and can be remedied; for instance, in two cases of plating of the humerus the musculo-spiral nerve was found in such a position that it must later certainly have been involved in callus; it was freed and buried in muscle, so preventing the development of pressure symptoms. Many other such cases involving nerves, tendons, muscles, and even vessels, could be instanced. The ends of the main fragments are now exposed, and the periosteum being disturbed as little as possible the plate is applied. The most useful type of plate for comminuted fractures is one having two screw-holes fairly close together at each end, and one or two intermediate ones. This enables one to get a firm hold of the main fragments and also to screw some intervening small fragments into position; not only does this increase the general rigidity, but partially separated fragments often join up again.

The screws in the main fragments should not be placed too close to the fractured end. After drilling the holes we have made it a practice to carbolize them before inserting the screw, although whether this has had any appreciable effect in preventing fresh infection of the medulla there is no definite evidence. Where a fresh incision has been made it can usually be sewn up completely unless needed for drainage. The drainage, however obtained, must be good, and free access for the purposes of dressing maintained. In some cases the wounds are best left absolutely open for the first few days, and partial closure undertaken later. Deep sutures are generally not needed, and ligatures only in few cases; fishing-gut sutures are used for the skin. The application of a tourniquet has rarely been necessary, but where assistance is not easily obtained the use of spinal anaesthesia will be found of advantage, since it releases one pair of hands.



Average temperature chart of six consecutive cases for the first week after plating operations. O, Operation.

first few days, but this is not excessive, as the accompanying average chart, constructed from six consecutive cases, shows.

There is now no restriction; the limb may be treated

almost as one without a fracture, early movements and massage being carried out with ease. At the end of a month the position of things has become fixed, and the plate, if it is much loosened, may be removed. If possible, however, it is retained, and particularly in cases with a gap, for it effectually prevents shortening. At this period, also, one can see what portions of bone will live, and the rest may be removed. The suppuration diminishes almost

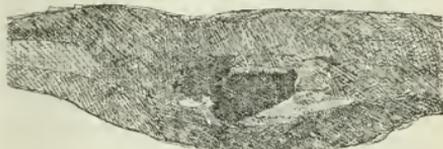


Fig. 1.—Showing bismuth paste filling the cavity following on sequestrectomy.

to nothing, although frequently after several more weeks it will be found that there is a sequestrum more or less embedded in a cavity, either of bone or of fibrous tissue; this can easily be extracted and an attempt made to close the wound by any of the recognized methods. The use of bone chips does not appear to be very satisfactory, and usually two or three injections of Beck's bismuth paste have given better results. Before the use of the paste the cavity is sterilized as far as possible by swabbing with pure carbolic, followed by the use of iodotom paste for a few days. Skin grafting has also been freely applied to assist in the rapid closure of the wounds.

Before Grafting.

In many instances this is all that is required, but, on the other hand, a large number of cases remain in which the bone ends are separated by a length of intervening fibrous tissue (sometimes even 3 or 4 inches). In others, with much loss of bone, the separate fragments are connected by thin fibrous tissue, which renders them useless as supporting structures. Such cases can, of course, be fitted with an external support, but the results obtained by bone grafting are such as to render the patient free from this inconvenience. Grafting cannot be undertaken until absolute asepsis can be guaranteed, and that means complete closure of the wound. As explained above, this takes in the earliest cases about three months, and in others as much as six months, so that the secondary operation must be long delayed.

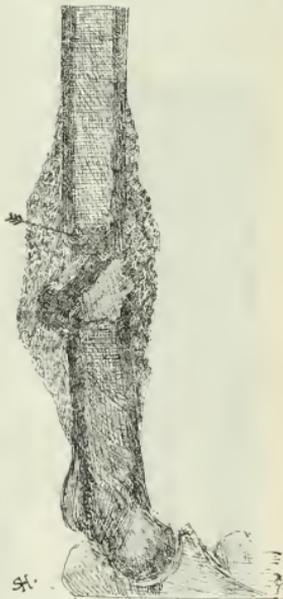


Fig. 2.—Humerus after removal of plate, showing sequestrum. The position of sinus has been marked.

The nature and size of the graft depends entirely upon the use to which it is to be put. A portion of a rib or a strip of the tibia are easiest to obtain, but in many cases the graft can be cut from the same bone, so saving a fresh incision. In this way gaps may be bridged over and fragments consolidated. The grafts invariably "take," but the process is slower than when done on fresh cases, owing

probably to the surrounding fibrosis, which must limit the blood supply. Grafts are best held in position by screws, bone pegs being difficult to cut without special apparatus, but in some cases such rigid fixation is unnecessary. Central grafts placed into the medulla are less suitable in these cases than lateral grafts having larger areas of contact with the bone. In cases of fracture of both bones of a leg, a portion of the fibula split in half forms an excellent graft for the tibia. After a week, when the wound is healed, massage and movements are continued. In three to five weeks the patient may get about in a removable poroplastic or preferably celluloid splint. It is wise to continue the use of this for some time. Emphasis must be laid on the fact that graftings do not require any special set of instruments for their performance, although these render the operation easier. They can be easily performed in any temporary theatre where asepsis can be guaranteed, and which possesses a Hey's or small laminectomy saw.

The short reports which follow are given, not as records, but merely to indicate the type of case in which this method has been applied.

CASE I.—Compound Comminuted Fracture of Tibia and Fibula.

Soldat, 50me Regiment d'Infanterie. Wound of left leg by shrapnel bullet, causing a compound fracture of the tibia and fibula, with extensive comminution over nearly 3 in. There was a large jagged exit wound obviously caused by splinters of bone, for the bullet remained lodged behind the tibia. Upon the day after admission the wound was cleaned up and the bullet removed. Radiographs in two planes were taken, and the sepsis considerably diminished by drip baths of mild antiseptics with dressings of hypertonic saline. Five days later the wound was enlarged, and a plate was applied to the inner aspect of the tibia maintaining the original length between the main fragments; several loose fragments were retained and screwed roughly into position. At this operation the posterior tibial artery was found to be exposed and was buried in muscle. Following this, the limb was placed in a bath of hypertonic saline for some time every day, and movements of the neighbouring joints were commenced.

Within a week secondary hæmorrhage from the posterior tibial occurred, and was dealt with in the usual way. At a third operation six weeks later the plate was removed, together with several small pieces of dead bone; some of the larger fragments had consolidated. The leg was now in good position without shortening, and suppuration had almost ceased.

Within three weeks the wound had healed except for a sinus leading to a small sequestrum. This was removed, the cavity being sterilized with pure carbolic and iodoform paste: three days afterwards injections of bismuth were started, first using the soft paste and later the harder one. The cavity very quickly closed. The radiograph now showed that those of the intervening fragments which had lived had formed a complete bony bridge between the main fragments, and grafting was therefore unnecessary.

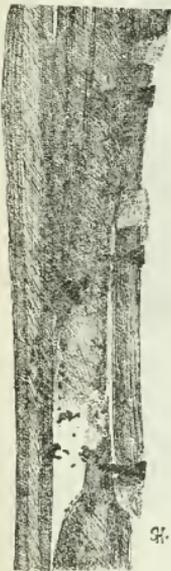


FIG. 3.—Case II, six weeks after operation; showing the graft becoming ossified on to the main fragments. The zap, being an oblique one, does not show well in a single radiograph.



FIG. 4. Case II: showing wound of exit and loc of incision for grafting. The latter has been outlined to make it visible.

CASE II. Compound Comminuted Fracture of Tibia.

Soldat, 18me Regiment d'Infanterie. The first portion of this man's history closely resembles that of the previous case. The wound of exit was on the inner side of the leg, about 2½ inches

above the ankle-joint. When healing had eventually occurred there was an oblique gap of about 1½ inches in the bone, and the lower fragments with the foot moved in a somewhat ball-like fashion upon the upper. At the grafting operation a long curved incision was made to expose a considerable length of the anterior border of the tibia. Two strips, about half an inch thick, were cut, one from the upper and one from the lower fragment, the former being about twice the length of the latter. These were now interchanged, so that the long strip formed a bony bridge across the gap between the fragments. It was held in position by screws. A radiograph taken six weeks afterwards shows that the graft is becoming ossified on to the fragments. At present, three months after the grafting, the man is able to walk on the leg without any external support although as a matter of precaution he is made to wear a light case.

CASE III.—Compound Comminuted Fracture of Humerus.

Soldat, 112me Regiment d'Infanterie. Shell wound of the

left arm causing compound fracture of the humerus with considerable comminution. Upon admission there was great displacement, the dressing was exceedingly difficult and painful, and it was found impossible to keep the bones in good position between the dressings. At the plating operation the musculospiral nerve was discovered lying between the bony fragments. It was protected by muscle.

After the plating operation the pain rapidly diminished, dressings were carried out with the greatest of ease, and the limb could be freely moved without fear of disturbing the fragments. Massage and faradism were applied to the forearm immediately, but no signs of musculospiral paralysis developed. A week after the operation the patient was walking about with his arm simply supported in a sling. In this case also there was so little loss of bone that grafting was not required.

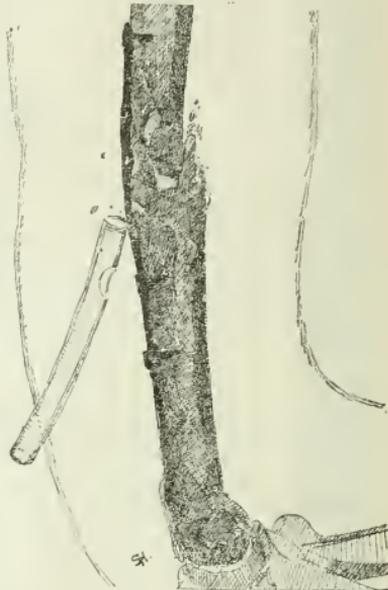


FIG. 5.—Case III: showing humerus plated and drainage tube in position.

CASE IV.—Compound Comminuted

Fracture of Radius and Ulna.

Sous-Officier, Chasseurs Alpine. Shell wound of forearm; both bones fractured, the ulna being very little comminuted, but the radius very extensively so with a large portion of the bone missing. The ulna was plated through a fresh incision, the wound healing over the plate. A large raw area over the radius was eventually skin grafted, and when healing had finally occurred the gap was filled by a strip of tibia.



FIG. 6.—Case III, within a short period of operation; showing arm solely supported by sling.

For the radiographs, from which the drawings were made, and for valuable assistance during operations I am indebted to Drs. C. Roberts and C. Cheatle.

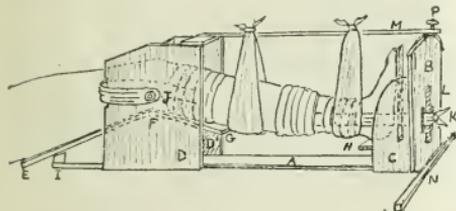
THE Hon. Sir Henry Norman MacLaurin, LL.D., M.D., aged 79, of Sydney, N.S.W., formerly a surgeon in the Royal Navy, afterwards President of the Board of Health of New South Wales, later successively Vice-Chancellor and Chancellor of the University of Sydney, left estate valued at £75,148.

A USEFUL SPLINT FOR COMPOUND FRACTURES OF THE LEG.

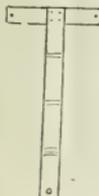
By CAPTAIN C. H. BARBER, I.M.S.,
SURGICAL SPECIALIST, INDIAN ARMY.

The splint that I am here describing has been of such signal service to me in the treatment of certain compound fractures of the tibia and fibula due to gunshot or shell wounds that I venture to publish it for the use of other surgeons if they think fit.

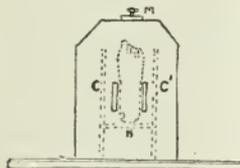
For simple fractures of the tibia alone, or for compound ones with a small anterior wound and little displacement, the service pattern McLutrye is hard to beat, but in bad compound fractures of both bones, with large and septic wounds fore and aft, none of the ordinary splints is of much use when one is aiming at efficient drainage with early immobilization, and when daily dressing is a necessity. I therefore improvised the following arrangement out of any available pieces of wood; it is designed to provide for any extension necessary in view of over-riding of the fragments, to support the leg in a comfortable position, to immobilize the broken bones, and, above all, to allow free access to the wounds without moving the limb. The slings may or may not be necessary according to the amount of extension. One pair of extension straps is bound to the upper part of the leg, and, passing round the central ends of the uprights D, D', is fixed to the screws J, on the outer sides of D, D'; the other, pulling from below, pass through the foot board B, after being attached to a foot-piece, and are tied around one or more pieces, which, acting as a wedge, render increase or decrease of tension possible.



- A, Piece of stout board 6 in. wide, 2 ft. 8 in. long.
- B, Piece of board 7 in. or 8 in. wide, 14 in. high, pierced by two slots, through which pass the extension straps.
- C, C', Two upright pieces of thinner board placed one on each side of the foot and serving (1) to keep the foot in a perpendicular position, if necessary; (2) to support a horizontal heel-piece H; and (3) to strengthen B against the pull of the extension.
- D, D', Pieces of stout board about 9 in. wide, 13 in. high, and 6 in. apart, firmly fixed to A, and supporting between them the double inclined plane E, F, G, made of thinner wood; the slope of F, G, is less marked than that of E, F; F, G, also projects 2 in. or 3 in. from the edge of D.



M from above.



B from below.

- H, A small piece of wood for the support of the heel, though the heel scarcely needs any.
- I, A small block to support E, F, thus allowing A to be a little shorter than would otherwise be necessary, which may be an advantage.
- J, A screw or other means of fastening the upper extension straps after bringing them round the proximal margins of D, D'.

- K, The fastening or knot of the distal extension straps or plaster around a wedge-shaped or straight piece of wood L.
- M, A strip of wood, about 21 in. long, shaped like a T square, attached to B by a screw P, so that it can be turned out of the way when it is desired to apply or remove the splint. The T end rests on the top of D, D', and is attached to them by loose nails or hooks.
- N, From M one or more slings can be hung to support the leg at any point; it also serves to keep D, D', firm.
- O, Foot-piece.

The drawing of a patient with the splint applied I publish by kind permission of Colonel G. B. Irvine, I.M.S., commanding No. 9 Indian General Hospital.

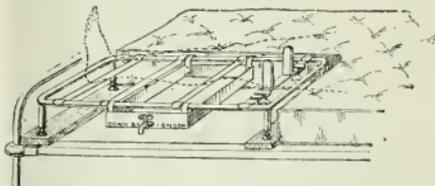
A STAGING TO FACILITATE DRAINAGE AND CONTINUOUS IRRIGATION.

By E. H. WILLOCK, M.R.C.S., L.R.C.P.,
ASSISTANT SURGEON, CROFTON GENERAL HOSPITAL.

In the memorandum on the "Treatment of bacterial infection of projectile wounds" by Colonel F. E. Burghard, A.M.S., and others, published in the JOURNAL of April 24th, a passage at the conclusion of the article reads: "And clearly, so long as a wound is heavily infected, the ideal method of treatment, if only it were always practicable, would be immersion in a bath, or continuous irrigation with some aseptic or mildly antiseptic fluid."

With a view to making continuous irrigation of a wound practicable, no matter in what part of the body that wound may be, the staging now described has been devised. It will be understood that the staging can only be properly utilized if the mattress is so shaped and arranged as to co-operate with the staging.

If a shoulder or leg is to be irrigated a 3 mattress will be required; for the buttocks, pelvis, or back the mattress should be transversely divided. The military mattress in its three sections can be readily adapted to any necessary position. In order to obtain sufficient space underneath the staging it may be necessary to place one mattress on the top of the other.



The staging is made as simple as possible. It consists of an oblong frame resting on four telescopic legs. Movable transverse bars, 2 in. wide, support the part of the body that needs irrigating or draining. For supporting the buttocks special bars are made. These transverse bars are provided with vertical detachable splint bars for the purpose of fixing a limb if necessary. Only one set of splint bars is shown in the sketch. Extension can be applied from the end of the frame.

A deep tray hooks on underneath the frame, and is placed wherever it is required. It is provided with a stopcock, and if the fluid discharged into it is excessive it can then be passed on by means of rubber tubing into a further receptacle under the bed.

The legs rest upon fracture boards, and can be adjusted to enable the frame to be raised or lowered or tilted at an angle.

The advantages claimed for the staging are:

1. Free continued irrigation can be carried on in any part of the body.
2. An entire avoidance of heavy dressings and "pus poultices."
3. Free drainage from dependent parts.

4. Free circulation of air about the wound.
5. Easy dressing.
6. By utilizing it in the transverse position it may be of use in cases of incontinence of urine and feces.

The apparatus is in use at the Royal Herbert Hospital, Woolwich, and Major Spencer, F.R.C.S., R.A.M.C., reports "that it fulfils its purpose admirably, and enables continuous irrigation of a wound in any part of the body to be carried out efficiently and easily without discomfort to the patient or disturbance when dressings are changed, and without risk of leakage into the bed."

Messrs. Down Bros., London, have made the apparatus for me.

The Croonian Lectures

OR

TRYPANOSOMES CAUSING DISEASE IN MAN AND DOMESTIC ANIMALS IN CENTRAL AFRICA.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS
OF LONDON,

BY SIR DAVID BRUCE, C.B., F.R.C.P., F.R.S.,

SURGEON-GENERAL, A.M.S.; LATE DIRECTOR OF THE ROYAL
SOCIETY'S COMMISSION ON SLEEPING SICKNESS.

LECTURE III.—TRYPANOSOMA GAMBIENSE AND CONGO SLEEPING SICKNESS.

HISTORICAL.

Trypanosoma gambiense was first seen in the blood of an Englishman who had been employed for some six years as master of a Government boat on the River Gambia in West Africa. He was admitted to the Government Hospital at Bathurst on May 10th, 1901, fourteen years ago. Dr. R. M. Forde, the Colonial Medical Officer in charge, examined his blood and saw actively moving bodies, but was unable to recognize their nature. He therefore asked the late Dr. J. E. Dutton, of the Liverpool School of Tropical Medicine, to come to his help.

In the meantime, however, the patient had been invalided to England, where he was treated in a Liverpool hospital for some time. Thinking himself sufficiently recovered to resume duty, he returned to Bathurst in December, 1901, and on December 15th his blood was submitted to Dr. Dutton for examination. Dr. Dutton saw the parasite, described it, and named it *Trypanosoma gambiense*.

But at this time it did not enter into the minds of any one that this trypanosome was the cause of sleeping sickness. It was looked upon as an almost harmless haematozoon, causing no inconvenience to the native and only a slight ephemeral fever, known as "trypanosoma fever," to the white man.

At the same time the finding of a parasite of this kind for the first time in the blood of man raised a good deal of interest, and Drs. Dutton and Todd were sent out in the following year to investigate the question further.

They arrived at Bathurst on September 2nd, 1902, and proceeded to examine a large number of natives for the presence of trypanosomes in their blood. They examined in all 1,043 natives on the Gambia, and found the parasite only in six cases.

They summed up their report by saying that, taking all the facts into consideration, they believed that trypanosoma fever, as it occurred in natives, was a peculiarly mild one, and they suggested the possibility that the natives might bear the same relation to the Europeans as the wild game of Africa to domestic animals in nagana—the tsetse fly disease; in other words, that the black man was immune to the disease, and merely acted as a reservoir of the virus to the more susceptible white man.

For some time, then, the important pathogenic part this trypanosome plays remained unknown, and it was not until 1903, when sleeping sickness was being investigated in Uganda by the Royal Society Commission, that the discovery was made that *Trypanosoma gambiense* was in truth the cause of sleeping sickness.

GEOGRAPHICAL DISTRIBUTION.

Reference to the map published to illustrate my first lecture will show that this species of trypanosome has a wide distribution in the tropical zone of Africa. It extends on the north from St. Louis at the mouth of the River Senegal to the Bah-el-Ghazal in the Egyptian Soudan; on the east it reaches to the eastern shore of Victoria Nyanza; and on the south to the southern end of Lake Tanganyika, the River Luapula in North-West Rhodesia and Donguela in Portuguese West Africa.

MORPHOLOGY.

When in Nyasaland I received from Dr. Kleine, German East Africa, three monkeys infected with *Trypanosoma gambiense*. These animals had been inoculated with blood from natives suffering from "Congo sleeping sickness" on Lake Tanganyika, and it is from these three strains that this description is taken. We sent for these strains because we wished to have an opportunity of comparing *Trypanosoma gambiense* with the trypanosome causing disease in man in Nyasaland, side by side and under similar conditions. It presents a strong resemblance to the nagana parasite. There are the same short and stumpy, intermediate, and long and slender forms. In size and general appearance these two species so closely resemble each other that one might easily believe them to be varieties of the same species.

Shape.—The shape of the long and intermediate forms is the same as in the nagana parasite, but among the short there is an absence of the blunt-ended forms, which have been seen to be so marked a feature in the Nyasaland trypanosome.

Contents of Cell.—The protoplasm often shows many chromatin granules in its substance.

Nucleus.—In *Trypanosoma brucei*, among the short and stumpy there are large numbers of posterior-nuclear forms. In the Tanganyika strains not a single example of this peculiarity was seen.

Micrococcus.—Small and round, and situated on an average 1.1 microns from the posterior extremity in the short, 1.3 in the intermediate, and 1.8 in the long forms.

Undulating Membrane.—This, as in the other members of this group, is well developed, and thrown into bold folds and undulations.

Flagellum. The flagellum in the long and intermediate forms is free. There is no free flagellum in the short forms.

Length.—In regard to length there is practically no difference between the two species, as will be seen from Table I.

TABLE I.—Showing Length of *Trypanosoma gambiense* Compared with *Trypanosoma brucei*, Zululand, 1913.

Strain.	Average.	Maximum.	Minimum.
<i>T. gambiense</i> , Uganda	22.1	33.0	13.0
<i>T. gambiense</i> , Tanganyika I	22.7	34.0	15.0
<i>T. gambiense</i> , Tanganyika II	25.8	36.0	16.0
<i>T. gambiense</i> , Tanganyika III	21.3	34.0	16.0
<i>T. brucei</i> , Zululand, 1913	21.0	35.0	12.0
Breadth of <i>T. gambiense</i>	2.31	4.75	1.25

Trypanosoma gambiense is therefore very similar in size and shape to *Trypanosoma brucei*, but it would appear to be possible to distinguish them by the presence of the blunt-ended, posterior-nucleated forms which are so common in the blood of animals infected by the nagana parasite and quite absent in animals infected by the other. But as these posterior-nucleated forms are absent or scarce in the blood of man, this method of diagnosis requires the inoculation of experimental animals, and the study of many preparations of their blood. It would appear to be impossible at present to distinguish between the two species by the microscopical examination of preparations made from the blood of man alone.

SUSCEPTIBILITY OF ANIMALS TO TRYPANOSOMA GAMBIENSE.

I now pass to the pathogenic action of this species on various animals. In this it differs markedly from the nagana parasite, which is essentially a trypanosome of the lower animals, seldom attacking man; whereas the reverse is true of the species under consideration, which under natural conditions is almost wholly confined to man.

When *T. gambiense* is taken directly from a patient suffering from sleeping sickness there is often a good deal of difficulty in passing it on to the lower animals—that is to say, it is difficult to infect experimental animals by the inoculation of infected human blood. This is very different from the behaviour of *T. brucei*, which infects most animals with the greatest readiness. It is almost impossible at first to give this disease to goats, monkeys, dogs, and guinea-pigs. The rat is the animal which is least refractory. However, after the trypanosome has become accustomed by several passages through a particular kind of animal, its virulence for this species is heightened. It must also be noted that there is reputed to be a good deal of difference in the virulence of different strains.

This difference in regard to virulence between the two species is shown in Table II, where the average duration in days of the disease caused by *Trypanosoma gambiense*, Tanganyika, is compared with that caused by *Trypanosoma brucei*, Zululand.

TABLE II.

	Monkey.	Dog.	Guinea-pig.	White Rat.
<i>Trypanosoma gambiense</i> ...	159	96	264	137
<i>Trypanosoma brucei</i> ...	26	34	67	30

The disease in animals caused by *T. gambiense* is thus much more chronic than that caused by *T. brucei*, and this character, combined with the morphology already described, affords the surest and safest means of separating these species.

GLOSSINA PALPALIS THE CARRIER OF TRYPANOSOMA GAMBIENSE.

As we have already seen, the carrier of *T. gambiense* is the tsetse fly, *Glossina palpalis*, whose habitat is the wooded shore of lakes and rivers.

When the Royal Society Commission in 1903 had convinced itself that in all probability a trypanosome was the cause of sleeping sickness, naturally, on the analogy of the old nagana work, a tsetse fly was looked for. It is a curious fact that at that time the presence of tsetse flies on Lake Victoria was unsuspected.

I have already described the habits of this species of fly, and shown how very numerous it is in Uganda, swarming on the lake shore in such numbers that our fly boys, who collected about 500 daily for months together from one or two spots, did not seem to make any impression on the supply.

Infectivity of Wild *Glossina palpalis*.

Some of these flies were found to be naturally infected with *T. gambiense*, and I shall therefore, in the first place, consider the natural infection which exists among the wild *Glossina palpalis*.

It will be remembered that the proportion of tsetse flies in Nyasaland infected with Nyasaland sleeping sickness was 1 in 500. It will be interesting, then, to compare the infectivity of the wild tsetse flies in Uganda.

It must be granted that although the shores of Victoria Nyanza and the banks of the Nile and other rivers swarmed with these tsetse flies before 1898, it was only about this time that they became infected with sleeping sickness. Before this time sleeping sickness was unknown in Uganda. It seems probable that the disease was introduced by Emin Pasha's men, who were brought into the country from the Belgian Congo some little time before.

I am sorry that the same method of examination was not used in Uganda as in Nyasaland. In Nyasaland the flies were fed on three different species of animals for nine days. In Uganda the flies were caught on the lake shore, and when brought up to the laboratory were only fed on one species of animal—the monkey. In 1903 at Entebbe, the Government cantonment, the tsetse flies had plenty of opportunity of becoming infected, since they were caught in the vicinity of the hut tax labourers' camp. These men came in thousands to Entebbe to work for Government for one month in lieu of paying hut tax. They lived in rudely built grass huts near the lake shore, and on

examination of their blood some 30 per cent. of them were found to harbour the parasite.

In 1903, while these highly infected labourers were living on the lake shore, the proportion of infective flies was found to be as high as 11.2 per 1,000. The Government removed the hut tax labourers from the vicinity of the lake, which became deserted, and a year afterwards the proportion of infected flies fell to 1.2 per 1,000.

When the Commission returned to Uganda in 1908 and took up camp at Mpumu at the north end of Lake Victoria we found the lake shore flies in the vicinity still infective, although the population had been removed early that year. The examination of 7,200 flies gave a proportion of 1.8 per 1,000.

But we had given the Government to understand that as soon as the natives were removed the flies would become harmless. It was therefore important to find out how long the lake-shore flies remained infective, and why they remained infective. For this purpose they were examined every year until 1912, and the result is given in Table III. It will be seen that although there had been a steady decrease in the proportion of infective flies, a few remained, and these showed no sign of disappearing.

TABLE III.—Infection of Wild *Glossina palpalis*.

Year.	Locality.	No. of Flies Examined.	No. of Flies Infective.	Proportion of Infective Flies per 1,000.	Remarks.
1903	Entebbe	(?)	(?)	11.2	
1904	"	(?)	(?)	1.2	
1908	Mpumu	7,200	11	1.8	1 in 65†
1909	"	18,691	7	0.4	1 in 2,670
1910	"	27,179	4	0.14	1 in 6,795
1911	"	23,899	1	0.04	1 in 23,899
1912	"	28,279	4	0.14	1 in 7,070

The mistake made by the Commission was, first, in believing that the transmission of the *Trypanosoma gambiense* was mechanical, and that a fly lost its power of infection within three days after feeding on an infected animal; and, secondly, in believing that man was the sole reservoir of the virus. It was found that a fly may remain infective for several months, and that man is by no means the only source of the virus.

This prolonged infectivity which some flies possess is due to the fact that in these the trypanosomes do not die off, but proceed to further multiplication, and I must now describe the cycle of development which the parasite passes through in the fly, from its ingestion with the blood until its appearance in the salivary glands of the fly in an infective form. When dealing with *Trypanosoma brucei*, I mentioned that its development in the fly is identical with what takes place in the case of *T. gambiense*, and that it would be more convenient to describe the cycle at this point. I did not describe the development of the nagana parasite in *G. morsitans*, as one description will suffice for both species.

The Cycle of Development of *Trypanosoma gambiense* in *Glossina palpalis*.

It is to Kleine that the honour is due of being the first to show that a tsetse fly could convey the infection some fifty days after the fly had fed on an infected animal, and when we come to consider the difficulties of this observation we must feel that he deserves the very highest credit for making this important advance in our knowledge of trypanosome diseases. He used the tsetse fly, *G. palpalis*, and the nagana trypanosome in his first successful experiment, which was carried out at the end of 1908.

A few months later, in March, 1909, we had our first successful experiment in Uganda with *T. gambiense* and *G. palpalis*.

On March 5th, 1909, sixty *Glossina palpalis* were placed in two cages, thirty in each. The flies were fed on two infected monkeys for two days. They were then starved for 72 hours to get rid of the danger of mechanical transference. The following five days they were fed on a healthy monkey, and every successive period of five days, or thereabouts, on a fresh, healthy

monkey, up to 86 days, when the experiment came to an end. The result was that the first two monkeys remained healthy, and all the following monkeys up to 75 days became infected with sleeping sickness. If five days be deducted for the incubation period, then the flies became infected 20 days after their first feed on the infected animal.

There is some evidence that among the 60 flies only one was infective. Fifty-four days after the beginning of the experiment, each cage was placed on a separate monkey. Up to that time both cages of flies had been fed on the same animal. Cage A contained, after fifty-four days, 11 flies; Cage B, 4 flies. Cage A continued to infect monkeys for twenty-one days more, making a total of seventy-five days. Cage B did not infect. Again, as was natural, the flies gradually died off during the experiment, and as each fly died it was carefully dissected and examined for trypanosomes. Not a single trypanosome of any kind whatever was seen in any dissected fly up to 75 days, when a fly died in Cage A, and on this fly, on examination, was found to be swarming with trypanosomes. After the death of this fly, Cage A ceased to be infective, and when the experiment was stopped the remaining flies were killed off and dissected, but among them not a sign of a trypanosome could be seen. In the same way the flies in the non-infective Cage B were examined, with a similar negative result.

This was a most interesting and successful experiment. It was evident that a single infective fly did all the mischief and by good luck this fly was detected.

Not only did one fly do all the mischief, but judging from the incubation periods it would appear that in all probability it infected each animal on the first day it bit it, showing how dangerous such an infective fly is. When this fly came to be dissected, the gut was found to be crammed with innumerable trypanosomes, and in addition the salivary glands contained large numbers.

This is the first record of these parasites being found in the salivary glands, and led up to the discovery that the invasion of the salivary glands is an integral part in the cycle of development of this group—Group A—of trypanosomes.

After this, numerous experiments were made on the same lines, and with several species of trypanosomes.

The Development of *Trypanosoma gambiense* in Laboratory-bred *Glossina palpalis*.

In 42 experiments performed to ascertain what proportion of laboratory-bred flies become infective when fed on an infected animal, only 8 gave a positive result, as many as 34 were negative. In the 8 positive experiments 371 flies were used, an average of 46; in the 34 negative experiments 1,323, an average of 40. The shortest time which elapsed before a laboratory-bred fly became infective with *T. gambiense* was 27 days, the longest 53 days, and the average 36 days. In the 42 experiments, 1,694 laboratory-bred flies in all were used.

If we consider that in each of the eight positive experiments in one fly became infective, then only 8 flies in 1,698, or 1 in 212, (0.5 per cent.) became infective. This is a very small proportion and helps to account for the fact that fifteen years elapsed before this cycle of development was discovered. This development of the trypanosome in the fly is somewhat similar to what occurs in the test-tube in artificial cultivation. A thousand tubes are inoculated, let us say with *T. brucei*, the trypanosomes all appear to die off, but twenty days later a peculiarly resistant individual is found in one tube of the thousand, which has adapted itself to the new environment, and soon multiplies into myriads.

But, although it is evident that in these 42 experiments only 8 or 10 flies became infective, a larger number were found in which development had proceeded to some extent—that is to say, the flies had become infected, but not infective. As each fly died it was dissected. In all, 39 flies were found with trypanosomes in the alimentary tract—that is to say, about 2 per cent. We may therefore summarize this series of experiments by saying that 0.5 per cent. become infective and 2 per cent. infected. It must be noted, however, that a good deal of difference exists in different series of experiments, the proportion of infected flies rising sometimes to 8 or 10 per cent.

The Cycle of Development of *Trypanosoma gambiense* in *Glossina palpalis*.

To find out what occurs after a trypanosome has been swallowed by a tsetse fly, we fed laboratory-bred tsetse

flies on an animal whose blood contained numerous trypanosomes, and, at the end of various times, killed the flies and dissected them. This was done for periods of one day, two days, three days, and so on, for fifty-six days.

The flies were examined first in the fresh condition, when the trypanosomes could easily be seen by their movement; afterwards stained specimens, made for more minute examination, were examined day after day, and coloured drawings, at a magnification of 2,000 diameters, made of all the different forms met with. The drawings of the trypanosomes found in the fore-gut, mid-gut, hind-gut, proctodeum, and salivary glands were kept separate, so that a series of drawings of trypanosomes taken from any one part, from the first day of infection to the fifty-sixth day, could be compared. More than 600 drawings were made in this way, so that it seems impossible that any important form could have been left out.

General Consideration regarding the Development of the *Trypanosomes in the Fly.*

For the first three or four days after flies have had a feed of infected blood, trypanosomes are found in them all. These are those originally ingested with the blood, and at the end of six or seven days, when the process of digestion has been completed, they are found to have disappeared from most of the flies; that is to say, it is only in a certain percentage that further development takes place. In one series we saw that this was as low as 2 per cent.; in another it rose to 8 per cent. In other words, in some 95 per cent. of flies which imbibe infected blood, the trypanosomes simply degenerate and die out within the first few days. In some 5 per cent., on the other hand, the trypanosomes find conditions more favourable for development, and increase, filling the whole of the fore-gut, mid-gut, and hind-gut with countless swarms of multiplication furus.

How long this infection of the fly continues is not absolutely known. It is considered probable that in many cases it continues for the rest of the fly's life. In one case a fly was found to retain its infectivity for ninety-six days, but in a few cases there was evidence that an infective fly might in its lifetime lose its infectivity and become harmless.

Types of *Trypanosoma gambiense* found in the Alimentary Canal of the Fly.

It would serve no good purpose to describe separately, day by day, the variously shaped trypanosomes found in the different parts of the alimentary canal, since the different forms or shapes run into each other in such a way as to make any classification of them seem impossible. The results with regard to the number of trypanosomes found in the different parts of the alimentary canal were as follows:

The Proboscis.—In our experience *Trypanosoma gambiense* is never found in the proboscis of the fly, except immediately after an infected feed, when for a short time blood containing trypanosomes may be seen in the lumen of the proboscis.

Proventriculus.—This part of the alimentary canal is sometimes found empty when the remainder of the gut is swarming.

Fore, Mid, and Hind-gut.—It is here that the greatest development of the trypanosomes is found. Among the extraordinary numbers and diversity of type it is difficult or impossible to find one's way. Generally speaking, the trypanosomes found during the first few days are merely degenerated blood forms.

After this there appears a type of trypanosome which remains dominant throughout the whole developmental period. This is a long, moderately broad form, the protoplasm staining well, without granules or vacuoles, having an oval compact nucleus situated in the centre of the body, a small, round micronucleus lying at some distance from the elongated snout-like posterior extremity. The undulating membrane is narrow and simple, and the flagellum proceeds little, if at all, beyond the protoplasm of the cell. The flagellum also appears very frequently to arise from a pink-coloured body situated near the micronucleus, an appearance never seen in the normal blood trypanosomes.

This seems to be the normal developing type in the intestine of the fly. It is seen in all parts of the intestine and at all times.

It forms masses of innumerable individuals alike in size and shape.

When a fresh supply of blood is taken by the fly, this type can be imagined to multiply with extraordinary rapidity. When the blood supply runs low then this type can also be imagined as degenerating and disappearing just as rapidly. The host of divers forms which thus arise

their way by the proboscis and salivary duct or hypopharynx to the glands. They have never been found in the body cavity.

Another curious fact is that as soon as the trypanosomes reach the salivary glands they revert to their original blood form and become infective. What causes or leads up to this reversion to the blood type in the salivary glands is quite unknown, but as we shall see, the *G. palpalis* does not become infective until this invasion of the salivary glands has taken place.

ILLUSTRATIONS OF VARIOUS MODIFICATIONS IN SHAPE OF TRYPANOSOMA GAMBIENSE IN GLOSSINA PALPALIS.



Fig. I.—*Trypanosoma gambiense* in fly.

1, 2, Normal blood parasites (*T. gambiense*), 4, Twenty-four hours after ingestion by the fly. 5 and 6, Forty-eight hours after ingestion by the fly. 7, Ninety-six hours after ingestion by the fly. 1, 7 represent the trypanosomes as they appear in the intestine of *Glossina palpalis* during the first few days. 1-3 are ordinary blood forms, as seen immediately after the fly has fed, and before any change has taken place. 4-7 represent the process of degeneration which takes place during the first four days. The body swells up, the nucleus breaks up, and the cytoplasm becomes vacuolated.

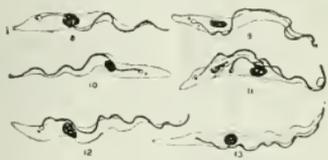


Fig. II.—Developmental forms.

8, *T. gambiense* from fore-gut, eight days after infected feed. 9, *T. gambiense* from proventriculus, fourteen days after infected feed. 10, *T. gambiense* from fore-gut, eighteen days after infected feed. 11, *T. gambiense* from mid-gut, twenty-five days after infected feed. 12, *T. gambiense* from mid-gut, thirty-four days after infected feed. 13, *T. gambiense* from fore-gut, forty-four days after infected feed.

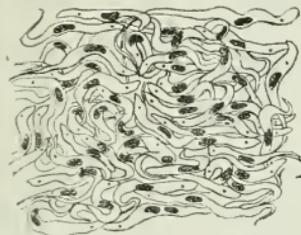


Fig. III.—Part of a mass of *Trypanosoma gambiense* in the mid-gut.



Fig. IV.—Rounded forms.

25, *T. gambiense* from mid-gut, eight days after infected feed. 26, *T. gambiense* from fore-gut, eleven days after infected feed. 27 and 28, *T. gambiense* from mid-gut, sixteen and seventeen days after infected feed. 29, 30, and 31, *T. gambiense* from fore-gut, seventeen and eighteen days after infected feed. 32, *T. gambiense* from hind-gut, twenty days after infected feed. 33 and 34, *T. gambiense* from fore-gut, twenty-four days after infected feed. 35, 36, and 37, *T. gambiense* from mid-gut, twenty-four, forty-four, and forty-six days after infected feed. 38, *T. gambiense* from fore-gut, forty-six days after infected feed.



Fig. V.—Masses of protoplasm.

45, 46, and 47, *T. gambiense* from hind-gut, ten days after infected feed. 48, *T. gambiense* from fore-gut, seventeen days after infected feed. 49, *T. gambiense* from proventriculus, thirty days after infected feed. 50, *T. gambiense* from mid-gut, forty-six days after infected feed. 45-50 represent some of the more exaggerated types of degenerative forms. As will be seen from the drawings, they are huge, misshapen masses of protoplasm, multi-nucleated and, as a rule, in flagellated.



Fig. VI.—Infective forms.

73, *T. gambiense* from salivary glands, thirty-four days after infected feed. 74, *T. gambiense* from salivary glands, forty-two days after infected feed. 75, *T. gambiense* from salivary glands, forty-three days after infected feed. 76, 77, and 78, *T. gambiense* from salivary glands, forty-six days after infected feed. 79 and 80, *T. gambiense* from salivary glands, fifty-six days after infected feed. When alluding, generally, in a previous part of this lecture, to the types of *Trypanosoma gambiense* found in the salivary glands, it was said that in the salivary glands, and here alone, the trypanosomes are found to revert to the normal type found in the blood. 73-80 illustrate this reversion. By comparing them with 1, 2, and 3 (Fig. I), which represent normal blood trypanosomes, it will be seen that they are very similar to the short and stumpy form found in the blood.

beggars description. Some are round or oval in shape, 3 or 4 microns in diameter, with or without flagellum, and from this simple form all shapes and sizes can be seen up to the huge, shapeless mass of protoplasm, multi-nucleated and multi-flagellated.

Salivary Glands.—Trypanosomes did not appear in these glands until the twenty-fifth day, but after this time they were usually present. This invasion of the salivary glands is the most interesting phase in the development of Group A, and brings to mind the development of the malarial parasite in the mosquito. It differs in this, however, that whereas in the latter spores are found, which pass to the salivary glands across the body cavity, in the tsetse fly the trypanosomes apparently find

The salivary glands first become invaded twenty-five days after the infecting feed. In all the salivary glands from flies which gave a positive result, trypanosomes similar to the short blood-type were invariably present.

Experiments to Ascertain if *Trypanosoma gambiense* during its Development within *Glossina palpalis* is Infective.

In Zululand it was observed and at the time it seemed to be an astonishing fact—that when tsetse flies, a short time after feeding on infected animals, were chopped up and injected under the skin of healthy dogs no infection of nagau took place.

It seemed strange that a fly, swollen out with blood in which numberless active trypanosomes could be seen under the microscope, if injected under the skin of a susceptible animal, should not give rise to the disease. As I left Zululand at this time I was unable to follow this observation up, but in Uganda I carried out experiments on the same lines with *T. gambiense* and *G. palpatis*.

If tsetse flies (*Glossina palpatis*) are fed upon an animal whose blood contains trypanosomes, the parasites can be seen living and moving in the contents of the intestines of all the flies for a few days, and in a small percentage (2 per cent. to 8 per cent.) of the flies active trypanosomes may continue to be found swarming in their intestines on any day between the seventh and fiftieth day or even longer.

A series of experiments was undertaken in Uganda to ascertain if *Trypanosoma gambiense* retained its power of causing sleeping sickness when inoculated subcutaneously into monkeys during its period of multiplication within the fly, especially during the interval of some twenty or thirty days in which the bites of infected flies had been proved to be harmless.

The flies were fed upon a monkey whose blood contained many trypanosomes. After a pre-determined time had elapsed the wings and legs of the infected flies were cut off and the bodies were either chopped up or brayed in a mortar with saline solution. In most instances the gut was proved by microscopical examination to be heavily infected with trypanosomes before the whole chopped-up fly or flies were placed under the skin of the experimental animal. Of twenty-nine experiments carried out with *G. palpatis* and *T. gambiense*, eighteen gave a positive result; they were almost uniformly successful up to eighteen hours after the infected feed.

Further experiments proved that this parasite only retains its virulence for a period of about eighteen hours after it has been swallowed by the tsetse fly; it then loses its power of infecting animals for a period of some twenty-two days. This means that during their period of development in the tsetse fly the trypanosomes lose their virulence, and do not regain it until the developmental cycle is completed.

Summary.

Trypanosomes taken into the alimentary canal of tsetse flies retain their shape and infectivity for some eighteen hours. They then degenerate and lose their power of infection, and, as a rule, have disappeared altogether from the majority of the flies by the fifth or sixth day. In a small percentage of flies, male as well as female, the trypanosomes maintain their position; they continue to multiply, and in a short time swarm in the alimentary canal of the fly. These multiplication forms bear little or no resemblance to the original trypanosomes. After some twenty days the developing flagellates find their way into the salivary glands, resume their original blood form and regain their infectivity.

THE RESERVOIR OF TRYPANOSOMA GAMBIENSE (CONGO SLEEPING SICKNESS).

We have seen that in *T. brucei* the cause of "Nyasaland sleeping sickness," the reservoir of the virus was undoubtedly the wild game, and that in all probability man played a very small part, if any, in its spread. I have already described *T. brucei* as essentially a parasite of animals, and *T. gambiense* as a parasite of man.

In Uganda cases of sleeping sickness were limited to the edge of the lake and the islands; I say "were," because the epidemic has died out. There was formerly a great deal of trade intercourse between the islands and the mainland. Under the shade of the trees, on the shore of the lake, the natives met, and here the fly was thickest. Now we know that in the sleeping sickness area in Uganda anything from 20 to 50 per cent. of the lake shore population had sleeping sickness trypanosomes in their blood, and it therefore appeared extremely probable that the fly conveyed the virus from native to native.

We believed at first (1903) that man was the only reservoir of practical account, and that if he was removed from the fly area, the fly would soon—within a few days—become non-infective. When we returned to Uganda in 1908 we were much surprised to find the fly still infective, although the native population had been removed from the

lake shore for some months. It was evident, therefore, that the fly had some other reservoir from which to draw the virus, and experiments were instituted to throw light on this. The cattle were first examined. These animals, as we have seen, are practically immune to sleeping sickness—that is to say, they show no signs of illness, but it was possible the trypanosome might live in their blood, and be capable of infecting flies without affecting the health of the cattle.

Cattle as a Reservoir.

On September 9th, 1909, an ox was inoculated with a quantity of blood containing large numbers of the parasites. The blood of the ox was examined daily, and eighteen days after the injection was found to contain the trypanosome. Its identity was established by injecting a healthy monkey with some blood from this ox. The monkey showed *T. gambiense* in its blood on the sixth day. Cattle are therefore capable of being infected with sleeping sickness by the injection of infected blood, although they show no signs of illness. Cattle were also infected by the bites of artificially infected flies.

Next, freshly-caught flies, brought up to the laboratory from the lake shore, were fed on healthy cattle. In the first experiment, 2,195 freshly-caught flies were fed on an ox during sixteen days, when the animal was found to be infected. In the second, 1,370 flies, and in the third, 459, gave a positive result.

The next question to be asked was, Is it possible to infect tsetse flies by feeding them on these infected cattle, and afterwards to transmit the disease by means of these flies to healthy animals? Five experiments were carried out. Two of them were positive.

It was therefore proved that laboratory-bred flies can be infected by feeding them on infected cattle, and afterwards the disease can be transmitted to healthy animals by means of these flies.

Finally, it had to be ascertained whether it was possible to find in the sleeping sickness area cattle which had been naturally infected.

Seventeen cattle from various sources were examined with this point in view. Most of them came from places where the tsetse flies were numerous. In one out of the seventeen the parasite was found. This ox came from the island of Kome in Lake Victoria, where sleeping sickness was prevalent and where tsetse flies abound. A small quantity of its blood injected into a healthy monkey gave rise to sleeping sickness in the monkey, and showed that *T. gambiense* was really being dealt with.

The conclusion to the whole matter, then, was that in addition to man, cattle may act as a reservoir of the virus of sleeping sickness.

Antelope as a Reservoir.

We next turned our attention to antelope. At this time, the beginning of 1910, man and his domestic animals had been removed from the lake shore of the mainland for some two years, and from the islands since the previous September. The effect of this depopulation had been to make an area along the northern shore of the lake virtually a game reserve, in which waterbuck, bushbuck, reedbuck, Speke's tragelaphus, hippopotami, wild pig, and other game abound. Before this time we had a strong preconceived idea that cattle and antelope were immune to sleeping sickness, and these preconceived ideas are stubborn things. But after the cattle experiments we set ourselves to ask the same questions regarding antelope.

Eleven antelope in all were employed in this experiment—four bushbuck, six reedbuck, and one waterbuck. A cage of flies which was known to contain an infective fly or flies, was fed on each animal daily for several days. The result was positive in all cases, proving that antelope may be readily infected with sleeping sickness by the bites of infective flies.

The next question was, Can these infected antelope transmit the infection to clean laboratory-bred flies, and if these flies become infected, can they transmit the virus to susceptible animals?

Clean laboratory-bred *Glossina palpatis* were fed for several days on an infected antelope. After an interval of starvation of twenty-four hours or more the flies were transferred to healthy animals and fed daily. When the healthy animal showed *Trypanosoma gambiense* in its

blood the experiment was stopped, and the surviving flies were dissected as soon as possible.

The result of twenty-four experiments carried out on these lines is given in Table IV.

TABLE IV.—Result of Feeding Laboratory-bred Flies on Antelope Infected with Sleeping Sickness.

No. of clean flies used.	Species of antelope flies fed on.	No. of days flies fed on antelope.	No. of days before flies became infective.	Result.	Remarks.
160	Bushbuck 2328	12	29	+	Buck 2328 never showed <i>T. gambiense</i> in blood. In spite of this, flies fed on it became infected 55 days after the buck's infection.
100	"	8	28	+	
100	"	8	39	+	
100	Reedbuck 2357	7	41	+	Buck 2357 showed <i>T. gambiense</i> in its blood for 5 days only.
100	"	8	5	+	
300	Reedbuck 2359	6	44	+	Buck 2359 showed <i>T. gambiense</i> in its blood for 7 days only.
50	Bushbuck 2371	6	29	-	Buck 2371 showed <i>T. gambiense</i> in its blood for 3 days only.
60	"	6		+	
100	Bushbuck 2372	8		-	Buck 2372 showed <i>T. gambiense</i> in its blood for 2 days only.
95	Waterbuck 2378	6	30	+	Buck 2378 never showed <i>T. gambiense</i> in its blood.
60	"	6		+	
50	"	4		-	
110	Reedbuck 2427	6	24	+	Buck 2427 showed <i>T. gambiense</i> in its blood for 4 days only.
60	"	4	35	+	
100	"	6	30	+	
50	Bushbuck 2428	7	28	+	Buck 2428 never showed <i>T. gambiense</i> in its blood.
50	Reedbuck 2429	4	27	+	Buck 2429 showed <i>T. gambiense</i> in its blood for 3 days only.
100	"	6	49	+	
55	Reedbuck 2431	3	28	+	Buck 2431 showed <i>T. gambiense</i> in its blood for 4 days only. In spite of this, flies fed on it became infected 81 days after its infection.
90	"	6	36	+	
100	"	6	43	+	
50	Reedbuck 2445	4		-	Buck 2445 showed <i>T. gambiense</i> in its blood for 6 days only.

The most significant of these experiments is the one in which it is shown that fifty-five days after the last feed of the infected flies on bushbuck 2,328 the blood of the buck was still capable of infecting clean laboratory-bred flies, although *Trypanosoma gambiense* had been so scarce in the blood that they had never been seen microscopically.

These experiments show that antelope of the waterbuck and bushbuck species, when infected with the trypanosome of sleeping sickness, can transmit the infection to clean laboratory-bred *Glossina palpalis*. The infected antelope's blood was in one case capable of giving rise to infection for at least eighty-one days, and in another for at least fifty-five days. These experiments further show that the flies, when infected, are capable of transmitting the disease to susceptible animals.

From these experiments on antelope, the curious fact seems to emerge that a higher proportion of flies become infected by feeding on infected antelope in whose blood the parasites are scanty, than, for example, on infected monkeys, whose blood swarms.

Another curious fact is that even when trypanosomes were never found by microscopical examination in the blood of an antelope, flies fed on that antelope became infected. It would almost lead one to believe that the trypanosomes exist in the blood of these animals in some

other less easy recognizable form than the ordinary adult trypanosome form.

The next thing we set ourselves to do was to find out if the antelope living in the fly area are naturally infected with sleeping sickness. Positive evidence on this point would naturally complete the chain of evidence proving that antelope living in the fly area may act as a reservoir of the virus of sleeping sickness. So far it had only been proved that they were potential hosts.

The easiest method by which it could be proved that they are naturally infected would be the old one of shooting the animals, and at once sending samples of their blood into some healthy area where the blood could be injected into healthy susceptible animals. But those who know the local conditions in Uganda will recognize the difficulty of doing this. The cover is so thick at the edge of the lake that it is exceedingly difficult to see the game. The sun is almost unbearably hot, the country very difficult, and the exposure to the bites of the fly very great.

It may be said at once that we were only able to shoot five antelope on the lake shore. The blood of these, when injected into susceptible animals, gave negative results. A large drive was being organized, which might have thrown the desired light on this subject, but unfortunately the Commission was ordered to leave the country before the drive could take place. It was, therefore, perforce left to a later worker to solve this difficult problem.

In 1911 Dr. H. L. Duke took the question up. Four years had now elapsed since the lake shore had been depopulated, and two years since the islands had been emptied of their population. He chose the uninhabited island of Damba for the experiment. This he did because the Commission had shown in 1910 that the fly on the island were still infective, and again the same result was obtained in May, 1911, by Dr. Carpenter.

With the exception of certain patches of papyrus, practically the whole shore line of the island swarms to a greater or less extent with fly. At one part there is the famous fly beach, from which for several years some thousands of pupae have been brought monthly to the sleeping sickness camp at Mpumu.

The only species of antelope found on the islands of Lake Victoria is the sitatunga (*Tragelaphus spekei*), a species of bushbuck adapted for living in marshes. Dr. Duke shot four sitatunga on the island of Damba, and from these *T. gambiense* was obtained. I cannot say whether all four antelope harboured the parasite, because the blood of the first two was injected into one monkey and the blood of the last two into another. Both monkeys showed the *T. gambiense*. Dr. Duke examined these trypanosomes with meticulous care in order to exclude any possible source of fallacy, and there cannot be any reasonable doubt that the sitatunga on Damba Island were acting at that time as a reservoir of this parasite.

Another proof that the trypanosome found in the sitatunga was really *T. gambiense* has lately been given by Dr. Duke. He states that two of the fly boys who have during the last three years worked with Dr. Carpenter on the islands have developed sleeping sickness of the Uganda type, and trypanosomes have been demonstrated in their glands. These boys have only been exposed to the bite of *G. palpalis*, as they had for eighteen and thirty months respectively resided on the lake shore and islands, where there are no other species of tsetse fly.

This shows conclusively that *T. gambiense* still exists in these lake shore and island flies five years after the removal of the population, and is another striking proof that the antelope are acting as a reservoir.

Taking everything into consideration, then, we may look on it as proved that the antelope on the shores of Lake Victoria act as a reservoir of the virus of sleeping sickness, and that this accounts for the fact that the flies have retained their infectivity in spite of the removal of the native population from the lake shore and the islands.

The prophecy of the Commission that the fly would become harmless shortly after the natives were removed from the lake shore has unfortunately proved wrong, and before the islands are repopulated some other measure will have to be taken to get rid of the fly danger.

A CASE OF CHRONIC INTESTINAL OBSTRUCTION DUE TO TUBERCULOUS CICATRICAL CONSTRICTIONS OF THE JEJUNUM.

BY
STEPHEN H. PUGH, M.B., Ch.B.,
SOUTH TRAVANCORE MEDICAL MISSION, NETTYOOR.

THE patient, a man aged 35, when admitted to hospital on December 26th, 1913, was suffering from intense pain over the greater part of the abdomen, of which the respiratory movements were somewhat restricted. There was no visible peristalsis. On palpation there was some tenderness. No tumour could be felt. The temperature was 101.4° F., and the pulse 120. The only history which could be obtained from the patient was that of occasional fever and great abdominal pain, frequently relieved by vomiting half an hour after food, during the previous six months.

On the morning after admission the temperature was normal and the pulse 100. During the next eight days the temperature varied daily 0.5° F. on either side of the normal line, and the pulse ranged between 100 and 108. On the evening of the following day the temperature ran up to 104.5° F., the pulse reaching 120. Next morning the temperature was normal and the pulse 96, but in the evening the temperature was again 102.5° F., and the pulse 112. During the next two days the temperature was normal, the pulse varying between 114 and 102. Since admission the patient had frequently suffered great abdominal pain, relieved by vomiting, soon after even liquid food.

No diagnosis had as yet been made, but as there was obvious trouble in the abdomen it was decided on the thirteenth day after admission to undertake an exploratory laparotomy. It was at once found that there were five marked cicatrical constrictions of the jejunum about 4 in. apart, the highest constriction being nearly 3 ft. from the upper end of the bowel. The constrictions, which were very hard, were about ½ in. in diameter. The short segments of bowel between the constrictions were remarkably ballooned to over 3 in. in diameter. It was very surprising that the obstruction was not complete. A few only of the mesenteric glands were slightly enlarged. The whole length of the bowel was passed through the fingers, but no other constrictions were found. A lateral anastomosis short-circuiting the bowel above and below the lesions was performed. The patient bore the operation well.

After the operation the vomiting entirely ceased, and the pain was very much relieved. A month after the operation the general condition of the patient was considerably improved, but he had two or three prolonged attacks of distressing hiccough, together with two periods of twelve days each of intermittent fever of the hectic type, the first period beginning thirteen days after the operation. It was not suspected that the patient might be suffering from phthisis until the pathological condition of the bowel was seen. It was thought that the hiccough might be due to irritation by the fermentation of stagnant food, secretions, etc., in the ballooned segments of bowel, and that perhaps the fever was mostly accounted for by toxic absorption from the fermenting material.

Accordingly, six weeks after the first operation, it was decided to resect the 20 in. short-circuited loop of bowel. On opening the abdomen the lateral anastomosis was found to be quite satisfactory, and there were no adhesions to the diseased loop. There was no apparent change in the loop since the first operation. No difficulty was found in performing the resection, and the opened ends of the bowel were closed 1½ in. from the anastomosis. The patient stood the operation extremely well, suffering but slightly from shock, the pulse reaching only 96.

The patient's general condition at once improved rapidly, and he was soon able to eat a large quantity of food without the least discomfort. The hiccough never returned. The temperature remained normal for six days after the operation, when again for two consecutive evenings only the temperature reached 100.5° and 103.5°. During the next four weeks there were daily variations of 0.5° on either side the normal line, the temperature reaching 100° on three occasions only, the pulse varying from 80 to 112. Obviously, in spite of the great general improvement and the complete disappearance of the abdominal symptoms, there was still some active disease

present. Seven weeks after the operation the temperature again became hectic, the evening temperature being about 101°. This fever lasted six days, and then the temperature was normal again for five days, after which the hectic fever again returned, this time with acute pneumonic symptoms, the right upper lobe being consolidated. Cough and copious foul-smelling sputum developed. After thirteen days in this condition the patient died suddenly of a profuse hæmoptysis. Previously to this attack of fever he refused to rest sufficiently and insisted on wandering about the neighbouring village.

This was obviously a case of pulmonary tuberculosis with secondary tuberculous ulceration of the jejunum. Tuberculosis was not suspected till after the first operation, when slight dullness and some bronchial breath sounds were noticed near the right apex. There was very little cough or sputum until the last attack of fever.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

STEREOSCOPIC RADIOGRAPHY OF GUNSHOT WOUNDS ON ACTIVE SERVICE.

If my interest those who are acting as radiographers in the field, and, as is often the case, under difficulties, to read of a very simple, quick, and accurate method which I am employing in France for stereoscopically examining gunshot wounds for foreign bodies and fractures, the only apparatus used being the x-ray outfit supplied to the R.A.M.C. on mobilization.

The cumbersome x-ray couch I early discarded, as, owing to the overhead tube holder, it was found impossible to get a stretcher thereon, and I now use a table, the top of which measures 5 ft. 2 in. by 1 ft. 6 in., which fits inside the poles and traverses of any ordinary stretcher, so that the patient, having been comfortably settled in the ward, has not to be disturbed until his return to the ward to be put back to bed, thus saving him pain and myself time.

The method of procedure is as follows:

The patient having been carried to the department by two orderlies, is lifted, stretcher and all, on to the table, which blocks out the canvas, allowing the poles and traverses to fall out of the way. A 15 by 12 black envelope is now placed in position under the part to be examined, and into this is slipped the wrapped plate to be exposed. The exposure made, the plate is easily withdrawn, and No. 2 introduced without any alteration in the position of the patient, the table being moved laterally two inches between the exposures.

The plates are examined by placing them side by side against a window, about 6 inches apart, with a piece of cardboard between, the film side of the left hand radiogram and the glass side of the right hand one being towards the observer, who holds a dark negative (glass side to right) against the right side of his nose, thus blocking out the view of the left hand plate from the right eye. Then, if the observer looks towards the left hand radiogram with both eyes, he will, his right eye accommodating to the reflected image on the surface of the plate thus held, become his own stereoscope and get a perfect vision of the relations of the part under observation.

This is a simplification of the method which I described before the Royal Society of Medicine some years ago, but having now boiled it down to the requirements of field service, where every ounce of apparatus counts in transit, I take the liberty of again describing it with its latest modifications, particularly as I think that there may be some who will be glad to know of a method of examining cases stereoscopically without stereoscopic appliances.

ALFRED J. H. ILES,

Lieutenant, R.A.M.C. (T.F.), Officer in Charge
X-ray Department and Electrical Department,
British Expeditionary Force.

June 8th.

"FATIGUE DYSPEPSIA."

We have received from a correspondent, who prefers that his name should not be published, the following note illustrating the subject dealt with by Dr. Guthrie Rankin in the BRITISH MEDICAL JOURNAL of June 19th, 1915:

Dr. Guthrie Rankin describes a set of conditions which exactly fit a case that has been for many years under my

observation, and the occurrence of so many cases in Dr. Rankin's practice seems to indicate a prevalence that deserves such a distinguishing title as the above to differentiate these cases from others that belong to a broader neuroasthenic class.

My patient is a man now aged 56, belonging to a somewhat neurotic family. His father for some years wore an abdominal belt, and died when approaching 70 years of age of chronic pyloric obstruction, apparently non-malignant. My patient, himself always of an energetic disposition, was much subject in his younger days to migrainous headaches. He became an active bicyclist, often riding long distances in a day, and being on the bicycle practically every day. Occasionally after long rides he suffered from some slight burning sensation in the epigastrium when he awoke on the following morning, which proved to be premonitory of what was to follow. He has never been an habitual imbibor of alcoholics though not a total abstainer.

At the age of 44 his health gave way somewhat suddenly. He had recently done a very long bicycle ride over a hilly country, and at the same date was suffering from mental worry in connexion with his private affairs. Severe dyspeptic troubles developed along with circulatory weakness and great irregularity of pulse. The stomach became dilated, and there was more or less stasis of the abdominal contents, including the spleen and left kidney. There was quite an appreciable amount of albuminuria, and some tenderness in the region of the left kidney.

The deficiency of digestive power led to a diminution of the food ingested, and this in turn to emaciation and loss of physical power. He became anxious, and thought he was suffering from cancer, aneurysm, and other complaints, though there was never any definite sign of these or any other organic lesion. The second sound of the heart was slightly duplicated, otherwise there was no heart bruit. The emaciation allowed of easy palpation and percussion of the abdomen, but there was nothing to discover there excepting the displacement downward of the organs and the dilatation of the stomach and colon. There were marked splashing sounds in the stomach, which the patient could easily elicit himself by movement of the abdominal wall.

From time to time the stomach was filled with extremely sour fluid, and the patient learnt to gain relief from the discomfort of this condition by inciting vomiting. Otherwise an acid condition of stomach contents developed during the night, and made itself evident in the early hours of the morning by a burning sensation in the region of the left costal cartilages. The skin covering this part over an area about the size of a crown piece was at such time extremely sensitive to touch, pressure by the fingertips producing a pain resembling that which might be produced by needle points. Thus the patient was awakened by this sharp burning pain, which, if unaffected by copious dilution caused by drinking large draughts of water or by a dose of sodium bicarbonate in water, continued until the stomach had emptied itself through the pylorus, which it did at the end of nine or ten hours instead of within the normal four hours after the last meal. The burning pain was relieved by change of posture, especially to the upright position, and digestion appeared to be more rapid and normal during the day, when the body was upright, than at night.

In the course of a good many months from the onset the complaint passed into a chronic state, with some improvement, and tendency to intermittence and periodic return, and at length became a matter of periodic attack. As the attacks were sometimes separated by long intervals, great improvement of the general body condition was permitted. This was aided by the bicycling being given up, and walking exercise substituted. The albuminuria disappeared entirely, and has not returned. The tongue, which had been furred, resumed its habitual clean state. The stomach became less sensitive, and able to bear a more varied diet, when care was taken as to quantity and avoidance of certain articles. Former weight was regained and exceeded at a later period, when the deposition of a moderate amount of abdominal fat proved advantageous.

Gouty symptoms, however, had supervened, with some swelling of great toe and knuckle joints and tenderness of the soles of the feet, especially in the spring, and the foot

elongated, so that the shoes that had been made for twenty years on the same lasts were now too short. There was also slight local eczema, development of a well marked arcus senilis, and the urine commonly deposited urates on cooling, though always passed quite clear.

The patient was originally blessed with a set of excellent teeth, and still possesses a mouthful, with two or three stopped, but no active caries. Two years ago—that is, ten years after the onset of the stomach symptoms—the lower incisors became loose, and there was a slight pyorrhoea at the junction of the alveoli and the roots of the teeth. There had been, however, some neglect previously in brushing the teeth and tartar had collected in the locality. A disinfectant tooth paste, with more careful brushing, removed the tartar and the pyorrhoea, and the teeth tightened up again and have given no further trouble. This slight pyorrhoea being temporary and long subsequent to the commencement of the stomach attacks, was undoubtedly one of the effects, and not the cause, of the general condition.

After a dozen years the stomach attacks continue, being determined by several circumstances, one of which—and that a prominent one—being physical fatigue or over-exercise, whether mental or muscular. Any great exertion, either prolonged or shorter, if so violent as greatly to increase the pace of the heart beat, is liable to be followed by a stomach attack with the burning sensation in the early morning. Certain articles of food are likely to bring about the same condition. Soedy acid fruit, a hearty plateful of stewed rhubarb, oranges, jellies, are very apt to prove pernicious in this respect; also too much meat, peas, broad beans, or other richly nitrogenous diet, too much hydrocarbon diet, too much milk, and a loaded state of the intestine, whatever the diet, have all the same effect.

Nevertheless, experience has taught that the tendency to these stomach attacks can to a great extent be circumvented by care in avoidance of strain upon the muscular and nervous systems, and by attention to diet as suggested by Dr. Guthrie Rankin, and there need not be any great deprivation either in the matter of agreeable exercise or of eating and drinking. Much time spent in the open air, combined with gentle exercise, such as slow walking or riding in a motor car, has proved in the above described case to be very beneficial. The air of a Scottish moorland, combined with the exercise of fishing the burn, has always proved antagonistic to the complaint and conducive to the healthy development of weight and strength.

THE CAUSE OF THE SHOCK AND COLLAPSE IN COMPLETE INVERSION OF THE UTERUS.

IN the JOURNAL of April 17th I see the record of two cases of complete inversion of the uterus. The profound shock is, to my mind, entirely due to the jamming and mutilation of the ovaries between the brim of the pelvis and the body of the uterus. The injury is analogous to that received by a man on the cricket field who is struck by a cricket ball full on the testicle. He falls instantly—pale, pulseless, with shallow or sighing respirations, and possibly clammy perspiration on forehead. Now, if he is a man with well developed sexual organs, the shock will be all the more severe. Imagine a woman suddenly getting a blow with two cricket balls on right and left ovaries, possibly bursting the delicate organs, with haemorrhage under tense capsules and between layers of broad ligaments; or, possibly again, the Fallopian tubes are torn—can we wonder at the terrible shock and collapse? If she has well-developed ovaries so much the worse for the patient, for big, healthy ovaries stand a bad chance indeed of passing through the pelvic brim. If she is a "scraggy little woman" she may escape with her life, for small ovaries may escape a terrible contusion where big ovaries will not escape. How should we treat such a case? The answer is, just in the same way as you treat the man felled in the cricket field by the cricket ball: (1) Rest with head low and pelvis high; (2) elevate ovaries; (3) foment ovaries; (4) relieve shock by relieving pain. How can we elevate ovaries? Only by plugging the vagina with an aseptic plug, changed often. Would it be risky treatment to give a hypodermic of one-third of a grain of morphine, or should one have the courage to give a whiff of chloroform? Relieve pain and you relieve shock.

Wigan,

H. W. BERNARD, M.B., B.Ch., B.A.O.

Reports of Societies.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF ANATOMY AND PHYSIOLOGY.

At a meeting on May 28th Mr. P. T. CRYMBLE demonstrated a *New x-ray apparatus*. A series of demonstrations on students who had had a bismuth meal at varying periods within the previous twenty-four hours incidentally showed that the rate of progress of the bismuth through the alimentary canal varied with the nature of the food with which it was mixed. Professor SYMINGTON showed a series of *Casts of the endocranium, arachnoid, and brain* to illustrate the degree to which the convolutions and sulci impressed the inner surface of the skull. The Section then separated, one portion adjourning to the Anatomy Theatre, Professor A. F. DIXON presiding. Dr. SYMINGTON read a paper on the *Estimation of the degree of brain development from endocranial casts*. He also showed and described a new method of illustrating cranio-cerebral topography. The method adopted was to make an accurate cast of a coronal section through the head, and then to photograph the section absolutely to scale and place the print on the plaster cast.

In the Physiology Lecture Room, where Professor W. H. THOMPSON presided, Professor T. H. MILROY read a paper on the *Action of rennin*. During the action of this ferment on milk there was no change in the reaction of the milk either in the earlier stage or in the separation of the clot. The addition of alkaline oxalate retarded or inhibited coagulation not only by its removal of soluble calcium, but also from the fall in the hydrogen ion concentration of the milk which it produced. Calcium chloride aided coagulation partly by raising the hydrogen ion concentration and partly by increasing the soluble calcium content. Milk which had been treated showed lowered coagulability, due to the diminished calcium content. The acid precipitation zone of caseinogen lay on the acid side of the ferment *znc*, but the latter was probably simply an extension of the former. Dr. J. E. MAIRWAINE read a paper on the *Electro-cardiographic method of estimating the condition of the heart muscle*, embodying the result of two years' experience. Dr. J. M. GIBSON read a paper on *Heart-block produced by yohimbine and quabachine*. Professor W. H. THOMPSON: A preliminary communication on the *Effects of nicotinic arginin on the excretion of creatine and creatinine*. Arginin was used prepared from herring milk and racemised according to the procedure followed in Kossel's laboratory. Four experiments were performed—three with rabbits and one with a dog. In the latter the addition of 2 grams per day to the food (two days) gave an increase of 2.6 per cent. subcutaneous injection of the same amount, an increase of 195 per cent. to the total output of creatine-creatinine in the urine. The preformed creatinine was not increased, or only to an extent (2 per cent.) which lay within the errors of observation. In the rabbits the increase of urinary creatine was less marked, varying from .04 to .1 mg. per hour during a period of six hours following injection via the jugular vein. There was, however, in two of these (in which the creatine of muscle was determined) an increase of .0341 and .0178 gram per cent. respectively in the fresh muscle. In the latter the increase amounted to .0870 gram per cent. of the dried solids. A control experiment on a rabbit with the same anaesthetic (urethane), but without arginin, gave a decrease in the preformed urinary creatinine of 1 mg. per hour, a decrease in the total urinary creatinine of 0.6 mg. per hour, and a relative increase in the latter of 0.5 mg. per hour. The creatine of the muscle was also increased—namely, to the extent of .0667 gram per cent. for the fresh muscle and .0710 gram per cent. as calculated for the dried solids. The results, so far as they went, pointed to the formation of creatine from laevoarginin in the dog, and did not support the theory of a "wash-out" or expulsion of preformed creatine from muscle. Professor B. J. COLLINGWOOD read a paper on some further observations on a *Uric acid index*. Dr. J. M. O'CONNOR read a paper on *Chemical temperature: regulation in anaesthetized animals*. He said that in anaesthetized cats and rabbits shivering occurred if the body temperature and the subcutaneous temperature were

below a point which was fixed for that particular animal. The oxygen consumed by the animal when not shivering was approximately a simple function of the body temperature. When shivering, more oxygen was consumed than at the same body temperature in the absence of shivering. This excess was directly proportional to the extent to which the subcutaneous temperature had fallen below the fixed point referred to. Dr. J. A. MILROY read a paper on some applications of *Electrolytic reduction*. The following were some of the results obtained: (1) Oxalic acid was reduced successively to glyoxylic acid and glyoxal. (2) In the hope that this reaction might be applicable to other dibasic acids, the reduction of saccharic acid was tried. Only a small amount of a substance which reduced Fehling's solution was formed, and so far the author had not obtained the glycuronic acid which might have been anticipated as the earliest reduction product. (3) Haematin dissolved in 70 per cent. alcohol containing sulphuric acid was transformed first into a pigment resembling haematoporphyrin; later, the solution becomes yellow and has the spectroscopic characters of a solution of urobilin. Still later the solution became practically colourless, but on standing exposed to the air it became yellow. This acidification was more rapid in ammoniacal solution, and the resulting pigment had similar characters to those of urobilin, having a similar spectrum and giving a marked green fluorescence on the addition of ammoniacal zinc hydrate. It might, therefore, be concluded that the final product of reduction was a chromogen of a pigment resembling urobilin.

NORTH STAFFORDSHIRE MEDICAL SOCIETY.

At a clinical meeting on July 1st, Dr. RUSSELL, President, in the chair, Dr. GILL showed an old man with *Molluscum fibrosum*. He was born with a fibrous tumour of the scalp, others appearing shortly afterwards in various parts of the body. A very large tumour was removed twenty-years ago, and many more appeared after the operation; there were some small tumours on the soles of the feet. Dr. MITCHELL SMITH exhibited a child with a *Hairy mole and von Recklinghausen's disease*. Mr. ERIC YOUNG showed a woman with *Molluscum fibrosum*. There were tumours on the palms of the hands and soles of the feet, and she also had a fibroma pendulum of the left buttock; the patient stated that tumours appeared in various parts of the body subsequent to vaccination. A large tumour was removed from the right anterior triangle of the neck in September, 1914, which was reported to be a sarcoma; there was no recurrence. Dr. GILCHRIST and Mr. HARTLEY showed a married woman, aged 27, with one child. She first came under observation in October, 1913, with sacralgia, metrorrhagia, and discharge of seven months' duration, and she was found to be suffering from a large *Ragged ulcer on the posterior lip of the cervix*, and extending on to the posterior vaginal wall. Wertheim's operation was performed by Mr. Hartley. There was no local recurrence, but three months ago she noticed an enlarged gland in the right side of the neck and one in the right groin. Messrs. R. ALCOCK and ERIC YOUNG said it was unfortunate that no microscopical examination of the ulcer had been made. They were of opinion that the swelling in the neck was a breaking down tuberculous gland, and that the original disease might also have been of a tuberculous nature and not malignant. The President, Dr. SHUFFLEBOTHAM, and Mr. WEBSTER also took part in the discussion, and Mr. HARTLEY replied, maintaining that the original disease was malignant. Dr. GOOD and Mr. BLAIR showed a youth upon whom Mr. HARTLEY had operated for *Acute otitis media*, mastoiditis, and lateral sinus infection; the radical mastoid operation, with exposure and division of the internal jugular vein, having been performed. The patient was now quite well. Mr. W. C. ALLARDICE exhibited three patients: (1) A soldier with a *Bullet wound of the humerus*. (2) A soldier with a *Bullet wound of the left chest*, who had been detained in France for nine days after the injury, and on arrival at the North Staffordshire Infirmary was very short of breath, and had a bad colour; there was dullness extending as high as the crest of the scapula, but no displacement of the heart. Some blood was withdrawn by means of an exploring needle, but no further treatment was adopted, and the man had made an

excellent recovery. (3) A young girl, whose hair had been caught in some machinery and the *Scalp completely torn off*. The scalp was cleansed and sutured in position, but sloughed completely; an endeavour was then made to graft with the skin removed from an umbilical hernia, with the same unfortunate result, and it was now decided to graft by means of Thiersch's method. Drs. DAWKS, GILL, HILL, and SMITH discussed these cases. Dr. J. W. DAWKS showed a potter's handker, aged 44, who was first seen in October, 1913, suffering from a persistent brassy cough and slight dyspnoea; he was found to have an *Aneurysm of the arch of the aorta*. For the last eighteen months his condition had remained practically stationary; the blood pressure on the left side was 140, on the right 120. Dr. LIST gave a demonstration of the case in the x-ray department. Dr. G. H. SOWRY showed two sisters, aged 16 and 9, suffering from *Enlargement of lymphatic glands*, marked in the neck, smaller in the axillae and inguinal regions. They were thought to be suffering from Hodgkin's disease, but von Pirquet's reaction was positive in both cases, and there was a very strong family history of tuberculosis. The PRESIDENT also showed two girls with enlargement of the lymphatic glands in the neck, axillae, and inguinal regions. In the younger girl the spleen could be felt, and von Pirquet's reaction was negative in both girls. Dr. McDUGALL drew attention to the importance of a differential blood count in such cases. Mr. CARTER remarked upon the presence of enlarged tonsils in Dr. Sowry's patients and suggested enucleation of the tonsils. Drs. GILL, ROBINSON, and SMITH also took part in the discussion. Dr. SOWRY replied, and commented upon the x-ray treatment of Hodgkin's disease. Dr. DALY showed a man with a *Swelling of the hard palate*, which included the alveolar border and extended to the middle line; this had been present for five years and had altered very little; there was no specific history. Messrs. ALCOCK and CARTER discussed the case and considered the swelling to be of the nature of a granuloma. Dr. MITCHELL SMITH exhibited a cast from a case of *Primary tracheal or bronchial diphtheria*. A girl, aged 13, was discharged from the Isolat on Hospital on June 13th, apparently well, after a severe attack of scarlatina; she was taken ill on the night of the 20th, and was seen on the 21st. The temperature was 102.5, pulse-rate quickened, breathing hurried and shallow, sputa irritable cough, little expectoration, voice very weak and whispering, no stidor; the patient looked very ill, and grey. The throat showed nothing abnormal. Examination of the chest showed diminished air supply; breath sounds on front of right chest practically abolished, on front of left chest greatly diminished, normal at back of chest; resonance on percussion normal over whole of chest. During the night the patient had a severe attack of dyspnoea, with pain below the right clavicle, which lasted until a cast similar to that shown was coughed up. On the 22nd she was very prostrate, breath sounds improved on right side, diminished on left; antidipltheric serum 4,000 units given. On the 23rd, slight general improvement, breathing markedly improved on right chest, worse on left; antidipltheric serum 2,000 units given. Later in the day she had a paroxysm of coughing, with pain below the left clavicle, and the cast shown was coughed up. On the 24th, marked local and general improvement. Report of bacteriological examination positive. The case was discussed by Drs. SHUFFLEBOTHAM, SELWYN-THOMAS, and WEBSTER, and Dr. SMITH replied. Mr. HARTLEY exhibited two pathological specimens: (1) *Multilocular ovarian cystoma*; (2) uterus, cervix, appendages, and portion of vagina, removed by Wertheim's operation on June 3rd, 1915, for *Carcinoma of the cervical canal*.

PROFESSOR H. H. TURNER, F.R.S., has communicated to the Royal Meteorological Society some preliminary results of an investigation on which he has been engaged for some years. He finds that meteorological history is divided into chapters, averaging 6½ years, with abrupt changes (discontinuities), apparently determined by the movement of the earth's axis. He finds that they oscillate about mean positions in a cycle of 40.5 years, which appears in Brückner's collected "cold winters" for 800 years, in Nile flood records for 1,000 years, and in measures of Californian tree rings for 520 years. The chapters are alternately hot and cold, wet and dry, as shown by rainfall and temperature records at Greenwich, Padua, and Adelaide.

Reviews.

MIDDLE AGE AND OLD AGE.

DR. SEYMOUR TAYLOR'S little book on *Health for the Middle Aged*¹ is a contribution to the series which Messrs. Methuen are issuing under the editorship of Mr. Bishop Harman. The title is a happy one, and will no doubt attract many readers, who will not be disappointed, for the volume contains plenty of sound common-sense advice expressed in a genial and readable style. What, precisely, is middle age? Most people, perhaps, would say in two decades—between 40 and 60, but Dr. Taylor inclines to the opinion of the late Dr. Southby, who assigned to middle life the period between 49 and 65. Taking into consideration the changed conditions of modern life, and the improved facilities for postponing the onset of senility, we are disposed to accept this estimate. Middle life is, both for men and for women, a somewhat critical time, and the warnings given by Dr. Taylor on the subject of diet, exercise, etc., are so reasonable and so clearly put that we feel sure they will help many to steer clear of the special dangers to which the author calls attention. Such warnings are by no means superfluous, despite the proverb which asserts that a man of 40 must either be a fool or a physician. For if we may judge by the views frequently expressed on hygienic matters by people of at least that age, to say nothing of their gastronomic exploits, the majority of the middle aged are—not physicians. And these may profit by advice read in a book which they would resent if orally administered.

If, as is suggested, the subject has hitherto been neglected in America, Dr. I. L. NASCHER, in his work on *Geriatrics: the Diseases of Old Age and their Treatment*,² has endeavoured to make up for the deficiency. He complains of the want of attention to senile diseases in the United States, where the general mental attitude towards the aged, according to him, is that "they are useless—a burden to themselves, their families, and to the community at large. Their appearance is generally unaesthetic, their actions objectionable, and their very existence an incubus to those who, in a spirit of humanity or duty, take upon themselves their care." How far this view would be generally endorsed by the Anglo-Saxon part of the American people we will not inquire. An introduction to the book has been written by that eminent veteran, Dr. A. Jacobi, who finds that much the most important contributions to this department of disease have been made by Germans, Germany in this respect having "proved its supremacy as the modern leader in medical science." We had previously supposed that the French had made the more important contributions to the discussion of the subject. Dr. Nascher's book, at any rate, makes no claim to be original. It is frankly a compilation; even its illustrations, with one or two exceptions, are borrowed from other works. It is perhaps the fault of the publisher and not of the author that so many of them are not bound up opposite to the text which refers to them. Thus a drawing illustrating fibrosis of the lung is in the section on the liver; another of the heart in the section on the intestines; while that of enlarged prostate is in the part devoted to senile alopecia. The author shows a good deal of simple faith in the effects of remedies, attaching very considerable remedial powers to the use of phosphorus. He also believes that tannic acid will control hæmorrhage in renal embolism, and he is among the few who still retain any belief in the value of pepsin administered as a drug, while, on the other hand, he is cautious to excess with belladonna and digitalis. He believes that charcoal in 5-grain doses given in a capsule will relieve flatulence, though on what principle he can expect such a result we do not understand. He says (p. 114) that the senile liver is "like the atrophic stage of cirrhosis"; but, except that the two organs may happen to be about the same size, we fail to see any resemblance. There are a good many misprints:

¹ *Health for the Middle Aged*. By S. Taylor, M.D., F.R.C.P. The Health Series, under the editorship of N. Bishop Harman, M.A., M.B., B.C., F.R.C.S., etc. London: Methuen and Co. 1915. Fcap. 8vo. pp. 112, 1s. net.

² *Geriatrics: the Diseases of Old Age and their Treatment*, by I. L. Nascher, M.D. With an Introduction by A. Jacobi, M.D. Philadelphia: P. Blakiston's Son and Co. 1914. (Roy. 8vo, pp. 535; 50 plates; 81 illustrations.)

quite a number of the English names are misspelt. On the obscure and difficult problem of the cause of old age or senile degeneration which so many great thinkers have given up as insoluble, Dr. Nascher ventures the suggestion that it is the result of natural cell evolution; but this is rather like the famous explanation of the sleeping properties of opium, "quia est in eo virtus dormitiva." The author's therapeutic views are generally what would be called sound, and he nowhere lends himself to extreme opinions.

THE SULPHUR MINES OF SICILY.³

The sulphur mines of Sicily give employment to 23,077 men and boys. They afford means of subsistence to upwards of 200,000 persons. Sulphur in its pure form is found in Russia, Poland, Iceland and Spain, and in the United States of America, but the richest mines are in Sicily. They yield one-eighth of the world's production. In the district of Caltanissetta alone there are 377 sulphur mines. The health and physical development of the miners are influenced by the heavy weights carried, the fatiguing and trying position of the body when at work, the absence of light, and the presence of foul air and dust. Gas explosions and landslips in the mines are also a frequent menace to life. Mine owners have been slow in introducing modern improvements. In many places little attention has been paid to hygiene. Although the first to establish a hospital for the study and treatment of occupational disease, Italy has in some respects lagged behind other nations in matters of industrial legislation. Since 1905 the number of sulphur mines has been declining. In that year they numbered 710, five years afterwards they had fallen to 379. The annual production of sulphur is 360,000 tons. The reduction in the amount of sulphur raised in Sicily is largely due to the development of mines in Louisiana. Sicily's greatest competitors are the United States of America and Mexico. Through the utilization of sulphur products in the manufacture of sulphuric acid it is hoped that the industrial prosperity of the island will revive.

Soakage of water through the strata not only causes the mines to be damp, but as the water frequently contains H₂S, it not only becomes an obstacle to work, requiring to be pumped out, but also a risk to health. Absence or deficiency of ventilation is characteristic of the mines. In by far the larger number there are no double shafts whereby air can be made to circulate. The temperature of the mines is high; the men work in many instances without clothing; the work is hard, and gives rise to profuse perspiration, which is followed by considerable physical exhaustion. Owing to the free perspiration the miners suffer much from thirst. At work they drink from 3 to 4 litres of water daily; their pulse-rate is quickened and the heart's action exaggerated, the skin is frequently the seat of erythema and of boils, the teeth decay early, and the gums swell and bleed rapidly. Respiratory and intestinal catarrhs are frequent ailments.

The men who mine the ore are called *piconieri*. The mode of entrance into a mine is by an incline or by a staircase hewn out of the rock. In mining the ore the *piconiere* works in a bad position, he has to stoop considerably, and make great demands upon the muscles of his arms and loins. Many of the men suffer from varicose veins. The *piconiere* usually commences his career in boyhood as a *carusso* or carrier. The *carusso* shares the hardship of the mine with the *piconieri*. He has to carry heavy loads of sulphur on his shoulders up the stairways sometimes almost on all fours. The writer of this review has visited Sicily and been in the mines. He was much impressed with the hard life of the lads and with the risks they had to run. Add to the severity of the toil the circumstances that no stated time is allowed for meals, and that the food is poor in character—salt fish, cheese and onions, eaten when chance offers—and the trials of a sulphur miner's life can be readily imagined. To the housing of the miners little attention has been given. Overcrowding is therefore a prevailing feature. At some of the mines there are barracks; in them men and boys are housed together; they sleep on boards, covered with straw or leaves, with their clothes on. The air of the sleeping room is maldorous, and tends to intensify the

exhaustion from which the men suffer. Nervous diseases are frequent among them; so, too, is insanity. To malaria and ankylostomiasis the Sicilian miner is a frequent victim. GIORDANO attributes much of the ill-health of the men to the excessive use of alcohol and tobacco. Diseases of the lungs are common. These organs become the seat of a form of fibrosis to which Giordano has given the name of "theapneumoconiosis." Owing to the conditions under which the miners work and are housed the lungs become a ready prey to all forms of micro-organisms, including the tubercle bacillus. A large percentage of the cases of pulmonary disease therefore becomes tuberculous. The initial structural changes in the lungs are the result of the irritation caused by the sharp pointed crystals of sulphur which have been inhaled.

Within the last few years the hardships of the sulphur miners have been lightened by obligatory insurance and by mutual help associations. A Royal Decree established ten years ago the Obligatory Insurance Syndicate among employers. For each ton of ore raised which contains 65 per cent. of sulphur one franc and a half must be added to the fund. The Red Cross Society co-operates with this fund. The reviewer can speak most encouragingly of the good effects of the two societies. The numbers of accidents had fallen three years ago from 27.95 per cent. to 17.75. Nursing homes have been established. To M. Pompeo Colojani, brother of the statesman, belongs the credit of the establishment of the Insurance Syndicate and of the introduction of many useful reforms and means for improving the health of the miners. What Colojani has done for the sulphur miners from a social and industrial point of view Giordano of Lerera has done from the medical standpoint. No medical man is more familiar with their ailments or knows more of the diseases from which they suffer. Giordano deserves well of his countrymen, and especially of the particular class with whom through his writings he has made us acquainted. His monograph is interesting and instructive.

TRAINING OF DEFECTIVE CHILDREN.

THE DEPARTMENT of Education, Ontario, publishes from time to time, for public information, pamphlets on educational subjects, and in the seventh of this series Miss HELEN MACMURCHY, M.D., Inspector of Auxiliary Classes for Ontario, gives an excellent summary of what has been done for the training of children with mental and physical defects in Europe and America, in support of her thesis that there is need in Ontario for similar provision. Dealing with the matter on broad social grounds, she points out that in the case of mental defectives not only is instruction in an auxiliary class necessary during school age, but that permanent after-care is essential. It would appear from school census and other returns that the proportion of mental defectives in Ontario is small as compared with other countries—that is, about 1 in every 400 or 500 of the population, against 1 in 250 in England. Yet this mounts up to about 5,000 persons needing provision in the whole province, and the Hospital for Feeble-minded at Orillia seems to be the only institution at present available for the permanent care of such cases. In 1911 an Act was passed by the Provincial Legislature authorizing the establishment of special classes for defectives in connexion with public schools. Two special classes were opened in Toronto in 1910, with an attendance of 32, but the Chief Inspector states that from 250 to 300 require special instruction in that city. Other special classes have been formed at Fort William and at Hamilton.

Interesting hints are given as to the diagnosis of mental defectiveness and of backwardness, and considerable space is given to "word blindness" and "word deafness." The training of teachers for auxiliary classes, the equipment of the special class-rooms, the course of study appropriate for feeble intellects, and the cost of establishing such schools, are subjects dealt with in successive chapters; and the appendices contain memoranda to parents, outlines of scholastic and industrial work, sense exercises, etc., in considerable detail. The pamphlet is of handy size (8vo), well illustrated, and is furnished with an admirable bibliography and index. It is satisfactory to find that the oversea dominions are coming into line with

³ La Fisiopatologia e l'Igiene dei Minatori. Dott. Alfonso Gioviano, Docente d'Igiene Min. nella Regia Università di Palermo. Roma: Tipografia Nazionale di G. Basterio E. C. Via Umbria. 1913.

⁴ Organization and Management of Auxiliary Classes. By Helen MacMurphy, M.D. Department of Education, Ontario, Educational Pamphlets, No. 7, 1915. Ontario: L. K. Cameron. 1915. (Cr. 8vo, pp. 212; illustrated.)

the mother country in their arrangements for mental defectives. In New Zealand a residential special school has been established at Otakeiko by Government; it now contains 150 cases, and seems likely to develop into an industrial colony. In Australia "auxiliary" school classes have been organized under the Education Act of 1911 at Melbourne and Sydney, and similar classes are contemplated in Nova Scotia and other parts of Canada. Dr. MacLurely's little volume can be commended as furnishing in small compass much useful information about the feeble-minded class.

NOTES ON BOOKS.

THE third edition of Dr. CAMPBELL'S *Aids to Pathology* includes a considerable amount of additional matter. As a sign of the times let those who were medical students in the Seventies and Eighties of the nineteenth century look into this new issue and see how the beginner must needs know what hormones are and what they mean, whilst if these veterans catch sight of the word "anaphylaxis" they will mostly, we suspect, look up the name at the proper page as indicating something of which they have never heard before. We may hold theories which happen to be current to day as liable to eclipse and extinction to-morrow, but a glance through *Aids to Pathology* will show that many new methods have come to stay. Nearly two pages of small print are, very properly, devoted to the cerebro-spinal fluid. What would Faget and Lionel Beale have thought of lumbar puncture not only described, but taught as a thing to be practised? "The procedure is quite harmless," we are told, and for that and other reasons we find directions how it should be undertaken. Although so much is expected in a publication of this class, the new and old matter are well condensed in this third edition.

The *Proceedings of the Pathological Society of Philadelphia* for last year include instructive papers on rarer forms of disease, such as tumour of the carotid body, endothelioma of the mediastinum, and retroperitoneal sarcoma. Reports on bacteria and parasites will prove of more general interest. Drs. Allen Smith, Middleton, and Barrett issue an abstract of a report on laboratory work on the tonsils as a habitat of oral endamoebae, the complete text of which will be read with interest by experts. Smith and Barrett had previously written on the association of pyrrhloca alveolaris, in many instances, with the amoebic parasites *Endamoeba buccalis* or *gingivalis*, which are found in pyrrhloca pockets. It now appears, as a result of later researches, that the same organisms inhabit the tonsillar crypts in cases of chronic crypt tonsillitis. The authors further dwell on the complications of tonsillitis and their relation to endamoebae and toxins derived from types of symbiotic bacteria. Drs. Rivas and Lucke detected the American hookworm, *Necator americanus*, in the faeces of an East Indian adult. There was double parasitic infestation of the intestine—namely, by *Necator* and by the fluke *Fasciolopsis buskyi*, and eggs of both parasites were detected. The *Fasciolopsis* is an Asiatic, not a New World trematode.

A FRENCH PIONEER IN TROPICAL DISEASES.

IN a thesis presented to the University of Paris in 1914 R. Coville deals with the career and work of C. Dellon, who was a pioneer in the study of tropical diseases. Till the seventeenth century French ships seem to have carried no doctors. When Colbert founded the French East India Company in 1664 part of the organization was a health service on sea and land and in the colonies. When the expedition of Mondeville sailed in 1666 for Madagascar with ten ships carrying 1,700 emigrants, the company engaged three apothecaries and eight surgeons, in addition to those attached to the ships. This was the beginning of the French Naval Medical Service. C. Dellon was a surgeon in the French navy at the time of its foundation, and his name is the only one that has survived from that time. He was probably born in 1649, but the place of his birth and of his studies is unknown. In 1668 he left Port Louis in *La Fosse*, a ship of the India Company, with a crew

of 120 men, which sailed for Madagascar. On September 4th the ship reached Saint Paul in the Ile Bourbon. The heat and the want of water were beginning to make themselves felt, and scurvy broke out among the crew. But the air was so pure and healthy that only four out of eighty of those who contracted the disease died. When the period of his engagement with the company came to an end, he did not return to Europe but settled in the small Portuguese town of Daman. At first he was very successful, but this caused jealousy and he got into trouble with the Inquisition. He was tried for heresy and condemned to five years of the galleys. He was handed over to the secular power for deportation to Portugal, where he was to work out his sentence. On reaching Lisbon, however, he again fell into the clutches of the Inquisition. After many appeals for a new trial he at last succeeded in interesting Dr. Fabre, chief physician to the Queen of Portugal, in his case. The influence of Fabre, together with that of Bossuet, who befriended him, procured him his liberty. He returned to France in 1667 and wrote a narrative of his adventures which was published in Paris in 1685, together with a short treatise on ship diseases and tropical maladies as a sequel. The book went through several editions and was translated into English and German. Dellon's little essay may be regarded as one of the first treatises on the subject. Scurvy naturally holds the chief place, for it was a veritable scourge to all who went down to the sea in ships at that time and for long afterwards. Dellon attributed it to the dry burning air of the sea, to salt meat and bad water, to melancholy caused by long voyages, and to the thirst which had to be endured when in periods of calm and excessive heat the ration of water had to be reduced and the men could not wash themselves. Speaking of the prevention of scurvy, he says that the victuals taken on board must be of the best quality and the biscuit sound and easy to keep. At sea the ship must be kept very clean and "perfumed" several times a week. The sailors and travellers must observe careful hygiene; they must make provision of lemon, verjuice, dried fruit, and particularly prunes. They must avoid every kind of tainted food; they should eat little meat, and only such as had been perfectly freed from salt. Their diet should consist largely of rice, rye, and oatmeal cooked with prunes to keep the bowels reasonably free. Sugar is also recommended as being a marvellous balsam which fortifies the stomach, facilitates the expulsion of urine, and, while neutralizing the acids, softens the whole mass of blood, the thickening of which was, in his opinion, the sole or principal cause of scurvy. In addition to this, Dellon insists on minute attention to bodily cleanliness in order to promote perspiration; a special precaution recommended was carefully to wash the mouth, where the mischief began. He considered that the most important part of colonial medicine was fevers, which he classified summarily into continuous and intermittent. Among the latter the tertian and double tertian were fairly frequent and difficult to cure. He kept patients suffering from fever on low diet, giving them only plain water and *cangé*, prepared by boiling half a pound of rice in four or five pints of water; four or five small spoonfuls of this were given during the day. He makes no mention of bark. After fevers in frequency came affections of the intestine, dysentery being very common in India, contagious, difficult to cure, and often fatal. Dellon noticed that acute gastro-enteritis was common in hot countries. He observed an affection which he calls "Madagascar colic"; he attributes it to the immoderate drinking of a honey wine peculiar to the country, and says the symptoms resemble those of painter's colic. Coville suggests that Dellon may have confused this disease with beri-beri, which is very common on the east coast of Madagascar, and was observed by Bontius at Java in 1642. After referring to the frequency of small-pox in India, and of anaemia in Malabar, and giving an account of snakebite, Dellon concludes by describing *bichos*, of which he said there were three varieties. Two of them, it appears, are caused by parasites, the *Flaria medicinis*, and the chigo, the third being a form of gaugreous inflammation of the anus. Dellon says nothing about cholera, or about diseases of the liver, the skin, and the eyes. This silence is doubtless due to the fact that he confines himself strictly to affections which had come under his own observation. He was evidently a man who thought for himself, and while not altogether

¹ *Aids to Pathology*, by H. Campbell, M.D., B.S. Lond., F.R.C.P. Third edition. Students' Aid Series. London: Baillière, Tindall, and Cox 1915. (Fcap. 8vo, pp. 255. Cloth, 3s. 6d. net; paper, 3s. net.)

² *Proceedings of the Pathological Society of Philadelphia*, New series, vol. xvii, old series, vol. xxxv (January, 1914, to January, 1915). Edited by J. A. Kolmer, M.D. Philadelphia: Wm. J. DeGrua, 1915. (Roy. 8vo, pp. 1002.)

free from the therapeutic prejudices of his day in favour of *purgare, enusita, scignare*, as the sheet anchors of treatment, he used these remedies in moderation. He did not hesitate to take hints from the practice of the native doctors when they seemed to be of any value. It must be said to his credit that he constantly insisted on the importance of hygiene, of personal cleanliness and suitable food.

CHOLERA EPIDEMICS IN BRISTOL IN THE NINETEENTH CENTURY.*

THERE were three notable epidemics of cholera in Bristol in the nineteenth century—namely, in 1832, 1848-9, and 1866.

The following notes on two of these outbreaks, with an account of the means taken to check their spread, the remedies used, and some of the early investigations into the nature of the disease, are, I think, worth recording.

In the autumn of 1831, on the first definite evidence of the arrival of cholera in England, the magistrates met to consider the best means of dealing with the dreaded pest should it reach Bristol; and the mayor, Mr. Charles Pinney (who distinguished himself in the memorable riots of this year), wrote to Dr. Carrick, then senior physician to the Bristol Infirmary, asking his advice. This letter was submitted to the infirmary staff (November 11th), and within twenty-four hours a report was sent to the mayor containing the following practical recommendations:

1. The formation of a "Board of Health," consisting of the chief magistrate and two or three aldermen, the physicians and surgeons of the infirmary, and others, "to receive reports, to give directions, and to communicate with the General Board of Health in London."

2. That a parochial committee be formed in every parish, consisting of the minister, churchwardens, practitioners from the district, etc., to hold daily sittings in the vestry or elsewhere, and to communicate with the Central Board of Health at the Council House.

3. That four or more houses be provided in an open and airy situation, furnished with beds for the reception of cholera patients, together with a staff of nurses and porters.

4. That the magistrates should enforce, as far as possible, the cleansing and whitewashing of the houses of the poor, and "lose no time in removing all manner of filth and nuisances wherever situated."

5. The Board of Health to issue information and directions, and to invite all practitioners to co-operate.

Dr. Howell, physician to the Infirmary, acted as honorary secretary to the "Board of Health," and at once called meetings and issued directions.

By December (1831) many cases had occurred in Sunderland and Newcastle, but the disease did not become generally prevalent until June, 1832. The first cases appeared in Bristol, on July 11th, amongst the inmates of the gaol, and on August 15th there were thirty-three deaths, chiefly in the poorer parts of the city. On October 10th Dr. J. Addington Symonds, who had succeeded Dr. Howell as Secretary to the Board of Health, published from the Council House the welcome news that the plague had much diminished, and by November 8th it had ceased. The cases which came to the knowledge of the Board of Health numbered 1,612; of these 626 died (38.8 per cent.). In crowded places, like St. Peter's Hospital, on which much of the stress fell, the percentage of deaths was over 40. Many suggestions were made, both in the medical and lay press, as to treatment, but nearly every one then considered mercury and opium to be the sheet anchors. Mr. George Rogers, who was inspector of one of the districts, recommended 20 grains of calomel with $\frac{1}{2}$ grain of opium and 5 grains of powdered ginger, the dose to be repeated in a few hours! It seems strange that so large a dose of calomel could be given to a person collapsed from cholera without causing speedy death, but it is certain that some of the patients so treated recovered. Dr. Howell announced that in Holland a preventive against the disease had been found by "Prince Lobhowitz, Governor of Galicia, in Lemberg." This consisted of an oval piece of leather, measuring about 8 by 10 in., smeared with a coat of resin from the fir tree, and applied "warm to the stomach and then to be constantly worn."

"Investigator," in the *Bristol Mirror* of August 10th, 1832, recommended fireworks, especially sky-rockets, as a method of purifying the air, and so destroying the "miasm." This ingenious person founded his argument on the statement that the year before, at the siege of Warsaw, the cholera there ceased after the heavy guns had been fired.

St. Peter's Hospital was crowded with cases of cholera, and as it was "at once the work- or poor-house, the bedlam, and the receptacle for vagrants," its condition at this time may be dimly imagined.

In the cholera-smitten districts the poor were in a state of panic. Unfortunately, there was a widespread prejudice against medical attendance, partly owing to some recent instances of "body-snatching." Early in August, on a Sunday morning, whilst a boy who had died of the disease at St. Peter's was about to be buried,

his mother, accompanied by a considerable mob, insisted on having the coffin opened, on the supposition that the body of her son had been otherwise disposed of. The demand under such circumstances was very properly refused, but no assurances would satisfy her, and, as she persevered in her determination, the coffin was forced open by the mob, when the corpse was exhibited in a very black and putrid state.

No member of the Board of Health (on which J. C. Pritchard, G. Wallis, A. Carrick, Richard Smith, Henry Daniel, and Nathaniel Smith, representing the staff of the infirmary, were very active) got any remuneration for the daily meetings, some of which lasted for three hours, and for the immense trouble they took, or for the danger they encountered. In fact, many of them were considerably out of pocket by the business.

Another bad epidemic of cholera occurred in 1848-9. The disease reached Bristol early in 1849, but did not assume formidable proportions until July, August, and September. The profession in Bristol did its best to stop its spread and to succour those who were stricken down by it. In these days of improved hygienic supervision, with responsible and skilled medical officers in charge of the city's health, it is difficult to conceive the terror inspired by the very name of cholera, which hovered like a black angel of death over the afflicted region. Medical men were appointed to visit the affected districts and to report. I find by some old letters that Dr. J. C. Swayne, Mr. S. H. Swayne, Mr. Wylde, and my father, the late William Smith, were on a committee to investigate and report upon the sanitary condition (or, rather, the insanitary condition) of the Parish of St. George, Brandon Hill. They made visits from house to house, and drew up reports. My father (and I believe one or two others of this small committee) contracted the disease. Mr. J. Williams (brother of the late Dr. Eubulus Williams, and uncle of the present Dr. Watson-Williams), with Mr. Davis and another, went round the districts. They hardly rested day or night. Mr. Williams died of cholera, and the poor people, who now had learnt to appreciate the services of medical men more than in 1832, subscribed from their slender means to honour his memory by a public funeral. His tomb is in Arno's Vale Cemetery, and to those who know of his heroic devotion to duty it is a pathetic and eloquent memorial.

The Bristol Medico-Chirurgical Society (the forerunner of the present society) appointed a "Microscopic Committee" to investigate the disease and endeavour to find its cause. The following medical men served on this committee: Drs. Frederick Brittan, William Budd, and J. C. Pritchard (afterwards physicians to the infirmary), Dr. J. G. Swayne (afterwards physician to the General Hospital), Dr. J. Bernard, and Mr. Neild. They made a careful examination of the evacuations of cholera patients, and came to the conclusion that there were certain crescentic bodies found which were absent in health and in other forms of diarrhoea. Dr. Budd publicly expressed his belief that the disease was due to some minute organism—probably these crescentic bodies. Further research showed that these were not the germs of cholera. The whole investigation showed great skill and patience, and the deductions were prophetic of what was not definitely known until forty years later.†

G. MUNRO SMITH, Lieut.-Col., R.A.M.C.(T.),
Clifton, Bristol.

* The information in this article is derived from letters in my possession, from old Bristol newspapers, and from the Richard Smith MS.

† An interesting account of these crescentic bodies, which were probably partially disorganized red corpuscles, may be found in the BRITISH MEDICAL JOURNAL for March 21st, 1885.

British Medical Journal.

SATURDAY, JULY 10TH, 1915.

WASTE.

RECENTLY the Chancellor of the Exchequer, in the House of Commons, spoke of the duty incumbent upon all citizens to practise a rigid economy at the present time, and deprecated the idea that lavish expenditure was a matter of no immediate importance. Private members enlarged on the text, and even suggested that certain public departments were not free from reproach in this matter. In other quarters the same wholesome doctrine has been preached, and journalists have placed at the disposal of their readers much advice, especially with respect to the subject of food. It will therefore be worth while to scrutinize the administration of one great spending department in this connexion. In our issue of March 20th we dealt at some length with the war rations of the army in the field, and pointed out that the energy value of the food supplied appeared to be quite adequate—a conclusion which has been borne out by practical experience. We did not discuss the feeding of the troops in this country, and we are not precisely informed as to the nature of the issue actually made. It is probable, however, that the provisions of paragraph 28 of the Regulations for the Allowances of the Army, 1914, are in operation. From this paragraph it appears that the daily scale at Home Stations is 1 lb. bread, or $\frac{2}{3}$ lb. biscuit, and $\frac{3}{4}$ lb. fresh or 1 lb. (nominal) preserved meat in barracks or stationary quarters. For men under canvas or (with the approval of the General Officer Commanding) when temporarily accommodated in unequipped buildings the bread ration is the same, but the allowance of fresh meat is 1 lb. We have been informed that this is the meat ration served out to men in billets.

Even if we assume that the above-mentioned articles constitute the whole of the foodstuffs supplied to the army at the public expense, certain reflections inevitably suggest themselves. The first is that all persons who are able to vary the form in which they supply the physiological machine with energy under varying external conditions always do so—that, for instance, the man who regularly consumes a pound of meat a day in the winter is most unlikely to do so throughout the summer. The second is that the proportion of soldiers who are in command of funds permitting them to modify the dietary to a considerable extent is much greater now than on a peace footing. When we further reflect that young soldiers in training are not precisely the persons to exert the supervision over food supplies proverbially associated with the mistress of a boarding house, we shall anticipate that the whole of the food purchased by the nation is not put to the use for which it was intended. But we do think that the public has not yet realized the lengths to which sheer reckless waste has been carried. As generalities are always unsatisfying, we may be permitted to give a concrete illustration. Having been informed by a farmer in the south of England that he fed his pigs on camp swill, we had the curiosity to inspect a barrel of that commodity on his premises. It did not at first sight seem to be an

entirely satisfactory foodstuff for pigs, as it appeared to be a viscid fluid of unpleasant odour, from which bubbles of gas were slowly rising, and we were hardly surprised to learn that many farmers considered that digestive troubles of swine, which might well pave the way for the invasion of the organism by the virus of swine fever, frequently resulted from a diet of camp swill. A further examination of this unsavoury mess revealed the presence of a piece of cheese, which might originally have weighed $\frac{1}{2}$ lb., a large piece of bacon, and several hunks of bread, not to speak of numerous potatoes and the débris one ordinarily associates with table washings. We have no hesitation at all in saying that the barrel must have originally contained solid and palatable food sufficient to supply the energy requirements of an adult for several days.

From inquiries we made we have no reason to suppose that this incident was other than typical of hundreds of farms throughout the country, and we venture to say that such a state of affairs ought not to be allowed to continue. Our national self-esteem has been gratified by the knowledge that the army in the field is a well-fed army, but any undue elation on this account may be checked by the thought that the army is not only well but wastefully fed. According to our information, the system in force is as follows: The commissariat authority has a certain number of men to ration, arrangements are made that each individual receives the prescribed quantity of food, and that is the end of the matter. Whether the soldier actually consumes the food, barter it, or throws it away, is his affair. Let us suppose the case of a tent with eight men and that they receive four 2 lb. loaves; it is quite likely that at the end of the day not much more than half will have been consumed, and if portions remain the men may receive instructions "to clear up that litter," when the bread will promptly vanish, to reappear in the unsavoury swill set before swine.

We are quite alive to the fact that it is one thing to point out an evil and another to offer an adequate remedy; but the first point to apprehend is that nobody, so far as we can ascertain, has made it his business to face the problem. All we can do is to indicate the steps which might conceivably be taken, leaving to those conversant with actual administrative difficulties the task of choosing the right one. In the first place, it might be possible for the men to exchange unused rations for extras at the canteen on some definite scale. The eccentric soldier who desired to substitute, let us say, chocolate for the whole of his bread ration could be defeated by placing a limit on the amount which might be exchanged. We know that in some places in which troops have been billeted the men have exchanged food supplied them for other articles in the grocers' shops, and we believe that official systematization of this practice might help to reduce the present waste. A more drastic step would be to order men to place unused portions of food in a special receptacle, and to punish those who allowed their unconsumed rations to be soiled or rendered unfit for human consumption. Finally, it might be practicable—in view of the number of men unfit for work in the trenches who still desire to serve—to organize a special corps charged with the supervision of broken food. The duty of such a corps would be to see that nothing fit to be eaten by human beings went into the swill tub. Lastly, we think that deliberate waste of food—schoolboy horse-play with pieces of bread, for instance—should be deemed as serious a breach of discipline as the waste of ammunition. A soldier who, not having had occasion

to expend all the cartridges served out to him during the day, fired several rounds in the air at night, would be severely dealt with; he must not waste the ammunition for his rifle, but he is apparently at liberty to waste ammunition for his body to his heart's content.

There is a grim irony in the fact that in the midst of rising food prices, while Cabinet Ministers are exhorting the nation to practise economy, and Government departments appoint committees to report on the best means of increasing the home food supplies, up and down the land this waste is proceeding. Many otherwise intelligent people appear to regard it as matter for a jest—a trait in keeping with the reckless gallantry which should characterize the soldier. In a little country town we were told the story of an old woman who, having a few fowls, asked one or two soldiers to throw any odd crusts they might have into her fowl run, and soon found to her dismay that the fowls were likely to suffer a fate like that of Tarpeia under the avalanche of bread discharged. Cynics will suggest that it may be cheaper to poison pigs with arsenic than with decomposing bread and meat rations. But those medical men who have practised in the poorer quarters of our great cities will fail to see the joke, and will agree with us that prompt measures should be concerted to minimize this great evil.

ENTEROSTASIS.

Our knowledge of the ordered progress of food through the various segments of the alimentary tract has been gained almost entirely during the last twenty years, and by the use of the Roentgen rays. Professor Keith has made a synthesis of our present knowledge, and in his Cavendish Lecture¹ expounds a new theory of the production of stasis in the alimentary tract, or enterostasis. He states that the food normally undergoes a certain delay at a number of fixed points in the alimentary tract, and proceeds to enumerate no less than seven of these points. The first is at the lower end of the oesophagus, the second at the pylorus, the third near the duodeno-jejunal junction, and the fourth at the lower end of the ileum, commonly known as the ileo-colic junction. In the large intestine itself there appear to be three more points at which delay may be regarded as normal. One is near the beginning of the transverse colon, leading to filling of the caecum and ascending colon; the next is at the recto-colic junction; the third, or seventh and last of the whole series, is above the anal canal, and its action leads to the accumulation of faeces in the rectum. The degree to which the stasis of the contents of the alimentary tract takes place at these various points naturally varies somewhat widely in different normal individuals. But Professor Keith argues that after making all allowance for individual variations, there remains a considerable percentage of cases in which the delay at one or more of these points is so long that it must be regarded as pathological. He notes that clinicians have for years spoken of such clinical entities as gastric stasis, duodenal stasis, ileal stasis, stasis in the proximal or distal colon; to these already recognized forms of enterostasis he proposes to add two more, namely, "oesophageal stasis" and "rectal stasis." At each of these seven points we must suppose that some sort of a sphincter mechanism exists, and that each of these seven forms of entero-

stasis is due to abnormal activity of the corresponding sphincter mechanism.

Of what anatomical elements do these sphincter mechanisms consist? Professor Keith gives a full account of the researches made by himself and others in the attempt to answer this question. Without going at all deeply into the details he gives, it is enough to say that he draws a comparison between the "nodal" and "bundle" systems that initiate and regulate the heart's action, and the composite myenteric plexus, known as Auerbach's plexus, in the intestine. He describes this plexus as containing ganglion cells, abundant fine nerve fibres, and peculiar branching intermediate cells that are not connective tissue cells, but have processes uniting with unstriated muscle cells on the one hand, and the true ganglion cells on the other. These intermediate cells, recognized long ago by Kölliker, do not seem to have met with the recognition that is their due at the hands of either histologists, pathologists, or clinicians. Elliott in 1904 recorded the fact that adrenalin has the same effect on the lower ileal tract as stimulation of the splanchnic nerve; in both cases the ileo-colic sphincter contracts, while the rest of the ileal musculature is inhibited. Professor Keith suggests that it is upon these intermediate cells, interspersed between the splanchnic nerve and the muscle fibres, that the adrenalin acts. He gives reasons for believing that the gastro-oesophageal junction contains a nodal centre rich in these intermediate cells, at which the rhythmical peristaltic contractions of the stomach are initiated. Proximal to the entry of the common bile duct is a similar area in the duodenum, with analogous functions; this fact throws light on the observation, often made by skiagraphers, that the first part of the duodenum shows but limited contractility, while peristaltic propulsion waves appear to arise in its second part. The ileo-colic junction is another nodal centre, acting as pacemaker for the peristaltic contractions of the caecum and ascending colon. The large intestine itself, while lacking any special plexus or area of nodal tissue, or tissue rich in intermediate cells, is richly supplied with them throughout; this is particularly the case with the distal part of the transverse colon, the descending and iliac colon, and the rectum. Criticizing Sir William Arbuthnot Lane's view that stasis in the large intestine is mainly a mechanical affair, dependent on the obstruction caused by kinks in the gut, peritoneal bands or adhesions, and the like, Professor Keith points out that skiagrams produce no evidence of obstruction situated at bands or kinks in these regions, and that there is no hypertrophy of the muscular coats above the sites of such kinks or bands. Acute flexures of the bowel produced experimentally do not lead to intestinal stasis; it is, indeed, very difficult to produce obstruction by twisting, coiling, or folding the large bowel.

In summing up the matter, Professor Keith remarks that he does not think that either mechanical conditions or even derangements of sphincteric mechanisms can give an adequate explanation of all the phenomena of enterostasis. The extra factor requisite he describes as a lack of co-ordination between one or more of the nodal points or rhythmical zones of the alimentary tract; points, that is to say, acting as peristaltic pacemakers for the distal segment of the bowel. So far he distinguishes four rhythmical zones in the bowel—namely, a duodenal, a jejuno-colic, a proximal colic, and a distal colic. Though the evidence is at present imperfect there are grounds for presuming two more—an oesophageal and a gastric. The production of

¹ A New Theory of the Causation of Enterostasis. *West London Medical Journal*, July 2nd, 1915. A short abstract appeared in the *BRITISH MEDICAL JOURNAL* of July 3rd, p. 14.

enterostasis is to be compared with the production of heart-block. In each there is a defect or irregular action of either the nodal or the conducting systems, or of both. When such an irregularity or block appears, its effect is naturally to be looked for at the points where one rhythmical zone or area passes into the succeeding zone. It is clear that in order to obtain an orderly propulsion of food along the whole length of the alimentary canal, its various rhythmical zones must be closely co-ordinated in their action by means of a complicated system of reflexes. Disturbance in any one segment upsets the rhythm in all the segments; and this explains how it is that distension of the duodenum, for example, inhibits the action of the ileum, and why a duodenal disturbance further upsets the rhythm of the stomach. Disturbance in the excitability or rhythm of the pacemaker of the caecum will be reflected backwards to the lower ileum, and so stasis in the large intestine may give rise to stasis in the ileum, in the duodenum, and even in the stomach. It is clear that Professor Keith's ambitious scheme for the explanation of enterostasis breaks new ground in a most interesting manner, and is worthy of the attention of both clinicians and the experts in abdominal surgery.

THE ORIGIN OF LIFE QUESTION.

THE recently published number of the *Proceedings of the Royal Society of Medicine* contains an illustrated communication from Dr. Charlton Bastian, F.R.S., entitled "The Importance of Tyrosine as an Aid in the Demonstration of the Present-day *de Novo* Origin of Living Organisms," in which he deals with the effects produced by small quantities of a dilute solution of this synthetic compound when sterilized and added, with the necessary precautions, to tubes containing saline solutions of five different kinds (whose composition is given) which five to ten months previously had been enclosed in hermetically sealed tubes, and then sterilized by boiling for twenty minutes on three successive days. Tyrosine is one of the most powerful of the anxeties whose influence in producing multiplication of cells and of minute amoebae had been shown by some of the McFadden researchers. It was recommended by one of them to Dr. Bastian for use in two ways—first, as an addition to tubes whose contents were ripe for examination; and, secondly, as an addition to the original saline solutions previous to their enclosure within the tubes, in the hope of thereby possibly shortening the long period of probation generally needed before recognizable living organisms can be found within the tubes. The first mode of testing its influence was carried out on a large number of tubes ripe for examination by adding twenty drops of the freshly sterilized tyrosine solution to each tube when it was opened. The tubes were then immediately reclosed and replaced in the incubator for three to four weeks. When the contents of these tubes were re-examined after such an interval, a very considerable growth and multiplication of organisms was found to have taken place, thus tending to disprove the two principal objections which had been urged against the original experiments—namely, (1) that what were found were mere simulacra or pseudo-organisms; or, (2) as others believed, were only dead organisms pre-existing in the solutions. In order to test the second possible influence of tyrosine similar small quantities of the solution were added to a large number of tubes containing some of the same five sets of solutions, freshly prepared, with which other tubes were charged, sealed, and sterilized. After these tubes had been in the incubator for three to four months many of them were examined, but no organisms could be found, and the small deposits were more or less altered in character. This initial use of the tyrosine, far from acting as it was hoped,

seemed therefore to be actually injurious, and to prevent the formation of organisms. But, seeing that the same materials were used in the preparation of the solutions, that the tubes were treated in the same way, and that their contents were examined in the same manner, Dr. Bastian held that other objections (3) urged by some critics were likewise invalidated. The absence of organisms now tended to show that in the first series the organisms found were not likely to have come "from an impure pipette or to have dropped from the atmosphere on to the microscope slide before the cover-glass has been applied"; thus being the only other surmises hitherto adduced by critics.

INVESTIGATION OF COLONIAL AND INDIAN DRUGS.

IN view of the enormous geographical extent of the British Empire, and of the fact that it comprises practically every variety of climate, a systematic investigation of the natural vegetable products of the less developed countries can hardly fail to lead to the utilization of a considerable number at present unknown, and the commercial and economic value of such investigation is very great. A considerable part of the work of the Imperial Institute is devoted to such examination of products from different parts of the empire, and the current number of the *Bulletin*¹ contains summaries of some of the investigations carried out in recent years on drugs from Africa, India, and other parts. In some instances valuable results have been obtained, while in other cases, as was to be expected, they have been negative. Among the former may be mentioned the examination of the rhizome and rootlets of *Podophyllum emodi*, which showed this plant to be a valuable source of the drug podophyllin, and has led to its recognition in the *British Pharmacopoeia*. The present great scarcity of atropine gives special interest to the investigation of the Egyptian plant *Hyoscyamus muticus*, which showed it to be a valuable source of hyoscyamine, from which atropine can be obtained by isomeric conversion. The seeds of *Croton elliotianus*, from East Africa, have been found to contain an oil having purgative properties in quite small doses, but devoid of the vesicating and irritant resinous constituents present in ordinary croton oil (from *C. tiglium*); the physiological action of the oil was investigated by Dr. J. T. Cash and Mr. W. J. Dilling, who regard it as "a body which would be of considerable value as an addition to purgative remedies, for some of the more drastic and irritant of which it would prove a safe and effective substitute." "Native drugs"—that is, products which have a reputation as medicines among the natives of the country of origin—have, as a rule, given disappointing results; not only has chemical examination failed in some cases to detect any constituents to which the reputed activity could be due, but physiological tests carried out with extracts have shown that the drugs do not, in fact, possess the properties ascribed to them. This is, perhaps, not very surprising; but in one case at least—that of the fruit and leaves of the Afon tree (*Treculia africana*) from Lagos—a drug reputed to be poisonous was found to be harmless. The Commissioner of Abeokuta had reported that it was impossible to take horses to certain districts in the colony owing to water-holes and streams being poisoned by its leaves, while the Director of Forests and Agriculture and the Government chemist attributed the poisonous properties to the fruit of the tree; aqueous and alcoholic extracts of fruits and leaves, however, were all found to be non-poisonous to animals. The *Bulletin* contains also several other interesting papers, of less interest from the medical point of view.

¹ *Bulletin of the Imperial Institute*. A quarterly record of progress in tropical agriculture and industries and the commercial utilization of the natural resources of the Colonies and India. Edited by the Director and prepared by the scientific and technical staff of the Imperial Institute and by other contributors. Vol. xiii, No. 1, January-March, 1915. London: John Murray, Albemarle Street, W. (Med. Soc. pp. 184. 2s. 6d. net.)

HEMERALOPIA AMONGST SOLDIERS.

SINCE an ophthalmic department was attached to the fourth German army in the middle of January so many cases of hemeralopia occurred that, according to Professor Braunschweig,¹ the disease had assumed epidemic proportions. In a period of only four weeks he observed 23 cases, which were collected from many different sources. Though this number was not striking by itself, it was obvious that when, out of 98 patients treated in hospital for diseases of the eye, 22 suffered from night-blindness, this disease must have been abnormally frequent. The patients complained of inability to see in the dark, of stumbling into pits made by shells, of inability to drive their horses in the dusk, and of a sense of insecurity and helplessness. In most cases several weeks, and even months, had passed before these patients were driven by anxiety and depression to report themselves as unwell. Their ages ranged from 17 to 46, within which limits the disease showed no striking age incidence; nor was there any striking relation between the health and vitality of the patients and their symptoms. A few were weakly, but the majority were robust, and showed no signs of organic disease. In many cases there was slight conjunctivitis or blepharitis, and in about two-thirds of the total there was some error of refraction. When these errors, however slight, were corrected by glasses, the patients felt much better. It seemed, therefore, that the hemeralopia must have been largely provoked by these organic abnormalities of the eye. Bitot's spots were never found in these cases, which was all the more strange as in some forms of hemeralopia observed in times of peace they are invariably present. Many of the patients traced their symptoms to the constant strain on the eyes caused by peering through the darkness in the trenches, and on the roads when driving. This view was probably correct, and the symptoms were, no doubt, aggravated by the great physical and mental strain imposed by the war. Malingering and suggestion were, of course, suspected, but in no case was either definitely detected. As the patients were recruited from numerous companies and over a wide area, and as there were no localities or companies in which the incidence of the disease was disproportionately great, suggestion could hardly have played any part. Only in two cases was malingering a likely cause of the symptoms, the patients complaining of failing eyesight by day as well as by night, although there was no sign to support their assertions. The treatment consisted of correcting errors of refraction, relieving the conjunctivitis and blepharitis, rest in hospital, cod-liver oil, iron, and arsenic given internally, a liberal diet, and uninterrupted sleep. How far this treatment was effective Professor Braunschweig did not venture to say, but he hoped to make his patients fit for active service again in a few weeks, and did not anticipate permanent disablement in the majority of his cases.

"NERVE SHOCK" IN WAR.

A LARGE crop of papers has lately appeared in the German medical press dealing with the organic and functional nervous disorders provoked by modern warfare. Most of the writers agree in refusing to recognize "war psychosis" as a new disease peculiar to modern warfare. It is maintained that the nervous breakdown, which is a common sequel of participation in battles of to-day, is practically confined to persons who are already subject to nervous instability, or in other words, that the strain of modern warfare is merely an exciting cause of "nerve shock," and that many of the sufferers would, under ordinary conditions, have broken down sooner or later. A. Sarbo² has described the organic changes observed in the nervous system as a result of the explosion of shells. The lesions of the brain and cord were, he considered, due partly to

concussion of the cerebro-spinal fluid and partly to concussion of the nerve substance itself. The concussion caused a variety of conditions, ranging from sudden death from diffuse haemorrhage to transitory giddiness or slight staggering. Sarbo describes the two following well-defined groups of symptoms: In the one case the patient suddenly falls down senseless and, on regaining consciousness a little later, notices some deafness on one or both sides, tinnitus and giddiness. In addition to these symptoms, which are primarily due to injury of the auditory centre in the medulla, there are in some cases vague symptoms, such as irregular action of the heart, and bilateral paralysis of the recurrent branch of the vagus. In the other group the patient becomes unconscious, and does not recover consciousness till he is admitted to hospital, where he remembers only incidents preceding the explosion. His speech is slow and laboured, and many words are omitted. There is spastic paralysis of the limbs on one or both sides. Babinski's sign is absent, but the parietal bone is tender on percussion on the paralysed side. These symptoms are due to "micro-organic changes in the parietal convolutions." The prognosis is good in both forms. Sarbo insists that these symptoms are not due to hysteria, and that those who suffer from "nerve shock" require the greatest possible mental and physical rest. Karplus³ has observed 43 cases of injury to the nervous system without macroscopic organic changes. In 16 cases vasomotor symptoms were complicated by neurasthenia, but, with four exceptions, these patients came of nervous stock, and many of them had been under treatment before the war broke out. Karplus attaches far greater importance to the patient's "pre-morbid personality" than to the force of the explosion, and points out that in some cases the symptoms appeared before an explosion; in others, not until some time after the explosion. Many cases were met with showing that explosions did not cause "nerve shock" until the patient was underfed or exhausted. Karplus agrees with Sarbo in giving a favourable prognosis. The same view is held by H. Singer,⁴ who also attaches great importance to exhaustion as a supplementary cause of "nerve shock" following explosions. In the subjects of hysteria he observed giddiness, fits, excitation or stupor, abasia, lassitude, insomnia, and cardio-vascular symptoms. Though the prognosis was good in most cases, the prospect of discharge from the army was apt to delay recovery. Among the subjects of neurasthenia hallucinations were not uncommon after long marches and sentry duty; and many a false alarm was due to visions of houses, airships, lights, etc. Though Singer does not accept "war psychosis" as a new nosological phenomenon, he believes that this war will produce a greater proportion of mental disease than earlier wars, though he qualifies this on the ground that, as the diagnosis of mental diseases is made more readily than it was, this increase may be more apparent than real.

THE PLAGUE OF FLIES.

THE National League for Physical Education and Improvement has organized a national campaign to prevent the spread of epidemics by insects in war time. The inaugural meeting was held at the Mansion House on Monday, July 5th, under the presidency of Bishop Boyd Carpenter. Letters expressing sympathy with the objects of the campaign were received from the Lord Chancellor, Mr. Walter Long, M.P., Sir Edward Carson, M.P., Sir Clifford Allbutt, Sir James Crichton-Browne, Sir Alfred Keogh, Dr. Mary Scharlieb, Sir Thomas Barlow, Sir Lauder Brunton, Sir Rickman Godlee, Dr. Hector Munro, Sir Ronald Ross, and many other well-known persons. On the platform were representatives of the War Office, the Admiralty, the Local Government Board, and the joint committee of the British

¹ Feldärztliche Beilage, *Munch. med. Woch.*, March 2nd, 1915.
² *Wien. klin. Woch.*, No. 4, 1915.

³ *Wien. klin. Woch.*, No. 6, 1915.

⁴ *Berl. klin. Woch.*, No. 8, 1915.

Red Cross Society and the Order of St. John of Jerusalem. Sir Frederick Treves, who was to have presided, was prevented from being present by illness. He wrote from his sick bed that in South Africa during the war there were more casualties due to flies than to bullets. "In France the presence of so many unburied dead makes the fly question a very serious one. In Alexandria, owing to the vast number of cavalry horse lines near the town, the trouble of the flies is becoming really distressing. It only wants a definite source of infection to be introduced for an epidemic to run rampant. A fly should be looked upon as nothing but a spreader of disease." Sir Frederick Treves went on to say that when once the people realized what the fly could do, the remedy was easy. Fly-borne disease should cease to exist. Dr. Sambon said flies must be dealt with as Gorgas dealt with the mosquito. The recent outbreak of typhus in Serbia killed more men than did the Austrians. Professor Lefroy said that the house-fly carried summer diarrhoea from child to child, and thus killed from 5,000 to 15,000 children under one year old annually. It also carried typhoid and cholera. This was going to be a fly year. He protested that the open manure heap was a danger and a scandal, and should be prohibited. Dr. F. J. Allan, medical officer of health for the City of Westminster, dwelt on the importance of complete daily collecting of dust and refuse from dwellings where no facilities existed for its sanitary destruction. The keeping of house refuse, etc., in open bins and small buckets that enabled children to play with the garbage they contained, or for the contents to be scattered about in the vicinity of the house, and often, indeed, within some portion of the house itself, was, at this critical period, a grave menace to the country. We most heartily wish the National League for Physical Education and Improvement the fullest success in the campaign it has undertaken.

OXFORD OPHTHALMOLOGICAL CONGRESS.

The next meeting of the Oxford Ophthalmological Congress will be held at Keble College on Thursday, July 15th, and Friday, July 16th. The Master is Mr. Sydney Stephenson; the Deputy Master, Mr. Philip H. Adams; the Honorary Treasurer, Sir Anderson Critchett; the Honorary Secretary, Mr. Bernard Cridland. Mr. Robert W. Dayne is Past-Master. Papers will be read and discussions take place in the Department of Human Anatomy in the University Museum. Scientific and Commercial Museums will also be housed in the same building, which is close to Keble Lodge. On the first day lantern addresses will be given by Lieutenant-Colonel R. H. Elliot on the Indian conchling operation, and by Sir St. Clair Thomson on the surgical anatomy of the nose and its accessory sinuses in relation to the eye and orbit. The following communications will also be presented:—Mr. Harrison Butler: The tragedy of sclerotoxemia, six cases of late infection. Mr. Stephen Mayou: Mooren's ulcer of the cornea. Mr. W. H. H. Jessop: On the papilloedema of vault injuries in the present war. Sir Mackenzie Davidson: The use of the telephone detector for foreign metallic bodies in ocular surgery. Among the demonstrations and exhibits in the Scientific Museum will be the following:—Mr. Sydney Stephenson and Lieutenant-Colonel Elliot: A microscopic demonstration of the results of trephining in animals' eyes. Dr. F. W. Edridge-Green: An apparatus showing the fundamental principles of binocular vision. Mr. W. H. H. Jessop: Skiagrams of orbital and ocular wounds. On the second day a discussion on industrial diseases and accidents will be opened by Dr. Frank Shuffelbotham, of Newcastle-under-Lyne, and will be continued according to the following programme:—Coal-miners' nystagmus: (a) Prognosis: Mr. A. C. Norman (Sunderland); (b) Symptomatology: Mr. Percival J. Hay (Sheffield). Eye

injuries caused by occupation, their prevention and first-aid treatment: Dr. Edgar L. Collis. Industrial cataract: Dr. William Robison. Plumbism as it affects the eye: Dr. S. McMurray. Defects and injuries of the eye caused by steel furnace work: Mr. S. H. Pooley. Some of the rarer industrial diseases and injuries of the eye: Mr. Sydney Stephenson. Dr. John Gray Clegg will also contribute a paper. Full information may be obtained from the Honorary Secretary, Mr. Bernard Cridland, Wolverhampton.

BOSSUET AS A BIOLOGIST.

BOSSUET is probably best known to most students of French literature as a preacher, especially of funeral orations. These gained for him the title of the "Eagle of Meaux," of which he was bishop, and so good a judge as La Bruyère called him the Demosthenes of the pulpit. But he was much more than a Court preacher; he was one of the most conspicuous among the men of genius whom the "Sun King" gathered about his throne, and whose brilliancy cast a reflected lustre on his own commonplace personality. Bossuet was a controversialist of the highest order, and his discourse on universal history had a powerful influence on many generations. It was written to train the mind of the Dauphin, whose tutor Bossuet was for several years. How seriously Bossuet took his duties may be gathered further from the treatise, *De la Connaissance de Dieu et de Soi-Même*, written for the same purpose. It did not see the light till long after the death of the author, when the manuscript was found among the papers of Fénelon, the tutor of that Duke of Burgundy whose untimely death probably changed the course of French history. Bossuet studied anatomy and physiology in no amateurish fashion, but got his knowledge from Nature at first hand with the help of Duverney, author of the first treatise on diseases of the ear written in French, who was associated with him in the teaching of the Dauphin, and of two other distinguished anatomists—Stenson, or Steno, and Winslow—captives of his controversial bow and spear. The late Professor Le Double, of Tours, whose death was a great loss not only to anatomy but to medical history, devoted a solid treatise to Bossuet as an anatomist and physiologist.¹ He says Bossuet's book was the first work on human anatomy and physiology written in French. He shows how firmly Bossuet had grasped the fundamental truth that to understand human nature it is necessary to begin by knowing the constitution of the human body. Bossuet based his psychology on the observation of man, in whom he saw a microcosm in which every kind of mechanism was exemplified. M. Le Double follows him through his accounts of the external senses, the internal senses, the passions, the correlation of soul and body, and the soul of beasts, explaining his author's meaning, illustrating his teaching with sidelights from ancient and modern sources, criticizing and correcting him when necessary, but always treating him in a respectful and sympathetic spirit. Le Double points out that in seeking to reconcile dogma, reason, and science, Bossuet was with Descartes one of the founders of psycho-physiology. It was a bold thing, especially for a bishop, in the reign of Louis XIV to write a book on anatomy and physiology in the vulgar tongue and with the freedom of a philosopher anxious to find a reason for his faith. M. Le Double's work is one that should interest physiologists and anatomists, and especially psychologists. It is a critical review of the physiology of the seventeenth century in the light of modern knowledge, illustrated by much curious learning as to the beliefs and teachings of older times. It may be recommended to lecturers and writers on physiology and anatomy as a storehouse of references and quotations

¹ Bossuet, *Anatomiste et Physiologiste*. Par M. le Professeur A. P. Le Double. Préface en vers par M. H. Henrion. Paris: Vigot (1911). 213s. (Med. Rev. pp. 322; 7 figures, 2 photographs. Fr. 5.)

which may help to relieve the dryness of their subject. It contains well executed portraits of Bossuet himself, of his pupil the Dauphin, and of Winslow, Stenson, Descartes, and others.

HOSPITALS AND DUTY-FREE ALCOHOL.

WE understand that, since the Chancellor of the Exchequer undertook to reconsider his proposal to give duty-free alcohol to hospitals with a view to reintroducing the clause in an amended form on the report stage,¹ communications have taken place between Mr. Bridgeman, Junior Lord of the Treasury, who is well known to be greatly interested in the matter, and representatives of the British Medical Association and the Pharmaceutical Society. It is hoped that as a result of negotiations the concession to the hospitals may be made in a new form not open to the objections taken by the two societies as regards the original clause.

SPIROCHAETES IN THE BRAIN IN PARALYTIC DEMENTIA.

THE demonstration of *Spirochaeta pallida* in the brains of patients dying of general paralysis of the insane, or dementia paralytica, was effected by Noguchi and others in America some little time ago. McIntosh and Fildes² have quite recently published an account of the technique they employed in 1914 for the purpose of this demonstration, noting that hitherto there has been no detailed publication on the subject in this country. The brain substance should be examined fresh, by the method of dark-ground illumination; the most satisfactory illuminator is the parabolic condenser of Zeiss, associated with a $\frac{1}{4}$ in. objective with a correction collar, and a No. 6 compensating ocular. The best source of light is a small arc lamp. A small fragment of cortical grey matter about the size of a pin's head is removed from the specimen and broken up in a drop of saline in a watch-glass; the tissue should not be thoroughly emulsified, since the specimen will then be too opaque for satisfactory examination. A small quantity of the fluid is next placed on a slide and examined for five or ten minutes, and if the examination is then negative a new area of the cortex may be taken in hand. Wherever spirochaetes are found, that portion of the brain may be fixed in formalin and stained by Noguchi's modification of Levaditi's method for demonstrating spirochaetes in sections. It is clear that the dark-ground technique gives no information as to the relation of the organisms to the surrounding tissues; but it very much facilitates the examination of sections, and almost ensures that spirochaetes should be present in the fragment selected for fixing and staining. The detection of spirochaetes in stained sections of the brain is often extremely difficult, as the organisms may be degenerate or atypical, and may be distinguishable from nerve fibrils that chance to have taken up the silver also. It is only when areas are found in which the fibrils are unstained, or when a focus contains typical as well as atypical spirochaetes, that the diagnosis can be made with confidence. McIntosh and Fildes examined the brains of seven cases of paralytic dementia, and by the dark-ground method found spirochaetes in six of them. In addition five cases were examined in which the symptoms suggested the diagnosis of dementia paralytica, but this proved incorrect at the autopsy; in these no spirochaetes were found. All the paralytic cases examined had exhibited relatively acute manifestations before death, and the brains with one exception were not much wasted; the lesions on the whole appeared to be recent. The spirochaetes were always confined to the grey matter; in one case only was a single specimen seen in the meninges. They tend to occur in groups; it is unusual to find a single spirochaete unaccompanied by several others in the

vicinity. They were more or less superficial, and no constant relation between them and the nerve cells or blood vessels could be observed. Some spirochaetes appeared to be applied to nerve cells, but this distribution was not striking. In fact, they seemed to be scattered quite fortuitously about the superficial layers of the cortex, independently of cellular infiltrations. It may be noted that although spirochaetes were found by the dark-ground method in six of the brains, they could only be detected in the cut sections of three of the six. It is clear that the method of staining and section presents greater difficulties than the other, and ensures the detection of the spirochaetes only when they are numerous.

WE regret to announce the death at Bishopston, Renfrewshire, of Dr. Bruce Goff, formerly of Botolphwell, which took place on July 4th, aged 81. Dr. Bruce Goff was a member of the Central Council for many years, and took a prominent part in the conduct of the affairs of the Association. We hope to publish an obituary notice in a later issue.

Medical Notes in Parliament.

Royal Army Medical Corps.—Sir John Lonsdale asked the Under Secretary for War, on July 1st, whether certain lieutenants of the Royal Army Medical Corps Special Reserve serving in France were given to understand some months ago that their names had been noted for transfer to the Regular Royal Army Medical Corps; whether they had been gazetted accordingly, and, if not, when they might expect to be gazetted; whether their transfer on being gazetted would be antedated to the time that they were noted for the change; and whether, as the transfer was entered in some cases before the recent general promotion of Regular Royal Army Medical Corps lieutenants to be captains, those who were noted for transfer prior to the general promotion would be included in the list for captaincy and be gazetted accordingly. Mr. Tennant said that no promise of a transfer to the Regular Royal Army Medical Corps had been given, but a certain number of lieutenants of the Special Reserve and temporary lieutenants had made applications for permanent commissions in the Royal Army Medical Corps, and their requests had been noted for consideration in the event of it being decided to give direct commission instead of, in the usual way, by open competition. The question of the date from which such appointments would take effect and what rank would be given would be for consideration when the matter was settled. Mr. Jowett, on July 1st, asked the Under Secretary for War if he would undertake to refrain from transferring men who enlisted in the Royal Army Medical Corps before the passage of the Army Act Amendment (No. 2) Act from the non-combatant to the combatant branches of the service, having regard to the fact that the men in question enlisted in the belief and, so far as they knew, on the distinct understanding that their services would be utilized for the purpose for which they were volunteered. Mr. Tennant said he could not give any absolute pledge to abstain from using, in the case of men of the Royal Army Medical Corps, the powers conferred by the Act to which he referred, but he thought he could give an assurance that the consideration he urged would be borne fully in mind. Mr. Hogge: Will my right hon. friend at least guarantee that he will give these men a choice? Mr. Tennant said, in reply to subsequent questions by Mr. Hogge, that the War Office always endeavoured to carry out the wishes of the men in the matter of transfer, and that he was looking into the matter regarding the members of the Scottish Royal Army Medical Corps who desired to join the Royal Scots and were not allowed to do so.

Medical Consultants.—Sir J. Lonsdale asked the Secretary to the Admiralty the terms of the new arrangement made with medical consultants at Royal Naval hospitals. Dr. Macnamara, Parliamentary Secretary to the Admiralty, said that the new arrangement was that seven consultants

¹ See BRITISH MEDICAL JOURNAL, July 3rd, p. 23.
² Brain, London, 1915, xxxvii, 401.

should be given temporary commissions as Surgeons-General, with the pay and allowances of that rank—namely:

Full pay	£ 1,300	s. 0	d. 0	per annum
House allowance	70	0	0	..

and two temporary commissions as Fleet Surgeons of ten years' seniority, with the pay and allowances of that rank—namely:

Full pay	£ 638	s. 15	d. 0	per annum
House allowance	50	0	0	..
Hospital allowance	53	0	0	..

As in the case of other naval medical officers, they had been informed that their appointments would not entirely preclude their engaging in private practice, provided it was clearly understood that such practice did not interfere with the performance of their naval duties. Sir J. Lousdale asked if it would not have been better if this practice had been availed of from the beginning instead of having salaries of £5,000. Dr. Macnamara said he could not answer that question, but he desired to say on behalf of these very distinguished gentlemen that they readily acquiesced in this alteration in the most patriotic way. Dr. Macnamara added, in reply to Mr. Watt, that there were seven consultants and then there were two others; the Admiralty had not added to them.

Science and the War.—Mr. Lloyd George stated, in reply to Sir Philip Magnus, on July 1st, that he was fully alive to the great importance of securing the co-operation of scientific workers throughout the country, and of utilizing, so far as practicable, the laboratories and workshops of universities and technical schools for experiments and for the making of munitions of war or parts thereof. He was unable at present to make a detailed statement with regard to the establishment of a central committee or bureau for dealing with inventions and practical scientific questions incidental to the operations of the war. He expressed his appreciation of the valuable help which was already being ungrudgingly given to the Ministry of Munitions by men of science and by scientific authorities and institutions.

Medical Students and the War.—Sir Clement Kinloch-Cooke asked the Under Secretary of State for War on June 30th whether, in view of the necessity of securing the services of as many medical men as possible for the army, he would consider the suggestion of giving the rank of sublieutenant to medical students who have passed their second M.B. examination and were willing to join the Royal Army Medical Corps for the duration of the war? Mr. Tennant said that students of sufficient seniority and medical training to be of use in the army in the way suggested would be better employed if they continued at their medical schools and qualified as medical men as soon as possible. They would then be eligible for commissions in the Royal Army Medical Corps. The services of senior students were required to help in carrying on the work in the large civil hospitals connected with their teaching schools. Nearly all of these hospitals were providing accommodation for sick and wounded soldiers, and their staffs were very hard worked. It was not proposed to admit into the commissioned ranks of the Royal Army Medical Corps any candidates who were not fully qualified medical men. In reply to subsequent questions by Sir Henry Craik, Mr. Tennant said that care would be taken not to give way to any such suggestion as giving a titular name which would imply experience when that experience is not possessed.

Abdominal Wounds.—Mr. Hugh Law asked the Under Secretary of State for War, on July 5th, if he could state approximately the number of men who had died in hospital as the result of abdominal wounds received in the western area of war, and what proportion such cases bore to the total number of men suffering from such wounds. Mr. Tennant said he was afraid this information could not be given without asking the medical authorities in France for a return, and they were already heavily burdened. In reply to a subsequent question, Mr. Tennant said that the Chelsea Commissioners had up to date received reports of

782 cases in which it had been necessary to amputate one or more limbs of men admitted to hospitals at home or in France.

Territorial Force Medical Branch.—Commander Bellairs asked the Under Secretary of State for War, on July 6th, in view of the fact that the medical branch was the only executive branch of the Territorial Force which had a regulation preventing promotion until after three years' service, whether the War Office could see their way to alter the rule so as to induce more medical men to join and as an act of justice to those who had already joined? Mr. Tennant said that the question was already under consideration.

Recruits and Defective Eyesight.—Colonel Yate asked, on July 5th, whether men were now permitted to enlist whose defects of eyesight could be corrected by glasses? Mr. Tennant said that those who wore glasses were not prevented from enlisting unless their eyesight was defective beyond a definite limit; such men were allowed to join the army for certain definite purposes, such as drill instructors, shoeing smiths, Army Veterinary Corps, etc.

Naval and Military Casualties in Dardanelles.—Mr. Joynson-Hicks asked the Prime Minister what is the total number of casualties divided into killed, wounded, and missing in the Dardanelles campaign. The Prime Minister stated, on July 1st, in reply to Mr. Joynson-Hicks, that the total casualties sustained by both naval and military forces up to May 31st were as follows:

	Officers.	Men.
Killed	496	6,927
Wounded	1,134	23,542
Missing	92	6,445
	1,722	36,914
	38,636	

Appointment of Majors.—Colonel Yate asked the Under Secretary for War, on July 5th, whether, in view of the fact that in twelve field ambulances and three casualty stations now at the front, in which by the war establishment strength there should be thirty majors, there were now only two majors actually employed, and these two were doing the work of lieutenant colonels, he would take steps to remedy the deficiency by promoting the requisite number of captains, Royal Army Medical Corps, to the rank of major? Mr. Tennant said that the promotion of a considerable number of captains was already under consideration.

Surgeons and Agents, R.N.—Dr. Macnamara stated, on July 5th, in answer to Commander Bellairs, that the question of giving a distinctive rank to medical men holding the position of surgeon and agent had been carefully considered, but it was not thought necessary to give them such rank; their services were part-time only.

Hospitals and Duty-Free Alcohol.—Mr. King, on July 6th, asked the Chancellor of the Exchequer whether, in reference to the proposal to relieve hospitals from the payment of duty on alcohol used medicinally, he had consulted authorities on the temperance question as to the possible dangers of an increased use of tinctures and other forms of alcohol which must ensue if the cost of such medicines was substantially reduced. The Chancellor of the Exchequer said he had not thought it necessary to take this step, as he had no reason to suppose that the grant of the concession would lead to abuse. The effect of the proposal would be not to relieve hospitals from the payment of duty on all spirits used medicinally—for example, brandy—but only to exempt spirits used in the preparation of tinctures and other articles to be used for medical purposes. Mr. King suggested that, in order to prevent discussions and divisions on the report stage of the Finance Bill, some temperance authority should be consulted. Mr. McKenna replied that Mr. Bridgeman, who had the particular amendment in hand, was consulting various bodies.

Inoculation.—Mr. Tennant stated, on July 1st, in reply to Mr. Chancellor, that in the Expeditionary Force in France there had been up to May 22nd, 1915, 297 cases of paratyphoid, with ten deaths. There were no figures available to show in how many of these cases there had been inoculation against typhoid. Mr. G. Greenwood asked whether paratyphoid was not merely another name for typhoid when it manifested itself in persons who ought not to have it because they had been inoculated? Mr. Tennant said that he was informed that it was a disease wholly distinct from typhoid. In reply to another question by Mr. Chancellor, on July 1st, Mr. Tennant said that in the Expeditionary Force in France there had been up to May 22nd, 1915, 827 cases with 128 deaths. Of these cases 508 occurred amongst the uninoculated, and of these 106 died; of the remaining 319 cases which occurred amongst the inoculated 22 were fatal. The House would be interested to know that the ratio of attacks was fourteen times and of deaths forty-two times greater amongst the uninoculated men. Mr. Chancellor inquired if the figures averaged over the whole period, including the period when the 60 per cent. or 70 per cent. of the men were uninoculated, or merely dealt with the figures relating to the present day? Mr. Tennant replied that he was dealing with the figures for the whole of the campaign—from the beginning of August. Mr. Tennant stated, on July 5th, in reply to Mr. W. Thorne, that men in the Berkshire Regiment were not being refused leave because they were uninoculated; in point of fact, nearly 99 per cent. of the men in question were inoculated. In reply to a supplementary question, Mr. Tennant undertook to treat as private any information on the point supplied to him.

Vaccination.—In replying to Mr. Sutton, on July 1st, the President of the Local Government Board gave the following figures of the number of births registered, the number of certificates of exemption from vaccination received, the percentage of exemptions to births, and the percentage of children ultimately unvaccinated, for the years 1906 to 1914 inclusive.

Year.	No. of Births Registered During the Year.	No. of Exemptions Received During the Year.	Percentage of Exemptions to Births.	Percentage of Children Ultimately Unvaccinated.
1906	935,081	52,391	5.6	16.8
1907	918,042	57,675	6.3	20.4
1908	940,385	152,739	17.3	27.9
1909	914,472	190,689	20.9	32.3
1910	896,962	220,547	25.7	36.3
1911	881,138	248,483	28.2	38.9
1912	872,737	275,229	31.6	42.9
1913	881,830	308,275	35.0	+
1914	878,822	321,280*	36.6*	+

* Approximately. † Figures not yet available.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

The proceedings of the *séance* of May 27th of the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés have reached the Honorary Secretary of the Belgian Doctors' and Pharmacists' Relief Fund through Professor Jacobs. The total of subscriptions received was announced as 76,356 francs, new subscriptions of over 1,000 francs having come in during the past week. The transfer of £240 to the Comité National for drugs, two grants of 700 francs each, and a petty cash expenditure of nearly £20 reduced the actual sum in hand to £740. A letter was read from a Belgian doctor in England asking that his grant should be paid into a bank for him, but it was decided that help could only be given to those still on Belgian soil, and the applicant was referred to the British Committee.

M. Coppez reported that the pharmacists were well organized, but that the circular asking for subscriptions from medical men had not reached all whom it concerned.

M. Laruelle reported on several cases of medical men requiring assistance. He gave details of the plight of four medical men, all married men with families, whose houses had been burnt or pillaged, and who had lost furniture, books, instruments, and drugs. As all, however,

had some resources remaining, the Committee decided to make no grants for the present. Of one of these doctors it was stated that he had been forced to march in front of an attacking German force and had received several wounds.

M. Bruegelmans reported on the case of four pharmacists.

1. A. V. M., of L—, has six persons in his family to support from the receipts of a shop started in the neighbourhood of his previous establishment in L—, utterly destroyed. The Committee voted three "mensualities" of 200 francs for the months of June, July, and August.

2. L. L., of D—, has to support a wife and three children. He had previously refused the help of the Committee, but his attempt to carry on business had failed, and a medical friend had recommended his case to the Committee as critical. A grant of 700 francs was made.

3. J. S., of G— R—, was killed during the bombardment of the place, and his premises were much damaged. His brother assumed charge of his affairs, and entered into engagements to preserve and restore the property, which he cannot keep, as he, too, is now ruined. The children and widow are in France. The Committee decided to help the brother's attempt to preserve the property by making monthly allowances of 200 francs for July, August, and September, and by a grant of 700 francs.

4. A. de K., of L—. His premises were burnt, and for several months he was a prisoner in Germany. His physical and mental depression precludes him from earning his living, and until now he has been supported by a generous friend. Mensualities of 200 francs were granted for June, July, and August.

A short discussion followed on the supply of instruments to medical men. M. Jacques proposed that the Committee should endeavour to make purchases to meet the requests for instruments, and M. Coelst thought that grants in money might be made so that the medical man could purchase what he wanted. M. Jacques pointed out that some medical men, though needing instruments to replace what they had lost, were disinclined to approach the Committee. On the motion of M. Laruelle it was proposed to examine all the requests made for instruments and deal with each individually.

THE WEEK'S SUBSCRIPTIONS, Thirty-second List.

	£ s. d.	£ s. d.
Southern Branch, B.M.A. (per Dr. J. Green, Hon. Secretary) (8th donation—total, £82 15s. 6d.)—		Poverty Bay, N.Z., Division, B.M.A. (per Dr. J. Reid, Hon. Secretary)—
Doctors, Dentists, Chemists and Nurses 108 9 0		Dr. H. J. Macnevo 5 5 0
Dr. W. A. Simpson ... 0 10 0		Dr. Geo. E. Finlay ... 1 0 0
Bournemouth Branch, B.M.A. (per Dr. F. G. Bond, Hon. Secretary) (5th donation—total, £26 9s. 6d.)—		Australasian Pharmaceutical Conference (per the Agent-General for Queensland)—
Dr. C. W. Branson ... 3 0 0		Western Australia ... 40 0 0
Anonymous (per Bank of New Zealand, Timaru Branch) ... 165 0 0		Queensland ... 60 0 0
		Victoria ... 23 0 0

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

INSTRUMENTS.

The Master of the Society of Apothecaries begs to acknowledge the receipt of surgical instruments contributed by the following donors since the publication of the last list:

Dr. Bunting, Sunderland. Dr. T. A. Buek, Ryde.

The proceedings of the Medical Association of the Isthmian Canal Zone for the half year October, 1912, to March, 1913 (vol. v, part ii) contains a series of very interesting papers. Amongst these tropical maladies are fairly numerous—for example, there are reports on Six-day fever, by Dr. W. E. Deeks; The pathological features of a case of bilharziosis of the large bowel in a Martiniquan, by Dr. S. T. Darling; Notes on *Bacillus pestis*, by Dr. H. C. Clark; Leishmaniasis of the nasal mucosa, by Dr. L. B. Bates; Report of a case of cerebral malaria, by Dr. H. R. Carter, jun.; and a review of a clinical study of malarial fever in Panama, by Dr. J. P. Bates. In addition to these, there are also papers on lithiasis, pancreatitis, and sarcomatosis, which are of cosmopolitan interest, and are worthy of study by those interested in the individual subjects. The volume can be consulted in the Library of the British Medical Association.

THE WAR.

MEDICAL ARRANGEMENTS OF THE BRITISH EXPEDITIONARY FORCE.

[From a Special Correspondent in Northern France.]

VOLUNTARY AID DETACHMENTS.

THERE are now about 120 ladies drawn from various Voluntary Aid Detachments employed in the capacity of nursing probationers in the British army hospitals in France. Their employment is regarded, I am told, as in the nature of an experiment, but if so it must be one as to the results of which considerable confidence is felt. The first appointments were made several months ago, and their number has been increased to the present total comparatively recently.

I have no information as to the exact distribution of these probationers, but gather that they are being sent to hospitals at which the work, though fairly heavy, is regular in its character, and thus allows of arrangements being made for some definite piece of work well within her power to perform being assigned to each newcomer, and for the scope for her energies being increased as her fitness for her occupation becomes apparent. The ladies first sent out were posted to hospitals where the work is habitually of the light-case-long-stay order, and where in consequence it was easy for the sisters to supervise the work of inexperienced assistants. It was on the strength of what was then observed that the subsequent further appointments were made.

All the ladies so far appointed have been nominated, I understand, by a special Voluntary Aid Detachment committee, which does its work under the aegis of the British Red Cross and the St. John Ambulance Societies. They are not free lances, but are engaged for work in France under a definite contract which secures to the War Office the command of their time for not less than six months, if it pleases, and provides for the payment to each probationer of a salary at the rate of £20 a year.

The requirements of the committee of selection include, I am told, the production of a birth certificate, and this fact perhaps accounts for the circumstance that all the members of Voluntary Aid Detachments I have met appear to be women of that indeterminate age which begins about 24 and ends about 40. They have also been young women of the best modern type—that is to say, well set up, healthy-looking individuals, somewhat offhand in manner, but obviously ladies, obviously well educated, and very keen on justifying their existence. Nor do I think I have been mistaken in these conclusions, for they are upborne by what has been said to me by persons of their own sex—namely, the nurses and sisters at hospitals at which they are employed.

The experiment, therefore, if as such it can still be regarded, seems certainly likely to prove a success. It may be added that there are reasons why this might initially be expected. Voluntary Aid Detachments have been in existence for a good many years, and though the part they are expected to play therein is a little vague, they are an officially recognized component of the general system of territorial defence. The units formed by them are semi-independent and their rules vary, but the work required of women members before they can be classed as "efficient" would in all cases seem to be calculated to eliminate individuals of the pillow-smoothing variety. Among other things it includes the passing of examinations in such subjects as cooking, first aid work, and home nursing. Even in peace time it is common, I believe, for enthusiastic members of Voluntary Aid Detachments to acquire some real knowledge of nursing by getting taken on for a time at hospitals and nursing homes; and since the war began the number of these members who have increased their knowledge in this fashion is very large.

There is also the reason that, despite the fact that the army hospitals in France are fully staffed by professional nurses, there must always be plenty of room in them for the labour of women who, however little special knowledge they may possess, are physically strong, mentally level-headed, conscientious in disposition, and ready to do what they are told. To make this evident, it need merely

be recalled that one of the special features of the majority of the hospitals in France is the frequency with which they change their populations. The duration of a patient's stay tends to be numbered by hours rather than by weeks or days, and this means that the amount of bed changing to be done is almost endless. The proportion, too, in the wards of cases which are entirely helpless, is much larger than in civil hospitals at home in ordinary times. For these and other reasons there is never any lack of work than can safely and rightly be given to probationers.

The ladies who are working in the hospitals are not the only representatives of Voluntary Aid Detachments to be seen in France. At one time and another several refreshment buffets or "rest stations" so called have been started by them, and one at least of these is still at work. For enterprises of this order Voluntary Aid Detachments are specially trained, and those organized of them over here were conducted so efficiently yet unobtrusively that it is a great pity that when opportunity for such work increased, it was absorbed by groups of workers less disposed to keep their light under a bushel.

STRETCHER CARRIERS.

A day or two ago an old acquaintance just returned from several months' Red Cross work with the French told me that on the section of the line on which he had been last employed the French depended a good deal on wheeled stretchers for carrying in the wounded from the trenches to the advanced dressing stations. The fact reminds me that several weeks ago at the head quarters of one of the Territorial field ambulances (No. 3 North Midland Field Ambulance, Lieutenant-Colonel Dent in command) I saw a full-sized working model of a new development in the way of appliances of this general order. It was not a wheeled stretcher, such as is used by the metropolitan police, nor a cycle stretcher carrier, such as is often to be seen in hospitals, but something betwixt and between. Its outstanding features were two parallel wire-built pneumatic-tyred wheels, united by an axle each end of which served as a centre point for an elliptic spring. These springs extended to an equal distance before and behind the wheels and their extremities were united by cross bars so shaped that any ordinary stretcher could be fixed firmly on them in a minute. So far the contrivance did not seem to vary materially from others of like kind that I had seen; but on examination it became apparent that it did in fact vary in a very important particular. The centre of the axle and the centres of the cross bars were hinged in such fashion that the whole machine could be closed up concertina-wise. Furthermore, when thus closed it occupied so little space that six like machines could easily be placed inside any ordinary empty ambulance. Consequently they could be brought up to the point where the ambulances would have to await their loads and be sent forward and hasten the arrival of the latter by relieving the stretcher carriers of their burdens.

An experiment shows that the appliance could be opened out and got ready for use by one man in about a minute, that two men could raise and fasten firmly to it a loaded stretcher within another minute, and that when thus loaded with a 14st. passenger, one man could push the whole thing along at a run over a surface resembling a rough field, and including in its course one definite hillock. To carry the same passenger over the same ground by hand proved to be a trying task for the two men who undertook it, and, of course, its completion took a very much longer time. The machine, when I saw it, was not regarded as quite complete. It had been built in haste, and it was thought its construction might perhaps be improved in detail. Possibly this may be the case; but, anyhow, the idea deserves encouragement. To clear a battlefield quickly is always desirable, and when, as in present circumstances, the action is never really at an end, and when the time during which attempts to remove the wounded from the trenches can be made with reasonable safety is extremely limited, any increase in the rapidity with which the task can be performed must be of advantage. It was proposed, I understood, to call the appliance described the "Miller James stretcher carrier," after the officer and non-commissioned officer who respectively suggested and worked out its underlying idea.

CANADIAN ARMY MEDICAL SERVICE.

JUST as Sir Alfred Keogh, when D.G.M.S. during peace time had organized the medical services of the country so successfully that when the great war broke out Territorial and other hospitals and their staffs were ready to stand the strain, so in Canada the present Surgeon-General Carleton Jones had during the last few years organized the medical services in every province. He had repeatedly visited England, had made himself thoroughly conversant with War Office methods, and had developed the Canadian service, so far as possible, along the lines of the R.A.M.C. Thus when the call came the Canadian Army Medical Corps was well prepared to work alongside the British, and, save for the unavoidable delay in procuring ordnance and other supplies, the formation of the various units has proceeded with singular smoothness and enthusiasm. Each province had its divisional service, and everybody and everything fell into line without confusion. Saying this, it has to be realized that conditions in Canada have of necessity introduced certain modifications, making the military organization approximate more nearly to that of the Territorials upon this side. The permanent members of the Army Medical Corps have formed a very small proportion of the whole body. Lieutenant-colonels and majors high up in the service in each province were, with rare exceptions, leading practitioners in one or other large city. But they were men who for years had played an active part in the development of the Army Medical Corps, while not a few had taken out a course at Millbank or Aldershot. When, therefore, Canada despatched her First Contingent, she sent with it not only the medical units of a division but those also for the lines of communication connected therewith, together with reinforcements—namely, 3 field ambulances and 1 clearing hospital, all now at the front; 2 general hospitals of 500 (subsequently upon establishment in France raised to 1,040) beds; 2 stationary hospitals of 200 (now 400) beds. The officer commanding of No. 1 General Hospital is Colonel Murray MacLaren, President of the Canadian Medical Association. To these have subsequently been added the personnel of the Duchess of Connaught's Canadian Red Cross Hospital, Tapiau, manned and, we may add, nursed by the C.A.M.C., for in the Canadian Army Medical Service, unlike the British, the nursing sisters are an integral portion of the service, and not a separate department. This hospital, beginning with 100 beds in the tennis court at Cliveden, put at its disposition by Mr. Waldorf Astor, is now raised to 1,040 beds. Another hospital of 1,000 beds has been established at the Moore Barracks, Shorncliffe. There are, further, a mobile laboratory and sanitary section at the front and two Canadian convalescent hospitals, to which all Canadian patients in British hospitals are eventually drafted—one for 1,000 patients at Monks Horton, near Shorncliffe, the other with 100 beds at Bromley Park, the latter for Canadians from hospitals in the London district.

There has been a similar abundant offering along with the Second Canadian Contingent, so much so that recent graduates granted their degrees this spring entered the corps as privates, and in answer to an appeal from the War Office eighty of them have since arrival in England applied for and been granted commissions as temporary lieutenants in the R.A.M.C. This number does not include the many recent graduates who entered the R.A.M.C. direct. Following the example set by McGill University the hospitals of this contingent have taken on a more distinctively local character. Colonel Birkett, Dean of the Medical Faculty of McGill University, applied for and received permission to offer a general hospital officered by members of the teaching staff of that university, with non-commissioned officers and men largely from the undergraduate body, and nurses from the hospitals associated with the university. This constitutes No. 3 Canadian General Hospital, already established in France. Toronto University rapidly followed suit, and No. 4 General Hospital, under Colonel Roberts, is now at Shorncliffe waiting to embark. Queen's University, Kingston, Ontario, has provided No. 5 Stationary Hospital. Laval University, the French University of Montreal and Quebec, provides the personnel of No. 4 Stationary Hospital. No. 3 Stationary Hospital has been recruited from Western Ontario, and many of its personnel have

been drawn from the Western University of London, Ontario. In addition, there are three Field Ambulances and a Casualty Clearing Station belonging to this Division.

Altogether, therefore, Canada has already provided accommodation and care for between ten and eleven thousand patients.

But this does not exhaust all the offerings. The University of Alberta has offered to supply a hospital of 250 beds, that of Manitoba a stationary hospital for service in France, another offer has been received from the University of Dalhousie, Nova Scotia. The physicians of Vancouver have offered to supply the personnel of a general hospital of 1,040 beds, and their offer has been accepted by the Government. The same is true of Peterborough, Ontario, and its physicians. Lambton County Medical Association (Ontario) offered a unit of 200 beds, the offer being still under consideration, while, lastly, a series of ambulance depôts are in course of organization throughout the Dominion. These will furnish reinforcements for the ambulance corps overseas.

HONOURS.

A SUPPLEMENT to the *London Gazette*, issued on July 3rd, announced that the King has conferred the Military Cross upon the following officers of the R.A.M.C. in recognition of gallantry and devotion to duty whilst serving with the Expeditionary Force:

Temporary Lieutenant John Marchbank Gillispie, M.B., R.A.M.C. On May 24th and 25th, 1915, at Ypres, he displayed conspicuous gallantry in ministering to the wounded under fire. He traversed the ground many times while under heavy shell and rifle fire, and dressed the wounded in the open. On the night of May 25th he went up to a wood near Bellegrave Farm and searched for wounded men close up to the German trenches. In every action his gallantry has been conspicuous.

Temporary Lieutenant John Hart McNichol, M.B., R.A.M.C. On May 24th and 25th, 1915, at Ypres, with untiring energy and gallantry attended to wounded men under heavy rifle and shell fire, saving the lives of many men. On the night of May 25th he searched a wood near Bellegrave for the wounded, attended to them, and had them brought in. This wood was close up to the German trenches. He has shown the greatest courage in attending to the wounded in action.

Assistant Surgeon Edwin Bunkall Messiner, I.S.M.D. For consistent good work, gallant conduct, and devotion to duty when X Battery, Royal Horse Artillery, was in action on May 9th and 10th, 1915. He went under shell fire to assist the wounded, and, although twice wounded, continued to perform his duties after having his wounds dressed.

DARDANELLES.

The following are the acts of gallantry and distinguished services at the Dardanelles for which the Distinguished Service Order has been conferred upon the members of the medical profession mentioned, as announced in the *BRITISH MEDICAL JOURNAL* of June 5th, p. 982:

Major Engine Joseph O'Neill, F.R.C.S., New Zealand M.C. On April 25th and 26th, 1915, during operations near Gaba Tepe, for exceptionally good service and exhibiting initiative and resource in command of a bearer subdivision.

Captain Arthur Graham Butler, Australian A.M.C. (attached 9th Australian Infantry Battalion). During operations in the neighbourhood of Gaba Tepe on April 25th, 1915, and subsequent dates, for conspicuous gallantry and devotion to duty in attending wounded under heavy fire, continuously displaying courage of a high order.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died.

LIEUTENANT WILLIAM REGINALD PRYN, R.A.M.C., is reported to have died in France in the casualty list published on July 7th. He was educated at Guy's, took the M.R.C.S. and L.R.C.P. (Lond.) in 1914, and, after filling the post of house-surgeon of the Royal Surrey County Hospital at Guildford, took a temporary commission in the R.A.M.C. on August 10th, 1914.

Wounded.

Captain H. J. Gorrie, R.A.M.C. (T.F.).
 Captain E. D. Gaidner, R.A.M.C. (T.F.), Dardanelles.
 Surgeon-Captain R. W. Branchwaite, R.A.M.C. (T.F.), Flanders.
 Lieutenant (temporary) H. Pearce, R.A.M.C., Flanders.

SONS OF THE PROFESSION AND MEDICAL STUDENTS.

In addition to the few names which have been given in recent issues of the JOURNAL, the following sons of medical men have been killed. The names given below, however, must be but a small proportion of the total, as all of them, except the two midshipmen, have fallen in the past two months.

Navy.

Geoffrey Charles Harold, midshipman, H.M.S. *Home*, lost when the cruiser was torpedoed in the North Sea on September 22nd, 1914, second son of Dr. Harold, of Harley Street.

Henry P. Lewis Jones, son of the late Dr. Lewis Jones, of St. Bartholomew's, midshipman, H.M.S. *Haecke*, lost when that cruiser was torpedoed in the North Sea on October 15th, 1914.

Lieutenant-Commander R. S. Parsons, R.N., fifth son of Drs. Charles Parsons, of Tunbridge Wells.

Army.

Ackerley, R. H., Lieutenant 3rd (attached 1st) Battalion Royal Welsh Fusiliers, son of Dr. R. Ackerley of Llandinorod Wells, May 17th.

Baddeley, E. L., Major 8th Lancashire Fusiliers, eldest son of the late Dr. Baddeley of Whalley.

Banks, Charles Hunter Donaldson, Second Lieutenant 3rd Battalion Worcester Regiment, elder son of Dr. Charles Banks of Calcutta, died of wounds in Italy last aged 23.

Beattie-Crozier, F., Captain 4th Rajputs, only son of Dr. J. Beattie-Crozier.

Blacker, G. F., Second Lieutenant 12th Gloucester Regiment, attached Northamptonshire Regiment, only son of Dr. A. E. Blacker of Clifton.

Blair, Sidney, Second Lieutenant 3rd (attached 1st) Battalion Royal Warwickshire Regiment, son of Dr. John Blair of Wigan, May 16th.

Bard, T. M., Second Lieutenant 11th South Antrim Battalion, Royal Irish Rifles, son of Major T. M. Bard, attached R.A.M.C.

Campbell, R. C. C., Captain 3rd King's Own Scottish Borderers, attached Highland Light Infantry, son of Colonel R. M. Campbell, C.B., C.I.E., I.M.S. (ret.), May 19th, of wounds received in April.

Chilton, F., Lieutenant 15th Argyll and Sutherland Highlanders, reported killed in the Dardanelles, was the only son of Dr. Charles Chilton, Professor of Biology in Canterbury College, Christchurch, N.Z. He was a student of medicine at Edinburgh University, and a member of the O.T.C. On the outbreak of the war he applied for and received his commission.

Chilton, R. W., Lieutenant 5th Royal Warwickshire Regiment, only son of Dr. R. W. Edginton of Edgbaston, Birmingham.

Empson, R. H. W., Lieutenant 5th Durham Light Infantry, elder son of Dr. J. Empson of Milborne Port, Somerset.

Evans, Eric, Captain 4th Royal Welsh Fusiliers, son of Mr. E. D. Evans of Wrexham, was studying medicine and had nearly completed his course.

Fox, W. V., Lieutenant, 4th South Staffordshire Regiment, son of Dr. G. M. Fox of Walsall.

Frost, E. L., Lieutenant 4th South Lancashire Regiment, only son of Dr. Edmund Frost of Eastbourne.

Garrod, M., Lieutenant 6th Battalion London Regiment, second son of Dr. A. E. Garrod.

Harper, C. G., Lieutenant 6th Gordon Highlanders, eldest son of Dr. J. Harper of Rosary Gardens, London, S.W.

Heffernan, W. P., Second Lieutenant Royal Irish Regiment, second son of Mr. W. K. Heffernan, J.P., of Killeenale, Ireland.

Heywood, T. A., Second Lieutenant 4th East Lancashire Regiment, only son of Dr. T. W. Heywood of Darwin.

Hodges, W. H. W., Second Lieutenant 6th (attached 2nd) Battalion King's Royal Rifle Corps, elder son of Mr. H. T. Hodges of Walton-on-Stone, May 9th.

Hodgson, G. C., Lieutenant 7th Duke of Wellington's West Riding Regiment, elder son of Dr. G. Hodgson of Chertsey.

Maclehose, N. C., Lieutenant 8th Battalion London Regiment, younger son of Dr. N. M. Maclehose of Harley Street.

Mathew, G. C., Captain 2/2nd Gurkha Regiment, youngest son of the late Brigade Surgeon-Lieutenant-Colonel R. C. Mathew, M.A., May 10th.

Miller, J. E. B., Lieutenant Royal Irish Rifles, only son of Dr. J. E. Miller of Londonderry.

Orton, E. H., Second Lieutenant Scottish Rifles, younger son of Dr. G. H. Orton of Kensington, May 9th.

Piggott, Eric John Keeffe Pemberton, Lieutenant Royal Irish Regiment, son of Dr. F. K. Piggott of Shrewsbury, June 24th.

Pollock, F. H., Lance-Corporal 8th Battalion R.F.R.C., who was killed by a shell, was the younger son of Dr. J. Ellery Pollard of Acock's Green, Birmingham. He was 17 years of age.

Riordan, H. de B., Captain Special Reserve, attached 2nd Battalion East Surrey Regiment, only son of Colonel W. E. Riordan, R.A.M.C. (ret.), May 10th.

Robinson, T. M., Lieutenant Royal Field Artillery, son of Dr. J. R. B. Robinson, R.A.M.C. (ret.), of Hasling Island.

Scott, T. R. C., Captain Royal Lancaster Regiment, eldest son of Dr. T. R. Scott of Musselburgh, May 10th.

Shaw, R. T., Second Lieutenant Special Reserve, attached 2nd Battalion Royal Sussex Regiment, elder son of Dr. Lamiston Shaw, May 9th.

Shepherd, P. H., Captain 1st Battalion Essex Regiment, eldest son of Dr. Philip C. Shepherd, Aylsham, Norfolk.

Spence, C. B., Lieutenant Royal Field Artillery and Royal

Flying Corps, younger son of Dr. James B. Spence of Burntwood, May 9th.

Slooker, T. F., Second Lieutenant Royal Engineers, elder son of Surgeon-Major E. G. Stocker, Wessex Engineers (I.P.), May 19th.

Thomson, Richard Edward John, Lieutenant 15th Sikhs, eldest son of Lieutenant-Colonel S. J. Thomson, C.I.E., I.M.S. (ret.), May 18th.

Trevor, F. F., Second Lieutenant 3rd Reserve Battalion Duke of Cornwall's Light Infantry, only son of the late Mr. A. T. H. Trevor, of Beaumaris.

Tuke, A. H. S., Second Lieutenant 3rd (attached 2nd) Battalion Northumberland Fusiliers, only son of Dr. T. S. Tuke, of Chiswick, May 9th.

Warren, Percy Soltau, Australian Contingent, eldest son of Dr. Warren, late of Melbourne, Dardanelles.

NOTES.

THE COMPILATION OF CASUALTY LISTS.

AN Eye-Witness present with General Head Quarters in France, after stating that the main duty of the Adjutant-General's Department is the provision of reinforcements, goes on to point out that it is responsible for the duties connected with casualties, discipline, prisoners of war, and sanitation. The office of the Director-General Army Medical Service is a department of the Adjutant-General's office:

A large branch of the work is carried out at one base, where, under the title of the 3rd Echelon, a staff of several hundred officers and men are employed.

"Reinforcements" include complete fresh units and formations of all arms sent out to increase the size of the army, and drafts of the different arms dispatched to fill up the gaps in the units already at the front. The former, as a rule, pass straight through to the front; the drafts form the floating population of the base depôts.

Apart from the work of replenishing the army, there is that of recording and reporting casualties. A proportion of soldiers and officers disappear without leaving any trace of their fate. With regard to the others, before a man's name is sent home as a casualty it is necessary to identify him absolutely, and to ascertain his name, initials, regimental number, and unit, and what has happened to him. This is done at the base by a small staff detached from each unit or branch of the army in the field, which is employed in checking and verifying every piece of information received from the front regarding any member of its own unit and in maintaining a complete record of all its members in the shape of a sort of life-history. In the block of buildings where this work is carried on may be seen several rooms filled with soldier clerks from every unit of the service, British and Indian, working at small tables piled with papers, very much as clerks in a large bank or insurance office at home. Thirty copies of the casualty lists are sent home daily, amounting sometimes to 3,000 sheets of typed matter.

The Adjutant-General's branch is also responsible for the disposal of the effects and the wills of dead men and for their verification and for ascertaining their place of burial. In the latter task it is much assisted by the Graves Registration Commission, which consists of a small body of gentlemen who give their time voluntarily to the work of collecting information about the dead. They also furnish the graves with wooden crosses stencilled with the names of the buried and the date of their death. Finally, a not inconsiderable portion of the Adjutant-General's staff at the base is continuously and solely employed in replying to queries about casualties, of which as many as 200 sometimes come in on one day.

BALTIC AND CORN EXCHANGE HOSPITAL.

The Baltic and Corn Exchange Hospital Unit, the personnel of which is drawn from the R.A.M.C., St. John Ambulance, and British Red Cross Society, has been at work at Calais since last October. A report issued recently shows that Major Stedman, F.R.C.S. (Edin.), the officer commanding, has had the regular assistance of four surgeons, while other members of the profession have been temporarily employed. During the six months ending April 24th, 1915, 1,098 patients were admitted, and a statistical analysis is provided of those cases—747 in number—recorded in the clinical card index. The great majority of the patients were soldiers and officers of the Belgian army arriving from the front at the clearing hospital at the Central Railway Station at Calais or brought down by car from the field hospital of the 6th Belgian Division, and admitted on account of some condition urgently requiring treatment before they could be sent on by the hospital ships to England or Cherbourg, or by the *trains sanitaires* to the base camp in a distant part of France. The statistical tables which form the bulk of the report have been prepared by Dr. Lionel J. Pictou, registrar of the hospital. A glance at them shows how various were the conditions with which the staff had

to deal, ranging from all kinds of injury due to projectiles to carcinoma of the sigmoid and appendicitis (12 cases). Cases of typhoid numbering 69 were treated in an annex hospital; of these, 14 died. Of 25 cases among vaccinated persons, 3 died, while of 44 unvaccinated 11 died.

The report includes reprints of two papers on α -ray work by Lieutenant J. R. Caldwell, a member of the staff, which have appeared in the *Lancet*.

Those responsible are to be congratulated on the amount of valuable service disclosed, and we see that, since the conclusion of the period dealt with, a sudden and great increase in the number of wounded arriving at Calais has placed a further strain upon the resources of the hospital, and involved the opening of three new wards.

ARRIVAL OF HOSPITAL SHIP IN DUBLIN.

Early last week the hospital ship *Ozfordshire* arrived in Dublin with 673 wounded soldiers, of whom 226 were cot cases. Of the total number, 300 men were dispatched to Belfast in two trains, one from the Great Northern Railway and the other from the Great Southern and Western. Sixteen cot cases were taken in the Great Northern train and 20 in the other. Unfortunately, a wounded soldier died of internal haemorrhage while he was being lifted from his cot to be brought ashore. The 373 cases were distributed among the various Dublin hospitals. The arrangements for conveying the wounded were entirely in the hands of the Irish Automobile Club, and fifteen of the club's ambulances were in use. As usual on these occasions, the men of the R.A.M.C. were assisted in disembarking patients by St. John Ambulance orderlies and Red Cross and Voluntary Aid Detachments. At the North Wall, where the patients were disembarked, were 50 St. John men and 8 Red Cross orderlies, while the patients were transferred from the ambulances to the hospital wards by 125 St. John Ambulance orderlies and 18 Red Cross orderlies. One hundred of the less severely injured cases were sent to the Dublin Castle Red Cross Hospital. Out of the 373 wounded allotted to Dublin, 192 were lying-down cases and 181 were sitting-up cases. The men all came from Flanders, and the majority of the wounds appear to have been inflicted with shrapnel.

WOUNDED ALLIES RELIEF FUND.

Hospital Work in France.

Since its acquisition by the Wounded Allies Relief Committee in February the Hôpital Militaire Anglais at Limoges has received well over two hundred surgical cases, specially selected by the French authorities as being particularly severe and complicated. In the same space of time there have been only eight deaths. At the Hôpital Militaire, 37A, Dieppe, the death-rate since February is only 0.5 per cent. This hospital receives the more slightly wounded and keeps most of its patients from within two or three days of their being wounded until they are completely cured. The administrator writes:

During the month of June Dieppe has gradually been emptied, according to a new regulation, which is that wounded are to be sent to certain sections of the country till they are full, leaving others to work off their cases. At the end of May there was not a bed to be had in Dieppe, now we have nearly a thousand, and are next on the list to be filled.

THE FRENCH RED CROSS.

Mr. James Donelan, M.Ch., M.B., Medical Referee, Comité de Londres, 2, Knightsbridge, Hyde Park Corner, S.W., writes: "The generous response of the profession to the appeal you were good enough to allow me to make in the *JOURNAL* of April 24th (p. 740) tempts me to beg again your kind assistance. A number of hospitals that previously made their own arrangements for their surgical staffs, owing to new regulations by the authorities, have now to be supplied through this organization. Vacancies now occur and will continue to do so for some months. I should, therefore, feel greatly obliged to any of my *confrères* desiring to offer their services for a month or more if they would write to me for application forms or any other information on this subject. If they should wish a personal interview, as I am doing this work in the intervals of practice, I must ask them to write for an appointment. There are a very few paid appointments for good operators willing to go for three or more months.

In the case of American surgeons, I am instructed to say that their co-operation is heartily welcome and most

valued. In order, however, that American surgery should be as worthily represented as it deserves, and in view of the fact that we have scarcely any criterion of the value of many diplomas, evidence of actual hospital appointments and of surgical work done therein will be required. Surgeons who have served with the American Red Cross in any but the hospitals of our allies are not eligible."

TYPHUS IN A GERMAN PRISON CAMP.

The Wounded Allies Relief Committee has received a letter from a trustworthy source in Switzerland stating that the camp for prisoners of war at Soltan, Germany, is in quarantine as the result of an epidemic of typhus fever. It is permitted to write and to send parcels to the prisoners, but they are, of course, not allowed to reply. The letter goes on to say that all necessary sanitary measures have been taken to stem the epidemic.

INDIA.

Bengal's Hospital Ship.

In the *JOURNAL* of July 3rd (p. 30) an account was given of the hospital ship, or rather flat, *Bengali*, fitted out for service in the river Tigris by the Bengal Volunteer Field Ambulance Corps. Unfortunately she has been at the bottom of the sea for nearly two months. An account of her loss is given in the *Pioneer Mail* of May 28th and June 4th. She left Calcutta on May 15th, in tow of the transport *Sikh*, the intention being to tow her from Calcutta to Bombay, and thence to the Persian Gulf. Bad weather was encountered soon after leaving the Sandheads, and she foundered in the Bay of Bengal, about 260 miles east of Madras, on May 17th. Fortunately her medical personnel were not on board at the time, intending to join her at Bombay, so when lost she had only a small working crew on board, who were all saved by the *Sikh*, no lives being lost. The medical staff, under Lieutenant-Colonel A. H. Nott, I.M.S., will go to the Persian Gulf for employment there as an ordinary land field ambulance.

SERBIA.

According to the *Morning Post* Professor Reiss, of Lausanne, has written from Kragjevatz, stating that, thanks to the timely assistance of the British and French Red Cross Missions, the health of the Serbian army is now very good, and the epidemic of typhus has been stamped out. Owing to vaccination on an extensive scale he thinks the danger of cholera may now be regarded as non-existent.

The *Daily Telegraph* of July 3rd contained a message from Mr. Granville Fortescue, stating that he had just returned from a ten days' tour in Serbia, where the sanitary condition showed a vast improvement. Typhus, he says, is rapidly dying out, in spite of the difficulty of instilling the simplest hygienic principles in the minds of the peasants. Foreign doctors and nurses find their progress checked by the indifference of the Serbian to medical supervision. The only danger that threatens is typhoid. Cholera he thinks a remote possibility. The Austrian prison camps are well organized, but the latrines are described as highly insanitary. In view of the myriads of flies, that increase as the summer advances, this constitutes a serious danger.

MONTENEGRO.

The two typhus units of the Wounded Allies Relief Committee for Montenegro will shortly be established at Nikshich and Podgoritza. The two Belgian doctors in charge of the Committee's hospital at Kragjevatz, Serbia, have been appointed lieutenants in the Serbian army. Subscriptions towards any part of this work will be gratefully received by the Committee's Honorary Treasurer, T. O. Roberts, Esq. (Manager), London County and Westminster Bank, 27, Strand, W.C.

MEDICAL OFFICERS WANTED.

Wanted, two good fox-hunting doctors, to join a Mounted Brigade Field Ambulance. Must take imperial service obligation. Pay and allowances as R.A.M.C. Applications to Captain Edwards, Hampshire Carabiniers, Bowood Camp, Calne, Wilts.

The late Dr. Samuel Herbert Habershon left unsettled property valued at £7,869.

DR. WILLIAM ARTHUR BRAILEY (consulting ophthalmic surgeon to Guy's Hospital) left estate valued at £10,003.

DR. DANIEL CARMICHAEL, of Newcastle-on-Tyne, late medical officer of health for Bedlington, left estate valued at £8,857 gross, with net personally £3,060.

The Lyons City Library is collecting, under the title of "Bibliothèque de la Guerre," documents of all kinds relating to the war. They include the medicine and surgery of the war, hygiene and epidemiology, hospital administration, the relations of the war to public health, legal medicine, veterinary science—in short, all branches of medical science which have a direct bearing on present events. To Professor Lesieur, physician to the Lyons hospitals, has been entrusted the chief direction of the work.

England and Wales.

LONDON.

Teachers for Mentally Defective Children.

THE Education Committee of the London County Council reported to the meeting of the Council, on June 29th, that they had had under consideration the desirability of making provision for the training of teachers for mentally defective children, in view of the need for such teachers which would be produced by the Elementary Education (Defective and Epileptic Children) Act, 1914. The Board of Education, it was stated, are prepared to approve and pay grants for the establishment of a one-year course of such training for trained certificated teachers and graduates, and it was felt that the Council have special facilities for providing a course of this kind, the special schools of London being larger in number, and probably superior in quality, to those of any other area of equal size. The Committee recommended that persons who already hold certain educational qualifications should be accepted as resident students at the Council's training college at Furzedown (Wandsworth) for a special course of training for teaching in schools for the mentally defective.

The recommendation was adopted by the Council.

Ambulance Service for London.

The ambulance scheme for London is gradually taking shape. The special committee on the establishment of this service reported to the Council that a new ambulance station in Shoreditch, equipped with two motor ambulances, was opened on June 21st, and that new stations in Southwark, Bloomsbury, Brixton, and Lee, would be successively available during the next two months. It was also stated that, an essential feature of the ambulance scheme for London being the use by police constables of private telephones, some 350 telephones were at present available in various parts of the county, but it was hoped that this wholly inadequate number would be greatly increased shortly. To secure an efficient service, telephonic facilities should be available at intervals of not more than 440 yards in every one of the more important streets and roads.

Asylums' Expenditure on Drugs.

The accepted tenders for the London County Asylums for the four months from July to October included an expenditure on drugs of £1,505, on druggists' sundries of £107, and on bandages and dressings of £325.

MEDICAL INSPECTION OF SCHOOL CHILDREN IN LIVERPOOL.

Dr. Hope, M.O.H. for the city of Liverpool, in his annual report giving details of the work done by the school medical inspectors, states that 38,709 children were examined, of whom 19,289 were entrants and the remainder between the ages of 12 and 13. The head teachers in a large number of cases materially contributed to the efficiency of inspection by drawing the attention of the school medical officers to children requiring examination. It is worthy of notice that children absent from school were not overlooked but medically examined when illness was put forward as an excuse for non-attendance. There were 5,397 eye cases, including 4,973 instances of defective vision. Of the remainder there were only 2 cases of trachoma. Of affections of the mouth, nose, and throat there were 1,416 cases, defective teeth claimed 308, tonsils and adenoids and mouth breathing 200 cases. There were 411 cases of ear defects; of these 199 were cases of deafness and 180 cases of otorrhoea. There were 136 cases in which the organs of the chest were involved; heart disease 65, bronchitis 75 cases. Tuberculosis accounted for 72 cases, phthisis 47, of which 15 cases were dubious; tuberculous glands 14, tuberculosis of bones and joints 2, and other forms of tuberculosis 9. Of general diseases there were 362 cases, including anaemia and eclampsia 279, malnutrition 47, rheumatism 20, rickets 9, cretinism 6, haemophilia 1. The number of infectious and skin diseases was 368 cases, including measles 3, whooping-cough 3, mumps 23, influenza 2, ringworm of the scalp 76, ringworm of the body 35, scabies 21, impetigo 147, alopecia 16, eczema 17, and other skin affections 23. There were

80 cases of nervous disease—chorea 20, epilepsy 21, infantile paralysis 10, and other untabulated affections 29. The treatment of these children has not yet been so well organized as their inspection. The Education Committee has provided for efficient eye treatment by paying for the services of ophthalmologists. There is also x-ray treatment for obstinate cases of ringworm of the scalp. But the bulk of skin affections is left to the charitable institutions of the city. At present the Education Committee is considering measures to ensure treatment of those children suffering from mouth, nose, and throat affections. In time, no doubt, the school authorities will awaken to their responsibility of fulfilling the corollary of efficient medical inspection by providing efficient medical treatment. It is not right that this should be left to charitable institutions. Now more than ever is the child a valuable asset to the State. The health of its future citizens should not be jeopardized by procrastination and by failure to provide an efficient and competent service for the treatment of school children.

THE SALFORD SCHEME FOR THE PREVENTION OF EXCESSIVE PRESCRIBING.

At the monthly meeting of the Salford Insurance Committee on June 17th a report was read from the Medical Benefit Subcommittee dealing with the disparity in the number and cost of prescriptions for the year 1914 as compared with 1913. It appears that in 1913 the charges on the drug fund were so heavy that the chemists only received about two-thirds of their accounts, the total deficiency being about £3,680, while in 1914 there will be a very substantial surplus in the fund. The amount of surcharge claimed by the Pharmaceutical Committee for excessive prescribing in 1913 amounts to about £1,100, and sixteen of the panel practitioners are implicated. So far, however, the Insurance Committee has not come to any decision. In order to prevent as far as possible any tendency to excessive prescribing in 1914, an arrangement was made between the Panel and Pharmaceutical Committees by which the general pool for the panel practitioners was to be credited on paper with the whole of the 8s. 6d. available for medical benefit, while each practitioner was then to be debited with the cost of his own prescriptions, it being understood that in no case would the chemists receive more than 2s. or less than 1s. 6d. per insured person. It thus became the direct interest of each practitioner to reduce the cost of his prescriptions. The effect of this arrangement was seen even at the beginning of 1914; there was a large decrease in the charges for drugs and appliances, the cost per script falling from about 7d. to 5d., and the number of scripts being also lessened. In some cases the reduction was so great that a fear began to be expressed in the Insurance Committee that insured persons might possibly not be receiving adequate drugs and appliances. Only one definite charge, however, was brought forward. This came from the lady superintendent of the district nurses' home, and was to the effect that in a number of cases patients had not been supplied with adequate dressings. An inquiry was therefore made by the Medical Benefit Subcommittee, and in its course it came out that in many cases the doctors had been giving their patients medicines out of their own surgeries free of charge, instead of giving prescriptions, mainly in order to save themselves being debited with the dispensing fees of 2d. a bottle. Though no complaints had been made by patients of inadequate medicines, the Medical Benefit Subcommittee considered that such a practice was undesirable and that the arrangement might possibly lead itself to some abuses, such as those alleged in the case of dressings. The Subcommittee accordingly passed the following resolutions:

1. That no evidence has been adduced that would satisfy this Subcommittee that insured persons in Salford have not received adequate medical attendance and treatment during the year 1914.
2. That this Subcommittee is of opinion that the disparity in the number and cost of prescriptions for the year 1914, as compared with 1913, has resulted from the arrangement made between the Panel and Pharmaceutical Committees at the beginning of 1914 for the repression of excessive prescribing, which arrangement has now been discontinued.

The whole matter had previously been referred for the consideration of the Panel Committee, which agreed with the subcommittee that the arrangement had not proved

satisfactory. When it was made it had been definitely stated by the Commissioners that it was simply an arrangement between the Panel and Pharmaceutical Committees not requiring the consent of the Insurance Committee, whose business was simply to see that the insured received adequate drugs and appliances. At the same time, any expression of opinion by the Insurance Committee was bound to have weight, and the two resolutions of the Medical Benefit Subcommittee were carried unanimously by the Insurance Committee. It was explained that the Panel Committee had anticipated this by informing the panel practitioners that the arrangement would be considered to have ended with the year 1914, and that the drug fund would now be dealt with in the usual way, with the special safeguard that the chemists will, every month, scrutinize all scripts, and refer to the Panel Committee any that are considered extravagant. The Panel Committee will then investigate each case as it arises, in accordance with Regulation 40, with a view to saying whether any surcharge is to be recommended; it is hoped that in this way the long delay that occurred in 1913 may be avoided.

A letter was also read from the Panel Committee calling attention to the hardship inflicted on the sixteen practitioners who were alleged to have prescribed extravagantly in 1913, owing to the fact that, pending the settlement of the question of surcharge, sums of money had been withheld from them considerably in excess of the sums claimed by the Pharmaceutical Committee as surcharge. It was stated that this had been done in consequence of advice from the Commissioners stating that no final settlement should be made with these practitioners until the question of surcharge had been determined. After some discussion, it was proposed by Dr. Taylor that any amounts owing to these practitioners in excess of the amounts claimed by the Pharmaceutical Committee as surcharge for over-prescribing should at once be paid. Dr. Taylor said that though he had spoken strongly on several occasions against excessive prescribing, and thought it should be punished if no satisfactory explanations were forthcoming, he could not regard it as fair to withhold, say, £10 from a doctor when the utmost surcharge claimed was only about £3. The motion was seconded by Mr. Gill, who represents the chemists on the Insurance Committee, and was carried unanimously. This still leaves a final settlement to be made with these practitioners when the question of surcharge is settled.

The Clerk stated that the number of patients treated during the month of April was 13,291, and the average cost for drugs and appliances was 8.9d. a patient. The number of prescriptions dispensed was 26,515—that is, about 2 per patient, the average cost per prescription being 4.4d. The number of insured persons in the area is somewhere about 90,000. It is fully expected, now that the arrangement for debiting the doctors with the cost of their own prescriptions has been ended, that the charge on the drug fund will rise considerably as compared with 1914, as there will be no further likelihood of medicines being given by the doctors out of their own stocks. At the same time, with the experience that the panel doctors have now had in economical prescribing, and with the monthly scrutiny of scripts, which will avoid the long delay that occurred in 1913, it is fully expected that extravagant prescribing will be reduced to a minimum.

Scotland.

TOWN PLANNING.

IN his annual report Dr. A. J. Macgregor, M.O.H., Dunfermline, discusses the town planning scheme at Rosyth, which is a short distance outside the burgh boundaries, and to which the works connected with the Forth naval base are attracting a large population. Dr. Macgregor says: "A town planning scheme is at the root of a sanitary measure, its main object being to improve the conditions of living along health-giving lines, and not merely to improve the amenities of a district. It seeks to establish a standard of housing, and so comprehensive is the Act in its application that it not only defines the units for present and future housing, but also takes under its control all building operations within the prescribed area

undertaken during the preparation of the scheme. This power of retrospective control has in the case of Dunfermline exercised an inhibitory and most prejudicial influence on building operations, and the house famine that has prevailed throughout the burgh for the last three years has been more acute than ever. Our hope of relief lies either in the acceptance of our town-planning scheme by the Local Government Board, or, failing such acceptance, by the abandonment of the principle of retrospective control until our scheme can be so modified as to enable it to receive the necessary official sanction. The sanitary authorities are prohibited from making use of their statutory powers in regard to housing accommodation so long as the condemning of property only means turning out families in the street. In the altered conditions prevailing since the war broke out it is hopeless meantime to look to a municipal housing scheme, and our future welfare, so far as housing is concerned, must centre round the fate of our town-planning scheme."

HEALTH OF LEITH.

IN his fourteenth annual report Dr. William Robertson, M.O.H. Leith, states that the death-rate of the burgh in 1914 was 15.4 per 1,000 of the population. The total number of deaths was 1,234. Of this total, phthisis, pneumonia, bronchitis, and other pulmonary diseases accounted for 282, whilst other forms of tuberculosis, excluding phthisis, caused 60. Tuberculosis in all its forms was to be blamed for 144 deaths, and cancer claimed 96 victims. By slow degrees the contest against tuberculosis of the lungs was being successfully carried on; but all the sanatoriums and dispensaries were like whitewash applied to a disease which could only be arrested by having houses well ventilated and well lighted. Fresh air in dwellings would save the local authorities much expense everywhere. An open-air school was much needed in Leith. Heart disease had caused 131 deaths, and from non-defined causes there had been as many as 305. There had been no fewer than 700 cases of scarlet fever, and of these 569 were removed into hospital; but the disease had fortunately been of a mild type, and the average stay in hospital had been only thirty days; and 131 cases had been treated at home by the Milne method. Through the shorter stay in hospital and the Milne method of treatment Dr. Robertson calculated that £1,848 had been saved to the rates. There had been only three cases of typhoid fever (all imported); there had, however, been seven cases of typhus fever, but the outbreak had been promptly and successfully dealt with. The medical officers of health throughout the country, although they had all been eager and willing to assist or advise during the war, had so far been very little utilized.

Ireland.

RED CROSS HOSPITAL AT BRAY.

IT is stated that Her Royal Highness Princess Patricia of Connaught has graciously consented to allow the auxiliary hospital for wounded soldiers at Bray to be called "The Princess Patricia Hospital." This hospital is being organized and financed by the joint committee of the County Dublin Branch of the British Red Cross Society and the St. John Ambulance Association, and will contain over 200 beds. It is estimated that a sum of £8 will be sufficient to equip a bed. The superintendent of the Queen Victoria Jubilee Institute for Nurses in Ireland, who has been granted special leave for the period of the war, has been appointed matron of the hospital, and the work of preparation is being pushed forward with all speed. At the present time the capacity of the large general hospitals in Ireland to receive wounded soldiers from the front has reached its limit; practically every bed is occupied. Many of these patients have been in hospital for a considerable time; some are convalescent, and others, though still requiring careful treatment and nursing, have so far recovered as not to require the special treatment that can only be given at a large surgical hospital. It is intended therefore to remove the convalescent and slightly wounded cases from the general hospitals so as to provide accommodation for the more seriously wounded cases.

ENFORCING THE VACCINATION ACTS.

Dr. Brendan McCarthy, Local Government Board Medical Inspector, appeared before the Fermoy Board of Guardians, who have for some years allowed compulsory vaccination to lapse. Dr. McCarthy explained the dangers to the public that might result from the action of the guardians, and the great tendency there was in times past following great wars to epidemics of small-pox. The guardians, after some discussion, decided by a majority to enforce the Vaccination Acts in the district.

TYRONE COUNTY HOSPITAL.

Dr. Edward Thompson, F.R.C.S.L., presented to the members of the Joint Committee of Management the medical and surgical report of the Tyrone County Hospital for the year 1914. The expenditure for the year amounted to £2,979. The average number of beds occupied was 52.5, and the cost of each occupied bed came to £51 16s. and of each patient discharged £3 16s. 3½d. During the year 779 patients from all parts of the county were admitted. Dr. Thompson stated in his report that when he was appointed, forty years ago, as surgeon to the hospital the number of operations was about 60 each year. For the year 1914 the number of operations amounted to 307, which showed how much the work had increased during this period and how necessary and what a boon such an institution was to the well-being of the county Tyrone. During the latter part of the past year and up to the present time a large number of wounded soldiers from the British Expeditionary Force had received medical and surgical treatment in the wards of the hospital; they were admitted without charge and had been treated, as they well deserved to be, as honoured guests.

During the year there were performed, among other operations, 10 appendectomies, 45 excisions of adenoids and tonsils, 20 radical cures for hernia, 4 ovariectomies, 5 extractions of bullets, 30 gynaecological cases.

The staff consists of Dr. Thompson, who is empowered to summon extern assistance in major surgical operations to be performed by him. In addition to the 307 major operations performed during the year, there were 597 minor operations.

The development in recent years of provincial hospitals, like the County Tyrone Hospital, is a marked feature of medical practice in Ireland.

Correspondence.

REMOVAL OF BULLETS FROM WOUNDS.

SIR,—I have found the following plan of much service to me in dealing with the removal of bullets and foreign bodies in the hospitals here. The bullet is very often distant from the supposed site. Mark on the skin with ink or aniline pencil where the foreign body is supposed to be, and on that mark place a very small piece of lead foil, and over both a bit of strapping. The x-ray plate will show the relative positions of the skin mark and the bullet. I then place the "pilot lead" over the position of the metal and have another exposure made, and have not failed by this means to locate the exact position of the bullet. The only question is that of depth. Although I have thought this out, I do not suppose there is any originality about the idea, but it may serve to be useful to some surgeons who are trying to be of service to their wounded brethren.—I am, etc.,

C. L. FRASER, F.R.C.S. Edin., etc.,

Lieutenant-Colonel, R.A.M.C.(T.), Medical Officer in Charge
Improvised Hospitals,
Berwick-upon-Tweed, July 4th.

NERVE SUTURE FOR BULLET WOUNDS.

SIR,—Permit me to point out a serious error in a paper appearing in your issue of July 3rd, p. 10, entitled "Nerve suture for bullet wounds." In this paper Messrs. Stoney and Meade report (see Case 1) that within two months of the operation of suture of the ulnar nerve, at about 2 in. below the elbow, "there was good voluntary power of contraction of the flexor carpi ulnaris."

Recovery of muscular power in a muscle whose nerve has been divided two months previously being an impossibility, some explanation of this reported phenomenon

must be sought for, and it is easily found in Cunningham's *Anatomy*, second edition, 1906, p. 629, where you will see this sentence:

"The muscular branches of the ulnar nerve in the forearm arise as soon as the nerve enters the forearm."

The severance of the ulnar nerve in this case evidently took place below the point at which the branch to the flexor carpi ulnaris is given off; there was paresis of the muscle due, to disuse or to concussion of its nerve branch, which cleared up after treatment by suitable means. The recovery had nothing to do with the operation.

It is of great importance that a thorough knowledge of these cases be grasped by operating surgeons, otherwise disasters and disappointment will result. I say disasters, because a surgeon who believed a peripheral nerve could regenerate in two months would often be willing to excise a nerve scar where another surgeon would wisely stay his hand.

Perhaps I may also be permitted to point out that Messrs. Stoney and Meade's third conclusion, at the end of their paper, may have a misleading effect. They say:

"The sooner an operation for its suture is performed, the easier it is, and the greater the likelihood of an early cure. In cases, however, where the wound is septic, it may be advisable to allow time for the wound to heal. (The italics are mine.)"

It is not merely advisable; it is essential.

I beg to refer Messrs. Stoney and Meade, and others of your readers who may be interested, to my short note on this subject in the *Journal of the Royal Army Medical Corps* for March of this year.—I am, etc.,

PAUL BERNARD ROTH,
Captain R.A.M.C. (S.R.).

Military Hospital, Hamstead, July 5th.

LOCALIZATION OF FOREIGN BODIES BY
X RAYS.

SIR,—Commenting on the method of finding the position of a foreign body by x-rays, where two exposures with movement of x-ray tube have to be made, Professor C. Niven, of Aberdeen University, in a letter to me suggests that it is possible for a good glass-blower to make an x-ray tube with two centres of emission, so as to give two images on the screen at the same time, thus obviating all movement of the x-ray tube, and simplifying the procedure.—I am, etc.,

Birmingham, July 5th.

JOHN W. DUNCAN, M.B., Ch.B.

BRITISH AND FRENCH SALVARSAN PRODUCTS.

SIR,—In the annotation in the *JOURNAL* of June 26th, concerning British and French salvarsan products, it is stated that the unfortunate results and deaths following the use of the German preparation were not fully explained, the chief explanations being impurity of the water used and idiosyncrasy of the patient. Other explanations put forward were the liberation of endotoxins caused by the destruction of spirochaetes and the use of too acid or too alkaline solutions. It is now known that none of these explanations, with the possible exception of idiosyncrasy, holds good. The endotoxin theory was disproved by the fact that similar unfortunate results followed the use of salvarsan in non-syphilitic cases; the acid or alkaline theory was disproved by their occurrence when a neutral solution was used; the theory of chemical or bacterial impurities in the distilled water or saline solution was disproved by the fact that water containing such impurities did not produce such results when used alone, but did when salvarsan was added. In fact, all these excuses for salvarsan were made by the Germans, and mask the real explanation, which, in most of the severe and fatal cases, more especially those of haemorrhagic encephalitis, is simply arsenical intoxication. Indeed, Ehrlich himself, after the excuses for salvarsan reached the point of absurdity, admitted that the formation of an oxidation product of salvarsan was a factor in the causation of haemorrhagic encephalitis.

Whether English salvarsan is more or less toxic than the German product is immaterial, considering that this drug is not essential in the treatment of syphilis. The labour and ingenuity expended on its manufacture would be better applied in the production of high explosives or

poisonous gases, or any other means to rid us of German "culture," which has for so long hypocritized and contaminated the civilized world.—I am, etc.,

London, W., June 30th.

C. F. MARSHALL.

TREATMENT OF THE SYMPTOMS ARISING FROM INHALATION OF IRRITANT GASES AND VAPOURS.

SIR.—I have read with great interest the article by Mr. Symes on the above subject in the *JOURNAL* of July 3rd. As I carried out some experiments on the same subject myself a short time ago (*Lancet*, May 29th, 1915) with quite different results, it would be at least interesting to compare the different results and if possible suggest some cause to account for the discrepancy.

My experiments were confined to the use of atropine as a remedial agent. Briefly, I "gassed" a series of rabbits, which were intact and unanaesthetized, some with bromine vapour and some with chlorine; after exposure to these irritant vapours the animals were treated with atropine by intravenous and subcutaneous injection. In every case the animals treated with atropine showed distinct and marked improvement as compared with controls which received no atropine. Symes, on the other hand, states that "atropine sulphate in intravenous doses ranging from 0.5 mg. to 10 mg. has been without effect."

It has been demonstrated by Dixon and Ransom (*Journal of Physiology*, 1912, xlv, 5, 413) that atropine by intravenous injection dilates the bronchioles, and further, that so long as an animal remains under the influence of this drug so long will the bronchioles remain in a state of maximal dilatation.

In order to account for his negative results after intravenous injections of atropine, Symes suggests that "the bronchial circulation was largely, if not completely, arrested by the bromine vapour." If the bronchial circulation is thus occluded I fail to understand the mechanism whereby the bronchorrhoea is produced. Whether the bronchorrhoea be of the nature of an inflammatory exudate or a secretion from bronchial mucous glands, surely the presence of an active circulation is necessary.

However this may be, the treatment of "gassed" patients, both at home and abroad, by atropine, given as a rule subcutaneously, has produced beneficial results in many cases. It may be that in the very early stages of the worst cases the bronchial circulation is actually occluded, and that in such cases atropine injected into the circulation is unavailing. In such a state the inhalation of stramonium fumes might well produce an effect which intravenous injection fails to produce. On the other hand, when bronchorrhoea is established (and the bronchial circulation presumably acting), intravenous or subcutaneous injections of atropine do without doubt produce a dilatation of the bronchioles, which dilatation is both maximal and lasting.

It is, of course, for those in charge of the "gassed" patients to decide which method of administration to adopt in any given case; when all is said the chief active principle of stramonium is atropine. One point in particular, however, seems worthy of comment. Is it desirable to give the patient the benefit of the central stimulant action of atropine or not? If such central stimulant action is desirable, presumably it will be more pronounced if the drug is given by injection.—I am, etc.,

Pharmacological Laboratory,
Cambridge, July 5th.

DOUGLAS COW.

SIR.—Dr. Cow has kindly given me the opportunity of replying to his letter.

Dr. Cow's animals (rabbits) were "gassed" via nares, my own via tracheal cannula. My bronchial (and bronchiolar) effects were therefore the more severe. My drugs were tested immediately on cessation of the "gassing," and at intervals for one to three hours afterwards.

We agree that atropine gives relief. With Dr. Cow injections were successful, but whether from their central nervous or bronchial effects is not in evidence.

In my hands (encephalon destroyed) injections failed, whilst inhalations succeeded. Here the effects could not have been central nervous—must therefore have been bronchial.

The source of the bronchorrhoea was, presumably, in great part, the pulmonary alveoli.

I would add that our knowledge of the broncho-dilator effects of atropine is to be dated many years anterior to 1912.—I am, etc.,

Teddington, July 5th.

W. L. SYMES.

THE BOARD OF TRADE AND DR. EDRIDGE GREEN.

SIR.—In the *BRITISH MEDICAL JOURNAL* of July 3rd, in the Medical Notes in Parliament, Captain Prelyman is reported to have stated, on behalf of the Board of Trade, in reply to a question by Dr. A. Lynch:

Dr. Edridge Green was at no time requested by the Board of Trade to submit a test for colour-blindness.

As a matter of fact, the original of the lantern which is now the official test of the navy for colour-blindness was constructed at the request of and for the Board of Trade. Owing to the intervention of the Royal Society, the wool test was adopted, and my connexion with the Board of Trade ceased.

The following is a copy of the minute appointing me a member of the International Code of Signals Committee, dated May 14th, 1889, and signed by Sir Michael E. Hicks-Beach:

The Board of Trade are also pleased to appoint F. W. Edridge Green, Esq., M.B., to be a member of the Committee with special reference to the consideration of the subject of colour-blindness and eyesight.

—I am, etc.,

London, N.W., July 3rd.

F. W. EDRIDGE GREEN.

EMERGENCY BILL FOR MENTAL TREATMENT.

SIR, In your issue of June 19th, p. 1069, Earl Russell states that the treatment contemplated in the bill which he introduced on July 22nd, 1914, is "voluntary in every respect." This authoritative statement is very valuable, and may be taken in conjunction with another noteworthy pronouncement, namely, that made by Mr. C. Harmsworth in the House of Commons on May 13th last, to the effect that his bill for mental treatment "did not involve compulsory detention." Dr. G. M. Robertson, on the other hand, admits that compulsory detention is provided by Section 13 of the Scottish Act, 1866. I must consequently, with apologies to Earl Russell and Mr. Harmsworth, rearrange the measures in the order of compulsory merit, giving the palm to the Scottish Act. It is not denied, however, that the English bills include reception of the patient into an institution for lunatics.

What strikes one as curious is why bills which are voluntary in every respect should be worth bringing in at all, since hospital treatment is admittedly not prohibited by the Lunacy Act, and the "patient," as long as he is "uncertifiable," is a free agent and competent to give his consent to hospital treatment without being assisted thereto by a bill.

Mr. R. Burrows (drafter of Earl Russell's bill) complains that Section 315 of our Lunacy Act inflicts a penalty on a person who takes charge of an "alleged lunatic" without being aware that lunacy has been alleged. There is, however, another point of view of even greater importance than that from which Mr. Burrows regards the question—namely, that of the person who is about to be taken in charge. Where lunacy has been alleged, it is a vital matter that the allegation should be sifted before the person is taken in charge, because he may not be insane. He has his rights, and ought to be confronted with the allegation made. It is too much the custom to take it for granted that the individual is already affected to such an extent as to make his statements unreliable, whereas that is the very point at issue, and it ought not to be accepted as a foregone conclusion that he is incapable of self-defence. It is in order to guard against unscrupulous dealings on the part of those who may wish to take charge of the "patient" for profit that Section 315 was framed, and it has often proved of use in this respect, since numbers of persons take charge of such cases for profit.

If Earl Russell desires to free his bill from ambiguity, he would do well to insert in it a proviso making it obligatory at the outset to obtain the consent of the patient in writing, and that a notice should be also given to him in writing to the effect that he cannot subsequently be detained against his will.

In the letter to which Dr. G. M. Robertson replied in your issue of June 12th, I did not mean to infer that Dr. Robertson does not apply excellent medical treatment to those cases whom he detains compulsorily; and I quite agree with him that nursing homes are chiefly run for the reception of the well-to-do, and also for profit. The alternatives which I meant to contrast, in dealing with "uncertifiable" cases, were:

1. Treatment by compulsory detention in Scotland under Section 13.

2. Treatment on a voluntary footing at a stage when the patient is capable of entering a hospital of his own accord, and of recognizing that it is for his good to do so.

What I have been trying throughout to emphasize is the great gain to be derived from providing hospitals dissociated from lunacy and from compulsion—that is, places where recent and uncertifiable cases (more especially among the less well-to-do) will not be afraid to come for early treatment, so that the beginnings of insanity may be checked. This is a great need. Such cases have a not unnatural dread of entering any place connected with lunacy, lest, having entered, they may not get out again. It is encouraging to hear that Scotland has now three hospitals which receive uncertifiable mental cases. When last in Edinburgh I was told that there was in the Royal Infirmary a small department intended for such cases. I asked: "How many beds?" and was told "Three," my informant adding: "But you know, that is quite enough for Edinburgh."

English law insists that where a man's freedom is taken away, he has a right to appeal to judicial intervention. I was not aware till now that Scotland did not recognize any right of the kind in this case, and must confess, all things considered, to a feeling of thankfulness at being domiciled on this side of the border.

Dr. Robertson cites as a proof of how well the ends of justice are secured without any need of this "privilege" in Scotland, that out of 150,000 persons certified as insane only one action for illegal detention was brought into court. Does Dr. Robertson seriously think that this proves his contention that there have never been any instances of unjust or unnecessary commitment? He who is so alive to the brand associated with the suspicion of having once been placed on the lunacy register cannot but be aware of the dread of publicity which deters action, as well as the expense, the reluctance to involve relatives, and the doubtfulness of the issue with the weight of lunacy authority and organization thrown into the scale against the plaintiff. It must also be taken into consideration that up to the moment of a fortunate release no "patient" is allowed an inkling of the allegations made against him, and that what he states is often regarded as delusional; so the ground is cut from beneath his feet and he is powerless to make use of any means of effecting his own rescue.

No doubt the Scottish board is desirous of exercising its unlimited prerogatives with loyalty and gives ear to the representations made to it, but those under certificate are not in a position to put forward their own case effectively. Reforms in this direction are far more imperatively necessary than is the introduction of Section 13 of the Scottish Act into the statute book which guarantees our English liberty.—I am, etc.,

London, W., June 26th.

S. E. WHITE, M.B.LOND.

ON THE CURVE OF THE EPIDEMIC.

SIR,—On seeing Mr. H. L. Trachtenberg's letter in your last issue I at once wrote the following letter to him:

17, Claremont Place, Newcastle-on-Tyne,
July 3rd, 1915.

Dear Sir,—I shall be interested to hear what you consider wrong with my solution of Dr. Brownlee's equation, and what slip I have made in the work of reduction in my letter of June 12th.

As stated in my expression,

$$2m \cot mt = \log CD - \log \frac{a CD}{2N} \left[t - \frac{1}{2m} \sin 2mt \right]$$

is true when certain conditions are satisfied, these conditions being that when $t=0$, $y=0$, and consequently then $y=a \sin^2 mt$.—Yours truly,

A. S. PERCIVAL.

As he has not replied as yet to me privately, I must ask him to substantiate his statements in the JOURNAL.

It is necessary for him to show that

$$-2m \tan (mt - a) = \log CD - \log \frac{a CD}{2N} \left[t + \frac{1}{m} \sin mt \cdot \cos \overline{mt - 2a} \right]$$

is not an identity when $y = a \cos^2 (mt - a)$; and, further, what slip I have made "in the work of reduction" when the conditions are such, that when $t=0$, there are no cases of the epidemic, or $y=0$. Under these conditions, of course, $y = a \sin^2 mt$, as $a = \frac{\pi}{2}$.

It will be noticed that Mr. Trachtenberg confines himself to accusing me of inaccuracy; he does not venture to give a solution himself, or even to correct the alleged inaccuracy.

To an epidemiologist I might point out that when observations are taken from the time before the onset of the epidemic, the simple expression,

$$2m \cot mt = \log CD - \log \frac{a CD}{2N} \left[t - \frac{1}{2m} (\sin 2mt) \right]$$

is true, and, if preferred, it may be written in the form:

$$2m \sqrt{\frac{a}{y} - 1} - \log CD - \log \frac{a CD}{2N} \left[t - \frac{y}{am} \sqrt{\frac{a}{y} - 1} \right]$$

—I am, etc.,

Newcastle-on-Tyne, July 7th.

A. S. PERCIVAL.

Obituary.

RICHARD CLEMENT LUCAS, M.B., B.S.LOND.,
F.R.C.S.,

CONSULTING SURGEON, GUY'S HOSPITAL AND EVELINA HOSPITAL FOR SICK CHILDREN.

By the death of Richard Clement Lucas the profession has lost an eminent surgeon and a remarkable man. His was a distinct personality which cannot be ignored when the surgery of the late Victorian era is under review, and his name will be always associated with the early development of renal surgery, a subject in which he took a continued interest. The son of the late Mr. William Lucas of Oaklands, Midhurst, Sussex, he was born on April 16th, 1846, and was thus in his 70th year. Educated at Queenwood College, Stockbridge, Hants, he afterwards entered as a student at Guy's Hospital in 1863, and had a distinguished academic career at the University of London, taking the M.B. gold medal in 1871. He qualified as M.R.C.S. and L.R.C.P. in 1868, and became a Fellow of the College of Surgeons in 1871.

Lucas served Guy's Hospital for nearly half a century, distinguishing himself in all the appointments which he held. In 1872 he became assistant demonstrator of anatomy, the senior demonstratorship being awarded to him in 1874. In 1877 he was made demonstrator of practical surgery. In 1875, while he was holding these appointments in the medical school, he was elected assistant surgeon to the hospital, and thirteen years later, in 1888, he attained the rank of surgeon, retiring in 1906. From 1888 to 1900 he was lecturer on anatomy, and in later years he became lecturer on surgery to the hospital, holding the latter lectureship from 1900 till his retirement. Lucas devoted an enormous amount of time and energy not only to his hospital duties but also to the education of the students, in every one of whom he took a great personal interest. Quite a number of his colleagues owe their success in life to the stimulus which he applied to them by his interest and advice in the early stages of their careers. He used to ask the first year's men to meet him in order that he might discuss with them collectively and individually the best course for each to pursue in his work, and few who were present at one of those talks will forget the strong impression that he made upon the young student. Full of ambition himself, and indefatigable in work, he certainly possessed a wonderful power of inducing energy in others.

In his prime he was a masterly operator, bold, rapid, and certain. Nothing pleased him more than a deep and extensive dissection in the neck, in which his dexterity and anatomical knowledge had full play. In his work he was always teaching the student, and the interest of his

lectures was notably enhanced by the excellent lightning sketches with which he illustrated them.

Lucas wrote a large number of papers on anatomical and surgical subjects, in many of which he displayed remarkable originality. Needless to say, a man of this calibre does not go through life without encountering much opposition. An interesting example of this is worth recording because of its surgical interest. Early in 1880, when the relations between the governors and staff of Guy's Hospital were at a considerable tension, Lucas, then an assistant surgeon, had as a patient a man who was very ill with a tuberculous kidney and a discharging sinus in the loin. Lucas proposed to remove the kidney—an operation which at that time had rarely been attempted, and never, so far as we know, successfully. The governors refused to sanction the operation, but Lucas denied their right to interfere between his patient and himself, and in the presence of the superintendent, whom the governors had deputed to represent them, he operated with a most successful result, as the patient was shown more than twenty years afterwards.

Among the students as a whole Lucas was always to the fore as a patron of sport. For many years he was president of the Students' Athletic Club, and he founded the "tag-of-war," which became such a popular institution at Guy's. His love of sport also made him a prominent figure in the hunting field, where he was a well-known follower of Lord Leonfield's hounds, rarely missing a Saturday meet.

In 1901 Clement Lucas was elected a member of Council of the Royal College of Surgeons, retaining his seat till 1914. He was vice-president of the College from 1909 to 1911, and, in the latter year, Bradshaw Lecturer.

Mr. Lucas married Miss Kathleen Emma Pelly, daughter of Surgeon-General Saville Marriott Pelly, C.B. There were two sons of the marriage, one of whom is now serving as a second lieutenant in the Royal Field Artillery.

W. A. L.

On December 9th, 1911, Clement Lucas delivered the Bradshaw Lecture before the Royal College of Surgeons. The subject was "Some Points in Heredity." He noted how the word "diathesis" was falling into disuse as the true microbic cause of disease after disease was becoming unravell'd. He held it libellous to continue to speak of John Hunter as of the strumous arthritic diathesis with a nervous element, yet such was the description given of that great man by Professor Laycock as recently as in 1862. Fallacies concerning tuberculosis, syphilis, leprosy, malaria, and cancer were exposed. He reviewed the Mendelian and Galtonian schools, and turned to those undoubted evidences of heredity where physical deformities, not constitutional diseases, were transmitted. Clement Lucas declared on the ground of personal observation, that deformities tend to increase in succeeding generations. The crooked little-finger, which the Mendelians treated as a matter of small account, could easily be shown to be persistently hereditary, and the lecturer reported an instance in which he observed its development in three generations. An ill-developed lateral incisor tooth foretold hare-lip and cleft palate in the offspring. The tenacity of the development of deformity, as Clement Lucas aptly called it, was illustrated by cases of this kind observed in the course of his own experience. Much was said about twins, and the lecturer made out that the one-yolk, or "identical twins," were not necessarily degenerate. One of the pair may undergo prejudicial changes in uterine life, and both may fuse and become double monsters; but on the other hand, both may grow up strong in body, and in some instances strong and "identical" in mind. Lucas quoted the marks gained by twin brothers who passed at the same date the examinations at the Royal Colleges and London University.

DR. THOMAS SMAILES, of Honley, Huddersfield, who died on June 24th after a brief illness, was the oldest doctor in active practice in the Huddersfield district. He was born at Wesleyham Ferrers, Northlants, in 1849, the eldest son of a Wesleyan Methodist minister, and after an early training as a chemist he took up medical studies at the Leeds School of Medicine and the General Infirmary, qualifying as M.R.C.S. Eng. in 1875. He subsequently became L.R.C.P. and L.M. Edin. (1876), L.S. Sc. Durh. (1891),

and M.D. St. Andrews in 1892. After acting for a short time as assistant, he settled at Honley, where he acquired a high reputation as a skilful practitioner. He also became well known by his public work as member of the local board and urban district council for about twenty-nine years, and as its chairman for ten years. He acted for over thirty years as medical officer of health for South Crosland, and for three years as medical superintendent of the Colnet Holmes Fever Hospital, a scheme in which he was greatly interested from its foundation. He was a valued member and "father" of the West Riding Local Medical and Panel Committees, the local treasurer for the War Relief and Belgian Refugee Funds, and the President on two occasions of the Huddersfield Medical Society. Whilst taking an active interest in local government, he also found time for church work. Having released his son for military duties, he took on the full burden of a heavy practice in January last, and the strain brought on an attack of acute pneumonia, which proved too much for him. His loss is widely mourned by a large circle of friends and patients, amongst whom he had practised for a period of forty years.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. Michael F. Gavin, formerly professor of clinical surgery at Boston Polyclinic, aged 72; Dr. Bernard G. Macredlein, formerly professor of oral surgery in the Milwaukee Medical College, of which he was one of the founders, and later professor of the same subject in the Marquette University School of Medicine, aged 67; Dr. Léon Maire, surgeon to the Hotel-Dieu of Vichy; Dr. John Hildreth McCollom, professor of contagious diseases at Harvard and author of numerous writings on diphtheria, scarlet fever, measles, small pox, and other contagious affections, and for many years medical superintendent and director of the Boston City Hospital, aged 72; Dr. Alfred Mitchell, emeritus professor of internal medicine in the Medical School of Maine, Portland, and for many years Dean of the school, aged 78; Dr. Gabriel Richardo, Alcalde of Santa Clara, and a prominent figure in the medical profession of Havana; and Dr. Samuel Baldwin Ward, Dean of the Albany Medical College and professor of the theory and practice of medicine since 1864, aged 73.

THE LATE PROFESSOR HOWARD MARSH.—We have been informed by the Secretary of the Hospital for Sick Children, Great Ormond Street, that the late Professor Howard Marsh held the appointment of house-surgeon to that institution as early as in 1862, before he became Mr. Skey's house-surgeon in October of that year at St. Bartholomew's Hospital. He was elected assistant surgeon to the Children's Hospital in 1868.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

The following degrees have been conferred:

M.D.—A. G. Atkins, on D. H. Fraser, E. Mellanby.
 THESIS M.B. *Rert. U. de Viris, Pathology, and Therapeutics*.—The following candidates have passed: E. D. Adrian, F. H. Brice Smith, H. Gardiner Hill, W. Hillbrook, T. J. H. Holden, L. M. Ingle, R. W. P. Jackson, R. A. Mansell, W. H. Marshall, W. New, R. A. Peters, C. M. Ryley, G. R. S. Thomas.

UNIVERSITY OF LONDON.

MEETING OF THE SENATE.

A MEETING of the Senate was held on June 16th.

Election of Vice-Chancellor.

Sir Alfred Pearce Gould, K.C.V.O., M.S., was elected Vice-Chancellor for the year 1915-16 in succession to Sir Wilmot Herringham, C.B., M.D., to whom the thanks of the Senate were accorded for the services rendered during his tenure of office.

Recognition of Teachers.

The following were recognized as teachers of the university in the subjects and at the institutions indicated:

London Hospital Medical School: Dr. F. J. Smith (Hygiene).
 Middlesex Hospital Medical School: Dr. E. A. Young (Clinical Medicine).
 London (R.F.H.) School of Medicine for Women: Mr. A. G. B. Foulerton (Hygiene).

Appointments.

Dr. Frederick Taylor has been elected Chairman of the Committee of Medical Members of the Senate.
 Dr. T. G. Brodie, F.R.S., was appointed one of the representatives of the university at the hundredth anniversary

celebration of the founding of Alleghany College, held at Meadville, Pennsylvania.

Brown Animal Sanatory Institution.

The annual report of the Superintendent of the Brown Institution for 1914 was presented. It showed that 5,865 animals had been taken to the institution, of which 508 were in-patients at the hospital. The commonest diseases had been mange and scabies in dogs, and lameness in horses. Treatment of a number of animals had been refused on the ground that the owners could afford to pay the proper fees of veterinary surgeons. Of the 508 in-patients 478 were cured or relieved, 10 died, and 20 were destroyed as incurable. The five lectures required under the will of the late Mr. Brown were delivered during November by the Superintendent, the subject selected being the Biology of acid-fast bacilli. The report also contained particular details of investigations carried out in the laboratory by different workers.

UNIVERSITY OF DURHAM.

The following candidates have been approved at the examinations indicated:

- FIRST M.B.—G. Bartell, P. C. Arnold, C. N. Armstrong, F. J. Armstrong, O. Colville, C. C. Carr, R. A. McK. Dickson, R. Davison, J. M. de Lacey, S. Foskett, W. D. Forrest, F. T. Gass, A. S. Graham, A. Hanson, G. Hall, J. Hetherington, H. Kameel, F. N. Y. Lott, R. E. Pratt, S. C. Smith, A. H. W. Whyte.
- SECOND M.B. (*Anatomy and Physiology*).—D. G. P. Bell, W. E. M. Wardill, W. A. Freedman, A. T. Harrison, D. E. Hearn, Mary F. Henson, W. A. James, W. I. F. Powell.
- THIRD M.B. (*Materia Medica, Pharmacology and Pharmacy, Public Health, Medical Jurisprudence, Pathology and Elementary Bacteriology*).—H. M. Leete, E. C. Dunlop, J. A. Heron, N. Brantwaite, W. Dunca, Stephanie P. L. H. T. Dunch, M. J. Erdberg, B. Hunter, J. D. Johnson, M. C. Joint, Freda Newman, R. R. Scott, T. W. Shaw, K. I. Shalaby.

* Passed with second-class honours.

VICTORIA UNIVERSITY OF MANCHESTER.

The following candidates have been approved at the examinations indicated:

- FIRST M.B., CH.B.—J. S. Chorlton, A. T. Gibb, E. Granger, H. M. von Mengershausen, J. Rigby, H. H. Stones, F. Varne, H. Willan. (*Medicine*): W. Halliwell. (*Forensic Medicine and Toxicology*): J. H. Albington, H. W. Bennett, W. Christopher, R. Colley, E. W. Fish, E. R. Gilmere, Eva L. Glasier, G. Lapsage, B. L. Lloyd, E. L. Jewell, F. C. Ormrod, Nestie H. Perry, Dorothy Potts, C. R. Sandford, W. Stansfield, G. B. Wild.

Awarded second-class honours.

Awarded distinctions in Surgery and Medicine.

- THIRD M.B., CH.B. (*Pharmacology and Therapeutics and Hygiene*).—F. H. Anderson, F. E. Archer, W. T. G. Boyd, Hilda R. Brade, Frances G. Bullough, C. E. J. Carruthers, Kathleen L. Cass, Ruth E. Conway, W. C. C. Easton, J. Holker, N. Kleiz, E. N. P. Mercland, J. S. Stenson, A. B. Platt, Elizabeth C. Powell, J. Schloberg, D. M. Sutbeyand, H. Taylor, H. Tomlinson. (*Hygiene*): R. T. Fiddes.
- FIRST M.B. and CH.B. (*Part II, Organic Chemistry and Biochemistry*).—Mary E. Boulton, G. H. Buckley, T. H. S. Bullough, F. P. Coops, G. Cunningham, Kathleen Doyle, Georgiana M. Duthie, Olive M. Gimson, A. Heris, F. C. Jones, S. Kells, J. N. Laird, P. McCormick, J. A. Marriott, W. E. Mason, P. B. Mumford, J. G. Nolan, E. R. Ormerod, Olga M. Payne, H. D. Preston, Ethne Ratner, W. Reikan, A. H. Seick, H. Stafford, Dorris M. R. Tompkin, Ruth A. Wilson.

UNIVERSITY OF BRISTOL.

The following candidates have been approved at the examination indicated:

- FIRST M.B., CH.B.—Hilda Mary Brown, J. R. Duerden, A. J. Keevil, T. H. A. Pinniger, Marjorie South Neville.

UNIVERSITY OF ST. ANDREWS.

The following candidates have been approved at the examinations indicated:

- FIRST M.B., CH.B.—Margaret A. Alexander, Agnes W. Andrew, M. A. Moran Laid, Beryl, A. C. Cassells, D. Dempster, M. A. Margaret, Faith, G. M. Grant, C. B. McDonald, M. A. W. McDonald, M. A. Monahan, Chand, Madhok, D. H. Murray, M. A. D.P.H. Second Examination.—J. C. Robertson.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE COUNCIL OF THE COLLEGE OF SURGEONS.

THE annual election of Fellows into the Council took place on Thursday, July 1st. Sir Frederic Eve, Vice-President, in the chair, presided over the meeting. Mr. W. H. Jones, Mr. W. H. Jones, and Mr. H. J. Price acted as scrutineers; 767 Fellows voted, 758 sending their ballot papers through the post and 9 voting in person.

The result was declared by the Vice-President as follows:

MR. R. L. LILL	... 449 votes.
MR. J. C. BATES SYMONDS	... 443 "
MR. H. F. WALTERHOUSE	... 417 "
MR. J. F. FIFEHEAD	... 251 "
MR. WALTER G. SPINLER	... 300 "
MR. J. B. LAYFORD	... 264 "
MR. T. H. OPENSHAW	... 249 "
MR. H. B. ROBINSON	... 196 "
MR. P. M. YEARSLEY	... 80 "

Mr. Bingham, being fourth on the poll, becomes substitute

member of Council for Sir Rickman Godlee until 1921 and Mr. Walter Spencer, being fifth, becomes substitute member for the late Mr. Lockwood until 1918.

Mr. Ryall and Mr. Symonds were declared July re-elected and Mr. Waterhouse, Mr. Bingham, and Mr. Walter Spencer duly elected members of Council.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS, IRELAND.

Reuben Harvey Memorial Prize.

THE Reuben Harvey Memorial Prize for the year 1915 has been awarded to Mr. Bryan A. McSwiney, of Kingstown, co. Dublin, for a thesis entitled "Creatine and Creatinine."

Medical News.

DR. JOHN SHEARWOOD ROBERTS, of Sheffield, has left estate valued at £78,164.

THE next meeting of the Society for the Study of Inebriety will be held in the rooms of the Medical Society of London, Chandos Street, Cavendish Square, W., on Tuesday, July 13th, at 4 p.m., when Major Leonard Darwin, President of the Eugenics Education Society, will open a discussion on alcoholism and eugenics.

THE following is a list of recently elected Honorary Fellows of the Royal Society of Medicine:—*British*: Sir R. Douglas Powell, Lord Moulton, Sir John MacFadyen, Sir Francis Darwin, Robert Bridges, Lieutenant Colonel Sir David Prain, T. Pridgin Teale, Sir John Williams, Professor E. G. Browne, Professor S. G. Shattock. *Foreign*: Professors J. Babinski, A. Chauffard, Jules Dejerine, M. T. Tuffier (Paris), and Paul Heger (Bielgium).

THE seventy-fourth annual meeting of the Medical-Psychological Association of Great Britain and Ireland will be held at 11, Chandos Street, Cavendish Square, W., under the presidency of Dr. David G. Thomson, at 3 p.m., on Thursday, July 22nd. The business will include the election of officers, council, and standing committees, the reception of reports of committees, and the consideration of a resolution empowering the council, should it think fit, to make grants in aid of original research on the recommendation of the research committee.

ON June 25th the annual meeting of subscribers to the British Hospital for Mothers and Babies and Training School for District Midwives was held at the residence of Countess Brassey in Park Lane. The Countess of Stamford presided in the absence, owing to indisposition, of the Princess Louise Duchess of Argyll. The report of the Committee of Management stated that the home at Woolwich had been amalgamated with the British Lying-in Hospital. The sum of £25,000 was being raised for a new hospital, and about half the amount had been subscribed, including £1,500 by King Edward's Hospital Fund. Lord Sydenham referred to the great wastage in infant life, and expressed himself as strongly in favour of making the Notification of Births Act universal and compulsory, and was glad the new President of the Local Government Board had promised to take this subject in hand. Sir Francis Champneys, Chairman of the Central Midwives Board, said the Board had inaugurated a scheme by which the training of midwives would be extended from three to six months. The Queen and Princess Louise Duchess of Argyll have consented to become patrons of the hospital, and Princess Christian has consented to act as president.

ON July 3rd the Mothercraft and Child Welfare Exhibition at the Passmore Edwards Settlement in Tavistock Place was opened by Muriel Viscountess Helmsey, Chairman of the National Society of Day Nurseries. The object of the exhibition is to spread knowledge whereby the mothers of this country shall be helped to rear healthy children. It will be open daily from 2.30 to 8.30 p.m. till July 10th. Health talks, lectures, and demonstrations are to be given every day by Dr. Eric Pritchard, Miss Florence Petry, Dr. Alice Benham, Dr. Halford Ross, Dr. H. Cameron, Dr. Louis Simonon, and Dr. Langmead, and it is hoped that the exhibition may be of practical assistance to health visitors and social workers in different parts of the country in their task of endeavouring to improve the health of the community. It is intended that this exhibition shall be a permanent one, moving from place to place, and requests for the exhibition to visit particular centres will be received by the Secretary, Mothercraft and Child Welfare Exhibition, 7, Hanover Square, London, W. The exhibits include models of rooms, an artificial feeding exhibit, model clothes, model of a day nursery, a dental exhibit, house-wifery and cooking, and a fly exhibit, illustrating how flies carry disease and how they may be kept away from houses.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Attingham, Westrand, London*; telephone, 2653. (2) FINANCIAL SECRETARY and BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2650. (3) GENERAL MEDICAL SECRETARY, *Medicover, Westrand, London*; telephone, 2634. (4) GERARD, The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

ESQ's queries, answers, and communications relating to subjects in which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

COLONEL G. F. ROWCROFT (Barton-on-Sea writes: With reference to Mr. W. H. Martindale's caution (May 29th, p. 956) against inhaling (volatile) oil of mustard, as recommended in your previous issue of May 8th, he is undoubtedly right. How is it to be done? Is the process recommended useless, or is there something further in it that has not been explained?

PREGNANCY AFTER REMOVAL OF BOTH FALLOPIAN TUBES. DR. C. SHEAHAN (Carcroft, Doncaster writes: A patient of mine, aged 43, underwent removal of both Fallopian tubes, subject to salpingitis, at the Jessop Hospital for Women, Sheffield, in November, 1913. After the operation she continued to menstruate and became pregnant, being delivered of a fully developed male child on June 10th. The infant, however, was stillborn, the patient suffering from chronic Bright's disease, with a large quantity of albumin in the urine. I should like to know if many such cases have been recorded, and how such an occurrence can be explained.

The stumps of the Fallopian tubes do occasionally manage to get rid of their ligatures, so that the canals become pervious and capable of transmitting ova. Morris of Boston, U.S.A., amputated both ovaries and tubes for inflammatory disease quite close to the uterine in July, 1898. As in our correspondent's case, menstruation returned, and then the patient became pregnant and was delivered of a live child in September, 1899. Similar cases have been recorded. The ligature probably ulcerates through the tube, which leads behind it without any stricture of the canal. This also accounts for the failure of many attempts to sterilize patients with contracted pelvis by division and ligation of the tubes. As for small inflamed ovaries when removed with the tubes, since the pedicle is always very short, a piece of ovarian tissue is almost necessarily left behind on the ovarian ligament, just below the stump of the tube. This explains how conception occurred in Morris's case. See "Pregnancy after Removal of both Ovaries for Cystic Tumour," by Alban Doran, *Trans. Obstet. Soc.*, vol. xlv, 1903, p. 231, with an instructive discussion, in which Sir J. Bland-Sutton, Professor Herbert Spencer, Dr. Amund Routh, and other authorities related their experiences. An abstract of the paper and discussion will be found in the JOURNAL, vol. i, 1902, p. 1476, and further notes on "Pregnancy with Deficient Tubes and Ovaries" appeared in vol. i, 1904, p. 743, and on "Pregnancy after Removal of the Fallopian Tubes" in vol. ii, 1910, pp. 1648 and 1891.

ANSWERS.

TREATMENT OF CHEIROPOMPHOXY.

DR. G. LEWIN writes, in reply to "Skin," that he has found a solution of picric acid useful in some cases, and suggests that there would be no harm (beyond the staining) in trying it.

SERUM TEST FOR GONORRHOEAL INFECTION.

"R. R." will find all about the serum test for gonorrhoea in the following: Original articles by Schwartz and McNeil, *American Journ. Med. Sciences*, May, 1911. Textbooks: *Gonorrhoea and its Complications in the Male and Female*, by D. Watson, M.B., C.M. London: H. Kington, 1914. Price 15s. net. *Syphilis and Venereal Diseases*, by C. F. Marshall, M.D., M.Sc., F.R.C.S., third edition. London: Baillière, Tindall, and Cox, 1914. Price 10s. 6d. net.

LETTERS, NOTES, ETC.

THE "NAUHEIM" TREATMENT IN LONDON.

CYANOTIC writes: As it is not possible for patients suffering from cardiac and circulatory disorders to go to Naheim for treatment at the present time, I thought it would interest your readers to have my experience of a course of "Naheim" baths in London. I have suffered from malarial fever in India, and had two severe attacks of influenza. About a year ago I began to suffer from dyspnoea on the slightest exertion; this symptom increased so much that I was obliged to have a motor car in order to attend to my practice; hitherto I had

been able to walk. The dyspnoea increased, and I was absolutely fagged out at the end of a day's work. About five months ago my legs became oedematous, and for four months I had been unable to go to bed on account of the dyspnoea, but had to sleep reclining in an easy chair. Then I sought medical advice from a West End consulting physician, and under his treatment with cardiac tonics, taking as much rest as possible, etc., my condition improved for a time; but I found I was again going downhill, so I consulted the leading authority in this country on the "Naheim" treatment, and on his advice and under his care took a course of "Naheim" baths in London. After a week's treatment I was able to lie down to sleep. Before the treatment my heart was greatly dilated, the area of cardiac dullness measuring 7 in. across at the nipple level; my blood pressure was 100 to 245 mm. Hg. I had great dyspnoea and cyanosis, my calf measured 15 in. (oedema). I was not able to do anything, and could not sleep. After four weeks' treatment the area of cardiac dullness measured 5 in. across, my dyspnoea diminished very markedly, so also did the cyanosis and oedema; the calf now measured 14 in. I feel a different man and fit for work. A day or two ago I walked a mile with comparative comfort—a thing I have not done since last December. My blood pressure now is 90 to 120 mm. Hg. I feel that I should like to bring before my fellow medical men the marvellous results of a course of "Naheim" baths in London, as I do not think that the fact that this treatment can be given in England is sufficiently known. I would end with a warning that the treatment should always be taken under careful medical supervision, and not at a bathing "institution."

"LIFE, ITS ORIGIN AND ENERGY MECHANISM."

"JADROO" writes: May I be permitted to make a brief reply to the notice of my pamphlet you were good enough to insert in the BRITISH MEDICAL JOURNAL of June 26th?

Your reviewer has two points to make against my theory—the one is that "nerve impulse travels at an enormously slower rate than electricity," and the other that "muscular contractions are energized by the electrical nature of a combusive nature in the non-nitrogenous element of the constituent molecules." Regarding the first: If there were a direct course through from station to station—that is, from the cerebro-spinal system whence the impulse originates, to the muscle to be energized, the point your reviewer endeavours to make would be effective, but as there are stations and stopping places on the way—relay stations, in fact—there must necessarily be, when in one originating impulse has in some cases to energize simultaneously a dozen muscles or more, and has to be divided up for the purpose, considerable delays. This is, as I hold, the almost obvious explanation.

Although your reviewer objects to analogies, the position resembles London telegraphing to move troops in Edinburgh, Glasgow, Inverness, Wick, and the Shetland Islands, and half a dozen other places simultaneously. The messages cannot reach all the places at the velocity of electricity. Regarding the second point: If he had said that muscular contractions are accompanied or followed by chemical changes, etc., no objection could have been made to it. As expressed, however, I do not think that any evidence can be produced for his statement. I have carefully sought for such evidence, but have never been able to find any in any standard work on physiology, or biology, or elsewhere.

I have with much interest read what you write, the chief medical journal could advance against my theory, and am pleased to see there is so little.

EPSOM COLLEGE ELECTION.

MRS. DOROTHY MILWARD (5, Glossop Road, Cardiff writes: May I, through the medium of the JOURNAL, thank all those who have been so good as to send me a vote of sympathy at Epsom College for my son Wilmet? I would specially thank the Association and its Branches and Divisions which have been so largely instrumental in gaining for my boy the proud position of head of the poll by 780 votes. The heartiness of the support given is a tribute to the esteem in which my husband was held by members of his profession, and, as such, I would very gratefully acknowledge it. I trust that my son may prove himself worthy of the support which has been given him.

GERMANIZATION OF DICKENS.

M.D. suggests that the next step will be to change the name of Mr. Wemmick's employer, "Mr. Jaggers," to "Mr. Jäger."

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive post-remittance letters addressed either in initials or numbers.

BRITISH HEALTH RESORTS IN PEACE AND WAR.

BEING THE THIRD CHADWICK LECTURE, DELIVERED AT THE
ROYAL SOCIETY OF MEDICINE, JUNE 10TH, 1915.

BY R. FORTESCUE FOX, M.D., M.R.C.P.,
F.R.MET. SOC.

The remedial use of water may be said to rest upon the two bases of history and experiment. In my first lecture I recalled the long history and tradition connected with this branch of treatment, and showed that whilst it has survived all changes of medical doctrine, it has flourished most when men's minds were turned from vain speculations and occultism to the observation and study of natural processes. In the second lecture I examined the experimental basis of the subject, and endeavoured to show that the use of baths in particular was agreeable to ascertained physiological law, and that their proved effect upon the body was such as to make them remedies of no mean value.

I propose now to consider the British health resorts in which waters and baths of various kinds are employed. Some of them have been in popular or medical use for many centuries, others only for a few years. Some are large towns, others small villages. Some are warm places in the plain or valleys, others cool, on the moorland or hillside. Their medical value consists in the means of treatment they afford. In this respect some resorts, in virtue of their natural endowment, enjoy a wider application than others. These have, perhaps, a stronger individuality and their application is more limited, but by no means less valuable.

Formerly the chief consideration in the choice of a spa was that one possessed larger establishments than another, or was more modern or amusing, the presumption being that the same treatment could be obtained everywhere. This idea has found support from the practice at some resorts of introducing all the methods of treatment belonging to other places. In the endeavour to create a universal provider there is, however, a danger lest the original virtue of the place, perhaps the waters, by which its reputation was first established, should be in the new development neglected and forgotten.

The serious study of medical hydrology in recent years has shed new light upon the true value of waters. And not only has the hydrologist to consider what are the particular properties and actions of the waters and baths, but what is the influence of the place as a whole, including, above all, the influence of the climate upon the sensitive organization of invalids. In the best type of health resorts the specific action of the waters and baths is promoted and reinforced by the general action of the place.

National Health Resorts.

The health resorts of a country are a national asset. Their utilization and development may be a matter of national concern. It was so under the Roman Empire, when baths were more widely and scientifically employed than at any period in history. It is so now in France, Italy, Germany, and other Continental countries. In those countries the Governments have for many years made themselves responsible in one way or another for the national spas. Medicinal waters, like other mineral resources, are considered of sufficient importance to warrant their conservation by law, and their development is assisted by Government oversight and legal provision. They are thereby protected against the risks that otherwise attach to private ownership, both in the way of neglect on the one hand and unwise exploitation on the other.

Owing to the European war British invalids are almost entirely precluded from availing themselves of the Continental spas, which have enjoyed hitherto perhaps an undue share of British favour. This favourable notice was, no doubt, chiefly due to the high state of development they have reached under the encouragement and supervision of their Governments. If one nation be compared with another, the Frenchman goes to the French resorts, the Italians to those of Italy, the Germans to those of Germany. But the British have in great numbers

gone far afield, and many of the spas of other countries owe much of their prosperity to this fact.

Another reason for seriously examining the resources of our own country is that large numbers of war invalids are now leaving the hospitals who are not fit to return to the front nor yet to go to their own homes. We know from long experience in civil life that the maladies and disabilities from which these men suffer can be greatly relieved and often cured by the ministrations of the health resort.

The General Characters of British Health Resorts.

An island climate on the north-west of Europe has given to the British health resorts a certain character which differs widely from the Continental type. They are situated five to ten degrees nearer to the polar circle than the great spas of France and Germany. The more northerly summer is cool and fresh, with frequent changes of temperature. The North Atlantic current may be 6° or 8° F. cooler than the sea at Dover, and nearly 20° cooler than the Mediterranean. No such tempering influences mitigate the heat of the Continental summer. Since the action of baths is different in different climates, and especially varies with altitude and with temperature, the choice of a bathing station is sometimes a matter of climate. Thermal treatment may be well borne by a delicate subject in a cool or dry air, but might be intolerable and even dangerous in a hot and humid valley.

SCALE OF THERMALITY OF BATHING RESORTS. (Mean Temperature of July in degrees Fahr.)

78. Castellammare, Bay of Naples.
- 77.
76. Salsomaggiore (altitude 520 ft.).
75. Levico (1,700 ft.).
- 74.
- 73.
72. Bex, Switzerland (1,400 ft.).
- 71.
- 70.
69. Naubeim, Homburg, and the Rhine Spas.
68. Aix-les-Bains (860 ft.).
67. Evians-les-Bains (1,240 ft.). Vichy (736 ft.).
66. Spa, Belgium (1,000 ft.). Luchon, Pyrenees (2,030 ft.).
65. Contrexéville (1,150 ft.).
64. Plombières (1,300 ft.).
63. BATH (100 ft.). DROITWICH (200 ft.). LEAMINGTON (200 ft.). CHELTENHAM (150 ft.).
62. BUXTON (1,000 ft.). LLANDRINDOD (700 ft.). WOODHALL SPA (37 ft.).
61. HARROGATE (500 ft.). Bormio, Italy (4,500 ft.).
60. Cauterets, Pyrenees (3,200 ft.).
- 59.
58. STRATHPEPPER (200 ft.).
57. Leukerbad, Switzerland (4,600 ft.).
- 56.
55. St. Moritz, Switzerland (5,800 ft.).
- 54.
- 53.
52. BATH, in the spring months.

There are certain disorders and constitutions for which health resorts high on the scale of thermality are helpful and appropriate. At the hot end of the scale are most but not all of the Continental spas. Most of the British spas will be found in the cooler part of the scale. The coolest spas are those of high altitude and of northern latitude. Some invalids require treatment in the warmth and shelter of valleys, or in warm summer climates, such as can be obtained in England at Bath, Leamington, or Woodhall Spa. Others do better on the moorland or hillside, as at Buxton or Harrogate; others again at mountain resorts, such as the great French spas in the Auvergne; and others at northern stations, as in Scotland.

The difference in summer heat between the cooler British spas and those of the Continental plains is quite enough to affect the result of treatment. Buxton is 8° F. cooler than Naubeim and the Rhine, and Strathpepper as much as 12° F. cooler. In weakness of the heart and circulation cool treatments are preferable, or at most a carefully limited and guarded thermal influence.

Thermal Debility.

It follows that the British spas are less liable than their rivals to the chief danger that attends upon the use of hot

baths—namely, the condition that has been described as "thermal debility." Many persons to avoid this undesirable result of treatment are very properly advised to take an "after-cure" in bracing air. If this is neglected, and sometimes in spite of all precautions, an insidious weakness may be experienced, which is in proportion to the heat to which the patient has been subjected, both in the bath and in the climate. In the cooler British stations this danger is minimized.

Northern British Resorts.

Many of the stimulating effects belonging to high altitudes may be obtained at the northern British resorts, at or near the level of the sea. The cool summers of the north, like those of high altitudes, make a greater call upon the activity of the tissues than warm summers, but do not make the same demand upon the heart and breathing. Consequently, the northern cold is better borne than the same degree of cold in the mountains, especially by elderly persons and those in whom the breathing and circulation are embarrassed. The long summer days give a character of their own to northern stations, and the extreme translucence of the air, as in the mountains, is evidenced not only by the feeling of warmth, but by the power of the actinic rays. It is also remarkably free from dust. The atmosphere has more humidity than in the Alps, and is therefore more sedative.

It will be observed that many varieties of stimulant and sedative influence are blended in the health resorts of the north. For example, in the north-east of Scotland a marine air is often combined with that of the moorland, and at an elevation of a few hundred feet the atmosphere has a fresh and invigorating quality with which a sedative influence is subtly mingled. The baths and climates of northern health resorts are especially helpful in nervous and mental fatigue, in circulatory disturbance, insomnia, and premature age. The Norwegian spas Larvik and Sandefjord, and the famous Swedish baths of Modum, should be placed in this category.

British Thermal and Subthermal Waters.

Bath stands highest in the scale of therminality of all the British spas, and the warm climate accentuates and reinforces the sedative effect of the baths. The climate of Buxton, like the waters, is of lower temperature and more tonic. The two places represent two widely differing types of treatment, both of great value in their proper application. Bath is a health resort of very large application, since the treatment can be given throughout the year. It is therefore a spa of two therminalities. For some constitutions and maladies the baths are most efficacious in summer, whilst others require the cooler regimen of winter and spring. No better example could be adduced of the fact that the climate for the time being powerfully affects the results of bath treatment. The baths of Buxton have a stimulant effect in those rheumatic and gouty disorders for which warmer treatments may be injurious; but over and above the effects of temperature Buxton waters exert a definite action in many cases of rheumatism. The less frequented waters of Matlock Bath in Derbyshire, of Clifton, and of Mallow in county Cork, belong to the same valuable class of naturally warm waters.

Sulphur Waters.

Sulphur waters are well represented in the British Islands. In what form is this element presented in natural waters? For the most part as a volatile gas, antiseptic, absorbed by the skin, rapidly diffused throughout the body. In its effect upon some chronic disorders it approaches to a true specific. Its exhibition in such cases often aggravates symptoms before relieving them. The hydric and alkaline sulphides exist nearly alone or combined with lime salts in what have been called "pure" sulphur waters, like those of Stratheffer in Scotland, Llanwrtyd in Wales, and Lisdoonvarna in Ireland. In another group the sulphides are combined with chlorides, forming a "muriated sulphur" water, as at Harrogate, Llandrindod, and Moffat. The lime salts and chlorides are respectively diuretic and aperient, but modify also in other ways the actions and uses of sulphur waters. For example, one of the sources at Llandrindod is nearly isotonic with the blood, and, following the French hydrologists, might be called a "natural serum."

Hot sulphur springs, which are associated with volcanic action, are not found in Great Britain. But there are

within the empire many remarkable waters of this class, notably in the Punjab and other parts of India, and in New Zealand, not to mention Helwan in Egypt.

Salt Waters.

Droitwich, the premier British salt spa, has a saturated brine, radio-active, containing about ten times as much salt as sea water. It is well adapted for stimulating surface treatments at different temperatures (see *infra*, rheumatism and cardio-vascular affections). The other salt or muriated waters of Britain can be used both for drinking and bathing. Here again the secondary and modifying elements in the water alter its whole effect. For this reason the salt spas are possessed of strong individuality, and are widely different in their actions and uses. The group includes Woodhall Spa, Bridge of Allan, Leamington, Cheltenham, and Llangamarch in Wales.

Treatment of Rheumatism and Gout.

In some cases the high therminality of the Continental spas (Aix-les-Bains, Vichy) is to be preferred to the cooler range of island resorts. But it should be remembered that rheumatic persons, and still more sufferers from gout, are sensitive to heat, and therefore prone to suffer from thermal debility after bath treatments. For this reason the hydrologist will often prefer the cooler treatments of the British spas, particularly in atonic states of the cardio-vascular system. A cure is dearly bought at the expense of the heart.

It has sometimes been argued with a show of reason that since all the spas claim to benefit rheumatism, therefore no particular water is better than another. The truth is that at all well appointed spas a similar kind of bath treatment is employed, namely, heat in various degrees and forms, with douching and massage. These external applications are sometimes described as "thermal treatment," and can be, within limits, given anywhere. For rheumatism and gout, as for other maladies, the spas therefore offer a twofold provision—the remedy of heat and thermal treatment, in which they agree; and the remedy of waters, in which they differ. Undoubtedly rheumatism is treated with success at most well appointed spas, for the reason that it receives at all of them a similar thermal treatment.

But altogether apart from baths and other surface treatment, there are certain waters which have a curative value in rheumatism and gout, and after a rather long experience I am not disposed to say whether the baths or the waters are the more valuable.

England offers for these maladies the thermal water of Bath and the subthermal water of Buxton. Both of these, within their own class, are unsurpassed and of the first value. Then there are the brines of Droitwich and Nantwich, affording one of the most effectual forms of external treatment. Lastly, there is the important group of sulphur waters, for drinking and bathing, which in their effect upon the body approach to a specific action in these maladies.

Treatment of Nervous Affections.

As regards nervous affections, the loss of the Continent will be difficult to make good. The physician often relies upon a complete change of scene and atmosphere, of habits and people, even of country and language, in order to recreate wearied and irritated nerve centres, or to overcome old habits of invalidism.

With reference to bath treatment, it may be noted that in nervous disorders for which health resorts are appropriate: (1) Both irritation and depression are usually present, and therefore a sedative as well as a stimulant action are required; (2) that cool and "subthermal" treatments combine a sedative with a stimulant action, and that, on the whole, hot or thermal bath treatments are injurious in nervous maladies; (3) that rest is often an urgent requisite, and that therefore many small and tranquil spas in a rather sedative climate may be in some cases preferable to other resorts that are recommended as having "every treatment, the finest hotels and the best music"; (4) that in the summer and autumn seasons moorland and especially northern air, with or without tonic bath treatments, are especially helpful for these subjects.

Treatment of Circulatory Disorders.

An acknowledgement is due to the foreign physicians who have called attention to the good effect of cooling

baths in heart affections. For many years the fact had been occasionally noted at the spas, both in the British Islands and in Italy and France, but those observations were neglected or forgotten until the claim was recently put forward in connexion with a particular Continental health resort. In truth, equally good results have been obtained at many places from baths of a certain temperature with or without effervescence. There is nothing specific in what has been loosely called the "Nauheim bath."

The British health resorts, in consequence of the island climate, are well adapted to the bath treatment of cardiovascular cases. No persons are so liable to thermal debility as those who suffer from circulatory troubles. In their case during the summer season both hot baths and hot climates are best avoided. Moreover, for the greater number of such persons the fatigues of foreign travel, as well as the abrupt change of habits, may be prejudicial. There is in the British Islands a wide choice of localities where baths of this description are given with sufficient precision. It must be confessed that no bath requires greater care, and accuracy of observation of its effects from day to day; and in no other kind of disorder is the reaction to baths so curiously variable.

During the summer season cardio-vascular patients may be treated in the relative warmth of Droitwich or Woodhall Spa; or, in an atmosphere of ascending tonicity, at Llangammarch, Llandrindod, Harrogate, Buxton, Strathpeffer. All of these places, although very different, may be described as resorts for circulatory disorders. In winter time baths of the same kind may often be taken with advantage at coast resorts like Sidmouth or Torquay, or in adequate bath establishments in the town.

Undeveloped British Spas.

Besides certain spas already mentioned, there are two British waters, once much resorted to, and still of great potential value. These are the chalybeate water of Tunbridge Wells and the St. Anne's Well at Malvern. Although possessing a minimum of "mineral" constituents, Malvern is a true "medicinal" water, with an action best described as *eliminant*. It takes rank with Evians on the Lake of Geneva, and there is, in my opinion, no reason why Malvern in time to come should not occupy as important a position among the health resorts of England.

War Service of the British Spas.

It is well known that for many years the Continental spas have been widely and successfully used for the after-treatment of soldiers in connexion with European wars. After the South African war many military cases were treated with advantage at the British spas, but, unfortunately, no systematic records were kept. The matter was discussed by the Section of Balneology in the Royal Society of Medicine, with the conclusion that, from the evidence available in this country, supported by the much more extensive evidence of other countries, valuable results might be anticipated from similar treatment at the present time if efficiently and systematically carried out. That is to say, that a great many injured and disabled men, for whom all that is possible had been done by surgical skill and ordinary hospital treatment, would obtain relief or cure from suitable treatment by baths and waters, which would be otherwise unattainable. In short, that there is in war time a great scope for after-treatment at bathing health resorts.

In view of these facts, and of the great numbers of men invalided from the field, the Section determined to draw the attention of the authorities to the matter. Early in the year a committee was formed, upon which the War Office and the Royal Society of Medicine were represented. Local committees and representatives were forthwith appointed at the British health resorts and the facilities for treatment inquired into and organized. A widespread absence of information was encountered, and a pamphlet prepared setting forth the various conditions, surgical and medical, which could be submitted to bath treatment with advantage, with a schedule of the health resorts and the treatment which they offered. This was circulated by the War Office among the military hospitals, and also supplied to the Admiralty. A full statement of the available accommodation, both for officers and men, at the principal resorts was also prepared.

The health resorts without exception showed every willingness to co-operate in this war service. Already very large numbers of free baths have been given, free accommodation has been often availed of, and spa practitioners have given their services in all necessitous cases. Private bath establishments and "hydropathics" in the less fortunate situations have for the emergency of the war placed their facilities for bath treatment freely at the disposal of the local medical men for military cases.

The Committee were anxious to promote not only a sufficient but an efficient after-treatment. A system of case record cards was organized. These have been officially approved, and will form part of the Government statistics in the medical history of the war. About 7,000 cards have been already issued.

Perhaps the most serious difficulty is the proper selection of cases for the different localities. On the one hand are the men, hundreds or thousands, ready to leave the hospitals or homes, but not yet cured. On the other hand, there is offered for their relief or cure a wide and various provision of waters, baths, and climates all over the country. The problem is how to bridge this gap, so as to secure for each man the best choice of locality and treatment. Only by careful selection in the hospitals, or in some kind of clearing station, and by expert distribution of cases can favourable results be obtained. The same care and pains that are taken in advising ordinary invalids ought to be applied to the distribution of military cases.

Medical Baths in Towns.

A large number of these men could be treated at a good medical bath establishment in town or country, as well as or better than at a spa. Medical baths have been for many years in use in Continental cities, with similar installations in the civil and military hospitals. The hydrotherapy thus provided is found adequate for a certain proportion of cases, and much expense avoided. In time of war many of the most useful treatments can be thus applied, under skilled medical direction, in the vicinity of the great hospitals, and large numbers of patients can be easily handled with a modest installation of baths.

In the British Islands baths have been hitherto but little used in connexion with the hospitals, but good medical baths have been erected of late years in London, Bradford, and other towns, where treatment is adequately given. New needs have now to be met. The Committee has included in its recommendations that approved establishments should be made available for military use, and that bath treatment should be attached to some of the military hospitals.

Future of British Hydrology.

No one who has followed the growth of medical hydrology in this and other countries during the last few years can fail to realize that it has taken a place among the medical sciences, and that at the present day the art or practice of hydrology affects the welfare of many thousands of persons. How important in the public interest that this branch of treatment should be well-informed and scientific, and that a wise, and not unwise, use should be made of the British waters and baths!

What better means could be taken to these ends than to set up systematic instruction in hydrology? And what better place than London to possess an institute of hydrology? At such an institute, under right auspices, not only could teaching be given, but a clinic established, and, most vital of all, investigation and research carried on, that English physicians should no longer subsist on knowledge borrowed from other countries, but that we should substantiate our practice upon our own soil. Only so in any country can any art permanently flourish.

If our view be extended a little further—from London to the outlying parts of the empire, to South Africa, India, New Zealand, Canada—the British hydrologist has work to do. India alone is richly endowed with medicinal waters of every description. No scientific report has ever, admittedly, been made upon them. There and elsewhere much remains to be done to investigate, make known, and utilize these natural resources of the empire.

[The lecture concluded with an account of the arrangements for soldiers at the British spas, illustrated by lantern slides.]

THE
DIAGNOSIS, PROGNOSIS, AND TREATMENT OF
NERVE AND MUSCLE INJURIES RESULT-
ING FROM GUNSHOT WOUNDS;

WITH ESPECIAL REFERENCE TO THE USE OF THE
LEWIS JONES CONDENSER APPARATUS.

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IMPORTANT as is the X-ray work of a large military base hospital in war time, it is necessarily somewhat one-sided. Diagnosis bulks large; Roentgen treatment is called for only to a very limited extent. But the activities of the electrical department are not—or, at any rate, should not be—confined solely to radiography. Provided that intelligent lay assistants are available, much of the actual taking of plates may safely be left in their hands. The medical officer in charge should see every plate and every patient, and should himself write all reports; but the time which would be occupied in routine work may be more profitably employed in another field.

As a result of injuries sustained on active service—for example, bullet wounds in the neighbourhood of nerve trunks—the number of cases of paralysis of limbs is great. To decide upon the exact lesion present in each case, and to sort out those which, if curable at all, are curable only by operation, from those in which treatment by non-surgical measures ought to be tried, is a task calling for all the diagnostic skill which can be brought to bear upon it. When the most severe cases have been handed over to the surgeon, there remains a large number whose only hope of a restoration to usefulness must lie in those means of treatment which are at the disposal of the electro-therapist.

Diagnosis and Prognosis.

The introduction by the late Dr. Lewis Jones of an apparatus known as a "condenser testing set" has proved of the utmost value.¹ In the early days of the war I applied for, and obtained, one of these sets, and all nerve and muscle testing has been done by its aid. With it electrical impulses varying in length from $\frac{1}{10000}$ up to $\frac{1}{2}$ of a second in length can be thrown into a muscle.² A choice of twelve is given by the existing instrument.³ Only absolutely normal muscles will respond to the first two. On the other hand (when the limb is warm), response only to the last two values on the scale—when these are reinforced in a manner specially provided—is considered in the light of our experience here to be an indication for operative interference. Exploration has shown either a mechanically divided nerve or one strangled by fibrous tissue. It is our usual practice to wait a month after the first test before resorting to operation, and to search anxiously for any sign of spontaneous improvement. Where, however, sensation is also completely lost there can be no excuse for delay.

Muscular reaction confined to condenser impulses of the order $\frac{1}{10}$ of a second is a most valuable guide in determining the necessity for an operation. If the nerve, when exposed, is found to be actually severed it is, of course, certain that the patient will not recover the full use of his limb for a long time; but if the lesion is merely a strangulation, the original condenser test does not in itself furnish sufficient ground for a definite prognosis. The test may be relied on to show that a *physiological* block has existed for some time, but does not necessarily mean that the axis cylinders distal to the lesion are injured beyond power of

recovery. This limitation fortunately detracts but little from the practical utility of the test. Operation apart, its prognostic significance is most unfavourable.

Muscles requiring from 3 to 8 on the condenser scale to throw them into contraction will all respond more or less to faradism, the only difference being that some require a stronger current than others. It is true that nearly all lower segment lesions in which, after some weeks, a fair faradic response can be obtained tend to recover either spontaneously or under proper treatment; but the time and care necessary vary greatly as between case and case. Two patients, each of whom has had an injury to the leg, may both be equally unable to move the corresponding foot. Yet one is cured in a few weeks, while the other requires careful attention for months. The muscles in each case react to faradism, the response being somewhat less brisk in the one case than in the other. If these cases be tried with the condenser test, it will be found that the first reacts to No. 3 or 4; the second, only to 7 or 8.

The average faradic coil gives individual impulses lasting—effectively—about $\frac{1}{10}$ of a second. The normal muscle can react to impulses lasting less than one-twentieth of this time, and therefore a muscle whose nerve supply has been very considerably impaired may still respond well to coil currents. One has frequently heard it stated in courts of law that because the claimant—for example, in a workman's compensation case—stated that he could not freely use a limb, whereas all its muscles responded well to faradism, it was therefore strongly to be presumed that he was malingering; or, at least, greatly exaggerating his symptoms. Medical witnesses for the defence did not go so far as to assert that good faradic reactions could not exist coincidentally with loss of voluntary power in lower segment lesions, but gave it as their opinion that such cases were extremely rare. I will admit that I formerly had some leanings to such a view; but the experience of the last six months has convinced me that, while complete loss of will control is unusual when faradic response is preserved, impairment is very common. This takes the form of feeble action, or, more characteristically, of sluggish movement resembling that of involuntary muscle.

In the condenser testing set we have a means of gauging objectively the seriousness or otherwise of the various cases which in former days would simply have been noted as responding to faradism—with, perhaps, the further note that the response was brisk, moderate, or feeble. The condenser set furnishes us with seven or eight definite impulses, all lying within the faradic range, but differing the one from the other in such degree that an injured muscle will not twitch until a particular stud is reached. A faradic test can never be repeated exactly as it was made; the impulse of a condenser of known capacity charged at a definite voltage is always the same.⁴ The possibility of personal error in electrical testing is thus greatly reduced, and one is usually able to give a prognosis with very considerable confidence.

Two types of cases in which complete loss of voluntary power may exist react to the lowest condenser discharges: paralysis due to disuse, and paralysis due to psychical trauma. The amount of disability which can result from simple disuse, and which may sometimes persist in spite of massage and passive movement, must be seen to be believed. I refer to the case of limbs which have been kept on splints as a result of wounds, but in which no specific damage has been done to nerves and muscles. Yet it may safely be prophesied that full voluntary control can be re-established in a month or less. Paralysis due to psychical trauma must be carefully distinguished from the above, though the condenser results are identical. The history is nearly always that of an injury under dramatic circumstances—often the bursting of a shell which has killed several men near to the patient. Generally he has himself been slightly wounded in the neighbourhood of the paralysed member. In civil practice such cases would be dubbed "hysterical palsy," but the use of such a term appears to be inappropriate under present circumstances. Many of the victims of this form of paralysis are men of proved bravery, and there is no ground for assuming that they are necessarily of unbalanced mentality. Skin

¹His description was published in the *Proceedings of the Royal Society of Medicine*, vol. vi, 1913 (Elect.-Therap. Sect.).

²The instrument in use here is one made by Mr. Leslie Miller, the original model having been constructed under the supervision of Dr. Lewis Jones. It is used nominally at 100 volts, and the twelfth stud then gives rise to an impulse lasting $\frac{1}{2}$ second. An arrangement is provided, however, by which the last three studs may be used over again through a resistance at a voltage of 200. We are thus able to get impulses lasting approximately $\frac{1}{10}$, $\frac{1}{5}$, and $\frac{1}{2}$ second. This makes 15 gradations in all, and muscles are reported on as responding somewhere between 1 and 15. "Lewis Jones condenser scale"; or, briefly, thus: "Tib. anticus, 13, c.a." (condenser scale). Both electrodes are always placed on the muscle.

⁴The resistance also counts, but that of the human body may be regarded, for condenser testing purposes, as a constant.

anaesthesia following the distribution of no cutaneous nerve or nerves is a common accompaniment, and aids in the diagnosis. The majority of such patients recover in a week or two under appropriate treatment, but a favourable prognosis cannot be given with certainty at first, as cases with a neurotic taint may prove most obstinate.

In the types of paralysis above discussed there is no injury to nerve trunks. Where such injury has occurred, but without the abolition of all faradic response, condenser studs ranging from No. 4 to No. 8 will be required to provoke reaction. The prognosis in such cases cannot be given even approximately as the result of a single test. They must be appropriately treated, and examined electrically from time to time. Some will improve rapidly in a week or so; in them a speedy restoration may be looked for. On the other hand, others will show no change for the better even in two months. In a few instances paresis gradually passes into paralysis, in spite of treatment; this is due, in most cases, to a gradually contracting fibrous band. The latter class should be operated on as soon as it is certain that they are retrogressing. In the "no change" type it is also probably best to operate, although some patients undoubtedly begin to improve even after two months, and in others the lesion may not be such as can be benefited by surgery. In cases of fibrous stricture, however, the chances of surgical success are so much lessened by delay that a reasonable probability of its presence justifies exploration. Provided that the operation is skilfully done, practically the only risk which the patient runs is that inseparable from the administration of an anaesthetic.

The same remarks apply to cases just beyond the faradic range, but the prognosis becomes progressively more unfavourable as the higher condenser numbers are approached. Strictly speaking, all cases in which it is decided to wait should be given the benefit of treatment in the interval, but in practice it is not usually possible to find time for this when the probability is very strong that operation will ultimately be required.

Down to the end of February, 13 cases were recommended for operation, constituting about one-fifth of the total number examined. Of those explored, the nerve was found to be severed in one, almost severed in a second, and constricted in the remaining eleven. It may, of course, be objected that some of the latter would have recovered without operation, but the surgeon was not of this opinion. On the other hand, the cases in which a favourable prognosis was given have for the most part done well. The kind of exception which is most likely to occur is that in an apparently severe case nothing definite is discovered at operation, and complete recovery subsequently occurs. So long, however, as it is found possible to prophesy correctly in two out of every three cases, the value of the condenser test will not be seriously impaired.

The foregoing remarks are intended to refer chiefly to gunshot injuries of nerve trunks. The principles of treatment immediately to be laid down apply, however, equally well to lower segment palsies, however caused. Injury to the circumflex nerve as a result of dislocation, paralysis following a toxic neuritis, and disabilities due to anterior poliomyelitis, are cases in point.

TREATMENT.

The cases treated in the electrical department may have been operated on or not. In the former instance a divided nerve may have been found or merely a strangulation. Again, the condenser test may show the muscular reaction to be within the limits of the normal; or, while still capable of faradic response, the muscles may require abnormally long condenser discharges to excite them; or, again, the injury to the nerve-muscle combination may be so serious as to require the longest possible impulses. In some instances there will be no voluntary power; in others, it will remain considerable. Finally, passive movement may be free or greatly restricted either by adhesions or contractures. Each of the above calls for some special modifications in the treatment applied, but certain general rules may be laid down which are more or less applicable to all cases.

1. Necessity for Free Passive Movement.

On first seeing a case we should determine whether any adhesions are present. The mere fact that a joint cannot be moved freely does not, of course, prove that it is limited

by fibrous tissue. Limitation may also be due to (a) tendon shortening, (b) contracture of muscles, (c) simple muscular spasm. The joint and as much of the limb as possible should be immersed in hot water—as hot as the patient can bear. After a few minutes it will often be found that a much greater range of passive movement can be obtained. In simple spasm the muscle does not tend to recontract while under the hot water. In contracture the limb can generally be more or less straightened by gradual pressure, but tends to resume its old position immediately. In tendon shortening and fibrous adhesions it cannot be straightened at all. The former condition can be recognized by feeling the tendons stand out when the limb is moved in opposition to them. The diagnosis of fibrous adhesion is arrived at by a process of exclusion. It is assumed that an x-ray examination has shown that no bony ankylosis is present.

Massage can do something to alleviate all the foregoing conditions, but its maximum effect is often very quickly reached, and further dependence upon it alone becomes a mistake. As soon as definite improvement week by week ceases to occur under massage, other therapeutic measures must be used. Fibrous adhesions can often be overcome by the use of the continuous current; or, if the expression is preferred, by chlorine ionization. Tendon shortening is the result of a faulty position during the healing of a wound, and may, in bad cases, have to be dealt with surgically.

Contracture of muscles is due to paralysis or paresis of their opponents, and, if recognized early and combated by suitable splints, need never become serious. If already present in marked degree, a splint must be applied of such a shape as to relax the parietic muscle or muscles. Where the contracted muscles are otherwise normal, the matter is simple, but where they are themselves only less damaged than their opponents the exact amount of extension and the time during which the splint should be worn are matters calling for the exercise of careful judgement. We must also beware of trusting to relaxation alone to cure a damaged muscle. In many cases it will; but, even so, if electrical stimulation be added, the time required is shortened by one-half to two-thirds. And there are instances in which nothing other than the electrical stimulus has power to set the damaged neuro-muscular machinery again in motion.

The point of the foregoing remarks is that direct stimulation of muscles and motor nerves is useless unless proper mechanical conditions have first been established.

2. Importance of Warmth.

The preliminary treatment just discussed may occupy days or weeks, but there is a further preparation, which it may be necessary to attend to at the commencement of each individual sitting. To attempt the electrical stimulation of cold and clammy limbs is futile. The affected parts should be immersed in hot water for some minutes, and if diathermy is available, it is desirable to apply it also.

3. Direct Application of Electricity to Nerves.

The transverse passage of large galvanic currents through the site of injury of a nerve trunk is often advantageous. Large pads are placed opposite to one another, so that the limb is almost encircled. The absorption of blood-clot and fibrous tissue is promoted, and local healing generally accelerated. It is also useful, when the limb is in the before-mentioned hot bath, to pass a mild sinusoidal current; it should not be heavy enough to cause any visible muscular contraction. If definite movements are produced the healthy muscles are apt to benefit more than the injured, and the tendency to unbalanced action is thus increased. Much discredit has been brought upon electrotherapy by the indiscriminate use of baths by ignorant persons.

4. Stimulation of Individual Muscles by Interrupted Currents or Condenser Discharges.

This is the sheet anchor in the treatment of nerve-muscle injuries. It needs much skill and practice, and cannot be successfully accomplished merely by propping up in front of one a diagram showing motor points. A skilful operator learns to play upon a limb as on an instrument, and is able to produce any desired movement or combination of movements at will.

Upon the first occasion the movements of the paretic muscles should be provoked at intervals of a few seconds until definite fatigue appears—that is, until the response is obviously weaker. The object of this is to obtain necessary data. Upon the next occasion only half the previous amount of stimulation must be given, so as to avoid all possibility of overting the muscles. The amount of stimulation at each sitting should not be increased until it is reasonably certain that more can be tolerated without fatigue. In order that the information obtained at one sitting may be usefully applied at the next, it is necessary to be able to repeat or modify all the conditions as desired. With a faradic coil this cannot be done with any approach to nicety, though practice and experience will enable one to obtain very fair results. The most accurate instrument for the purpose is a modification of the condenser testing apparatus, in which a mercury break takes the place of the metronome, and any selected length of condenser impulse may be thrown into a muscle a given number of times per second. A speedometer should be attached to the motor of the break, and the patient's circuit should be interrupted by some mechanical device which can be set for any given speed. If a metronome is used, the mercury in the cups may be so adjusted as to cause each tetanization to last any desired space of time. With a little adaptation, the same metronome may be used either for charging and discharging condensers in nerve testing, or to interrupt rhythmically any form of current which is being passed into the patient. Generally speaking, the individual contraction should only be of brief duration.

The instrument has the additional advantages that muscles injured beyond the faradic range may be rhythmically tetanized if desired, and that the progress of a case in either direction may be ganged without special tests, owing to the muscles requiring a higher or a lower stud to excite them.*

5. Exercises.

The value of exercises when any voluntary power is present is well known, but the method of resistance to graduated pressure (or weight) does not seem to have been as widely used as it deserves. Such control often returns long before ordinary movements can be performed, and gives great confidence to the patient. The movement of otherwise helpless limbs is often possible in a full bath. Great care should be taken not to ask patients to perform any given movement unless there is a good prospect of their being able to do so; failure often causes great depression.

It will be objected to this that many apparently fruitless efforts may be necessary before success can be obtained. This is true, but the well-known good effects of utilizing the will may be obtained without risk of mental upset. Patients should be told to make a mental effort at the same time as a contraction of the muscle is about to be provoked electrically. The metronome is a great aid to this, as the patient soon learns to know exactly when the stimulus is coming. A sliding resistance is also an advantage, as the operator can by its aid make fine adjustments in the strength of the current according to the amount of voluntary effort put forth by the patient. Even if at first no appreciable lessening of the required electrical stimulus is produced by the patient's voluntary efforts, these should be persisted in; as a result of such persistence, cases which are curable will be cured the more quickly.

Cases in which the psychical element enters need especially tactful handling. They are of two kinds. The mental trauma may be wholly responsible for the disability. But it is a great mistake to tell such patients that there is really nothing the matter with them. They should be shown that their muscles are all capable of vigorous movement under electrical stimulus, and informed that all they need is proper treatment to put them right in a week or two. The judicious holding out of the prospect of furlough "as soon as the power returns" also has a good effect. Harshness may easily render an otherwise readily curable disability lengthy or even permanent.

* The electrical stimulation of muscles just described must not be regarded merely as a means of keeping them in order while their nerves are spontaneously recovering. By conduction and reflex action the whole of the lower segment neuron is favourably affected, and not merely its terminations in the muscle.

Again, we may have to deal with a definite organic injury in itself curable, but accompanied by an emotional instability due to shock. Patients affected thus are apt to weep, and declare their hopelessness of cure in the face of obvious local improvement. It is no use dealing sternly with them in these circumstances. If they have good homes, they are best sent to them for a week or two with a clear intimation that they are to use the respite to "pull themselves together." On their return it is time enough to lecture them upon their foolishness. Some patients of this type, although able to get about and apparently well in body, cannot be satisfactorily treated as out-patients. The discipline of a hospital is essential to their cure.

Electrical Treatment after Operation on Nerve Trunks.

When a nerve has been merely freed from a constricting band, electrical treatment should be begun after a reasonable period—say a fortnight. It should be very gentle at first, but should in other respects follow the same lines as if no operation had been done. When a nerve has been sutured the matter is not so simple. I have not personally treated any cases of this kind for more than a few weeks before losing sight of them; but Bailey of Brighton, who made elaborate experiments on himself extending over a year, is of opinion that electricity is of great assistance.

Cases of ascending degeneration, fortunately rare, appear to be very hopeless. Care must be taken not to diagnose ascending degeneration when the paralysis is due in reality to cut tendons. The distinction is not easily made in all cases. The wound may produce some sensory disturbance in its neighbourhood, and it is not always possible to be sure that a particular muscle responds normally to electricity; one is deprived of the most useful guide—namely, the tautening of the tendon beneath one's finger.

In giving a prognosis in a case of nerve injury, one should be sure that one is dealing with a pure lower segment lesion. A shell wound in the neck at close quarters may produce a mixed lesion, slightly damaging lower neuron cells controlling the arms, and at the same time (by the force of the explosion) causing haemorrhage in the motor area of one or both sides. Slight facial palsy of upper neuron type, not noticeable unless looked for, will sometimes furnish the key to a lack of progress beyond a certain point. I am far from suggesting that electrical treatment is useless in brain lesions, but the brilliant results which are often obtained in lower segment paralysis cannot be looked for. Cerebral galvanization, as recommended by Professor Leduc, may be given a trial in addition to stimulation of muscles, but it is a procedure calling for great perfection of apparatus and skill on the part of the physician. In unpractised hands it has dangerous and even fatal possibilities.

The sum total of suffering which can be relieved by electro-therapy is not less than that which can be dealt with by surgery itself. But the right use of the elaborate electrical paraphernalia which modern science has provided calls for skill, experience, wide medical knowledge, and a well-balanced judgement. To leave such work wholly or chiefly in the hands of lay assistants, however intelligent, is no more rational than it would be to permit operating-room attendants to perform abdominal section or excise tumours from the brain.

THE Commissioner of Patents at Ottawa has recently granted a licence to Mr. E. Neil Macallum and Mr. Newton Candee, both graduates of the University of Toronto and synthetic chemists of special training and experience, to manufacture salvarsan under the name of "Diarsenol," as since the war began it has become very scarce in Canada. Mr. Macallum studied for several years under Professor Schultz in Munich and Professor Perkins in Manchester and Oxford, and is well qualified to undertake this work. In order that the Canadian product may be equal in every respect to the German, arrangements have been made with the University of Toronto to test and standardize every quantity of salvarsan made, before it is permitted to be used; these biological tests are being carried out in the pathological laboratories of the university and in the Toronto General Hospital. The price of the compound has been fixed by the Commissioner of Patents; it includes a royalty to the German patentees, and is only slightly in advance of the wholesale price current before last August. The Synthetic Drug Company of Toronto will undertake to place neo-salvarsan on the market as soon as it has been able to manufacture a supply of diarsenol sufficient to meet the present demand.

SUGGESTIONS FOR THOSE INTERESTED IN WAR DÉPÔTS AT HOME.

By JAMES HOSSACK, F.R.C.S.E.D.,

BURTON, IPSWICH HOSPITAL; LATE BURTON AT ST. JOHN'S
HOSPITAL, MOA, ST. MALO.

The experiences of a surgeon who has served for nearly eight months in a St. John's Hospital in St. Malo may be of considerable use, especially to those of us who may be asked to assist in the management of what are called dépôts in England. To Ipswich dépôt—I believe the first of such organizations—I am infinitely indebted for the magnificent way they kept me supplied with all sorts of surgical and other necessities. It is admirably managed and organized, and is under a trained nurse, as all such dépôts should be.

As the wounded in this war do not fall into line according to modern books on surgery, neither do the supplies sent from the dépôts in general quite fulfil the requirements. Economy is essential, and I am convinced that if some sort of standardization were adopted by all dépôts, much money might be saved. It is with this view that I propose to offer certain criticisms that I hope may be of use, and certain suggestions that may be, I hope, of greater use.

Swabs.

Swabs, I believe, can be improved from an economical point of view without losing efficiency. I received many beautifully done up and sterilized. Ideal—but yet not economic. Practically every case admitted to hospital was septic, and most of them very septic indeed. The swabs were made by cutting up squares of gauze, a small handful of cotton-wool was put in the middle of the gauze, and the four corners tied; 500 were then enclosed in a jaconet bag and sterilized. This is theoretically admirable, but practically I may point out defects. First of all, these swabs, about the size of a pigeon's egg, were far too small, especially when wet and squeezed dry. I like a swab to be about the size of a hen's egg, and so do most surgeons. The jaconet bag was beautifully made, with a tape run round the mouth, but to a certain extent this was a waste of labour. A packet of 30 swabs tied up in a muslin bag, and 20 such muslin bags enclosed in a wrapping of jaconet fastened with a pin is all that is required. The jaconet wrapping with pin attached come in very handy for fumigations. Thirty swabs is usually enough for most operations. The remaining 19 packets can remain in their covering till wanted, almost certainly during the day. In big cavities the smallness of the swabs became an absolute danger—there was always present to the surgeon's mind the possibility of losing one. In an emergency with secondary hæmorrhage (a not infrequent occurrence), one packed in 6 or 8 or 10 of these swabs, and one was constantly harassed with the idea that perhaps one was left behind. The known number of 30 saves counting when rushed. Dr. Griffith, discussing this question with me, made the admirable suggestion that squares of Turkish towelling, double or treble thickness, 6 to 8 in. square, should be sewn along their edges and a tag of tape, about 6 in. long, sewn to each at the corner; they cannot be lost because of the tape, and after use can be washed, boiled, and kept in 1 in 40 carbolic solution in glass jars in the theatre, and could be used over and over again, whereas a swab once used is done for. Sponges are old-fashioned, no doubt, but, if properly looked after, are by no means to be despised; they must be good and their care and storage understood.

Sterilization.

Sterilization is certainly admirable, but is not necessary in nine-tenths of the cases from a surgical point of view, but there is one important point that must never be lost sight of. Scattered over England to-day there are various centres where scarlet fever, measles, and diphtheria are known to exist. Many of the bandages sent out are made in schools by school children, other articles are made in homes, others in dépôts by lady workers. The sources, then, of infection are numerous. For this reason, to prevent any infectious disease being sent out, all dressings, bandages, and I would say everything possible, should be sterilized. It would never do to have an outbreak of either measles or scarlet fever in a base or any hospital owing to neglect of this. If it could be brought home to

goods sent out by dépôts, it would, I fear, be a serious blow to them. Hence one necessity of a trained nurse at the head of affairs to keep an eye on these details. I am a firm believer in carbolic acid, and, without exception, all my cases were treated antiseptically as against aseptically. All swabs, sterilized or not, were wrung in 1 in 40. We had only one theatre and antiseptics were *de rigueur*, so that it is essential to have plenty of carbolic acid.

Lint and Gauze.

Boric lint is a necessity, and it can never be wrong to send it out in quantities.

Small packets of gauze about 2 yards are best; larger packets are liable to become soiled. I would suggest that the gauze be cut up into squares of about 6 to 8 in. Packets of a dozen such squares should be wrapped up in waxed paper before being sent out. Long strips of gauze about 2 in. to 5 in. wide, rolled up like a bandage, are extremely useful, and can be packed in the same way.

Splints.

Splints were sent to me which were absolute works of art in the way of padding and so forth, but, to my mind, extravagant again. The wood was covered with corrosive wool padding, and this was held in position by cotton sewn across and across the back. In twenty-four hours the padding was saturated, the wood itself soaked with pus—and alas for the work of art!

I suggest that the wood should be painted first with creosote, and when dry enamelled. This will prevent pus and fluids soaking into the wood. The splint can be used time and again by sponging it over with an antiseptic, instead of getting a new one and burning the old. My advice is not to pad. No limb is perfectly flat; each has its own curves and bends, and each splint should be padded to fit its own limb. I found padding the splint with ordinary cheap wool to fit the contour of the limb, then to slip on a piece of jaconet to cover the whole splint, tying it in position by strips of bandage, saved time and money and fitted the patient best. The cheap wool was burnt, the splint sponged, the jaconet boiled and dried, and so practically there was no waste. No splint yet invented will ever meet every case, no matter how well padded. Many will not agree with this, but it is my personal experience. I found that a piece of board from a packing case, a saw, a few French nails to fasten on a footpiece, and a tin of enamel made the most satisfactory splint. For leg cases I always allowed the T-piece at the bottom to be sufficiently high to act as a support for the foot to be bandaged and to take off the weight of the bed-clothes: the under half of the T was left about 4 in. long to elevate the limb and make an inclined plane. Almost all fractures are compound, comminuted, and pouring with pus, so that soiled padding is inevitable. Lengths and breadths of splints must be assorted; 4½ in. is a good average width for leg splints.

For arms I can recommend a waterproof paper splint resembling gouch, sold in rolls by Cuxon, Garard, and Co., Birmingham. It can be cut as required by any pocket knife, or a strong pair of scissors. It can be sponged or burnt.

Wool.

For sopping up discharges there is nothing to equal wool-wool, and for dressing wounds outside the gauze, both in the theatre and wards, it is ideal.

I do not like cellulose wadding. It clings to the skin and is difficult to remove, does not absorb pus well, and easily disintegrates and clogs up syringes. In peace times ordinary corrosive absorbent wool is best, but wool-wool is better and cheaper for wounds discharging much foul pus. In the theatre there must always be white absorbent wool.

Pine Sawdust Dressing.

This is in many ways admirable, cheap, and to a certain degree efficient, but uncomfortable. When sodden with pus it gets heavy, and acts like an old-fashioned linseed-meal poultice. I have doubts, too, of its antiseptic properties; sterile they may be, but not satisfactory on the whole.

Drainage Tubes.

I know of no substitute to equal drainage tubes, but they should be big; the index finger or thumb is not a bad guide for size. Let the walls be thick and fairly stiff, so that

when the tube is run through a limb and round the bone it will not kink and be useless, but remain round and a tube. The tubing should not be cut up into lengths; this should be left to the surgeon.

Bandages.

The varieties of sizes and material were legion. Cheap cotton ones are extravagant because the material of which they are made is ruined in the first washing. They do not iron out, and cannot be fitted on to lie flat after washing. Usually their first use was the last. Let the cotton bandages are made of be good; it is cheapest. Far and away the best bandage is made of flannelette; care should be taken to see that it is not inflammable. For many-tailed bandages it is admirable, as good as domette and cheaper. These bandages can be washed, ironed, and are as good as new, and can be used time and again. It is astonishing, too, how often one uses many-tailed bandages made of flannelette for arms, legs, chest, abdomen, etc. Slip the bandage under the limb and the rest is easy—much quicker for the surgeon and easier for the patient, when every movement causes pain, than putting on a roller.

For chest cases the many-tailed bandage has a tendency to slip down, not up. To prevent this I had sewn on to the back top part of each chest many-tailed bandage two strips that came over the shoulders, crossed on the chest, and were pinned to the bandage in front, braces in fact, and found them very useful. Many-tailed bandages should be rolled in the following way: Take two long pieces of stiff paper, 6 inches longer than the depth of the bandage, and commence at each end rolling the many tails towards the centre. The result is two sausages as it were of bandage rolled on paper, meeting at the middle. This can be slipped on under anything, and when unwound the paper removed everything is finished with, the tails all flat and no rucks.

Three sizes of bandages are sufficient—2½, 3½, and 6 in. are all that are required. With a sharp table knife the 6 in. can be cut if desired to any breadth, 1 in. upward to 5 in.; it must be cut squarely to avoid scalloped edges. Most bandages are far too long. Bits are torn off and thrown away; 4 to 5 yards is enough, instead of 6 yards.

All kinds of arm slings were sent us—patent leather looking things, khaki coloured with buckles and what not. There is nothing to equal the triangular sling, and a colour other than white would be welcome—black or slaty-blue to match the uniform, or khaki. A safety pin (black) should be put in each sling. The standard St. John sling is correct for size.

For irrigating wounds there is nothing to equal a Higginson syringe, with a glass nozzle, but a piece of gauze should be tied on to the other end to prevent bits of wool getting in and blocking the valves. The whole thing can be boiled, and lasts for weeks, or even months. I prefer them as handier than an irrigator with long rubber tubing. Glass syringes, whether hypodermic, exploring, or what not, are always being broken, either in boiling, by accident, or carelessness; all metal is best in the long run. Ordinary 6-inch probes are almost useless. I had made for me probes varying from 1 ft. to 18 in. long. I have seen cases in which bullets have entered at the buttock, and been removed from the back of the neck. Stout copper wire silvered, with a blunt point at one end and an eye at the other, I found admirable; they can be bent to any curve, and are cheap and everlasting.

Drugs.

The tablet form is best, and a great variety is not needed. Calomel, aspirin, morphine, and salol are in constant demand.

Antitetanus serum is essential, but, alas! not always to be relied on. A reliable mark should be got from a reputable firm, and I strongly urge that samples should be submitted to a bacteriological test before sending out. This is most important; certain samples proved to be inert. I found a most practical way of putting up these was a method used by Parke, Davis, and Co. It consists of a round glass container, made with glass tips at each end. Inside this container was the serum, with a plunger at one end. Enclosed in each packet was a sterile needle and a rod. By breaking off one end the needle fitted on, and by doing the same to the other end, and screwing the

rod on to the plunger inside, the syringe was complete. I gave many of these away to young officers going to the front, confident the risk of contamination in such an appliance was reduced to nil, even in the hands of an amateur.

Clothing.

All sorts of strange garments were sent to us by kind souls, who enclosed no name and no address. We never knew what some were—whether socks, mittens, or night-caps. Bed jackets of splendid flannel and exquisite workmanship made so narrow across the back that no ordinary man could get into them. All these had to be altered, and three jackets were frequently used to make two good ones. Shirts, again, have arrived with neck bands so tight as would have throttled anybody who tried to fasten them; the bands had to be taken off and bits let in, and so on. All this means want of some central supervision. They had not been examined at any dépôt, and were sent out by well-meaning people, who had probably never made shirts or bed jackets in their lives before. Standardization is required, and would mean economy. Then there were strange and wonderful garments with tapes up the backs, down the sides, down the front, up the arms, the result of patient work—all very admirable, but in nine cases out of ten not needed, except in paralysed cases the result of injury to the spine. It is not comfortable to be on a string of knots, and patients complained of cold backs. The simpler the garment the better: it should be big enough, but not too big; the wrist bands should let a man's fist through, and the neck be big enough to button. Pyjamas are not much used in hospital wards, but ward suits for patients to walk about the wards and grounds are a necessity. Each hospital should, if possible, have the same pattern in colours and arrangements, or at least each ward or floor.

Various sizes of coats and trousers are necessary for big men and little men. The jackets should have three pockets—two at the sides, and one for the handkerchief. Those known as patch pockets are best and easiest to make. Pockets in the trousers do not much matter. The material of which these suits are made should be washable and not liable to shrink.

Buttons are a great nuisance, and were frequently missing. An excellent button can be got consisting of a metal disc with a central hole, and a separate shank shaped like a collar stud. A small slit was made where the missing button came off, the head of the stud passed through and the disc snapped on. It is easy to do, and makes an admirable job.

French soldiers had no slippers; their hobnailed boots in the wards ruined the floors, and the clip-clop they made was irritating. Slippers of felt are essential, should be big enough to put on a bandaged foot if necessary, and of all sizes. Any ingenious woman can make them cheaply.

Tobacco.

A tremendous amount of money is frittered away in tobacco and cigarettes that could be infinitely better used in other ways. When I left St. Malo at the beginning of June I should think I left behind a couple of hundred-weight of tobacco and cigarettes, sent to us by all sorts and conditions of people and societies. This was due to overlapping from want of organization.

French soldiers are careless with their matches and cigarette ends. They finish the cigarette, and drop it with the spent match by the bedside. Tin ash trays to stand by the bedside are a necessity, yet, except in our hospital, I never saw any.

Ward Appliances.

The best basins for the wards for washing patients I came across were papier-mâché ones sent from Ipswich. They were enamelled inside and out. They tumbled about, and had no end of rough usage, but they never broke, never chipped, or, if they did, a 6d. tin of enamel was all they wanted to look and be like new. Earthenware or tin basins very soon got broken, or bashed, or dented. For dressing wounds enamelled ware basins, bowls, and big kidney dishes are a necessity. Kidney dishes can be got in papier-mâché, are cheaper than the enamel ware, and do not chip.

The most expensive item we had to deal with was mackintosh. In regard to this, the cheapest is the

dearest: give a good price for a good article. No substitute that I know of equals good mackintosh. It is an absolute necessity. We had many different things to try, but always returned to mackintosh.

Such things as razors and shaving brushes we were always hard up for. Usually the men arrived with nothing but what they lay in. As for trouser braces, nobody ever thought of sending us these useful articles till they were asked for.

There is no need to send crutches. All these are supplied locally, and made by any carpenter. Ordinary unscented antiseptic soap is a godsend for washing the men, who arrive in a filthy condition.

All parcels should be sent out in cases: 3 ft. by 1½ ft. by 1½ ft. is one handy size. The lid should be hinged at the side, screwed down, and a partition should divide the case into two. When stood on end it makes a capital bedside table, cheap, efficient, very necessary, and far better than an orange box. The screws are an advantage for opening and come in handy for fastening foot pieces on to splints, and in many other ways. These boxes are useful, too, for storing x-ray negatives, and when placed side by side one tier above another become handy lockers for boots, caps, belts, and so on.

Bigger boxes should be about the height of a table when on their ends. Three or four placed together and covered with a sheet of American cloth make an excellent ward table. If the partitions are put in and the lids hinged they act as cupboards as well, to keep the thousand and one things necessary in a ward. Placed in the linen room they make excellent cupboards for sheets, towels, pillow cases, etc.

It is desirable to have the wood planed, for then it comes in also very handy for many splints. They must have the Red Cross label pasted on, and I like a list of contents tacked on to each box, both in French and English. It saves bother with the Customs. Much worry can be saved by getting the signature of Sir Wm. Garstin at the Red Cross offices, Pall Mall, also to tack on. It acts like a charm on Customs officers. The arrangements may now be different, but the St. John Ambulance Association or the Red Cross will always advise in this matter.

Need for Organization.

It is a great pity that there is not some central organization to deal with overlapping. I would suggest that a central dépôt or committee be authorized to deal with these matters, and that model garments, model bandages, splints, etc., be given to the dépôts throughout the land where charitable people who want to make things and do things in this terrible crisis can see what is required, and have pointed out to them certain faults they must avoid. The money and the will is here, but much is wasted through isolated but well meant unorganized effort. I understand the Marlbon dépôt is attempting such co-ordination. I heartily endorse such action, and wish it success.

In this article I am discussing matters as they appeared to me at St. Malo. I cannot speak of what happened further up near the firing line.

FURTHER INVESTIGATIONS INTO LATENT DYSENTERY AND INTESTINAL PARASITISM IN SARAWAK, BORNEO.

By W. LEDINGHAM CHRISTIE, M.D.,

F.R.C.S.ENG.,

SURGEON TO THE BORNEO COMPANY, LIMITED.

In a previous paper I stated: (1) That many people, European and native, were found to carry what we believed to be *Amoeba histolytica*, without complaining of acute or chronic dysentery, but that they were mostly pale and weak, while many, indeed most, of the same persons had also ankylostomiasis. (2) That in the cleared portions of this country malaria was not common, yet the tradition that every feeling of languor or heat was considered to be "a touch of fever" was so common that quinine was used extensively. After calomel and saline were substituted, great improvement resulted, because the

septic state of the alimentary canal, associated with constipation, was so usual, that "constipation fever" would have been a truer description. (3) I gave a list of 100 unselected cases of all kinds, among Tamils, Javanese, Chinese, Dyaks, Malays, and Europeans, who came into hospital, and I stated that amoebae were found in 34 per cent., ankylostomiasis in 40 per cent., whip-worm in 44 per cent., round-worm in 24 per cent., and monads in 13 per cent. These patients, however, had occasionally been treated for these conditions, and as I wished to find the main reservoir of intestinal parasitism, I set to work to test 100 Malays living on the banks of the Sarawak River in their usual fashion, in palm leaf houses on high piles on the edge of the river.

None were selected or pressed, and few had been treated. These patients often try to get santonin, but the hospital is distant, and we may consider their ailments as practically untreated, the native remedies being of little use. Most people are probably now aware that Malays let all their sewage run into their river. They squat for defaecation in it, and drink from near the same spot, trusting to the current and tide for cleansing. They love their river, are always bathing, swimming, boating, drinking, or fishing in it. To the casual observer they appear as a happy, clean family sporting beneath their cocoanut palms and fruit trees. They are fond of gong-beating and dances on every possible occasion. They dislike any work, save boating and gathering jungle produce in the forest. Yet in reality the average Malay seems sad and sooty when not *en fête* or excited. Careful examination will show that debility must result from the very great amount of parasitism from which they suffer. One of our Malays manages to struggle through his work as boatman and carpenter with filaria in his blood, amoebae, ankylostoma, round-worm and whip-worm in his alimentary canal, having already become immune to malaria, which is found more frequently in the young. He was, on the other hand, an ardent advocate of beta naphthol and santonin among his compatriots, and it was he who went and explained the reason why their stools should be examined. With no small effort, and by sending this man and a laboratory assistant up and down the river, we managed to get good specimens of faeces in Petri dishes, carefully labelled, from 100 Malays—men, women, and children—in the order in which they offered, without any reference to present or past illnesses. The women were somewhat shy, and are therefore in the minority. Four slides were examined, and amoebae were chiefly searched for. Only moving specimens, or those well stained by neutral red, were counted. They had the eccentric nucleus, blunt pseudopodia, and other characters of *Amoeba histolytica*. The differences of size, amount of activity, and tendency to be quiescent we considered to be due to the warmth or coldness, liquidity or otherwise of the stools, and the time intervening between voidings and examination. The work was done by myself, or assistants under my supervision, in a well-equipped laboratory.

The result was as follows: *Amoeba histolytica* was found in 59 per cent. of the samples; *Ankylostoma duodenale* (or *americanum*) in 59 per cent.; monads (*Trichomonas*, 63 per cent., *Cercomonas*, 3 per cent.), 66 per cent.; round-worm (*Ascaris lumbricoides*), 79 per cent.; whip-worm (*Trichocephalus dispar*), 84 per cent. Each person had several sorts at once—in fact, in 17 per cent. five were observed on the same slide, namely, ankylostoma, amoeba, monads, round-worm and whip-worm. The figures are well under the mark, for in twenty cases which were previously negative, where we got a second specimen, we found amoeba in 50 per cent.

These Malays who came to Sejjik Hospital afterwards for medicine did not complain of any symptoms, but some looked pale and thin, while others, who appeared normal, were not up to a fighting or athletic standard of vigour. On inquiry among 83 whom we were able to meet, we found that of those in whom amoeba had been found, 34 could remember having had dysentery, 26 could not, while of the negative cases, 10 had had dysentery and 13 had not. It may be argued that much of the languor described is due to tropical anaemia after ankylostomiasis or malaria. There is some truth in this, but none said anything about malaria which they knew well; and the following cases will show that those who had amoebae

apparently non-pathogenic, had later on acute dysentery with an amoeba to all appearance the very same.

Typical Cases.

There are few records at present of Malay cases, but the following from our case-book may show that other nationalities suggest that the same amoeba may be pathogenic at one time and apparently non-pathogenic at another.

1. S., Malay boy, aged 16 years, Sejjak. Admitted July 7th, 1914, for poisoned wound on leg. Amoebae found July 12th, 1914. No symptoms of dysentery. History showed that he had had acute dysentery when about 6 years old. He then had blood in stools, and became wasted. His mother had dysentery three months ago.

2. N. K., Tamil girl, about 11 years. Admitted February 27th, 1915, as a visitor with mother and younger brother, who had acute dysentery. She was not ill, had no diarrhoea, no colic, no blood in stool. She had ankyllostoma, mounds, and amoeba, which persisted till May 18th, 1915. Amoebae were found moving about at the examinations on forty-seven occasions, although twelve 4-grain injections of emetine were given, and salol, beta naphthol, quinine, and irrigation were tried. She was readmitted on July 3rd, 1914, with acute dysentery, severe colic, and blood in stools. Amoeba of the same species was found daily until the 10th, when she was discharged well after emetine and saline. When a carrier, I could not see any difference between her amoebae and those of her brother, nor did the amoeba she had at first differ from that she had when acutely attacked.

3. M., Tamil woman, about 20. Admitted December 16th, 1912. Diarrhoea, blood in stools, and acute colic. Amoeba found. Emetine and saline given. Discharged well December 26th, 1912. Readmitted January 25th, 1913. Acute dysentery as before. Amoeba found daily up to February 18th, 1913. Discharged February 25th, 1913. Again admitted July 3rd, 1914. Acute dysentery as before. Amoeba found. Discharged July 10th, 1914.

4. A., Tamil woman, about 25. Admitted January 31st, 1913, with bronchitis, but stools found to contain amoebae and active colic. No diarrhoea, nor blood in stools. Readmitted November 6th, 1913, with acute dysentery, severe abdominal pain. Amoeba found as before, also ankyllostoma and whip-worm. After treatment with emetine and saline, amoebae ceased to appear on December 1st, 1913. Discharged December 3rd, 1913. Again admitted April 4th, 1914, with otorrhoea. Amoeba found, also ankyllostoma. No diarrhoea nor other intestinal symptoms. Amoebae persisted till April 11th, 1914, when discharged. Admitted fourth time July 2nd, 1914, with acute dysentery, diarrhoea, severe colic, and rectitis. After emetine and saline treatment no amoeba found on July 10th, 1914. Discharged July 13th, 1914.

5. K., Javanese man, about 35, a coolie who had not been in hospital for seven years previously. He had cut his shin with his parang, and severe sepsis had set in, with a large abscess as the result. Admitted June 24th, 1914. Amoeba was found on June 25th, 1914. Patient had had no diarrhoea nor colic, but on July 7th, 1914, acute dysentery began. He had emetine twice, but refused further injections. Saline was given freely and he recovered, but amoebae were still found. Gingivitis and stomatitis became very acute, but, though very weak for many days, he is now gaining strength.

6. S., Tamil female. Admitted October 10th, 1913, with acute dysentery. Amoeba found till the 12th. Discharged October 17th, 1913. Readmitted on January 6th, 1914, with pleurisy. Amoebae found, no diarrhoea, no blood, no colic. Amoebae found up to date of discharge.

7. S., Javanese man, aged from Java May 30th, 1914. He looked very weak and thin, with prominent eyes and a slight cough. He had ankyllostoma, round-worm, whip-worm, and Trichostrongylus. He absconded on June 21st, 1914, and was caught after wandering about without proper food or shelter for five days. He was sent from the estate to hospital on July 13th, 1914, with acute dysentery. Amoeba was found, also blood corpuscles and broken-down epithelial cells. He died on July 27th, 1914. The post-mortem examination showed that 11 ft. of the lower bowel and ileum were ulcerated. The lower part of the colon was soft and the mucous membrane appeared to be melting away. The serous coat was exposed in places. The lower ileum was much injected and ulcerated. The mesenteric glands were enlarged and yellow, almost caseous. There were purulent nodules in the lungs; the pleurae were not adherent. This case shows the ravages of dysentery when debility and starvation, with concurrent disease, have their effect.

8. M., Javanese woman. Admitted November 8th, 1914. She died in a few hours of acute dysentery. She had been delivered of a 7-months child the day before, and had had haemorrhage. Probably latent dysentery had pre-existed.

Conclusions.

(1) That amoebic dysentery is endemic among the Malays of the Sarawak River; that some immunity seems to exist against very severe attacks or epidemics, but that some educational and remedial campaign would be beneficial. (2) If Case 1 as a carrier had a non-pathogenic amoeba, why did he not get a fresh

infection from the acute attack of dysentery to which his mother had been subject? The suggestion is that both amoebae are alike. (3) If in Case 2 the girl carrier had a non-pathogenic amoeba, why not at once get infected with the pathogenic one of her brother? As no difference could be seen, the suggestion is that both amoebae were alike, one acting in a latent way till able to produce severe symptoms at a favourable time. (4) Case 4 leads to the conclusion that a person may have latent dysentery alternating with acute, and no difference be seen between the amoebae. (5) Case 5 would indicate that amoebiasis caused acute dysentery when cocci were in the blood and the resistance was low. (6) Case 6 indicates amoebiasis following acute dysentery, and the amoebae appeared the same as during the acute stage. (7) Cases 7 and 8 show the virulence of the amoeba, latent at first, after exposure, starvation, and tubercle in the one case, and after haemorrhage and chillbirth in the other. (8) Although the picture seems dark, yet ordinary hygienic cleanliness and care, with freedom from intimate association with natives, will usually protect Europeans from danger of death from amoebic dysentery.

THE "ELASTIC TISSUE" ENIGMA;

A SUGGESTION FOR ITS POST-MORTEM STUDY, IN ARTERIES KEPT PERMANENTLY ELASTIC, AND IN THE "ROOSEVELT ELASTIC LUNG."

BY

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I. Its Biotics.

The natural history of the elastic fibre is a standing problem which the inferior elasticity of indiarubber does not help us to solve. We perceive how it is destroyed in the lung by overstrain in emphysema and by disuse in obesity, and how readily it is then disposed of by phagocytosis. The mystery is its surprising normal "endurance." This would almost seem to be a function of its mechanical exercise, even more than of its nutrition. Facts have been recorded which demonstrate a patchy local "regeneration." But of its "alimentation" we know nothing, except that the fibre can be stained. And yet, if we assume that it grows, like the length and breadth of our muscular and of our tendinous fibres, it should be, at any rate at that stage, receptive of nourishment. On the other hand, the following facts would suggest that, when full grown, its vital exchanges are of a minimal order; and its viability and function largely dependent upon motile and hygroscopic factors, whilst apparently independent of direct innervation.

The work of Alexis Carrel has opened up a new era in surgery—that of transplantation—by demonstrating the persistence, for appreciable periods after somatic death, of some degree of "vegetative" cellular vitality in the simple tissues, rendering them capable of a revival of their nutritional activity when implanted into vigorous living tissues, and also the facultative prolongation by low temperatures of that suspended animation; nay, more, the persistence, after successful transplantation, of the functional capacity of some of the organs, when "isolated" *in vivo*.

The lung is hitherto the isolated instance of a dead organ capable of preservation for indefinite periods in a state of fitness for discharging its "passive" motile function almost as well as during life, thanks to the survival of some degree of elasticity in all its textures. It affords the unique example of one of our tissues, the elastic fibre, preserving indefinitely, without any vital nutrition, the fullness of its own simple function, which seems to be limited to passive movement. I might venture to suggest that this strange instance of a relative "artificial immortality of function" should be associated with the name of the distinguished physician, my lamented friend the late John West Roosevelt of New York, to whom we owe its demonstration.

The only published account of his method which I can trace is that which he gave to the New York Pathological Society, of which he was then president, at its meeting of December 10th, 1890. In his own words, "The lung exhibited was removed on January 11th, 1890. It retains very nearly the normal colour of a freshly removed lung.

It expands and contracts in an apparently normal manner. The vesicular murmur can be plainly heard in it, and percussion gives the same note as obtained from fresh lungs. The process will be seen to be a modification of the old glycerine-carbolic method, well known and often used to preserve anatomical specimens in an elastic condition. The modifications are important, however; and the results far better than any obtained in the old way. The idea of the method is, first, to fix the tissues by the chromic and acetic acid solution, then to introduce the glycerine-carbolic solution, and, finally, to get rid of this, and practically to make an 'oil-tanned' lung.

The composition of the three solutions and the mode of using them are then given. It does not appear that, at that time, he had prepared any specimen of both lungs, or that he subsequently exhibited, or published any description of, any such. That which he prepared (by his new method) to present to me at New York in the spring of 1892 may perhaps have been the first. These lungs were slightly pathological. They did not remain in efficient working much more than a year: partly, perhaps, owing to insufficient exercising. Meanwhile, in the early summer of 1892, I prepared, according to his latest directions, a perfectly normal and complete specimen of both lungs with trachea. This was a complete success. It was long used for demonstration at St. George's Hospital; and it still preserves its elasticity after the lapse of nearly twenty-three years. Unhappily, through a preventable accident, it has quite recently developed a bad "puncture" which now disables it, though it is still inflatable, for any complete and lasting inflation. That long record, and the fear lest, owing to his untimely death, the value of his latest method might otherwise be lost to science, make me anxious to publish those simple directions which enabled me to secure that success, without the help of any actual demonstration of his technique, or of any knowledge of the published details of his earlier method.

Improved Method for Preparing Lungs in order to Preserve their Elasticity and Gross Anatomical Appearance.—The lungs must be removed intact, and the pulmonary blood vessels cut as close to the heart as possible. If it is intended to prepare both lungs the trachea should be cut as high as possible. If only one is prepared, cut the bronchus at its junction with the trachea. Insert and tie as large a cannula as possible in the bronchus or trachea, and in the pulmonary artery.

"1. Take of Müller's fluid 1,000 and of acetic acid 75. Fill the lungs through the air passages, and suspend them in solution for twenty-four or forty-eight hours; height of funnel not more than 3 ft. 2. Inject through the artery a mixture of glycerine 4, carbolic acid 1. 3. Dry as well as possible by suction applied to the air passages, then inject through the artery, under pressure of 5 or 6 ft. of water, cotton-seed oil 100, oil of origanum 10. Dry as well as possible, and keep in a crock."

II. Its Physiology.

The "Roosevelt elastic lung" is therefore remarkable for its durability as a whole; but much more so for that of its elastic fibre and of the elastic function in it. A striking contrast is displayed between the pathological history of the fibre in life and its artificial history under preservation in death. As shown by emphysema and by obesity, it is more prone than most living tissues to mechanical destruction by overuse or disuse. As shown by arterial degeneration, and by vascular syphilis, it is also exceedingly liable to destruction by microbes and by phagocytosis. This is doubtless correlated with an extremely low coefficient of nutritive activity and requirement; which is fully demonstrated by its endurance, when it is adequately protected against the scavengers of death.

We know little about it. But we do know that it is the last to die; and that it is also our *ultimum movens*, when, by a final vital recoil, the all-pervading "elastic skeleton of configuration" restores our normal lineaments after their muscular rigidity. That enigma, the last we have approached, might well hold our solution for another problem, not the least important of those yet to be solved—"the mechanics of our biomorphology." If, as it appears, the elastic fibre has in its mechanical keeping our individual polyorganic architecture, might it not conceivably be itself the builder; and, if so, the missing link between our physics and our vital energy? Adam's striking conception of "fibrogenesis" as a linear intraplasmatic

crystallization along each line of movement and of stress is suggestive of a great mechanical antithesis. Our "rigid" skeleton of support is mineralized through "rest"; our "pulsatile" elastic skeleton of organic architecture and nutrition would be the direct mechanical product from the individual. In vital "work," too, might possibly lie the true explanation for our chief clinical puzzle. The extreme diversity in our "normal" individual "splyngnopiesis" might be but an expression of the diversity in our "physical" or elastic coefficient, as the invariable or irreducible individual factor in our vital "dynamic equation" between the nervo-muscular heart and the neuromyo-elastic artery.

The Croonian Lectures

ON

TRYPANOSOMES CAUSING DISEASE IN MAN AND DOMESTIC ANIMALS IN CENTRAL AFRICA.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS
OF LONDON,

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LECTURE IV.

In this concluding lecture I intend to sketch briefly the outstanding features of the trypanosomes belonging to Groups B and C. As far as we are aware, none of the trypanosomes attack man. They are, therefore, of less interest to us than the two species already described.

GROUP B.—THE TRYPANOSOMA PECORUM GROUP.

I. TRYPANOSOMA PECORUM.

The first of this small group, which only consists of two species, is *Trypanosoma pecorum*. It is probably the most important trypanosome disease of domestic animals in Central Africa.

Morphology.

Fig. 1 shows its general appearance. It is the smallest of all the African pathogenic trypanosomes, varying from 9 to 18 microns in length, with an average of 14 microns.



Fig. 1.—*Trypanosoma pecorum*.

Its breadth averages 1.96. This species is monomorphic, and short and stout in form. The contents of the cell are generally homogenous. The nucleus is oval in shape, and situated about the middle of the body. The micronucleus is small and round, and situated near to, but not at the posterior extremity, and often appears to project beyond the edge of the trypanosome. The undulating membrane is simple, but fairly well developed, and there is no free flagellum.

There ought to be no difficulty in recognizing this species from morphology alone. If one or two hundred are drawn and measured, the average length would separate it from its neighbour *Trypanosoma simiae*. Another small trypanosome, *Trypanosoma uniforme*, differs in shape and in having a free flagellum.

Animals Susceptible to *Trypanosoma pecorum*.

Next in regard to the animals attacked by this trypanosome. This is essentially a disease of the herds. Horses, donkeys, oxen, goats, sheep, and pigs all fall victims.

One peculiarity about *Trypanosoma pecorum* is that it readily loses its virulence for certain animals by passage through certain other animals. For example, if this species—which is usually more or less infective to the monkey, dog, and rat—lives for some time in the blood of

the goat, it loses its power of infecting the former animals. This has given rise to the erroneous idea that a species, *Trypanosoma nanum*, exists. *Trypanosoma nanum* is in truth nothing but a strain of *Trypanosoma pecorum* which has lost its virulence for the other animals by its passage through the goat or allied species.

TABLE I.

Average Duration of Life, in Days, of Various Animals Infected by *Trypanosoma pecorum*.

	Average Duration in Days.	No. of Animals Employed.
Donkey	87 (?)	1
Cattle	121 (?)	4
Goat	55	59
Pig	21	1
Monkey... ..	17	11
Dog	43	57
Guinea-pig	41	5
Rat	33	10

Percentage of Recoveries in Various Animals from *Trypanosoma pecorum* Infection.

	Percentages.	No of Animals Employed.
Donkey	80	5
Cattle	35	17
Goat	12	70
Pig	0	1
Monkey... ..	0	11
Dog	1	63
Guinea-pig	0	5
Rat	0	10

This trypanosome does not seem to be very fatal to horses, mules, or donkeys. In Nyasaland there was no opportunity of testing it on horses, but out of five donkeys four recovered. Two-thirds of the cattle, and seven-eighths of the goats, succumbed.

The Carrier of *Trypanosoma pecorum*.

The chief carrier of *Trypanosoma pecorum* is *Glossina morsitans*. I am not aware of this trypanosome ever having been found in Nature in *Glossina palpalis*. In Uganda, where we made many feeding experiments with the wild *Glossina palpalis*, in not a single instance did a *Trypanosoma pecorum* infection take place. In Nyasaland, on the other hand, this parasite was the commonest of the trypanosomes with which *Glossina morsitans* was infected, as the following table will show.

TABLE II.—Proportion of Tsetse Flies (*Glossina morsitans*) Naturally Infected with *Trypanosoma pecorum* in Nyasaland.

1912.	No. of Flies Fed.	Monkey.	Dog.	Goat.	1912.	No. of Flies Fed.	Monkey.	Dog.	Goat.
Jan. 20	295	—	—	—	May 14	250	—	—	+
" 24	370	—	—	—	" 17	150	—	—	+
" 29	280	—	—	+	" 21	113	—	—	+
Feb. 2	295	—	—	—	" 29	120	—	+	+
" 9	220	—	—	+	" 29	230	—	+	+
" 13	200	+	—	—	" 29	320	—	+	+
" 16	195	—	—	—	" 29	240	—	+	+
" 21	170	—	—	—	" 29	100	—	+	+
" 26	170	—	—	—	" 31	175	—	+	+
Mar. 2	140	—	—	—	June 2	300	—	+	+
" 2	165	—	—	+	" 6	210	+	+	+
" 14	100	—	—	—	" 7	230	+	+	+
" 17	160	+	+	—	" 11	160	+	+	+
" 21	205	+	+	—	" 18	135	+	+	+
April 3	135	+	+	—	" 25	90	+	+	+
" 10	275	—	—	—	July 3	95	—	+	+
" 15	330	—	—	+	Sept. 25	70	+	+	+
" 18	200	—	—	+	" 27	25	—	—	—
" 18	183	—	—	—	Oct. 29	87	—	—	—
" 23	230	—	—	—	Nov. 5	145	—	—	+
" 23	140	+	+	—	" 11	150	—	+	+
" 25	100	—	—	—	" 18	157	—	+	—
" 27	250	—	—	—	" 21	95	—	—	—
May 3	155	+	+	—	" 25	180	—	+	+
" 3	96	+	+	—	Dec. 3	180	+	+	+
" 8	330	—	—	—	" 6	198	+	+	+
" 9	120	—	—	—	" 11	165	+	+	+
" 13	50	—	—	—	" 16	113	+	+	+

It will be seen from Table II that there were 56 experiments, and 10,081 tsetse flies (*Glossina morsitans*) were employed. In the 56 experiments *Trypanosoma pecorum* was found 46 times, more than twice as often as *Trypanosoma brucei*.

Nine monkeys, 34 dogs, and 35 goats were infected.

This gives a proportion of 4.6 per 1,000 flies infective with *Trypanosoma pecorum*. It is therefore abundantly evident that *Glossina morsitans* is a carrier of this trypanosome under natural conditions. But when once this disease has infected a herd there is some circumstantial evidence available to show that the infection may be spread by means of the ordinary cattle or buffalo flies, the Tabanidae.

The ordinary horse-fly of England belongs to this genus, and it is a matter of common experience that these flies give a severe bite or stab, as a rule drawing blood.

These Tabanidae are in their habits and distribution quite different from the tsetse flies. At a particular place for the greater part of the year they may be absent or rare, but at certain times they suddenly appear in enormous numbers, only to disappear again in a few weeks. When swarming in this way they are a veritable pest to cattle. The flies feed mostly at the hottest time of the day, and the cattle to protect themselves crowd together, so as to expose as small a surface of their bodies as possible. If there are any infected animals in the herd the conditions could not be more favourable for mechanical transmission. The infected animals are close beside the healthy, and the flies pass from one to another almost instantaneously.

In Uganda we had an opportunity of studying a sudden epidemic of this disease in a herd of milk cattle. In the course of two months 34 of the cows died out of a herd of 300. The evidence was all against this epidemic having been caused by tsetse flies.

For four months we had as many as 100 fly boys scouring the district for biting flies, but not a single tsetse fly was captured. We therefore came to the conclusion that one or more infected animals having got accidentally into the herd, the infection was spread by one of these swarms of Tabanidae. As soon as the affected animals were removed from the herd the epidemic ceased.

Another example of the same kind occurred among our experimental cattle at Mpumu in Uganda. The Tabanidae, which had been rare, suddenly appeared in swarms. They were first seen in the valley to the west of the hill in September, 1909, and a month later in the valley to the east. Soon after this the cattle, which had shown no signs of disease during the previous year, were found to be suffering from *Trypanosoma pecorum*. Those which grazed in the valley to the west were first affected, and afterwards those which grazed to the east of the hill.

Another writer, George E. Owen, has come to the same conclusion. He states that between 1908 and 1913 some 2,500 to 3,000 head of cattle died from trypanosome disease in the Barotse Reserve of Northern Rhodesia, though this district is free from *Glossina morsitans*. The mortality began each year in February and practically ceased after June. December and March are the months when flies are most numerous.

In 1912 Mr. Owen was sent to investigate, and was able to keep a herd of 800 without loss through 1813. The animals were carefully watched for six months during the season when the flies were scarce, and all the infected or suspected cattle removed before the flies again became numerous.

It may therefore, I think, be concluded with a fair degree of certainty that the trypanosome disease caused by *Trypanosoma pecorum* can be carried from sick to healthy animals by biting flies other than *Glossina*. What happens, probably, is this. One or more oxen previously exposed to the bites of tsetse are introduced into the herd living in a tsetse free district, and from these few infected animals the disease is spread by the Tabanidae.

I must apologize for discussing this point at such a length, but it is an important one, and shows how necessary it is that cattle owners living outside tsetse areas should keep strict watch on their herds in order to prevent the presence of trypanosome-infected cattle among them. They should include a microscope in their outfit.

The Cycle of Development of *Trypanosoma pecorum* in *Glossina morsitans*.

This trypanosome belongs to Group B, in which development takes place first in the gut and then passes forward into the labial cavity of the proboscis, and finally reaches the salivary duct or hypopharynx, where the trypanosomes revert to the original blood form and become infective. There is no infection of the salivary glands.

TABLE III.—Development of *T. pecorum* in *G. morsitans*.

Date.	Expt.	No. of Flies Used.	Experiment Positive or Negative.	No. of Infected Flies Found.	No. of Days before Flies became Infective.	Mean Temperature.
1912.						
May 16 ...	546	22	+	4	53	69° F. (20.5° C.).
July 2 ...	524	30	+	2	37	65° F. (18.3° C.).
1913.						
Jan. 3 ...	1732	60	—	0	—	84° F. (28.8° C.).
Jan. 7 ...	1737	40	+	3	19	84° F. (28.8° C.).
Feb. 12 ...	1853	25	+	5	24	84° F. (28.8° C.).
Feb. 24 ...	1950	33	+	6	21	84° F. (28.8° C.).
April 29 ...	2115	40	—	4	—	84° F. (28.8° C.).

Seven experiments were carried out with laboratory-bred flies. Five were positive and two negative.

Two hundred and forty flies were used, and twenty-four infected flies found (10 per cent.). The first two experiments were carried out at the ordinary temperature of the laboratory; in the others the flies were kept in the incubator.

It would appear from these five positive experiments that a period of from nineteen to fifty-three days may elapse before the cycle of development of *Trypanosoma pecorum* in *Glossina morsitans* is complete and the fly becomes infective.



Fig. 2.—*Trypanosoma pecorum* from proboscis.

Result of the Dissection of the Infected Flies.

Table IV gives the result of the dissection of the twenty infected flies found in the positive experiments. The second column gives the number of days between the first feed of the fly and its death and dissection.

TABLE IV.—Result of the Dissection of the Infected Flies. (Laboratory-bred Flies. Positive Experiments.)

Expt.	Time, Days.	Proboscis.	Pro-ventriculus.	Crop.	Fore-gut.	Mid-gut.	Hind-gut.	Salivary Glands
546	30	—	—	—	+	+	+	—
546	64	—	—	—	+	+	+	—
546	84	—	—	—	+	+	+	—
546	84	++	++	++	+	+	+	—
524	27	—	—	—	+	+	+	—
524	55	—	+	—	+	+	+	—
		Labial cavity.	Hypopharynx					
1737	27	++	++	++	++	++	++	—
1737	28	+	+	—	++	++	++	—
1737	30	++	++	—	++	++	++	—
1853	17	—	—	—	++	++	++	—
1853	22	—	—	—	++	++	++	—
1853	23	+	+	—	++	++	++	—
1853	25	++	++	—	++	++	++	—
1853	26	++	++	—	++	++	++	—
1950	17	—	+	—	++	++	++	—
1950	19	++	++	—	++	++	++	—
1950	24	—	—	—	++	++	++	—
1950	26	++	++	—	++	++	++	—
1950	31	++	++	—	++	++	++	—
1950	31	++	++	—	++	++	++	—

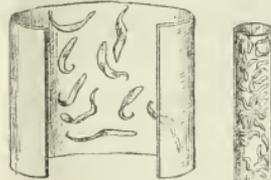
TABLE V.—Showing the Result of the Dissection of the Infected Flies in the Negative Experiments. (Laboratory-bred Flies.)

Expt.	Time, Days.	Proboscis.		Pro-ventriculus.	Crop.	Fore-gut.	Mid-gut.	Hind-gut.	Salivary Glands
		Labial Cavity.	Hypopharynx.						
2115	9	—	—	—	—	—	+	—	—
2115	9	—	—	—	—	—	+	—	—
2115	9	+	—	+	—	+	++	++	—
2115	11	—	—	+	—	+	++	+	—

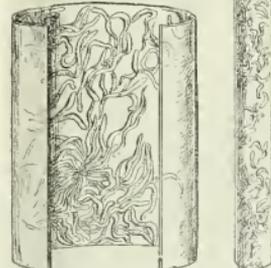
In Experiments 546 and 524 there was no separate examination of the hypopharynx; it is included in the general term "proboscis." It was only when the importance of the hypopharynx became evident that an examination of the separate parts of the proboscis was made.

In not a single fly was any invasion of the salivary glands noted, but it will be seen that in every positive experiment trypanosomes are found in the hypopharynx.

So much for the positive experiments; let us see what is the result of the dissection of the infected flies in the negative experiments. In none of the infected flies had development reached the hypopharynx, and consequently none of the flies had become infective.



Labrum: early infection.



Labrum. Hypopharynx. Fig. 3.—*Trypanosoma pecorum*: Development in proboscis.

From the consideration of these tables it will be seen that in *Trypanosoma pecorum* the development takes place at first in the intestine, then passes forward into the labial cavity, and finally invades the hypopharynx, and there is completed.

The Type of *Trypanosoma* found in the Infected Flies.

Fig. 2 represents the developmental forms of *Trypanosoma pecorum* found in the labial cavity of *Glossina morsitans*.

In regard to the forms found in the intestine, it may be said that these are indistinguishable from the developmental forms of other pathogenic trypanosomes.

The first seven figures represent early forms in the labial cavity. These were seen adhering singly by their flagella to the labrum.

The next group are the ordinary forms found clinging by their flagella ends to the labrum. It will be seen that they have assumed the cribridial stage—a stage which seems to be a *sine qua non* in the final stages of the cycle of development of all the pathogenic trypanosomes, and the interpretation of which is still obscure.

The small blood forms are from the hypopharynx of dead infective flies, and also from living infective flies induced to salivate on a cover-glass. They represent the final stage in the cycle of development, and are the only infective forms.

In Fig. 3 are seen drawings, at a magnification of 250 diameters, of the labrum and hypopharynx of a fly infected with this trypanosome. While the labial cavity

is seen to contain clusters of large ribbon-like trypanosomes, the hypopharynx is swarming with the small infective forms. From these drawings the ease and facility with which a tsetse fly can infect an animal will be readily understood.

Another way of showing how easy it is for a fly to infect an animal is to induce an infected fly to salivate on a cover-glass. If a hungry fly is placed on a large cover-glass, which covers a man's finger, the fly will attempt to bite through the glass, and in so doing will smear it with its saliva. If this is then stained and examined under a microscope, thousands of trypanosomes will be seen.

The Reservoir of Trypanosoma pecorum.

Table VI represents the number of times *Trypanosoma pecorum* was found among the 180 wild animals examined in Nyasaland and the species of game which harboured it.

TABLE VI.—Showing the Species of Animals Dealt with, the Total Number Examined, the Number found Infected, and the Species of Trypanosome by which they were Infected.

Animal.	No. Examined.	No. Found Infected.	Tripp. brucei.	Tripp. pecorum.	Tripp. simiae.	Tripp. caprae.
Eland	10	6	0	6	0	1
Sable	5	0	0	0	0	0
Waterbuck ...	13	9	3	1	0	8
Koodoo	3	2	0	2	0	0
Bushbuck ...	10	7	0	7	0	1
Hartebeeste ...	35	6	5	1	0	0
Reedbuck ...	19	12	3	1	0	9
Orobi	26	4	1	1	0	1
Duiker	7	2	1	0	0	0
Buffalo	9	2	0	2	0	0
Lion	1	0	0	0	0	0
Hyaena	3	2	0	2	0	0
Warthog	33	7	1	3	3	0
Elephant	2	0	0	0	0	0
Wild cat	3	0	0	0	0	0
Porcupine ...	1	0	0	0	0	0
Total	180	59	14	26	3	20

It will be seen that 26 animals among the 180 harboured this parasite (14.4 per cent.), and the eland, the koodoo, the bushbuck, and the buffalo were the greatest sinners; 60 per cent. of the eland, 66 per cent. of the koodoo, 70 per cent. of the bushbuck, and 22 per cent. of the buffalo having *Trypanosoma pecorum* in their blood.

It is rather curious that *Trypanosoma pecorum* has picked out the animals in whose blood *Trypanosoma brucei* was absent.

2. TRYPANOSOMA SIMIAE.

This species of trypanosome is remarkable for the virulence it displays towards the monkey and the domestic pig, killing these animals in an incredibly short period of time, whereas it is harmless to oxen, antelope, dogs, and the smaller experimental animals. Curiously enough it affects goats and sheep, although oxen and antelope escape.

Trypanosoma simiae is similar to *Trypanosoma pecorum* in the rapidity with which its virulence becomes modified. If a cage containing wild tsetse flies (*Glossina morsitans*) infected with this parasite is placed on a monkey or a goat, both animals take the disease and the monkey in such an acute form that the average duration of disease is only a few days.

But if the attempt is made to pass this species of trypanosome from an infected goat to a healthy monkey, by the inoculation of the goat's blood, the experiment usually fails, showing that a short sojourn in the blood of the goat has almost nullified the virulence of the parasite for the monkey.

Another interesting point in regard to this species is, that as far as is known, the warthog is the only animal among the wild game which harbours it. It is probable

that it will also be found in the blood of the bush-pig, but that has not been done yet.

Morphology.

If Fig. 4 be compared with Fig. 1, it will be seen that *Trypanosoma simiae* is longer than *Trypanosoma pecorum*. It is monomorphic, varying from 14 to 24 microns in length—average 18. The trypanosomes are fairly uniform in shape. The body is elongated, undulating, and frequently extends in a straight line. The contents of the cell are clear and free from granules. The nucleus is oval,



Fig. 4.—*Trypanosoma simiae*.

and situated about the middle of the body. The micronucleus is small and round, situated almost invariably about 1½ microns from the posterior extremity. The undulating membrane is well developed and thrown into bold undulations.

It is difficult to say whether this species has a free flagellum or not. By careful staining and good illumination it would seem in most cases as if the undulating membrane extended to the tip of the flagellum. In some preparations, however, the last two or three microns of the flagella appear to be free.

Susceptibility of Animals.

Table VII shows the average duration of life in various animals infected by *Trypanosoma simiae*, also the percentages of recoveries from the disease.

TABLE VII.

Average Duration of Life in Various Animals Infected by *T. simiae*, Nyasaland. Mixed Infections are not included. (The letter R stands for refractory.)

Animal	Average Duration in Days.	No. of Animals Employed.
Ox ... ..	... R ...	4
Antelope ... ..	... R ...	5
Goat and Sheep ...	... 46.6 ...	5
Pig ... ..	... 5.3 ...	9
Baboon ... ..	... R ...	3
Monkey ... ..	... 10.8 ...	24
Dog ... ..	... R ...	21
Rabbit ... ..	... R ...	10
Guinea-pig ... ..	... R ...	5
Rat ... ..	... R ...	5

Percentages of Recoveries in Various Animals from *T. simiae* Infection. Mixed Infections are included.

Animal	Percentages.	No. of Animals Employed.
Ox ... ..	... R ...	4
Antelope ... ..	... R ...	5
Goat and Sheep ...	... 37.5 ...	32
Pig ... ..	... 0.0 ...	13
Baboon ... ..	... R ...	3
Monkey ... ..	... 14.3 ...	35
Dog ... ..	... R ...	21
Rabbit ... ..	... R ...	10
Guinea-pig ... ..	... R ...	5
Rat ... ..	... R ...	5

It will be seen that the ox, antelope, baboon, dog, rabbit, guinea-pig, and rat are refractory.

In the whole range of the trypanosome diseases of animals there is surely nothing so striking as the rapidly fatal action of *Trypanosoma simiae* on the domestic pig. In nine experiments the average duration was only 5.3 days. This, not from the time of the appearance of the trypanosome in the blood, but from the date of the infection. Further, this rapid action is not the result of an exaltation of virulence by numerous passages through the pig, but natural to the trypanosome.

The Carrier of Trypanosoma simiae.

The carrier of *Trypanosoma simiae* in Nyasaland is *Glossina morsitans*. Table VIII gives the proportion of flies naturally infected with this parasite.

TABLE VIII.—Proportion of Tsetse Flies (*Glossina morsitans*) Naturally Infective with *Trypanosoma simiae* in Nyasaland.

1912.	No. of Flies Fed.	Mon-key.	Dog.	Goat.	1912.	No. of Flies Fed.	Mon-key.	Dog.	Goat.
Jan. 20	296	+	—	—	May 14	250	+	—	+
.. 24	370	+	—	—	.. 17	190	—	—	+
.. 29	280	+	+	—	.. 24	113	—	—	+
Feb. 2	235	—	—	—	.. 29	130	—	—	—
.. 9	220	+	—	—	.. 29	230	—	—	—
.. 13	200	+	—	—	.. 29	320	—	—	—
.. 16	195	—	—	—	.. 29	240	—	—	+
.. 21	170	—	—	—	.. 31	100	+	—	+
.. 25	170	—	+	—	.. 31	175	+	—	+
Mar. 2	140	—	—	—	June 2	300	—	—	+
.. 9	165	—	—	—	.. 6	210	—	—	—
.. 14	100	—	—	—	.. 7	230	—	—	—
.. 17	160	—	—	—	.. 11	160	+	—	—
.. 22	205	—	+	—	.. 18	135	—	—	—
April 3	135	—	—	—	.. 27	25	—	—	—
.. 10	275	—	—	—	July 3	35	—	—	—
.. 15	330	+	—	—	Sept. 25	70	—	—	—
.. 18	200	+	—	—	.. 27	25	—	—	—
.. 18	180	+	—	+	Oct. 29	87	—	—	—
.. 23	230	+	—	—	Nov. 5	145	—	—	—
.. 23	140	—	—	—	.. 11	150	+	—	—
.. 26	100	+	—	—	.. 18	157	+	—	+
.. 27	250	—	—	—	.. 21	95	—	—	—
May 1	155	+	—	—	.. 25	180	+	—	—
.. 3	96	—	—	—	Dec. 3	180	+	—	—
.. 8	330	+	—	—	.. 6	198	—	—	—
.. 9	130	—	—	—	.. 11	156	—	—	—
.. 13	50	—	+	—	.. 16	213	+	—	—

As will be seen from this table, there were 56 experiments, and 10,081 tsetse flies were employed. In the 56 experiments *Trypanosoma simiae* was found 34 times (60.7 per cent.). Twenty-six monkeys and seventeen goats were infected. This gives a proportion of 3.4 per 1,000 flies infective with *Trypanosoma simiae*. It must be noted that warthogs were numerous in the sleeping sickness area, Nyasaland, which accounts for the fairly high proportion of infected flies.

The Cycle of Development of *Trypanosoma simiae* in *Glossina morsitans*.

This species belongs to Group B, and the cycle of development is similar to that which has already been described as occurring in *Trypanosoma pecorum*.

The Reservoir of *Trypanosoma simiae*.

In Table VI is shown the number of times *Trypanosoma simiae* was found among the 180 wild animals examined in Nyasaland, and the species of game which harboured it.

It will be seen that only 3 animals among the 180 harboured this parasite (1.7 per cent.). This was, of course, due to the fact that it is only the warthog among the wild game which acts as a reservoir; 30 warthogs were examined and 3 found infected (9 per cent.).

GROUP C.—THE TRYPANOSOMA VIVAX GROUP.

The three species forming this group have a strong family resemblance, and but for size might almost be included in one species.

1. TRYPANOSOMA VIVAX.

This is the cause of one of the most important diseases of cattle in Uganda. We did not meet with it in Nyasaland, where its place seems to be taken by *Trypanosoma caprae*. It is, however, widely distributed in Central Africa. It has been reported from Senegal and the Sudan



Fig. 5.—*Trypanosoma vivax*, Ziemann.

in the north to Rhodesia in the south. It is easily recognized on account of its extreme activity during life, its characteristic morphology in stained specimens, and the fact that it only affects horses, cattle, goats, and sheep, while monkeys, dogs, rabbits, guinea-pigs, rats, and mice are refractory.

In Uganda the tsetse flies on the lake shore were found to be infected with it, and it was also found in the

of a bushbuck shot at the same place at which the flies were collected.

2. TRYPANOSOMA UNIFORME.

This trypanosome resembles *Trypanosoma vivax* very closely except that it is smaller. Up to the present it has



Fig. 6.—*Trypanosoma uniforme*.

only been found in Uganda. Its carrier there is *Glossina palpalis*, and its reservoir the wild game on the lake shore.

3. TRYPANOSOMA CAPRAE.

This species has only been reported up to the present from Lake Tanganyika and Nyasaland. It, like the other two species belonging to this group, only affects cattle, sheep, and goats. Monkeys, dogs, and the smaller experimental animals are immune.

Morphology.

Fig. 7 shows its general appearance. During life this trypanosome, like the other members of the group, is characterized by its extreme mobility.



Fig. 7.—*Trypanosoma caprae*, Kleine.

It is a monomorphic species, varying from 18 to 32 microns in length, the greatest number of individuals being 25 microns long. Measured across the broadest part, *Trypanosoma caprae* averages 3 microns in breadth (maximum 4.25, minimum 1.75). It differs from *Trypanosoma vivax* in that it is heavier built and altogether has a larger and clumsier appearance. The posterior half is swollen, and its end is bluntly angular or rounded. The anterior extremity is narrower and pointed. The contents of the cell are clear, with a delicate alveolar structure and free from vacuoles and granules. The nucleus is oval, compact, and lying about the middle of the body. The micronucleus is large and round, situated as a rule close to the posterior extremity; the undulating membrane is more developed than in *Trypanosoma vivax* and thrown into bolder folds and undulations. There is a well-marked free flagellum which averages 6.5 microns in length (maximum 9.4, minimum 4).

Susceptibility of Animals to *Trypanosoma caprae*.

Table IX gives the average duration of the disease, and the percentages of recoveries in various experimental animals.

TABLE IX.

Average Duration of Life in Various Animals Infected by *T. caprae*, Nyasaland. (The letter R stands for refractory.)

	Average Duration in Days.	No. of Animals Employed.
Ox	—	—
Goat	56.5	19
Sheep	115.3	5
Monkey	R	12
Dog	R	12
Guinea-pig	R	2
Rat	R	2

Percentage of Recoveries in Various Animals from *T. caprae* Infection.

	Percentages.	No. of Animals Employed.
Ox	100	2
Goat	32.2	28
Sheep	25.0	4
Monkey	R	12
Dog	R	12
Guinea-pig	R	2
Rat	R	2

The Type of Trypanosomes found in the Infected Flies.

No attempt was made by the Commission to study the development of *Trypanosoma caprae* in *Glossina morsitans* in the earliest stages. This can only be done if a large number of laboratory-bred flies are available, and this was not the case in Nyassaland.

In Figs. 8 and 9 are represented some of the developmental forms found in the labial cavity and hypopharynx of infected flies. It will be seen that most of the flagellates found attached to the labrum are crithidial

in type, with well defined nuclei, micronuclei, and free flagella. Some are ribbon shaped, others have elongated posterior extremities, and again others are torpedo-shaped.

The last three rows are from the hypopharynx, and have been obtained, as a rule, by causing the fly to salivate on the cover-glass. They represent the final stage in the cycle of development, the reversion to the infective or blood form. They are rather smaller than those found in the blood of the vertebrate host, but resemble them closely in every other way.



Fig. 8.—*Trypanosoma caprae* from proboscis.

may be said to be, first, that some order is beginning to reign in what was lately chaos in regard to the classification of the pathogenic trypanosomes. They may all now be referred to three groups, and nine species.

In regard to the transference of the virus from sick to healthy animals by the fly, this has been made clearer and easier of comprehension by the discovery of the part the salivary glands and hypopharynx play in the various modes of development which the trypanosomes undergo in the fly. It results that it would almost appear impossible for an infective fly to pierce even momentarily the skin of a healthy susceptible animal without causing infection.

Another important feature is the proof brought forward that *Trypanosoma brucei* and *Trypanosoma rhodesiense* are the same.

Finally, in regard to the prevention of these trypanosome diseases of man and domestic animals. We have seen that the wild game in the fly country is heavily infected. It is impossible to doubt that they are the reservoir and source of many of these diseases. There can be little



Fig. 9.—*Trypanosoma caprae*: Development in proboscis.

The Reservoir of Trypanosoma caprae.

Among the 180 wild animals examined in Nyassaland 20 harboured *Trypanosoma caprae* (11.1 per cent.); 61 per cent. of the waterbuck and 47 per cent. of the reedbuck acted as reservoirs.

CONCLUSION.

This concludes the Croonian Lectures on the trypanosomes causing disease in man and animals in Central Africa. These lectures deal with but a small part of the subject, which has in the course of the last twenty years grown to huge proportions. Nothing has been said about medicinal treatment, and even measures of prevention have been left a good deal to the imagination. Taking a look back over the whole field, the outstanding features

doubt that if the wild game were driven out of the fly country, trypanosome diseases such as those caused by *Trypanosoma brucei* and *Trypanosoma pecorum* would disappear.

In regard to the measures of prevention against the most important of all the trypanosome diseases—Congo sleeping sickness—it has been shown by experience that the removal of the natives from the fly area is a simple and efficacious way of stopping an epidemic.

In these sparsely inhabited countries where spare land and food are easily obtained, there is as a rule no difficulty in effecting this migration.

If it is desired to go a step further and render the sleeping sickness area inhabitable, then clearing and cultivation must be resorted to. By these means in all probability *Glossina palpalis* will be driven away, and with it the disease.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TREATMENT OF RIGID OS UTERI.

I HAVE read with interest Dr. John A. Irvine's communication on this subject in the JOURNAL of June 12th, p. 1002. The administration of tartar emetic successfully rectified the uterine complication. The effects of antimony, however, are far from pleasant to the patient, and liable to cause dangerous depression. There is, in my opinion, a better way by which the relaxation of the rigid os uteri may be effected *cito, tuto, et jucunde*.

As I have pointed out in my book *Clinical Memoranda* (Baillière and Co.), the application of a tampon of lint or absorbent cotton-wool, soaked in a solution of cocaine, or β eucaine (10 grains to the ounce of boric acid solution), to, or into, the os and cervix, acts like a charm.

The irritated nerves and muscular fibres are anaesthetized, and the spasm relaxes directly—even within five minutes—the os dilating widely. On many occasions I

have had cause to bless this precious drug which has never failed me.

Not only does the cocaine relieve the spasm of the os, but, as the solution spreads all over the vagina, it also anaesthetizes the mucous membrane, permitting the head to pass through the outlet with a minimum of discomfort.

Driffield, E. Yorks.

A. T. BEARD, M.D.

RECURRENT VESICULAR RASH.

I HAVE at present a young married woman under my care who has a blister which appeared spontaneously over the lower end of the nina. About nine months ago a somewhat smaller blister arose over the big toe. I then thought a shoe must have wrung her feet. She had a patch of zoster over the glutei in the winter, and when the ulna blister appeared there was a fresh patch of zoster. All these manifestations were on the left side. She is quite healthy otherwise except for slight grating in some joints and slight occasional asthma. I regard the whole as a manifestation of fibrositis.

Bournemouth.

GEORGE MAHOMED.

Reports of Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

At a meeting on July 1st, Dr. W. S. A. GRIFFITH in the chair, Mr. J. D. MALCOLM showed (1) *Papilliferous carcinoma of the ovary associated with adenomyoma of the uterus*, (2) *Fibromyoma free from attachments in a pelvic abscess*. Mr. E. A. BARTON read a paper on the *Condition of the larynx and trachea in stillborn infants*. As a result of a number of post-mortem examinations on stillborn infants that had never made any attempt to breathe, it was shown that in all cases the glottis was closed, and in a majority the lower half of the trachea was also occluded, the posterior muscular wall being folded into the lumen and the cartilage rings sharply flattened and incurved, so that the trachea presented on section a very flattened oval. A deep sulcus formed by the interval between the ends of the incurved cartilages ran vertically down the posterior surface of the trachea. It was also suggested that an outward elastic tension of the ribs might further aid the initial inspiration. The bearing of these observations on artificial respiration of the stillborn flaccid infant went to show that, until the glottis was opened mechanically and the trachea was made patent, it was useless to attempt any postural or other means to inflate the lungs, and that this first separation of closed surfaces was best attained by mouth to mouth aspiration. Remarks were made by the PRESIDENT, DR. AMAND ROUTH, DR. EARDLEY HOLLAND, DR. RUSSELL ANDREWS, DR. HANDFIELD JONES, and DR. HERBERT SPENCER. Mr. T. G. STEVENS read a paper on *Adenomyoma of the recto-vaginal septum*. He described six cases, the first of which was described before the Section in 1909. The other five cases all came under his care in the last six months. In two cases the growth was accidentally discovered in patients who complained of sterility; in the other three the growth was discovered during the performance of hysterectomy. In all the cases the growth was in the loose tissue just behind the posterior fornix, and except in the first cases was attached to the back of the cervix uteri. In four cases the growth had involved the rectal muscle, and in one of these had penetrated to the submucous tissue of the rectum. In these four cases the peritoneum was closely fixed to the growth. In none of the cases could the symptoms complained of be ascribed to the growth; they were due to some intercurrent uterine lesion. The histology of the growths in every case was that of a diffuse adenomyoma as commonly seen in the body of the uterus. The diagnosis, prognosis, and operative technique were discussed. The origin of the growths might be from: (1) The endometrium; (2) Mullerian remnants; (3) Wolffian remnants; (4) the peritoneal endothelium. The first was proved to be the source of origin of most adenomyomata, but in the case of tumours at a distance from the endometrium any connexion between the two was difficult to demonstrate. The other three possibilities were based on theoretical considerations only, and were incapable of proof. Dr. WALTER S. A. GRIFFITH delivered his presidential address, taking for his subject, *The causes which determine the "lie" of the fetus in utero*. Reference was made to the views of some early writers as to the position and presentation of the fetus, and as to the causes which they considered efficient, showing the gradual development of the gravity theory, which, however, owing to insufficient and often incorrect data, had not yet been actually proved. He had therefore determined to investigate the subject *de novo*, and presented his work under the following headings: (a) *The fetus*. The fetus, which was a body of varying and not uniform density, was immersed in fluid in a closed cavity of more or less corresponding shape, and was for a time freely movable in it. Later, as its size more nearly approximated that of the uterine cavity, its mobility was more and more restricted. Investigations had been directed to the following points: (1) The specific gravity of the fetus at different periods of development, and of its most important parts; (2) the specific gravity of hydrocephalic and anencephalic fetuses, and especially of the head, in these cases; (3) the centre of gravity of the fetus, (b) *The liquor amnii*. This was a fluid of uniform density in each specimen. (4) The varying specific gravity of different specimens; (5) the

relative specific gravity of the fetus and the liquor amnii; (6) the metacentre, or centre of buoyancy. This was the centre of gravity of the fluid displaced by the fetus—that was, the centre of gravity of a substance of uniform density exactly corresponding in shape and size with the fetus. This was the centre through which the resistance to the descent of the fetus, whatever its position *in utero*, must act in a vertical direction. (7) The relative positions of the centre of gravity of the fetus and the metacentre. (c) *Movements disturbing the fetus at rest*. (8) Fetal movements; (9) uterine movements—that is, contractions; (10) maternal movements. The specific gravity of the fetus was illustrated by tables giving the details of forty-six fetuses from the second month onwards, and from these were drawn the following conclusions: That in no instance did the specific gravity of the head exceed that of the remainder of the body before the end of the sixth month. It was generally lower, and in only one case of the sixth month was it equal to that of the body. In three only out of nine normal fetuses of the seventh month was the specific gravity of the head higher than that of the body. In two of the eighth month, the only ones of this month Dr. Griffith had examined, the specific gravity of the head was lower than that of the rest of the body. In sixteen full-term fetuses the specific gravity of the head was considerably higher in thirteen than the body, equal in two, lower in one. It was also demonstrated that up to the end of the sixth month of pregnancy the difference of specific gravity of the three great divisions of the fetus—namely, its head, thorax with the arms, abdomen with the legs, was very slight. During the seventh and eighth months the thoracic portion was the highest, and it was only in the last month that the head was constantly higher than the rest of the body. It was also seen that the relative specific gravity of the head to the body had no necessary relation to the lie of the fetus, whether when quite fresh or in various degrees of maceration *in utero*; maceration hardly affected the specific gravity of the fetus. Two matters of interest were demonstrated in these tables, matters which were of much importance in the rival contentions of Matthews Duncan and Sir J. Y. Simpson. The examination of hydrocephalic and anencephalic fetuses showed that the theoretical opinions and arguments of Matthews Duncan were correct. The specific gravity of the two hydrocephalic fetal heads was very low, as low as in normal fetuses of the fifth month—namely, (1) 1.037, (2) 1.039. The head of the anencephalic fetus of the seventh month was very high for the period of development—namely, 1.061. It consisted chiefly of bone. The specific gravity of full term normal male fetuses varied between 1.049 and 1.060, of female between 1.049 and 1.056; the average in 9 males 1.055, in 7 females 1.053. The specific gravity of the umbilical cord was 1.020, considerably higher than that of the liquor amnii, and it therefore sank when lying free in it. *The specific gravity of the liquor amnii*. The tables illustrating this comprised 112 specimens varying from 1.002 to 1.016, with an average of 1.007, and showed that the specific gravity of the liquor amnii varied but little during pregnancy, and was independent of the sex, weight and length of the fetus, of the age of the mother, and the number of her pregnancies. They also showed that the fetus had a higher specific gravity which increased throughout pregnancy, and that the fetus must always sink to the most dependent part of the uterus. The forces which disturbed the fetus at rest were then discussed, and the conclusion was drawn that the cumulative effects of the natural forces acted by assisting, while the fetus was freely movable, the only dominant and always present force, gravity, to act efficiently, until the position of the fetus became stable. The centre of gravity of the fetus was illustrated by tables of fourteen fetuses, from the fourth month onwards, leading to the following conclusions: The centre of gravity was found at all periods to be within the pericardium close to the right auricle, but by measurement of the distance from the centre of gravity from the vertex and breech respectively it appeared gradually to move nearer to the breech than the vertex. It was nearer the vertex than the breech in the specimen of the fourth month only; in the five specimens of the fifth and sixth months it was practically midway, and in the seven specimens of the eighth and ninth months it was nearer the breech end. This apparent but important displacement of the centre of gravity was considered to be

due to a greater development of the body below the diaphragm than above it. The principle involved, and the methods of determining the position of the centre of gravity and the metacentre, were then described. And two wax models used in this, the most difficult part of the investigation, were exhibited, and it was shown that the metacentre being situated on the breech side of the centre of gravity the effect of gravity was to continually pull the cephalic end down and push the breech end up. Dr. Griffith hoped to be able to bring before the Section at a less strenuous time a report on the examination of the relative position of the two centres in fetuses of the earlier and middle months. He had avoided criticism of the views and writings of others, being of the opinion that an accurate examination of the factors would be of more value in the avoidance of errors in the future than criticism of theories and statements founded for the most part on crude and often erroneous data.

Reviews.

DISORDERS OF THE HEART.

DR. LEWIS has recently published, under the title *Lectures on the Heart*,¹ some lectures he delivered last autumn in America—one in New York and three at Baltimore, and an address to the Faculty of Medicine at McGill University, Montreal. The book merits perusal by all who are interested in modern cardiology, as it presents, in readable and easily accessible form, the results of certain investigations made by the author and other workers in his laboratory.

The first lecture deals with the excitation wave in the heart. It is shown that if the electrical condition of the surface of the auricles is examined during natural contraction the part over the sino-auricular node is with each contraction primarily negative to every other part, so that we may assume that the contraction starts from this point. The same conclusion is reached by exciting different spots on the surface of the auricle artificially when it is found that the nearer the spot excited is to the sino-auricular node the more closely does the electrocardiogram of the resulting contraction approach the normal type. By taking electrocardiograms simultaneously from a standard lead and two points on the surface of the auricle, it is possible to measure the time the wave of negativity, and therefore of excitation, takes to pass from one point of the auricular surface to another, and hence to trace its course. The conclusion reached is that the excitation wave has its origin in the sino-auricular node, and spreads at rates ranging about a metre a second along the chief muscular tracts, which radiate from its neighbourhood, courses through the whole auricular tissue up to its ending on the chief veins and down the septum to the auricular ventricular node.

By a similar method of investigation Dr. Lewis reaches the conclusion that the wave of excitation having passed through the auricular ventricular bundle and the Purkinje system, spreads through the ventricular muscle from within outwards, from the endocardial to the epicardial surface, and that the rate at which it appears at any point on the surface depends mainly on the thickness of muscle it has to traverse, as the rate of conduction through Purkinje substance is approximately at least five times as fast as through ventricular muscle.

The second lecture deals with matters familiar to most of those interested in electro-cardiography. The third lecture—on the relation of the auricular systole to heart sounds—after describing the method of recording heart sounds and murmurs graphically by the string galvanometer, describes and discusses various phonograms. It is suggested that the auricular sound heard in some cases of complete heart-block consists of two factors—one due to the contraction of the auricular muscle, the other attributable to the cessation of flow from auricle to ventricle, and consequent closure of the auricular ventricular valves. Canter rhythm is of two kinds: in the commoner type the additional sound occurs immediately before the natural first sound, in the second in early or

mid-diastole. The first variety is held to be due to a double closure of the auricular ventricular valves, the first closure resulting from the wane of the auricular systole blood. The second sort of canter rhythm is thought to be produced by a vibration of the valves from quick filling of the ventricle and their consequent closure, just as Thayer and Hirschfelder have suggested in describing the third sound of the normal heart. The periodic accentuation of the first sound and reduplication of the first and second in complete heart-block and the various murmurs of mitral stenosis are then dealt with.

The fourth lecture gives an account of the work of the author with Mr. Barcroft and others on cases of dyspnoea in which there is little or no cyanosis. The suggestion is thrown out that dyspnoea resulting from the presence of non-volatile acids in the blood is a far commoner phenomenon than is usually supposed.

In the address on cardiac syncope delivered in Canada, the author treats of syncope from general slowing of the whole heart as the result of vagal stimulation, from slowing of the ventricles in heart-block of various grades, from fibrillation of the ventricle, and from accelerated heart action causing lessened cardiac output, with consequent fall of arterial pressure and hence cerebral anaemia.

INFANT MORTALITY.

THE study of the causes and means of controlling infant mortality is of such interest to sanitarians that the editors of the Cambridge Public Health Series did well to include among their manuals a work devoted to it. Dr. HEOR ASHBY'S *Infant Mortality*² contains a great deal of useful information based upon personal experience, and its perusal will be of value to all who are engaged in the task of attempting to provide better conditions for the children of the poor. The chapters which deal with the duties and qualifications of health visitors, the organization of infant consultations and dinners for mothers, and the care and preparation of food are particularly worthy of commendation. While so much is good, it may seem a little ungracious to call attention to shortcomings, but we are bound to say that Dr. Ashby's book does not entirely fulfil the rather ambitious programme outlined in the editors' preface. The editors assert that the volumes in the series "include the latest scientific and practical information, offered in a manner which is not too technical. The bibliographies contain references to the literature of each subject, which will ensure their utility to the specialist." It is, perhaps, sufficient commentary upon the latter statement to remark that Dr. Ashby nowhere cites the work of such investigators as Westergaard, Mombert, Gauzen-Müller, and Vertijn Stuart, nor does he seem to be acquainted with the important monographs of Sallet and Falkenburg and of Groth and Halm. The author's want of familiarity with the literature is indeed amusingly illustrated by the naive remark that "the fact came to light from vital statistics in Ireland and in the different counties of England that a high birth-rate is generally associated with a high rate of infant mortality" (p. 16). It must also be said that the attribution to Dr. Newsholme of a demonstration that "it is by no means true that it is the weaklings who die off," hardly corresponds to the facts of the case. In our opinion the question whether infant mortality is or is not "selective" is not one with which the sanitarian, *qua* sanitarian, need concern himself. If a writer wishes to discuss the problem, he would do well to make himself acquainted with the numerous papers, such as those published by Professor Karl Pearson and his fellow-workers, which at least make it plain that the statistical difficulties involved are not to be overcome without the aid of delicate and precise instruments of research. Dr. Ashby would have done better to confine himself to the discussion of actual administrative measures, since the sketchy and inadequate treatment of the general problems of infant mortality which occupies the first quarter of his book is not a good introduction to the part really based upon wide experience, and therefore of scientific value. We hope that when a second edition is called for Dr. Ashby will subject the earlier chapters of his book to a drastic revision.

¹ *Lectures on the Heart*. By T. Lewis, M.D., F.R.C.P., D.Sc. London: Shaw and Sons, New York: F. B. Hoeber, 1915. (Demy 8vo, pp. 124; 85 figures. 6s. 6d. net.)

² *Infant Mortality*. By H. T. Ashby, B.A., M.D., B.C. Camb., M.R.C.P. Lond. Cambridge Public Health Series, under the editorship of G. S. Graham-Smith, M.D., and J. E. Furvis, M.A. Cambridge: The University Press, 1915. (Demy 8vo, pp. 229; 9 figures, 10s. 6d. net.)

CANCER.

Dr. DUNCAN BULKLEY will meet with the assent of many of his readers when he observes that, from the enormous work which has been done on cancer with the microscope and test tube, it would seem sometimes that research workers have become somewhat myopic, and are still not sufficiently far-sighted to recognize the true value of statistical studies and clinical observations. The thesis of his book, *Cancer, Its Cause and Treatment*,³ is that the earlier the morbid process leading to the development of the neoplasm is met by dietetic, hygienic, and medicinal measures, the greater the promise and expectation of permanent success. Dr. Bulkley boldly declares that for the proper treatment of cancer, and for the prevention of its occurrence and recurrence, a vegetarian diet is necessary. He would even exclude eggs and milk; yet he admits that the yolk of eggs may sometimes be taken with advantage, and also milk alone, at the body temperature, about an hour before eating. The vegetable diet should be so arranged as to give the requisite quantity of calories, from a proper proportion of vegetable protein, carbohydrates, and fats. He has a great belief in fats, and allows a quarter of a pound of butter daily. Dr. Bulkley, speaking of treatment, lays much stress on moderate purgation. Sir Arbutnot Lane, he reminds the reader, has emphasized the fact that cancer may be one of the terminal results of intestinal stasis. Dr. Bulkley has observed that imperfect intestinal excretion is frequently recorded in the history of persons subject to cancer, and believes that this stasis plays an important part in the auto-intoxication which, he considers, precedes malignant disease. A hormone therapy of cancer is at present in its infancy, though thyroid secretion has been shown, by clinical experience, to exercise sometimes a definitely beneficial effect on cancer. Like all other writers on the treatment of cancer, Dr. Bulkley finds that certain special local dressings act in a satisfactory manner, even after the onset of ulceration. Dr. Bulkley condemns not only meat and alcohol, but likewise tea and coffee. He quotes from a report to the House of Commons the information that Holland, known to be the largest consumer *per capita* of coffee of any country in Europe, had in 1905 a cancer death-rate among the highest, while Hungary, the smallest consumer of that pleasant beverage, had a cancer mortality in 1903 of only 39 per 100,000, or a little over one-third that of Holland. He quotes from another writer the statement that the people of the United States consume one-third of the total coffee produced, or more than Germany, Austria-Hungary, France, and the United Kingdom combined. On the other hand, England and her colonies consume one-half of the world's output of tea, and the United States but one-fifth of it. Dr. Bulkley then notes how many of the working class consume enormous amounts of tea which is kept brewing all day. The last six words are an important qualification of the evils of tea drinking long recognized by our readers.

Dr. Bulkley admits that he cannot show precisely how unfavourable hygienic and dietetic causes set up cancer, and admits that no single cause of malignant disease has yet been demonstrated. While the bio-chemistry of cancer throws little light upon its true nature, enough is known. Dr. Bulkley considers, to prove that the morbid changes in the cells are largely associated with deranged metabolism, and, as above indicated, his teachings on treatment are based on that fact. Unfortunately, wide though the association with deranged metabolism may be, science has not yet reached the truth, and the author concludes that the long continuation of many baneful causes has produced such a degeneration of tissue in the human race that, even when the reformed dietary has been established, it will take a generation or more of proper living to make the beneficial impression on the general incidence of cancer which is so ardently desired by humanity.

NOTES ON BOOKS.

THE *Archives of the Middlesex Hospital (Clinical Series, No. XI)*,⁴ edited by Mr. W. SAMPSON HANDBLEY and Dr. VICTOR BONNEY, includes two cases of bronchiectasis following operation for the removal of tonsils and adenoids, by Dr. Cockayne; three cases of acute intraocular

inflammation treated with sensitized vaccines, by Mr. B. T. Lang; a paper on the after-history of patients in whom the operation of gastro-jejunostomy has been performed for malignant disease, by Mr. C. H. S. Webb; and an inquiry into the radiographic appearances of the stomach after gastro-jejunostomy, by the same author and Mr. W. N. Kingsbury. There are also papers on the investigation of cardiac irregularity by means of the polygraph, by Dr. George Ward; and on lactic acid in *Bacillus coli* infections, by Mr. I. H. Lloyd-Williams.

MEDICAL AND SURGICAL APPLIANCES.

The Salmon-Ody Truss.

THE ball-and-socket joint was first adopted in the manufacture of trusses by the firm of Salmon, Ody and Co. over a century ago, and the apparatus which bears its name is still much favoured by surgeons. The latest improvement, which has proved to be of high service, is the addition of a small spring, secreted within the ball of the joint, which presses the ball against its socket. This contrivance prevents the cup and ball from working loosely and renders the truss less liable to displacement, more convenient for adjustment, and efficient and enduring when in wear. The truss is supplied by Messrs. Salmon, Ody and Co., of New Oxford Street.

INTERNATIONAL MEDICAL AMENITIES.

A NORWEGIAN physician, Dr. Monrad-Krohn, has written to us about the remarks on international medical amenities published in the *JOURNAL* for March 6th, 27th, and April 3rd. In his opinion Mr. Murray is right in saying that the Scandinavians have a leaning to the German in preference to the English language, and, as far as medical books are concerned, Dr. Monrad-Krohn gives the following explanation for this preference: When a Norwegian student begins his medical career he starts reading anatomy and physiology. Now, the booksellers all have a large stock of German textbooks on these subjects, whereas it often takes two or three weeks to get a corresponding English book. This is very often enough to make the young student decide upon the book which he can get at once. He starts reading it, and, once having become more familiar with the German language than with the English, he also buys German books on pathology, surgery, etc. Meanwhile he gradually forgets much of the English he learnt at school. Dr. Monrad-Krohn accordingly suggests that, to bring English and Scandinavians into closer touch on medical subjects, English publishers should see that the Norwegian booksellers have a large supply of medical textbooks in stock, particularly on the subjects of anatomy and physiology. This object would be promoted by the early reviews of new editions of English textbooks in the Norwegian medical press.

Dr. Monrad-Krohn pays a generous tribute to the courtesy with which he has been met by his colleagues in England, where, he says, excellent opportunities have been given him for the clinical study of medicine. He suggests that a medical guide to London would make things easier for the foreign visitors, and would "add considerably to the organization of London as a medical educational centre, whose unequalled clinical material ought to place it far above Paris, Vienna, and Berlin."

THE committee of Queen Mary's Convalescent Auxiliary Hospitals wishes it to be known that an exhibition of artificial limbs will be opened at Queen Mary's Convalescent Auxiliary Hospitals, Roehampton House, Roehampton Lane, S.W., on July 20th, and will remain open until July 23rd inclusive. Full particulars may be obtained on application to the honorary secretary, Mr. C. H. Kenderdine, at St. Stephen's House, Westminster, S.W. A conference in connexion with the exhibition will be held at Roehampton House on Thursday, July 22nd, at 3 o'clock p.m. to enable a committee of orthopaedic surgeons and the Directors-General of the Navy and Army Medical Services to confer with the artificial limb makers as to the best way of dealing with the problem of the supply of artificial limbs to sailors and soldiers who have lost limbs in the war. Any members of the medical profession who wish to attend will be welcome. With the approval of the Directors-General of the Navy and Army Medical Services gold and silver medals will be given as well as diplomas for the best exhibits, which will be judged by a committee of English, Scottish, and Irish orthopaedic surgeons.

³*Cancer: Its Cause and Treatment*. By L. Duncan Bulkley, A.M., M.D. New York: P. B. Hoeber, 1915. (Cr. 8vo, pp. 230, \$1.50 net.)

⁴*Archives of the Middlesex Hospital (Clinical Series No. XI)*. Being the Thirty-Second Volume of the Archives. Edited by W. S. Handbley and V. Bonney. London: Macmillan and Co., Ltd. 1914. (Imp. 8vo, pp. 32; 15 figures.)

British Medical Journal.

SATURDAY, JULY 17TH, 1915.

LEGISLATION FOR THE EXPECTANT MOTHER AND HER UNBORN INFANT.

UNDETERRED by Cicero's well-known adage, *Silent enim leges inter arma*, a deputation from the Women's Co-operative Guild—an association which has already done yoman service in the cause of the expectant mother and her expected baby—waited on the President of the Local Government Board last month to urge the amendment of the law so as to give power to local authorities to develop their work on behalf of maternity and infancy. The opinion was expressed on behalf of the Guild that the country would heartily endorse such an amendment of the law as was necessary to make this valuable department of the public health service more effective.

The Women's Co-operative Guild has a right to speak on this matter, for it is a self-governing organization of 32,000 married non-wage-earning women, and it has concerned itself with the national care of maternity ever since the introduction of the Insurance Act. Its members also have had personal experience of the need for improved conditions, and have been cognizant of the sufferings which have arisen from poverty, out of work, short time, and the lack of opportunity for obtaining the knowledge, treatment, and conditions considered essential at these times by all women of the middle class. The Guild stated in a memorandum it presented that among the most urgent needs is the provision of skilled advice and treatment before, at, and after childbirth, such as is supplied by health visitors, maternity centres, maternity homes, and hospitals; it was also pointed out that, while the 700,000 insured women receive free doctor, pregnancy sickness benefit, double maternity benefit, and sickness benefit in the event of prolonged illness after childbirth, the six million non-wage-earning married women receive nothing but single maternity benefit, and are therefore justified in looking to the nation for the provision now recommended by the Local Government Board in the interest of the country. Before the outbreak of the war the Guild had largely devoted itself to rousing public health committees and relief committees to the urgency of providing for the care of mothers and infants; and the results of that campaign, in which many other women's and labour organizations co-operated, had been striking; conferences and deputations to local authorities had been held in numerous towns, and as a consequence of the Local Government Board circular of July, 1914 (making the care of maternity a national responsibility) and the activity of the Guild, more than 140 public health committees were considering the matter or had begun or had increased their work since August. The Guild maintained, however, that the present state of the law hindered the carrying out of the whole service of health for expectant and nursing mothers, and children up to school age. Public health authorities have had to rely upon certain clauses in the Public Health Act of 1875, which did not fully meet

the case, and an excuse for inaction was thus given to unprogressive councils. Again, the lack of power on the part of county councils, because technically they were not public health authorities, hindered action in rural and small urban districts, where there was great need for advice to mothers, and for the early supervision of the health of infants.

The following facts were submitted with regard to specific spheres of action: First, with regard to the employment of health visitors for antenatal and infant visiting, the Local Government Board held that health visitors might be appointed to enable the local authority to make use of the information obtained through the Notification of Births Act, which, though not of universal application, it was open to any county councils or public health authority to adopt. The Board, however, found it difficult to hold that local authorities, whether county councils or public health authorities, had an implied power to employ health visitors for antenatal visiting. Secondly, as to maternity and infant welfare centres for medical advice and treatment for expectant and nursing mothers and children under five years, the county councils had no powers; and although the public health authorities had power to provide hospitals for the reception of the sick under Section 131 of the Public Health Act, 1875, it could not be said that all the women and all the children whom it was desirable to get to the centre for advice were "sick." Thirdly, as to hospital provision for complicated cases of pregnancy (the prematernity work in which this JOURNAL has always interested itself), for the confinement of sick women, and for complications after parturition in mother and infant, the county councils once more had no powers; and whilst the public health authorities again had power to provide hospitals for the reception of the sick under Section 131 of the Public Health Act, 1875, they might not provide hospital accommodation for ordinary maternity cases. Fourthly, with respect to the provision of a doctor or midwife in the home when the person was too poor to pay for these services, the county councils had no powers; the public health authorities might, with the Board's consent, provide "a temporary supply of medical assistance for the poorer inhabitants of their district" under Section 133 of the Public Health Act, 1875, and the Board had taken this to include the provision in necessitous cases of a midwife and doctor when called in by a midwife. It was urged that it would be economical to empower county councils to act, and that it was the only way by which much-needed care in rural districts could be secured, and, finally, that the public health authorities needed legal power to provide antenatal advice and treatment and to carry on preventive health work among children.

Mr. Long's reply to the deputation was sympathetic and encouraging, and he has already carried out his promise to introduce legislation to make the Notification of Births Act compulsory all over the country. The bill was read a third time in the House of Commons on July 13th, and its second clause, as it now stands, authorizes any local authority, whether a sanitary authority or not, to exercise for the purposes of the care of expectant mothers, nursing mothers, and young children any powers which a sanitary authority has under the Public Health Acts, 1875-1907, or the Public Health (London) Act, as the case requires. By Clause 3 the application of the Act is extended to Scotland and Ireland. Mr. Long said that his predecessor (Mr. Samuel) had been successful in obtaining a grant in respect of the expenditure from the Treasury, and that the

balance that would fall on local authorities and on the rates would be small. The Local Government Board and the Board of Education have issued a joint memorandum defining the conditions under which grants in aid of maternity centres and schools for mothers, will be made, and the Board of Education has published a memorandum on class instruction at schools for mothers, prepared by Dr. Janet M. Campbell, one of the Board's senior medical officers, designed to assist those engaged in the work of such schools in organizing class instruction in the way most suitable to the needs and circumstances of the school.

CORONERS' LAW.

FROM reports published in the *Western Morning News* on dates July 5th and July 6th of an inquest held by Mr. Hacker, H.M. Coroner for the Totnes District of Devonshire, on the body of one William Lancey, it would appear that he holds opinions as to his powers which the Coroners Act does not authorize nor permit. The case was quite simple, and the evidence as reported does not make apparent the necessity for an inquest being held at all. An insured person was under treatment by his panel practitioner for some months, and the diagnosis was not easy. Several medical men had been consulted, both locally and at the hospital at Exeter. A diagnosis of gastritis and cardiac insufficiency had been made and due and proper treatment prescribed. Dr. Patterson, the panel practitioner, treated the patient up to the day before he died, and when death took place suggested to the relatives that, in order to verify the diagnosis, it would be advisable to make a *post-mortem* examination. No objection was made; the examination confirmed the diagnosis and the usual death certificate was given by Dr. Patterson, accepted by the Registrar, and the burial order made out. Before the burial could take place the coroner was informed of the death and issued an order for a second *post-mortem* examination and an inquest.

At the first inquiry the coroner is reported to have made the following statement: "It is illegal to give a certificate of a case of sudden death when the cause is unknown. It must be reported to the coroner. . . . I go further," he added, "and say the fact of making a *post-mortem* examination without reporting to the coroner and without obtaining at an inquest a proper order for such an examination is going very near committing an indictable misdemeanour in interfering with the proper course of justice and exposing the body in such a way as to prevent an inquest." This ruling of the coroner was at once challenged by Mr. Dell, the solicitor who attended the inquest on behalf of the two doctors concerned, and after taking some formal evidence the inquiry was adjourned.

At the adjournment Dr. Patterson and Dr. Morton Palmer, the practitioners whose procedure the coroner had attacked, were represented by Mr. Hempson, solicitor for the Medical Defence Union, and the coroner then stated that it was quite clear by the Act of Parliament and also by common law that this being a case of sudden death, of which the cause was unknown, an inquest became necessary. Dr. Patterson should have known that; all doctors knew it. His duty on finding that death had taken place was to tell Lancey's friends to report the case to the coroner. . . . When a medical man could not give a certificate, the ordinary practice was to at once report the case. Dr. Patterson expostulated, and explained that he knew that death was due to natural causes, and that there was nothing to conceal. Mr. Hempson

disputed the coroner's ruling, and protested firmly against the branding by the coroner of the medical practitioners with conspiracy, and his statement that they were practically guilty of an indictable offence. Mr. Hempson was about to make further protests, but the coroner directed him to resume his seat. The coroner, in his summing up, said that after Dr. Patterson's explanation and candid statement, the jury would probably think that there was not much ground for complaint; after a few minutes' deliberation, the jury returned a verdict of death from natural causes, thereby justifying to the full both the treatment and diagnosis of Dr. Patterson.

It is difficult to imagine why the cumbersome machinery of the coroner's law was set in motion in this case and why the county was put to the unnecessary expense of an inquest. The procedure adopted by Dr. Patterson in asking for, and, after gaining permission, making a *post-mortem* examination in order to verify his diagnosis and enable him to give a correct death certificate, was, we have no hesitation in affirming, quite legal, right, and proper. A similar course is adopted in every hospital every week, and is quite common in general practice. To affirm that where an absolute diagnosis cannot be made in cases involving no suspicious circumstances a *post-mortem* examination cannot be made without an order from a coroner is absurd. A coroner has no power to order a *post-mortem* examination without holding an inquest, and to hold that the law insists upon an inquest whenever the coroner desires, is an illegal assumption of authority.

It is true that if a case be reported to him it is his duty to make inquiries, but if such inquiries satisfy a reasonable mind that the death arose from illness it would be quite irregular for him to hold an inquest. Lord Selborne laid down the authority of the coroner as follows: A coroner has not an absolute right to hold an inquest in every case in which he choose so to do, nor is it in general the duty of coroners voluntarily to obtrude themselves into private houses. Such officious interference would be in many cases a censurable excess of duty. If notice of the death is accompanied, or followed, by information that it was probably due to such cause as apoplexy or other visitation of God, so as to show that an inquest is not necessary, the coroner may reasonably exercise his discretion by not holding an inquest. In this case not only was there no suspicion of foul play, but a certificate of death had been issued in accordance with statute law, signed by a registered medical practitioner, and the actual cause of death as previously diagnosed confirmed by a *post-mortem* examination. As a matter of law it is not the duty of any one to make a report to the coroner or to inform him of anything relating to a death, however sudden. We are aware, of course, that some coroners, though they know or ought to know this, try to invent a duty under the common law; but as a matter of fact there is no legal authority to enforce this. If there were such a common law duty, indictment could follow a breach of it, but this is not the case here. It must also be remembered that the coroner has no jurisdiction over the body of a deceased person until he issue his precept for an inquest; the property of a dead body rests with the family of the deceased or his executors. It is quite legal, therefore, for the relatives to give consent to a medical practitioner to make a *post-mortem* examination, and when this is done by a properly qualified man and death is confirmed as being due to disease no inquest should be held, especially when the death has occurred in a private house. Even where, under

special enactments, deaths have to be reported to the coroner, such as in the case of lunatics in asylums, it is not illegal for a *post-mortem* examination to be made before receiving the coroner's permission, and no action could be taken to prevent the authorities from making such an examination. It would be quite unreasonable to require the coroner's permission when the examination is made to confirm the diagnosis of death from a known natural cause, when there were no grounds for supposing that an inquest would be held.

It has been asserted by an eminent coroner that when a jury returns a verdict of death from natural causes that is in itself a proof that the inquest was unnecessary. Whilst not going so far as this authority, we cannot but feel that in the case to which we refer there was no occasion whatever for the coroner to have set in motion the machinery of the law, and still less for his animadversions upon the procedure adopted by the medical practitioners concerned. Their conduct was quite in accordance with the law and with the custom of the medical profession, and the attack made upon them by the coroner was entirely beyond the mark and unjustifiable.

ODONTOMES.

At the annual meeting of the British Dental Association held in London in 1906 the most complete collection of odontomes ever assembled was shown. It was sought to give permanence to the labour thus entailed by the appointment of a subcommittee, consisting of Messrs D. P. Gabell, W. W. James, and J. L. Payne, charged with the task of drawing up a report on the classification of odontomes.

In drawing up its report,¹ which has been issued recently, the committee took as a basis Bland-Sutton's classification, but after consideration of "several factors, among them the recognition of the wider function of the enamel organ, the discovery of the epithelial lining in certain cysts, and the investigation of a larger number of specimens," they have altered it in detail. As a classification they propose: (1) Epithelial odontomes, in which the abnormal development takes place in the dental epithelium alone. 2. Composite odontomes, in which the abnormal development takes place primarily in the dental epithelium, and secondarily in the dental papilla, and may occur in the follicle also. (3) Connective tissue odontomes, in which the abnormal development takes place in the dental tissues of mesoblastic origin alone.

The first class includes multilocular cysts, dentigerous cysts, and dental cysts. The difficulty of classification at once obtrudes itself. Of the three forms of tumour, only one, "dentigerous cyst," definitely conforms with the reporters' definition of "odontome" as a tumour derived from the special cells concerned in tooth development, and is of unknown etiology. As they admit, there is strong evidence that multilocular cysts may arise from ingrowth of the gum epithelium, as held by Eve; and in the case of dental cysts, J. G. Turner has shown clearly their dependence on chronic bacterial infection. It is permissible to believe, with the reporters, that the epithelial ingrowth demonstrated in the multilocular cysts arose from some portion of the tooth band, though demonstration appears impossible.

The second class includes (a) complex composite odontomes, compound composite odontomes; (b) geminated composite odontomes, gestant composite odontomes, enamel nodules; and (c) dilated composite odontomes. The report seeks to extend the use of the term "composite odontome" till it includes "all odontomes dependent on aberrations of the enamel organ with other dental tissues." It would thus include almost all calcified odontomes, and the three subdivisions are dependent on the general effect the irregular development of the dental epithelium has upon the dentine papilla.

The term "complex composite odontome" is used to include tooth tumours that are formless and whose tissues are irregularly mixed; "compound composite odontome" is the name given to Bland-Sutton's class "compound follicular odontome." These are tumours in which are found more or less numerous denticles or calcified masses together with cyst formations which may attain a large size. Bland-Sutton explains them as due to sporadic calcification of the cyst wall, but this explanation is obviously incomplete, and the report recognizes six different methods of origin. The first two, non-eruption of several supernumerary teeth and deformity of several of the ordinary tooth-germs, might well be classed as "compound follicular odontomes," and the sixth, sporadic calcification of a thickened capsule about a tooth germ or germs, is a restatement of Bland-Sutton's explanation (such calcification would give rise to bone and the tumour would be a cementoma). It may be questioned, however, whether the dental follicle is a distinct enough structure to be worth charging with tumour formation. Bland-Sutton falls back on it to account both for cystic tumours derived from the dental epithelium, where the follicle may be supposed to be the indefinite fibrous capsule lined with epithelium surrounding the crown of the tooth, and for cementomata which arise in parts (around the roots) where no follicle or capsule can possibly be found. We are glad the authors have tried to rectify this difficulty, but it may be doubted whether cystic tumours formed by the non-eruption of several teeth, supernumerary or normal, should be included in the same class as almost solid tooth tumours containing irregularly calcified tooth masses—they lie so far apart in the harmonic scale. We doubt, too, whether the terms "complex composite odontome" and "compound composite odontome" are sufficiently distinct and self-explanatory.

Of the further subdivisions of composite odontomes suggested, "geminated composite odontomes" may be found a useful class in connecting supernumerary teeth or geminated teeth with more obvious odontomes. "Gestant odontome" is the *dens in dente* of Continental writers; "enamel nodule" is self-explanatory and rightly included as odontomatous; "dilated composite odontome" does not seem to us a well-chosen term, since it is made to include both solid and hollow tumours, and refers only to form.

The third class made in the report includes fibrous odontomes and cementomes, and it is correctly stated that fibrous odontomes are probably a result of rickets. An important point is made when attention is drawn to the microscopic diagnosis of cementomes. They are rare tumours, composed mostly of non-laminated cementum with plentiful irregular vascular canals, while root-exostosis, with which they are liable to be confounded, is common, laminated, and little vascular.

The report denies the existence of malignant odontomes, with the exception of the composite embryoplastic odontome of Eve, and it seems to be

¹ *The Report on Odontomes.* By the Committee appointed by the British Dental Association. Members of the Committee—D. P. Gabell, L.R.C.P., M.R.C.S., L.D.S., W. W. James, L.R.C.P., F.R.C.S., L.D.S., J. L. Payne, L.R.C.P., M.R.C.S., L.D.S. London: The British Dental Association, 1914. (Demy 8vo, pp. 142, 45 plates, 91 figures. 7s. 6d. net.)

implied that a careful consideration of recorded cases of "burrowing epithelioma," etc., shows that these tumours are not malignant. This opinion will undoubtedly be disputed; burrowing epitheliomata are very malignant, and the origin of some of these growths from dental epithelium seems unquestionable.

The reporters appear to have felt that their effort is not final, but in publishing the results of eight years' patient labour, freely given, they have placed the whole dental profession under a debt of gratitude which can best be repaid by study and discussion of their work.

ORGANIZATION TO MEET THE WAR EMERGENCY.

The War Emergency Committee of the Metropolitan Counties Branch has formulated a proposal for dealing with the supply of medical men to the army upon very similar lines to those already adopted by the Scottish Medical Service Emergency Committee. It is argued that as the demands made upon the medical profession are certain to increase, it is wise to be prepared beforehand with some definite organized plan for satisfying the wants of the army with as little disturbance of civil practice as the grave nature of the circumstances permits. Therefore it is proposed that every medical man of military age—that is, 40 or under—should enrol himself as willing to take a commission within a few days after a certain date, if called upon to do so. The details of the arrangements for enrolment and calling up would be in the hands of a special committee of men well known in the medical profession, not necessarily members of the British Medical Association. The Committee would work through the organization of the British Medical Association, which has available the speediest means for approaching the medical profession. When any urgent demand arises for a fresh quota of medical officers, the Committee would select the necessary number of names from the roll, with due consideration for the position of individual men, and the needs of the community which they serve. The selected names would be forwarded to the War Office, where the authorities would accept such men as they approve. It is thought also that the Committee might render useful service in advising and assisting men in their preparation for leaving practice, in establishing classes for elementary instruction in military medical matters, and in endeavouring to provide against serious loss when the men called up return to civil practice.

CONGENITAL SYPHILIS IN THE EAST END.

DR. PAUL FILDES, assistant bacteriologist to the London Hospital, has made an extensive research into the prevalence of congenital syphilis among the newly born of the East End of London, and has set forth his results in an extremely interesting report.¹ The investigation was carried out on the assumption that an infant infected with syphilis, even if it shows no clinical signs of the disease, will give a positive Wassermann reaction either at birth or within two months, which according to observations on the adult is the longest possible incubation period for the reaction. The infants were chosen from the respectable labouring classes, and were all the offspring of married women who were on the books of the Maternity Charity of the London Hospital. In spite of the prevalent belief that a higher standard of morality prevails among Jews, who form so large a proportion of the population of the London Hospital district, the incidence of syphilis among them

did not differ appreciably from that of the Christians. This interesting ethnological point is, we understand, to be further considered in a subsequent publication; but it is held that the presence of the large alien element does not interfere with the application of deductions drawn from this population to groups of similar social status in different parts of London. Two series of examinations were made, the first at birth and the second two and a half to four months later, when the mother's blood was also examined. By this means it was held that all the subjects of congenital syphilis could be detected. In the first examination the blood was taken from the placental end of the cut umbilical cord, and at the subsequent examination from the thumb or great toe. The technique employed in testing the blood was that recently described by Fildes and McIntosh.² Of 1,015 infants examined at birth 14 (1.3 per cent.) gave a positive reaction, but were all apparently healthy, except one who presented obvious signs of congenital syphilis, and died in twelve days, in spite of treatment. Of the remaining 13, 7 examined two months later gave a negative reaction, though the reaction in their mothers was positive, and 6 did not return for examination. These results prove that a positive reaction at birth does not necessarily imply syphilis of the child, but merely the passage of the reacting substance from the blood of the syphilitic mother. At the second examination, when only 660 of the 1,015 infants were available, 3 (0.45 per cent.) gave a positive reaction. These three infants were healthy at birth, when the reaction was entirely negative, and two remained healthy, but one developed undoubted signs of congenital syphilis. Further inquiries made it unlikely that an undue proportion of syphilis existed among those infants who were not brought up for a second examination. Of 677 mothers examined, 27 (3.9 per cent.) gave positive reactions, but only 4 of these had syphilitic offspring. So far from every woman with a positive reaction having caused a positive reaction in the umbilical cord blood, in the majority (16) of the positive cases the umbilical cord blood had been negative. The placental blood is therefore no index of the prevalence of syphilis in women. The general conclusion arrived at by Dr. Fildes is that the ravages caused by congenital syphilis in infants are sometimes exaggerated. It is to be hoped that the example set will be followed by investigations of this kind, the importance of which from a medical and sociological standpoint it is difficult to overestimate.

MEDICAL TERMS IN THE NEW ENGLISH DICTIONARY.

The quarterly instalment of *A New English Dictionary on Historical Principles*,³ which appeared on July 1st, covers the portion of the alphabetic rubrics from *Trink* to *Turn-down*, and includes a large number of medical terms. Sir James Murray had hoped, by slightly enlarging this issue, to reach the end of *T*, but, in words which excite the sympathy of all his readers, he is forced to add to his prefatory note: "My long and serious illness, which lasted from May to November, robbed us of that satisfaction." All reviewers will unite in wishing the editor long life and strength to carry his monumental work to a successful end, and will congratulate him on the words with which he closes his preface: "The next issue will take us well into *U*." A great many medical terms, especially those in the department of chemistry, begin with *Tri-*, *Trio-* and *Trocho-*. Thus there is *triolein* (one of the glycerides of oleic acid), *trional* (the trade name of the synthetic drug diethylsulphonemethylmethane), *trioxide*, *trioxy*, *tripalmitin* (a crystalline substance occurring in palm oil and other fats and oils), *tripeptide* (a compound containing the residues of three

¹ *Brain*, 1913, xxxvi, 195.

² Report to the Local Government Board upon the Prevalence of Congenital Syphilis among the Newly Born of the East End of London. By Paul Fildes, M.B., B.C. (Cantab.), Assistant Bacteriologist to the London Hospital. (From the Bacteriological Laboratory of the London Hospital—Professor William Balloch, F.R.S.) London: Wyman and Sons, Ltd., 29, Breams Buildings, Fetter Lane, E.C. (23.)

³ *A New English Dictionary on Historical Principles*. Edited by Sir James A. H. Murray. *Trink-Turn-down*. Volume 2. Oxford: At the Clarendon Press; London, Edinburgh, New York, Toronto, Melbourne, and Bombay: Oxford University Press, Humphrey Milford, July 1st, 1915. (6s.; 1.25 dol.)

amino-acids), *triphenin* (a synthetic drug with antipyretic and antineuralgic properties), *triphenylmethane*, *triphenylamine*, *trisaccharide*, *trisulfate*, *trisulphide*, *trisulphone*, *tristricin* (a carbohydrate), *trochoccephalic* (having a round form of skull due to premature union of the parietal and frontal bones, etc. More distinctly medical terms are *triplegia* (hemiplegia with a paraplegia of spinal origin added to it), *trismus* (a modern Latin word adapted from the Greek *τρισμός* *τρισμός*, a scream, also a grinding, rasping, and meaning tonic spasm of the muscles of the neck and lower jaw), *trochanter*, *trochlear*, *turbinal*, *turbidology*, etc. Under *trypanosoma*, which is derived from the Greek *τρύπανον*—a borer, and *σώμα*—a body, there is quite a family of words, including *trypanosome* (a substance having the property of destroying trypanosomes), *trypanosomiasis* (a disease produced by infection with trypanosomes), and *trypanosomal* (pertaining to or caused by trypanosomes). All these derived words are of modern origin, but *trypanosome* itself was introduced in 1843 by Gibby, who, in describing some living parasites in the blood of animals, wrote "je propose de nommer cet hématozoaire Trypanosome." In the near neighbourhood of *trypanosoma* is found *trypan*, which is a contraction for it, and is used in such a combination as *trypan red*, the drug which is employed in cases of trypanosomiasis; but the ordinary reader of the *Dictionary* will hardly thank the editor for transcribing the statement that the correct name for trypan red is sodium-ortho-benzidine-mono-sulphoacid-diazo-b-2-naphylamine-3-6-sulphoacid, which will seem as illuminating as the remark that the "snark was a boojum." To many even well-educated readers the derivation of *trypsin* will come as a surprise; it is from the Greek *τριψίς*—rubbing, because it was first obtained by rubbing down the pancreas with glycerin. Grouped round trypsin is the small family of derived words, *trypsinogen*, *trypso-gen*, *tryptic*, *tryptone*, and *tryptophan*. A large number of terms cluster round *tubercle*, and most of them took on a new shade of meaning when Koch in 1882 discovered the bacillus of that name; there are *tubercular*, *tuberculide*, *tuberculin*, *tuberculation*, the compound *tuberculo-*, *tuberculome*, and *tuberculosis*. All these are defined with Sir James Murray's usual exactitude, and illustrated by a profusion of quotations, most of which convey really useful information as well, so that after running them over the reader has an actual knowledge of the subject. No space remains to refer to the other medical terms dotted up and down in this section of the *Dictionary*; but it must be added to what has already been said, that the work is as complete and informative on the medical uses of such ordinary words as *trouble*, *truss*, and *turn*, whilst under *tupelo* the convenient *tent* is named.

SOLDIER'S HEART.

DURING the first months of the war the German medical press devoted itself mainly to wounds and their treatment, infectious diseases, and the hygienic measures necessary for their suppression. Early in 1915 many writers published their observations on the effects of the war on the soldier's heart, and it would appear that the constant strain of active service has provided an unexpectedly large number of cardiac casualties. Magnus-Levy¹ was struck by the frequency with which healthy-looking, well-built young men among the wounded complained of palpitation of the heart, a sense of pressure in the cardiac region, and slight dyspnoea on exertion. The pulse was 80 to 100, the apex beat was in the fifth space, in or to the left of the nipple line, and the cardiac dullness was increased. The cardiac sounds were muffled, and systolic or presystolic murmurs were audible, particularly after exertion. The second sound was loud, notably after exertion, which quickly increased the pulse-rate to as much as 120. Only in a few cases could it be proved that the patients had

already suffered from slight cardiac symptoms before the outbreak of the war, and in the majority of cases the strenuous life of the soldier was apparently alone responsible for the faulty action of the heart. Rheumatic endocarditis could be excluded in most cases in the absence of articular disease. In the overwhelming majority of cases the dilatation of the heart and the rapid pulse were traced to over-exertion and fatigue; and the slight rises of temperature sometimes observed among unwounded soldiers suffering from cardiac symptoms were regarded, not as a sign of infectious endocarditis, but as a result of instability of the body temperature due to fatigue. Fischer² was also struck by the frequency with which the wounded complained of cardiac symptoms. Among 131 wounded he found cardiac anomalies in 51, or nearly 39 per cent. In most cases there were adventitious sounds over the apex or base of the heart, which, in 13 cases, was dilated. Discussing the prognosis in these cases, Minter³ considered the outlook bright, provided over-exertion could be avoided in the future. He found treatment with digitalis of no use, and he admitted that rest in bed was unsatisfactory, as the patients became restless and were subject to attacks of palpitation at night. Mirtl's⁴ prognosis was more cautious, and he pointed out that, though the symptoms might disappear with rest, a complete recovery could not, as the x rays have proved, be anticipated. His experience of the Balkan wars of 1912 and 1913 had shown him that the soldier's heart was associated with persistent hypertrophy, which, though of a moderate degree, was often the cause of discomfort. When such cases were neglected, arterio-sclerosis was apt to supervene.

BUYO CHEEK CANCER.

CANCER of the cheek is exceedingly common in the Philippine Islands, in women as well as in men, and the cause is well known. In those islands "buyo" or betel leaf (*Piper betle*) is almost universally chewed by adults, and often by children of tender years; 90 per cent. of the elderly natives indulge in the habit, and Dr. George Davis, of the University of the Philippines, when received by the Sultan of Sulu, noticed that His Majesty frequently made use of a beautiful coloured glass spittoon, being himself an inveterate buyo chewer. It is important to remember that the buyo leaf is seldom chewed alone. Lime is carried in one of the compartments of the buyo box, and corrodes the brass in a very suggestive manner. The lime is spread over the buyo leaf, which is then folded and wrapped around a betel nut (*Areca catechu*). Since the American occupation, the buyo is flavoured with an accompanying "plug cut" of American or native tobacco. The lime is obtained from sea shells; it gives a pleasant sweet flavour to the betel nut and buyo leaf, and by a chemical action produces a red colour, dyeing the oral mucosa red and the teeth black. Old men and women, the latter the more inveterate chewers, use a paste when they have lost their teeth. Dr. Davis, who has written both on the etiology⁵ and on the surgery⁶ of buyo cheek cancer, considers that without doubt the lime is the essential cause of the malignant degeneration; but from clinical observations in a case in which, after resection of the left superior maxilla, lime was discarded, he feels certain that the essential oil of the buyo leaf, and the tannic and gallic acid in the betel nut, are predisposing factors. The ravages of buyo cheek cancer, as Dr. Davis's photographs show, are very extensive. This disease is evidently a definite lesion like Roentgen-ray epithelioma, chimney-sweepers', paraffin workers', and Indian kangri skin cancer, and the

¹ *Munch. med. Woch.*, January 26th, 1915.

² *Med. Klin.*, March 7th, 1915.

³ *Munch. med. Woch.*, March 16th, 1915.

⁴ *Buyo Cheek Cancer*, *Journ. Amer. Med. Assoc.*, February 27th, 1915.

⁵ *Id.*

⁶ *A Plastic Operation for Buyo Cheek Cancer*, *Surgery, Gynaecology, and Obstetrics*, July, 1915, p. 43.

malignant changes in the brands on cattle in the Western United States. For the extirpation of this formidable new growth Dr. Davis practises extensive plastic operations.

STATISTICS OF NOTIFIABLE DISEASES.

THE statistical return of the incidence of notifiable infectious disease upon the sanitary districts of England and Wales in 1914, which was recently issued by the Local Government Board,¹ is the fourth in this valuable series. The tables are prefaced by a useful summary of the principal facts. Perhaps the most interesting figures are those relating to scarlet fever, diphtheria, and enteric fever. The prevalence of the two former diseases has increased in the last few years. In the case of scarlet fever the total for 1914 was 165,045; for 1913, 130,707; for 1912, 107,508; and for 1911, 104,651. The corresponding figures in the case of diphtheria are 59,357, 50,903, 44,754, and 47,802. Enteric fever shows an increase as compared with 1913—8,778 cases in 1914, 8,263 in 1913—but has not regained the level of 1911—namely, 13,852; 315 cases of cerebro-spinal fever were notified in 1914, the figure for 1913 being 305. It is to be remarked that the duty of notifying infectious diseases to the medical officer of health does not apply in respect of persons living in any building belonging to H.M. the King, but that, owing to the unprecedented conditions prevailing in the later months of 1914, many notifications of military and naval cases were actually sent to medical officers of health. These have been included in the totals for England and Wales, but not in the returns for sanitary areas. The number of cases of pulmonary tuberculosis notified exhibits a marked decline—81,159 in 1914, 96,841 in 1913, 110,706 in 1912—but it is pointed out that a considerable number of duplications occur, so that the published figures do not admit of satisfactory comparison. It is hoped that this difficulty may be partially surmounted in the next annual report. Dr. R. Bruce Low contributes a preliminary statement as to the occurrence of small-pox abroad during 1914, and it is a matter of special interest to remark that small-pox appears to have been prevalent in Asiatic Turkey during 1914, and was epidemic in Smyrna. Beirut and Damascus also suffered greatly. More than 68,500 deaths from small-pox were recorded in India during the first nine months of the year. The whole report will, like its predecessors, be indispensable to epidemiologists.

SIR CHARLES TUPPER.

SIR CHARLES TUPPER, who lives in retirement at Bexley Heath in Kent, celebrated his 94th birthday on July 2nd. He was born in 1821, and educated partly in Canada and partly at the University of Edinburgh, where he took the degree of Doctor of Medicine. He is best known, however, as a statesman, and at one time or another he has held nearly every great office of State in the Canadian Government. How highly his services are appreciated by the people of Canada is well shown by a telegram sent to him on the occasion of his birthday by Mr. White, Acting Prime Minister of Canada, who said that "Canada, a united people in the crisis of this great war, faithful to the empire, and cherishing its great traditions, looks back to-day with pride, veneration, and affection to the Fathers of Confederation, whose dreams have been so amply fulfilled." We join heartily in Mr. White's wish that Sir Charles Tupper may long be spared to enjoy the esteem and regard of the Canadian people. The magnificent loyalty of Canada in the most critical time of our history and the splendid courage shown by her sons in the defence of the empire have drawn more close than ever the bonds which unite us to the great Dominion overseas.

¹ *Statistics of the Incidence of Notifiable Infectious Diseases in each Sanitary District in England and Wales and Preliminary Statement as to Small-pox Abroad during the Year 1914.* Reports to the Local Government Board on Public Health and Medical Subjects, New Series, No. 106.

and it is natural that we should be particularly proud at this time to recall the fact that one of Canada's greatest sons is a member of the medical profession.

Medical Notes in Parliament.

The Naval and Military War Pensions Bill.

THIS bill is described as a bill to "make better provision as to the pensions, grants, and allowances made in respect of the present war to officers and men in the naval and military service of His Majesty and their dependants and the care of officers and men disabled in consequence of the present war." It sets up a Statutory Committee of the Royal Patriotic Fund Corporation, but continues the existence of the corporation in accordance with the provisions of the Patriotic Fund (Reorganization) Act, 1903. The Statutory Committee is to consist of 29 members, but will have power to co-opt not more than 15 persons having special experience in work of the character to be performed by the corporation. Of the 29 members, 12 will be appointed by the Crown, among them a chairman and vice-chairman, who may both receive salaries: 1 member will be appointed by the Treasury, 1 each by the Admiralty and Army Council, 1 by the National Insurance Joint Committee, 1 each by the Local Government Boards in England, Scotland, and Ireland, 6 by the General Council of the Royal Patriotic Fund Corporation, 2 by the National Relief Fund, and 2 by the Soldiers' and Sailors' Families Association. To assist the Statutory Committee, local committees are to be established in every county and county borough, and the county council of any county may divide the county into districts and appoint a subcommittee for each. The chief duties of the Statutory Committee will be to decide any question of fact as to the amount of a pension or grant payable out of public funds to a dependant other than a widow or child; to make regulations for supplementary grants where in exceptional circumstances the pension or grant, or separation allowance payable out of public funds, is inadequate; to supplement pensions and grants and separation allowances payable out of public funds; to make grants or allowances out of funds at its disposal in cases in which no separation allowances or pensions are payable out of public funds; and to make provision for the care of disabled officers and men after they have left the service, including provision for their health, training, and employment. The Statutory Committee may refer questions to the local committee and request it to collect and supply information. The local committees may solicit and receive from the public contributions towards any of the purposes of the bill, which purposes are included among those for which the Royal Patriotic Fund Corporation may solicit and receive contributions from the public and donations of property. The Committee stage of the bill was completed in the House of Commons last week.

The report stage was taken on July 14th. Mr. Price (Edinburgh Central) complained that no notice had been taken of the recommendations of Sir George Murray's committee, which had recommended the setting up of technical schools to train disabled soldiers. How were the local committees going to train them? He suggested that a fresh bill should be introduced to deal specifically with disabled soldiers, and with finding employment for men not disabled on their return to civil life. Mr. Goldstone (Sunderland, Lab.) agreed that the Government seemed to have failed to recognize how great the problem of demobilization would be when the able-bodied soldier would return to civil life and be in competition with disabled men. Mr. Anderson (Attercliffe, Lab.) asked the House to declare that it was not satisfied with the bill. He maintained that the question of the training and employment of disabled soldiers was one for the nation and not for private charity. After Mr. Hogge had said that the Statutory Committee had the power to set up such a subcommittee as was desired, Mr. Hayes Fisher contended that the suggestions of Sir George Murray's committee had not been ignored in the bill. Though there were only three lines in the bill dealing with disabled officers and men they covered the ground, and there was nothing in the bill to prevent statutory bodies setting up special subcommittees. If the provision eventually

proved inadequate new legislation could be proposed. Mr. C. Ducean (Barrow-in-Furness, Lab.) objected that the scope of the bill was insufficient. The Chancellor of the Exchequer, in reply on the debate, said that under the bill the Government looked primarily for support from voluntary funds, but, so far as they proved insufficient, was prepared to supplement them out of public funds. More might be done if the funds expended were partly subscribed voluntarily, for the moment the charge was placed upon public funds private subscriptions dried up. The country was doing for its soldiers and sailors what no other nation had done, and he contended that the Government had acted on sound and reasonable lines in introducing the bill in its present form. The State did not intend to depart by one iota from its responsibility, and those who were anxious to benefit wounded soldiers and sailors should assist the Government to obtain as much by voluntary subscription as was possible. Mr. Hodge (Gorton, Lab.) contended that it was the duty of the State, and the State alone, to look after those who had been broken. There was not only the question of pensions, but the duty to men who came back from the front with nerves shattered; they ought not to be left to charity. It was the duty of the State to do everything possible to bring them back to their former condition. The report stage was concluded, and the third reading of the bill put down for next Monday.

Notification of Births Act.

A bill to extend the Notification of Births Act (1907) to areas in which it has not been adopted, and to make further provision in connexion therewith for the care of mothers and young children, was read a second time, on the motion of the President of the Local Government Board, on July 8th. Mr. Long said that the Act of 1907 had been adopted to so large an extent by local authorities that about 80 per cent. of the population came under its powers. The bill proposed to make the Act universal, and to deal also with the health of the children and mothers. The Act required the notification of births of children alive or stillborn after the expiration of twenty-eight weeks of pregnancy. All experience of the areas in which the Act had been in force went to show that where notification was followed by wise action on the part of local authorities or voluntary agencies most satisfactory consequences in regard to the health both of mothers and children ensued. He added that Clause 2 as originally drafted would be modified to meet the views of the Board of Education.

The bill was supported from all sides of the House. Mr. J. A. Pease, who was, until the reconstitution of the Government, President of the Board of Education, said that statistics showed how much could be done to prevent infantile mortality. During the last few years the rate had decreased from an average of 130 to 108. He asked for an assurance that the work of the Board of Education in connexion with the schools for mothers, nursery schools, crèches, and other arrangements for dealing with children under the age of 5 should not be handed over to the sanitary authorities. The Board of Education had been entrusted by Parliament with power to see that the children found on inspection to need medical treatment were so treated, and that grants should be made not merely for inspection but for treatment through the local education authorities. The substantial experience gained by the Board of Education in connexion with the feeding of infants between 3, 4, and 5 years of age had shown that to avoid waste of public money it was essential that they should be attended to before they went into the schools and not afterwards only. He would go further, and say that children, even at the age of 10, 11, or 12 months old, should be included in the scheme. If any attempt were made to poach upon the province of the Board of Education, which was developing to the advantage of the community, overlapping and extravagance would occur.

Mr. Percy Harris (Paddington) said that in some districts the adoption of the Act had not been followed by effective action owing to doubts as to the powers of local authorities, and as to the results which would flow from such action. The bill removed any doubt as to the powers, and what had already been done by public and private agencies made clear the extraordinarily fruitful field which was open.

Mr. King (Somerset, N.) advised members to read the recent reports of the chief medical officer of the Board of

Education. The whole outlook for education and the problem of the well-being of the people had been given a new meaning and a new promise, through what Sir George Newman had written and done. The argument was that the problem of the child's education depended upon its health, and more upon the state of health in which the child was when it entered school than any other point. Its health at that time depended upon the upbringing and teaching of the mother, and therefore the problem of education, in the first instance, was the teaching of the mother and the assistance given to her in the earliest years of the child's life, even the earliest months and weeks of its life, in regard to health and nutrition. In Fulham the mothers of 600 infants had received advice; in Leeds 2,000 children under 5 had been the subject of consultation during the year; in Manchester the number was 1,600, and in Bristol 1,200. It was quite clear that the Board of Education had been doing magnificent work.

Mr. Dickinon (St. Pancras) and Sir John Spear (Tavistock) expressed the hope that funds would be provided from the Imperial exchequer for carrying the bill into effect.

Mr. Currie (Leith) said that Scotland suffered because a grant had not been made as in England and Wales. Mr. Long, in his reply, said that under the bill the distribution of grants-in-aid would follow the invariable practice, and would be made in due proportion to the three countries. An additional grant from the Treasury had been procured, and it was proposed to make grants-in-aid to local authorities to carry out expenditure approved by the Local Government Board. Clause 2, in its amended form, had been discussed with the President of the Board of Education, and would meet the wishes of that Board.

The Committee stage of the bill was taken on July 13th, when Clause 1 was adopted without amendment. Mr. Walter Long brought up the new Clause 2, which was amended and adopted. Clause 3, applying the Act to Scotland and Ireland, was amended and adopted. The bill was then read a third time and passed. The bill was read a first time in the House of Lords on July 14th.

The text of the bill as amended is not available at the time we go to press, but it will be published at an early date.

Hospitals and Duty-free Alcohol.—Sir Philip Magnus asked the Chancellor of the Exchequer, on July 13th, if, having regard to the disappointment that would be caused if no relief from spirit duty was provided for hospitals in the course of this financial year, it was his intention to introduce a clause into this or the next Finance Bill to give such relief in the form of a grant which would be based on the duty paid on spirits by hospitals last year, subject to investigation of an advisory committee working in connexion with the Board of Customs and Excise? Mr. McKenna said that he agreed in principle to a grant from public funds of the kind referred to. He understood that this proposal met with general approval, and regretted that time would not allow him to deal with the matter now. He proposed, however, to do so on the first suitable opportunity.

Treatment of Wounded.—Mr. Walter Roch asked the Under Secretary for War, on July 7th, if he would obtain from the hospitals in this country returns showing (1) the number of cases of compound fractures and the number of such cases which had resulted in amputation being necessary; (2) what proportion of the patients treated had arrived there with septic wounds; and (3) the number of cases of abdominal wounds, and the number of cases of such abdominal wounds which had proved fatal. Mr. Tennant said that the information desired would lay upon the medical authorities a vast amount of work, and, inasmuch as they were now heavily taxed, he would be obliged if Mr. Roch would not press him to ask them to undertake the additional work involved. Mr. Roch asked if there was not a register in the hospitals of each individual case, and was it not merely a question of tabulating them in order to get the information asked for. Mr. Tennant replied that he had no doubt there was a register in each hospital, but what was asked for was a return from each hospital, and that would involve much labour. In reply to a subsequent question by Mr. King, Mr. Tennant said he could not say whether that was so or not, but he should

not think any register would contain the information as to how many of the patients treated arrived there with septic wounds.

Hospital Service in Egypt.—Sir A. Markham asked the Under Secretary for War, on July 8th, whether the Secretary of State for War refused to give his consent to private persons sending out to Egypt private hospitals at their own expense; and whether, as a consequence, when the wounded from the Dardanelles arrived at Alexandria they were sent to the German hospital to be nursed by German nurses. Mr. Tennant said that private hospitals were not, and were not now, required in Egypt. The arrangements for the reception of the wounded at Alexandria were adequate in all respects. The General Officer Commanding in Egypt exercised a wise judgement in making use of the German hospital. In fact, he would no doubt have been criticized adversely if he had failed to make use of all the suitable accommodation which was at his disposal.

Dentistry and the Army.—Mr. Tennant stated, on July 7th, in reply to Sir J. D. Rees, who inquired with regard to the arrangements made for dentistry for the troops, that in some places there were specially appointed dental surgeons, who devoted their whole time to the troops; in others the work was done by selected civilian dental surgeons on terms arranged between them and the local military authorities, subject to a limit laid down by the War Office. A number of whole-time dental surgeons had received commissions, but there was no Army Dental Corps, and no need for one. The Government had no laboratory for supplying dentures, but in certain places, including France, there were dental mechanics' shops for making and repairing dentures. At other places dentures were supplied by civilian dentists on terms arranged locally, subject to a maximum fixed on the advice of expert dentists. The Government was getting dentures at reasonable rates, and the taxpayer was carefully protected. In reply to a subsequent question by Mr. Raffan, Mr. Tennant said he was afraid the War Office must adhere to its decision not to recognize the work of unregistered dentists.

Army Medical Advisory Board.—Mr. Walter Roch asked the Under Secretary of State for War, on July 7th, if the Army Medical Council appointed by Lord Haldane still existed; if so, who were now the members of it, and how many times it had met since the commencement of the war? Mr. Tennant said the question probably referred to the Army Medical Advisory Board instituted by Lord Midleton, and referred Mr. Roch to the *Army List*, column 2494, where the names of the members were given. The Director-General of the Army Medical Services was in close touch with these gentlemen continually and they with him. The Board had no regular meetings, but the members were in constant touch one with the other.

Royal Army Medical Corps.—Sir J. D. Rees, on July 8th, asked the Under Secretary for War whether the pay of a junior temporary lieutenant in the Royal Army Medical Corps was £100 per year more than the pay of a captain in the Royal Army Medical Corps of the Territorial Forces, although the former might be and usually was absolutely new to military duties, and the latter might be and often was of ten years' standing as a commissioned officer in the Territorial Royal Army Medical Corps; and, if so, when would this inequality be rectified? Mr. H. Forster said the pay of a medical officer serving under special contract, with the temporary rank of lieutenant, was greater than the pay and allowances drawn by a captain in the Royal Army Medical Corps, whether Regular or Territorial, though not to the amount stated. Proposals were under consideration which might affect the comparison.

Compulsory Transfer of Men from the R.A.M.C.—Mr. Rendall asked the Under Secretary for War, on July 15th, whether Form 624, dealing with the compulsory transfer of men from one battalion to another, has been or will be withdrawn; and whether he will now take steps to remove the injustice which has been done to many men by the compulsory transfer from the Royal Army Medical Corps to fighting units, in view of the fact that many men joined the Royal Army Medical Corps for the sole purpose of helping sick and wounded men at the front. Mr. Tennant

said that instructions had been issued that it would be no longer necessary for members of the Territorial Force undertaking Imperial service obligation to also agree to liability to be transferred to another corps. The transfers referred to in the latter part of the question were apparently those of Regular soldiers. It was not proposed to reconsider them. In reply to Sir John Dewar, on July 11th, Mr. Tennant said that in the special case in which 82 Scotsmen had been transferred from the R.A.M.C. to an English corps, although they desired to be sent to a Scottish regiment, the men would have permission to transfer to Scottish regiments if they wished.

Astigmatic Recruits.—Mr. Tennant informed Colonel White, on July 11th, that astigmatic men had always been accepted as recruits provided they possessed a quarter of the normal vision without glasses.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

IRISH BRANCH OF THE BELGIAN MEDICAL RELIEF FUND. The committee appointed to collect funds for the distressed medical practitioners and pharmacists in Belgium met at the Royal College of Physicians of Ireland on July 8th. Mr. R. Dancer Parefoy, ex-President of the Royal College of Surgeons, was in the chair, and Dr. C. M. Benson (secretary to Council, Royal College of Surgeons in Ireland) and Dr. T. P. C. Kirkpatrick (registrar, Royal College of Physicians of Ireland), the honorary secretaries, reported that a sum of £999 had been collected from among the medical practitioners and pharmacists of Ireland, which, with £10 13s. 7d. interest allowed by the bank, brought the total of the fund to £1,009 13s. 7d. The expenses incurred in the collection amounted to £26 10s., leaving £983 3s. 7d. for distribution.

On the motion of Dr. J. M. Finny, seconded by Sir John W. Moore, the report was unanimously adopted, and it was decided to pay off the expenses and to hand over the balance to the Executive Committee in London, whose agents are distributing the funds in Belgium. A vote of thanks to the honorary secretaries having been adopted, the business concluded.

The following subscriptions have been recently received:

	£ s. d.	£ s. d.
The Belfast Drug Association	5 5 0	Dr. J. J. Gannon ... 1 1 0
The Dublin Retail Drug Association	10 10 0	Dr. E. F. Kough ... 1 1 0
Dr. C. Dundee	1 10 0	Dr. E. E. Lennoh ... 5 5 0
Dr. J. H. Glenn	5 5 0	Dr. J. Marzan ... 1 1 0
		Dr. E. J. Watson ... 5 5 0
		Dr. R. W. Wilson ... 1 0 0

THE CENTRAL FUND.

The following subscriptions have been received by the Treasurer of the Central Fund during the week ending July 13th:

Thirty-third List.		£ s. d.	
Dr. H. Gibbons	0 10 6	Dr. F. de Havilland Hall (4th donation—total, £8 3s.)	1 0 0
South Indian Branch, B.M.A. (2nd donation—total £2 10s.)		Oldham Medical Society (per Dr. H. Pochin, hon. sec.) (4th donation—total £76 11s.)	2 2 0
Dr. E. Tucker, Rs. 15; Dr. Margaret Macphail, Rs. 16/4; Dr. T. R. Lakshmi Pillai, Rs. 5; Dr. G. Venkateswami, Rs. 5; Dr. A. Y. Narayanaiah, Rs. 5; Major S. Symonds, I.M.S., Rs. 15; Capt. Russell, I.M.S., Rs. 15; Dr. Amy Lillington, £2 8s.	12 10 0	Oldham Pharmaceutical Association (per Mr. H. Bagshaw)	5 0 0
South Indian Belgian Doctors' Relief Fund (per the Agent-General) (2nd donation—total, £400)	150 0 0	Sunderland Pharmaceutical Association (per Mr. C. Hodson)	9 0 0
		Somerset Pharmacists' Association (per Mr. S. G. Tyldeman)	2 2 0
		North Devon Association of Pharmacists (collected by Mr. W. J. Shepperd, hon. sec.)	4 0 0
		Miss A. M. Nicol (collected in weighing machine).	0 10 0

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Vieux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE APPEAL FOR SURGICAL INSTRUMENTS.

Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C.

THE WAR.

MEDICAL ARRANGEMENTS OF THE BRITISH EXPEDITIONARY FORCE.

[From a Special Correspondent in Northern France.]

A NEW DISEASE.

We have discovered a good many things during this war, and one of them is a new disease. The last verb in that sentence is deliberately chosen and bids defiance to all literary snipers.

Possibly it may be thought to believe that in this tired old world anything can originate *de novo*, and doubtless some superior person will presently prove that this new disease is an old acquaintance in a disguise so thin that it should not have deceived for a moment either the youngest temporary lieutenant or the most aged dog-out. But there are certain things that must be taken into consideration.

If after three months' study, some of the best pathologists and sanitarians of the day fail to explain to their satisfaction a certain collection of morbid phenomena, and if that collection be one to which experienced clinicians hesitate to assign any of the existing morbidity labels, then it may be fairly regarded as a new disease in A.D. 1915, even though historical study reveal that the same phenomena habitually vexed the souls of the life insurance agents of ancient Nineveh. Moreover, it must be taken into account that never can the genesis of a new disease be more conceivable and its existence be less likely to pass unperceived than at a moment when thousands of men from all four quarters of the globe are massed together as never before in an environment foreign to all of them, and when their health is being studied in the light of more precise knowledge than ever previously existed.

As for the symptom-complex to which these remarks relate, it was first observed, I believe, about three months ago, and under the direction of the chief sanitary officer of the army in the field (Colonel Beveridge) it has been carefully studied from all points of view ever since. Its outstanding phenomena are those commonly resulting from subacute nephritis, including general dropsy, and the presence of albumin and renal casts in the urine. In most cases the onset of these phenomena seems to be rather sudden, but a history of a few days precedent sore throat or bronchial catarrh can commonly be obtained. A considerable proportion of the patients are men who have recently returned from periods of duty in the trenches, but it is to be noted that this is by no means always the case, and that it was when the weather began to get warm, not when trench life was at its worst, that the symptom-complex first began to be observed. After the condition has fully developed it persists unchanged for a fortnight or less and then subsides with some rapidity. In a few days the albuminuria disappears entirely. Hitherto there have been no deaths among the cases that have been observed, and so far as can be judged the recoveries are complete. In regard to the etiology and epidemiology no very illuminating feature has as yet been discovered. In a few cases there is room for believing that the patients may be old albuminurics, but this is quite exceptional. As many as possible of the more recent cases have been sent home to be kept under observation at St. Bartholomew's Hospital, and in a high proportion of these streptococcal infection of the tonsils has, it is said, been observed. But after all, streptococci are not rare inhabitants of the tonsillar crypts, and in the distribution of the cases there has been nothing, I understand, to support a belief that the condition is due to a virus passing from individual to individual.

The cases have been discrete, and no instance of the condition has been observed among the Indian troops. The latter point is noted because one of the first conceptions appears to have been that the condition might be of Oriental origin, and possibly a form of beri-beri. Other suggestions which I understand to have been considered are that the condition is a sequence of unrecognized scarlatina—cases of scarlatina among the troops have been fairly common; that it is a form of influenza; that it is due to an intestinal auto-toxaemia in men who become constipated owing to the conditions of life in the trenches, and at a time when they are taking large quantities of animal

food; and, finally, that it is due to some form of metallic poisoning.

Very great pains have been taken to test the foundation of the latter suggestion, but after examination of very numerous specimens of urine, no real support for it has been obtainable. On the whole one therefore seems thrown back upon the belief that the underlying cause of this curious but relatively innocuous symptom-complex must be some at present unrecognizable localized infection giving rise to a toxin which has a selective action on the renal epithelium.

ADDITIONAL WORK AND SPECIALIST PAY.

Additional pay of 2s. 6d. per diem has been granted from the beginning of the war to all officers classed as surgical specialists in the various hospitals, and by a retrospective order a like daily amount has recently become payable to those in charge of the clinical and other laboratories. The decision is just, for the pathologist is very distinctly a specialist; and though he does not share the tense moments of his surgical colleagues, his work is in some ways more trying. Constant in the calls it makes upon his energies, it is never quite at an end, and leaves him little time for recreation.

It is true, however, that the average pathologist does not seem to rue these facts; no man is more prone to talk shop whenever opportunity presents, and none exhibits a more infective enthusiasm. There is no doubt, of course, that his work out here is peculiarly interesting. Some of the problems with which he is dealing are new, and even though the majority must be described as old, the form in which they present themselves is novel, and the amount of material at his disposition is such as few pathologists have ever had opportunity to handle.

All these factors make for bacteriological happiness, and in addition questions of the diagnosis of typhoid fever and its congeners seem to offer constant opportunities for animated discussions. The most active of these recently, perhaps, has been as to whether by adhering too constantly to the MacConkey medium a good many typhoid carriers may not have been overlooked. Clinically, there would appear to be nothing to support this view, but bacteriologically there appears to be strong evidence that this medium is not sufficiently delicate for existing needs; in any case the use of Endo's fuchsin medium, as also of Conrad-Dragalski, is spreading. I am under the impression, too, that there is in progress a definite test of the truth of Dreyer's views as to the superior capacity of *B. typhosus* for withstanding ultra-violet rays as compared with *B. coli* and as to the diagnostic use to which this alleged power may be put.

Exactly how many pathologists there are at work I do not know. There seems to be a laboratory at nearly every hospital, and at some of these several workers are engaged. Among the latter are a considerable proportion of men whose reputes has spread outside bacteriological circles, so it may be safely assumed that the work as a whole is of a high order.

Not in all the laboratories is the work mainly clinical and bacteriological. In one at least a great deal of chemical analysis goes on (the hygiene laboratory, conducted by Major Tyndale, sanitary specialist at Boulogne), while at others there is a good deal of general, as distinct from bacteriological, pathology.

To most men, perhaps, the work being done at laboratories of the latter order—which includes the conduct of necropsies—is of more interest than that of the rest. I have myself seen so many highly instructive morbid anatomy specimens at one time and another in the course of the war that it is clear that the museums at home are likely to be immensely enriched by many practically unique specimens, if proper steps are being taken to preserve all *post-mortem* material of an unusually instructive character. As to this I have no information.

The natural course would seem to be to send them to the Army Medical School at Millbank, but possibly it would be better still to send them to some institution of wider scope, such as the museum of the Royal College of Surgeons in Lincoln's Inn Fields. In the strain of existing circumstances it must be difficult, if not impossible, for the army medical authorities to take upon themselves the laborious task of dealing with large numbers of specimens of morbid anatomy on really modern lines. It is also hardly fair to expect them to do so, for the interest

of the specimens themselves is rarely limited to the field of military surgery, and many of them call for correlated histological study.

It is not only on the British side that bacteriology is playing so large a part in the war. The French appear to be almost equally active, but are dealing with matters on somewhat different lines. They appear to prefer to centralize the work as far as possible by establishing a single large laboratory at each hospital base, instead of an independent laboratory at each individual hospital. The mobility of those which are established at no great distance from the fighting line they secure by providing each laboratory with wooden fittings, which serve as rests for the various appliances when work is in progress, but serve equally well as packing cases when the seat of the work has to be transferred. In this way it becomes comparatively easy to pack up a laboratory rapidly, place it on a lorry and send it wherever required. They also contrive to get rid of a considerable proportion of the general impediments of a laboratory by having all the media required by the workers prepared in Paris and sent out as demanded.

It is maintained, I understand, that this plan is advantageous not merely from the point of view of keeping the laboratories fairly mobile and of lessening the amount of labour of a more or less mechanical order that they must undertake. It is regarded also as being a more economical plan than that of leaving each laboratory to prepare its own media, and as being more likely to lead to comparable scientific results, since it eliminates the sources of error due to differences in the media employed by the individual workers.

These laboratories are provided with motor cars, which are sent out to bring in the fluids and other matter which require examination. In addition, most of the French field hospitals appear also to be provided with a small outfit suitable for the elementary kind of bacteriological work required to determine the presence or absence of organisms such as *B. tetani*, *B. perfringens*, and *B. tuberculosis* in various discharges.

GERMAN EXPERIENCES OF WAR SURGERY.

On April 7th the Deutsche Gesellschaft für Chirurgie held its annual meeting in Brussels, where over 1,000 German army surgeons met and discussed the surgery of the war. The opening address was given by Professor v. Schjerning, Generalstabsarzt and Feldsanitätschef.¹ After dilating with smug complacency on "the holy and great task" of the German army, which had resulted in a German congress, from which every stranger was excluded, being held for the first time in a foreign country, he came down to the more practical discussion of the surgical experiences of the war. He admitted that the present war had brought many surprises to the army surgeon, and that with regard to the nature of wounds, their course and treatment, many preconceived views had required readjustment. The results of operations and of after-treatment could not yet be satisfactorily judged, but enough experience had already been gleaned to supply material for an instructive discussion at the present time.

OPERATIVE TREATMENT OF WOUNDS.

Professor Garré dealt with the indications for operations at the front. He said the arrest of hæmorrhage was best effected by the use of tampons, or by seizing the blood vessel with forceps, which were included in the bandage. The permanent ligation of the vessel could then be effected in a field hospital. The use of elastic bandages should be avoided as much as possible, as their timely removal was often not feasible. Increasing the coagulability of the blood by the intravenous injection of a 7.5 per cent. solution of sodium chloride (put up in ampullæ of 3 to 5 cm. capacity) was to be recommended. Auto-transfusion, combined with stimulants, was the most effective procedure for combating loss of blood. After saline infusion, the blood pressure sank again too quickly as a rule, and the much exhausted patients not infrequently died. Tangential wounds of the skull always required operative treatment at the earliest possible date, but large trephine openings should be avoided. Intracranial hæmatomata should also be opened on as soon as possible, and a small trephine opening was usually sufficient for provisional relief of pressure. Ligation of the middle meningeal artery was

not always essential in this connexion. Tracheotomy was seldom necessary in wounds of the neck, lungs, and mediastinum, accompanied by severe emphysema. A large dose of morphia was usually sufficient to tide the patient over the critical stage, and when the emphysema could not be checked at its source, it could be relieved by the multiple incisions and aspiration. Of wounds of the chest, only those complicated by prolapse of the lung or an open pneumothorax called for operative treatment. Severe pulmonary hæmorrhage was best treated by absolute rest and morphia, alarming pressure symptoms being relieved by puncture. Bullet wounds of the abdomen fell into two categories: (1) Cases in which there was severe internal hæmorrhage, and (2) cases in which the stomach and intestine were wounded. Only in cases falling within one or other of these two groups was immediate operation indicated, and then only if there were proper facilities for operating and the wound had not been inflicted more than twelve hours earlier. When the intestine was wounded, a median laparotomy should be performed, the perforation of the intestine should be closed, or resection performed, and the whole intestinal tract should be carefully explored. The earlier the operation the better the prognosis. Injuries to the urinary tract and perineum required simple puncture of the bladder with a cannula 10 cm. long, of the circumference of a knitting needle, which could, if necessary, be left in place. By this contrivance, external urethrotomy and *sectio mediana*, which were difficult to perform, could be avoided. Free incisions were necessary for infiltration of urine.

SHELL WOUNDS.

Professor Garré proceeded to say that radical operative treatment was particularly necessary for wounds inflicted by shells, the fragments of which were usually contaminated with earth, and carried particles of clothing and leather into the wounds. In addition to the chemical injury thus inflicted on the tissues by the introduction of these foreign bodies, the wounds were further aggravated by the retraction of the severed muscles, which automatically aspirated dirt and other foreign bodies into the wound. In this manner cavities and pockets were formed, in which damaged tissues constituted a fertile culture medium for germs. The results were suppuration, phlegmon, sepsis, the much-dreaded gas phlegmon, gangrene, and tetanus. Every shell wound ought, therefore, at once to be exposed freely in the field hospital, all pockets ought to be opened, damaged tissues and foreign bodies removed, and the cavity of the wound lightly plugged or drained. To carry out this method properly, it was necessary carefully to explore every pocket with a gloved finger. Professor Garré admitted that his teaching was heretical, but he insisted that he had seen only beneficial results follow his heroic measures; on the other hand, he was opposed to early amputation of limbs which had been shattered by shells. However tempting it might be at first sight to amputate at a dressing station, to trim the wound, and to enable the patient to be transported further without pain, he was convinced that this course was unwise. At such an early stage the shock of an amputation was dangerous; it was impossible to decide on the most suitable site for operating, and when amputation was performed the stump usually became gangrenous. Summarizing his experiences, Professor Garré insisted that, at the front, only the most urgent operations should be performed. In the field hospitals the chief operations were the opening and cleansing of shell wounds. Operations on the skull and abdomen should be performed only by the fully trained surgeon.

FIRST AID AT THE TWO FRONTS.

Dr. Friedrich pointed out that the choice of treatment of wounds depended largely on the transport, and in this respect there were great differences between the west and east fronts. At the east front the transport was often very unsatisfactory, and at the dressing stations treatment had to be confined to the application of first dressings and of splints for fractures. The arrest of arterial hæmorrhage was satisfactorily effected by the use of artery forceps, and the examination of the dead showed that a considerable number of fatal casualties was due to hæmorrhage from large arteries. Every aid to the wounded was often rendered impossible by the enemy's fire. At the chief dressing station the most important work was the immobilization of the limbs by splints. Here, too, incisions for

¹ Berlin. Klin. Woch., May 24th, 1915.

phlegmon, including gas phlegmon, and infiltration of urine, should be undertaken. In the field hospitals the ligation of blood vessels, amputations, and excoriations should be performed. In the course of the war he had learnt to amputate more radically for shell wounds after seeing in the base hospitals how many of these cases, treated on conservative lines, terminated fatally from sepsis, or had to be treated later by amputation. At the west front there were greater facilities for conservative treatment. When amputation was performed for phlegmon, the simple, circular incision, without flaps, was the best. During the amputation digital compression was more satisfactory than ligation of the limb, which delayed the operation. Only a few grams of chloroform were necessary for each case. Dressings which had been applied at the front should be removed as soon as possible in order that gaseous infection might be detected at an early stage. As there was a free discharge from most of the wounds, the use of mastisol and other pastes was unsatisfactory. Small dressings, secured by sticking plaster, were apt to favour infection with the *Bacillus pyocyaneus*.

SEVERE HAEMORRHAGE FROM WOUNDS.

Herr L. Rehn had collected the experiences of 178 surgeons with regard to haemorrhage from wounds. Their reports left the general impression that severe haemorrhage was not common. Artillerymen and sappers were most exposed to this danger, and fragments of shell did more damage than shrapnel and rifle fire. Out of a total of 421 severe haemorrhages only 201 had been treated by ligation. The brachial artery had been wounded in 47 cases, and the wounded arteries next in order of frequency were the femoral and radial. In the field hospitals the arteries had been ligatured in 72 out of 188 cases of haemorrhage, the operation being performed at the site of election in 22 cases. Elastic bandages had been applied in 590 cases, but their use had been justified only in 260 cases. Much harm had been done, particularly in the beginning of the war, by the improvised use of straps, belts, etc., by soldiers for the arrest of haemorrhage. The indications for and the method of applying the elastic bandage were still insufficiently understood, and it was advisable for the wearer of such a bandage to be given a distinguishing mark, so that when he was transferred to a hospital in the rear, the readjustment of the bandage would not be neglected.

INFECTION OF WOUNDS: TETANUS.

Professor Kümmler drew attention to the frequency of tetanus, which occurred in 0.6 to 0.65 per cent. of the wounded. The region of the Aisne appeared to be saturated with the germ of tetanus. The mortality among 350 cases was as high as 70 per cent., and this figure corresponded with v. Madelung's statistics. But in a hospital in Hamburg, where 125 cases of tetanus were treated, the mortality was only 25 per cent. This difference was due to the fact that the most severe cases, with a short incubation period, were treated at the front, while hospitals in the rear received the lighter cases. In August and September tetanus was frequent and severe, and its incubation period was short. In this period the mortality was at first 100 per cent., and later it fell to 75 per cent. Towards the end of October the disease suddenly disappeared, and from November to the beginning of January there were hardly any cases. After the battle of Soissons, the disease flared up again, a great number of cases occurring in a small section of the army. The incubation period was short and the mortality at first was 100 per cent.; after seven days it fell to 90 per cent., after fourteen days to 50 per cent., and after twenty days to 30 per cent. An important early symptom was difficulty in swallowing. The results of prophylactic treatment were good. It was advisable to give serum for every wound, and, when possible, the injection should be given in the trenches. A prophylactic injection of 20 units was sufficient. When, however, tetanus had developed, serum was of little use. Only with large doses—namely, 100 to 200 units—were beneficial results sometimes obtained. In Hamburg good results had been obtained with large doses of serum combined with old salvarsan. In the symptomatic treatment of the disease magnesium sulphate relieved the painful spasms. Hot baths, chloral, morphine, and scopolamine in large doses were also to be recommended.

(To be continued.)

AUSTRIAN EXPERIENCES.

In the *Wiener medizinische Wochenschrift*, Nos. 12, 13, 14, and 15, 1915, Dr. F. Demmer has given a long and graphic account of his experiences with the Austrian armies opposed to the Russians. He was sent as a surgeon from Professor Hochengog's hospital in Vienna, and, as he was constantly being shifted from one place to another, he had exceptional opportunities for observing the working of the medical service at the front and the base hospitals. At the front he soon came to the conclusion that operative interference should be reduced to a minimum, and every effort concentrated on preparing the wounded for transport.

Contrast between Wounds at the Front and in Vienna.

His first experience of the treatment of wounds was in Vienna, where, during the early days of the war, the majority of the wounds were slight, and the wounded were in excellent health, in spite of having taken, on an average, four to five days to reach Vienna from the front. In many cases the dressings had not been changed since they were first applied, yet serious complications were rare. After he had treated about 700 wounded in Vienna, he was sent to Tarnow, where there was a very different state of affairs. He found 284 wounded, the majority of the wounds being serious. Both the patients' general condition and the state of their wounds were deplorable. In many cases the wounds had been entirely neglected for over a week, and even the wounded who had secured dressings were in a pitiable state. On his arrival Demmer found two civil surgeons unable to make much headway for lack of material. For some days this state of affairs continued, fresh numbers of wounded pouring in, while great difficulty was experienced in evacuating the elder casualties. Between September 6th and October 12th 4,300 casualties were treated; they included 1,500 wounds, 1,200 cases of dysentery and haemorrhagic intestinal catarrh, and 1,600 casualties from other illnesses. Many of the wounds were quite recent, and it was observed that shrapnel wounds discharged freely and presented a dirty surface very soon after they were inflicted. Indeed, they looked no worse twelve hours after their infliction than they did six days later, and the author points out that the criticism of the treatment of such week-old wounds at the base hospitals was not justified. In other words, a dirty, suppurating shrapnel wound, a week old, does not necessarily imply mismanagement of the case. It was noticed that a free discharge was a more favourable sign than a dry wound, behind which there was often retention and inflammation. The wounded were spared much pain and the dressers much trouble by the surgeon, who was quick to distinguish between fever and simple exhaustion, and between starvation and mental depression. Prominent among the wounds were the very numerous fractures which had been absolutely neglected or imperfectly treated, and were usually associated with high fever. It was impossible to perform a "clean" operation, and Demmer never had the time or means to extract a bullet or perform a herniotomy or appendicectomy under ordinary aseptic conditions. On the other hand, free use had to be made of incisions for pus in febrile cases, and several amputations had to be performed for suppuration and gangrene.

Faults of First Dressings.

On October 12th Demmer proceeded to Sandomierz, where he hoped to treat wounds at an earlier stage. Here he was struck by the frequency with which the arms had been injured by bandages, which had been applied too tightly on account of haemorrhage, either by a comrade in the trenches or at a first dressing station. The hand was usually livid and numb, and the arm was very painful at the site of the bandage. When this was removed the wound bled a little again, but when slight compression was exerted, and the arm was secured to the body, the bleeding soon ceased. In this connexion he says that gunshot wounds seldom cause dangerous haemorrhage, even when arteries are involved. Though he worked at the front on three occasions, he never had to ligature a vessel for haemorrhage nor apply an Esmarch's bandage. Only once did he see a patient almost die of arterial haemorrhage. This was after a journey of five days in

a cart, the jolting of which kept on forcing a splinter of the tibia into the tibialis anterior artery.

Chloroform the only Anaesthetic.

The severely wounded patients were usually still suffering from shock when they came under Demmer's observation and they complained chiefly of thirst and cold. The patients suffering from fractures were the most restless; the fractures were set while the patients were still under the influence of shock. This lightened the work and often rendered the use of a general anaesthetic superfluous. Sometimes only 1 to 3 grams of chloroform were necessary, owing to the partial anaesthesia induced by shock. Had it even been advisable, there would often have been no time to defer an operation till the shock had passed off. Only chloroform was used for general anaesthesia, and no ill effects followed its use. Not more than 5 to 7 grams were used for each case, and the patients rapidly recovered from its effects without vomiting or other complications. In almost every case the patient was ravenously hungry two to three hours after the operation; he was allowed to eat and smoke, and this unconventional procedure was followed by no ill effects.

Failure of Plaster-of-Paris for Splints.

In the treatment of fractures and other wounds plaster-of-Paris was found to be very unsatisfactory material for splints. It was heavy to transport; it took long to dry, even when it was stored in tin boxes; and it had to be applied to the bandages at the last moment, as it escaped from the meshes of the bandages if applied earlier, owing to the jolting of transport. A further disadvantage was the frequency with which the plaster-of-Paris splints became softened by contact with the damp floors on which the patients lay, and by profuse discharge from the wounds, the result being that these splints often broke during the transport of the wounded. Although the author had previously thought highly of this kind of splint, these drawbacks convinced him of its unsuitability in warfare. He found wooden splints far more useful; they were light and easy to clean, and they could easily be altered to meet the needs of the individual case. His opinion of tin splints was less favourable.

Overcrowding of the Wounded near the Front.

In the middle of November Demmer was transferred to Olcusz, where he was close to the fighting line, and where the wounded streamed in for first dressings. A stampede occurred at the railway station, and the trains were overfilled by the lightly wounded, while the severely wounded were left in the lurch. For nine days he worked with only half an hour's rest in the middle of the day, and there was such lack of accommodation and material that the severely wounded had to do without beds or even straw. In this period 3,300 wounded passed through his hands. Subsequently matters improved somewhat, and owing to the short distance the wounded had to travel they received early treatment. But the author's general impression was that, near the front, the surgeon's chief duty was to apply first dressings and prepare the wounded for further transport. Extensive operative treatment was out of place.

Conservative Treatment of Wounds of the Skull and Abdomen.

Injuries to the skull and brain were, he found, best treated on conservative lines, and he operated on only 7 out of 62 cases of shot wounds of the skull. As many of the patients passed out of his hands early he was unable to learn their ultimate fate. His treatment of abdominal wounds was also conservative. Among 73 such cases there were 18 deaths under conservative treatment and one death after an operation. In 59 cases he was able to discharge his patients much improved, after they had been treated four to five days near the front with absolute rest, starvation, and morphine. Iodine was found to have done much harm in cases of frost-bite; it often destroyed previously intact skin and provoked a weeping eczema, which was followed by an ascending thrombo-phlebitis and

phlegmon—the only indications for operative treatment of frost-bite in the field. In Demmer's opinion iodine should not be applied in frost-bite of more than the first degree.

THE WORK OF THE R.A.M.C. AT YPRES.

A DISPATCH from Sir John French, dated June 15th, covering the military operations between that date and April 5th, was made public this week. In that dispatch a high tribute of praise is again given by the Field Marshal commanding our Expeditionary Force to the efficiency and devotion of the R.A.M.C. Sir John French says:

I have much pleasure in again expressing my warm appreciation of the admirable manner in which all branches of the medical services now in the field, under the direction of Surgeon-General Sir Arthur Sloggett, have met and dealt with the many difficult situations resulting from the operations during the last two months.

The medical units at the front were frequently exposed to the enemy's fire, and many casualties occurred amongst the officers of the regimental medical service. At all times the officers, non-commissioned officers and men, and nurses carried out their duties with fearless bravery and great devotion to the welfare of the sick and wounded.

The evacuation of casualties from the front to the base and to England was expeditiously accomplished by the administrative medical staffs at the front and on the lines of communication. All ranks employed in units of evacuation and in base hospitals have shown the highest skill and untiring zeal and energy in alleviating the condition of those who passed through their hands. The whole organization of the medical services reflects the highest credit on all concerned.

Mr. John Buchan, in a long account on the second battle of Ypres, published in the *Times* of July 13th, in describing the third gas attack made on Sunday, May 2nd, by the Germans, wrote:

By this time our men had respirators—not yet of the best pattern—and they managed to let the gas blow past with little loss. Two battalions, however, had to give way a little. The 2nd Seaforths never moved. Their medical officer, Lieutenant James, a civilian doctor who had been with the regiment in South Africa, behaved with conspicuous courage, for, though badly affected by the gas, he continued for two days at his post. The 7th Argyll and Sutherland Highlanders actually charged through the gas under Colonel Garden, and took a German trench. The result was that the Northern Division, assisted by the 4th Hussars, succeeded in holding their ground. Many deeds of courage were reported for that day and for the following morning, when the 1st Rifle Brigade were attacked.

In speaking of the shortening of the line on May 3rd, he wrote:

The left did not move; it was the pivot of the operation. Battalions were withdrawn piecemeal, and picked riflemen from each company were left to cover the retirement. This withdrawal, in perfect order, in a very short time, and with no losses, was one of the most creditable achievements of the war. The work began as soon as the darkness fell. Every day of the fighting we had got in our wounded under cover of night, and in the cellars of Zonnebeke village operations had been performed by candlelight. This evening the wounded were evacuated, all but a small number of very bad cases whom it was impossible to move, and who were left behind in charge of two orteries. The Royal Army Medical Corps have never done more brilliant work in all their brilliant history. Under the guidance of Colonel Ferguson, assisted by Major Waggett (the well-known specialist on throat diseases), the cases were brought from the cellars and dug-outs and sent to and swiftly carried along the dark roads beyond the fire zone. The difficulty of such a withdrawal may be realized from the fact that at some places, like Gravenstafel and Broodseinde, the Germans were within ten yards of our line. Not less than 780 wounded were removed from our front, and the retirement of the battalions was equally skilful. Not a single man was lost. The brigade from the extreme north-easterly side of the salient had a difficult task. That from Fortuna had to move for nearly four miles down lines of parallel trenches. Most of the supplies and ammunition was removed, and what could not be carried was destroyed.

HONOURS.

The *London Gazette* issued on July 8th stated that the announcements published in the *London Gazette* of February 18th and March 24th with reference to Captain A. G. Wilson are cancelled, and the following substituted: Appointed a Companion of the Distinguished Service Order—Captain Harry Theodore Wilson, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN JOHN FITZGERALD GWYNNE, R.A.M.C. (Flanders).

Died of Wounds.

Lieutenant Colonel William Bridgett Pritchard, R.A.M.C. (T.F.), is reported as having died of wounds received in the fighting in the Dardanelles. He was educated at Owens College, Manchester, and took the M.R.C.S. and L.R.C.P. (Lond.) in 1890. After acting as assistant medical officer and house-surgeon at the Manchester Royal Infirmary, he went into practice at Manchester, where he was medical officer and public vaccinator of No. 4 District, Chorlton Union, and honorary anaesthetist to the Cancer Pavilion and to the Victoria Dental Hospital. He was in command of the 2nd East Lancashire Field Ambulance, his commission as lieutenant colonel being dated November 18th, 1911. Two of his brothers are serving in the same field ambulance—Major H. W. Pritchard and Quartermaster and Captain S. Pritchard.

Wounded.

Captain W. T. Harrison, R.A.M.C. (T.F.).

Lieutenant H. J. M. Cursetje, I.M.S. (Dardanelles).

Lieutenant D. Blair, L.D.S., 4th Battalion Black Watch (Flanders).

Lieutenant H. Pierce, R.A.M.C. (temporary) (Flanders). (This name was last week erroneously given as Pearce.)

Lieutenant F. C. Bentz, R.A.M.C. (T.F.), (Dardanelles).

Lieutenant (temporary) C. P. V. McCormack, R.A.M.C. (Flanders).

DEATHS AMONG SONS OF MEDICAL MEN.

The following deaths at the front have been recorded among sons of the profession, all, except two, which date from the very beginning of the war and from April respectively, during the last ten days:

Major, Isaac Bayley, Lieutenant 14th Royal Scots, attached 1st King's Own Scottish Borderers, only son of Professor Isaac Bayley Balfour, F.R.S., Professor of Botany, Edinburgh University, killed in the Dardanelles on June 24th, aged 25. He was educated at Edinburgh Academy, Winchester, and Magdalen College, Oxford, and gazetted Lieutenant on January 14th, 1915.

Private, Percy D'Aguiar, Captain, the Guides, son of Colonel S. Banks, I.M.S. (retired), killed at Ypres on April 26th. He was born on May 9th, 1885, entered the Wilts Regiment on October 10th, 1903, joined the Indian army on June 28th, 1905, and became Captain on December 10th, 1912.

Bramwell, Charles Guy, Captain Cameronians (Scottish Rifles), only son of Dr. J. W. Bramwell, of the Old House, Kenton, Devonshire, late of Cheltenham, killed in the Dardanelles on June 28th, aged 35. He was educated at Cheltenham, and joined the army in December, 1899. He served in South Africa, 1899-1902, and took part in the relief of Ladysmith, the actions of Vaal Krantz and Tugela Heights, and in operations in Natal, Zululand, and the Transvaal, gaining the Queen's medal with three clasps and the King's medal with two clasps. He subsequently served in Northern Nigeria, and was Adjutant of the 5th Battalion, Scottish Rifles.

De Lantour, Edward Frederick, Sergeant 3rd Australian Light Horse, fourth son of Lieutenant Colonel H. A. De Lantour, New Zealand Medical Staff, of Wellington, N.Z., killed in action in the Dardanelles, early in June, aged 32.

Gibbons, Charles Barry, Second Lieutenant Royal Irish, elder son of Lieutenant Colonel J. B. Gibbons, I.M.S. (retired), killed in the Mesopotamian Campaign, India, in 1897-98, married Miss Govan, Douglas Moncrieff, Major 5th Gurkhas, younger son of the late Surgeon-Major G. M. Govan, I.M.S., killed in the Dardanelles. He was born on October 9th, 1896, joined the Royal Sussex Regiment on December 9th, 1896, joined the Indian army on February 22nd, 1899, became Captain in 1905, and Major on December 9th, 1914. He had served in the Tirah campaign in the North-West Frontier, India, in 1897-98, married with clasp and in Somaliland, East Africa, in 1902-3, including the action at Jiddah, medal with clasp.

Hamilton, Archibald Charteris, Captain 9th (attached 1st) King's Own Scottish Borderers, elder son of Dr. John R. Hamilton of Hawick, killed in the Dardanelles on June 28th, aged 35. He was in the employ of the Arakan Company, in Burma, where he served in the Arakan Campaign, in which he attained the rank of Captain, and came to Europe early in the year in command of the contingent of volunteers from Burma.

McCormick, Edward, son of the late Dr. J. J. McCormick of Liverpool, killed in the Dardanelles.

Russell, James Forthright, Lieutenant 210 Gurkhas, only son of Colonel A. E. Russell, C.M.G., R.A.M.C. (retired), A.D.M.S. Salisbury Plain, and nephew of Sir James Russell, Inspector of Anatomy for Scotland, killed at the Dardanelles on July 2nd,

aged 27. He was educated at Edinburgh Academy and Bedford School, and joined the Seaforth Highlanders in 1908, serving with that regiment in the Mohmand expedition on the North-West Frontier of India, and receiving the medal. In the following year he joined the Indian Army, and was posted to the 210 Gurkhas. When war broke out last year he was on furlough at home, and at once rejoined his regiment in India, and came with it, in charge of the machine gun section, to Egypt, where he took part in the repulse of the Turks on the Suez Canal, subsequently accompanying it to the Dardanelles.

Thomson, Alexander Guthrie, Sergeant-Major 2nd King Edward's Hospital of the Indian Army, and was posted to the Thomson, of Natal, killed in France, June 20th, aged 36.

Warde, G. B., Corporal Canadian Contingent, eldest son of Dr. W. B. Warde, of Tunbridge Wells.

NOTES.

CANADA.

THE Canadian Government has appointed a Hospital Commission under the presidency of Senator Longheed, Acting Minister of Militia. The Commission is authorized to incur all necessary expenses for the care of soldiers and for returning the sick and wounded.

SERBIA.

Dr. V. H. Rutherford, the prospective Liberal candidate for the Bishop Auckland Division, has left his country to inspect the Wounded Allies' Relief Committee's hospitals in Serbia and Montenegro. The Committee has lately received from its Serbian hospital, stationed at Kragevatz, the information that the typhoid epidemic is practically at an end. The strictest measures are being enforced to prevent any outbreak of cholera.

FIRST AID FOR SOLDIERS.

As a highly practical contribution to the needs of our soldiers at the front the four-page leaflet of *Instructions for Rendering Immediate Aid*, prepared by Major Maclure (26, Dennington Park Road, London, N.W.), late president of the Volunteer Ambulance School of Instruction, is to be commended. Here in the simplest form, and in language which any soldier can comprehend, are given definite directions what to do in cases of bleeding, in cases of flesh wounds and broken bones, lacerations, fainting, and other emergencies, while a diagram on the front page illustrates the points where haemorrhage may be controlled. Over 120,000 copies of the leaflet have been supplied gratuitously to regiments on service, and Sir Frederick Treves has stated that 15 per cent. of casualties had been saved thereby from bleeding to death. These leaflets are now issued at 5s. per 1,000, and can also be had in Hindustani for the use of Indian troops. A simple coloured diagram has also been prepared for the use of those who may be instructing soldiers in first aid, and this is issued at 2s. 6d. Those who may wish to help in a useful work may communicate with Major Maclure.

THE WELLCOME BUREAU OF SCIENTIFIC RESEARCH.

At the beginning of the war the services of the Wellcome Bureau of Scientific Research were placed at the disposal of the Government. The Director-in-Chief, Dr. Andrew Balfour, C.M.O., has now received a commission as lieutenant-colonel R.A.M.C., and has been appointed to a consultant position abroad in connexion with questions relating to sanitation, epidemic diseases, and tropical diseases generally.

MEDICAL OFFICERS WANTED.

South-Eastern Mounted Brigade Field Ambulance.

Two young medical officers are required to complete this unit, which is connected purely with the cavalry. Applications to Major Treves, R.A.M.C. (T.F.), County Cricket Ground, Canterbury.

3rd East Anglian Field Ambulance.

Medical officers are required to undertake service abroad are required to complete establishment. Applications to the A.D.M.S., 21st East Anglian Division, Thetford.

21st Highland Mounted Brigade Field Ambulance.

Three medical officers are required—one to complete establishment of unit, and two for the Depot, Inverness. Particulars to be obtained on application to Captain Mowat, O.C. 21st M.B.F.A., Highland Mounted Brigade Camp, Thetford, Norfolk.

1st South Midland Mounted Brigade Field Ambulance.

Three medical officers are required for imperial service to complete 2nd line. Applications to Major D. M. Springs, 13, Albert Street, King's Lynn.

Hospital for French Soldiers.

A surgeon is wanted for a hospital of fifty beds for French soldiers, provided by Mrs. Doughty Wylie, with the approval of the French Government. The surgeon will be expected to stay until the end of September, and will receive 25 francs a day as pay. Until recently the hospital was at Arras, but is now moved to safer quarters. The matron and nurses are British, and the chief surgeon is French. Applications may be made to Dr. Henry Davy, Southernhay House, Exeter.

England and Wales.

CENTRAL COUNCIL FOR DISTRICT NURSING IN LONDON.

A MEETING of the Central Council for District Nursing in London will be held, by kind permission of the President of the Local Government Board, in the conference hall at the Local Government Board offices, Whitehall, London, at 11 a.m. on Tuesday next, July 20th, when it is hoped that the President of the Local Government Board, Mr. Walter Long, and the Parliamentary Secretary, Mr. Hayes Fisher, will be present.

The movement which has led to the formation of the council was initiated by representatives of the chief organizations for district nursing in London. Mr. Burns, then President of the Local Government Board, accorded a sympathetic consideration to the representations made to him on the subject, and on June 14th, 1913, convened a conference at the office of the Local Government Board. The Board, in pursuance of the policy approved by the Royal Commission on the Poor Laws, continued its support to a scheme having as its object the systematic co-ordination of voluntary and official agencies, and on June 12th, 1914, a further conference was assembled by Mr. Herbert Samuel, who had succeeded Mr. Burns as President. The constitution and functions of the Central Council were defined, a committee was empowered to invite representatives of the various interests concerned to serve on it, and the first meeting of the new council was opened by Mr. Samuel in the conference hall of the Local Government Board on December 1st, 1914. Sir William Collins, K.C.V.O., was elected chairman, and Dr. Christopher Addison, M.P., vice-chairman of the council.

The council seeks to bring into unison both voluntary and official effort, and to develop the efficiency of the district nursing services of London, according to need, and to meet modern requirements. It is not intended that there should be any interference with the separate existence or internal management of any of the associations; it is anticipated that, as in the case of the Houseless Poor Committee dealing with vagrancy, mutual co-operation and the settlement of overlapping areas of work, of standards of efficiency, of policy and the like, will be effectually arranged in council and committee. The inquiry already made indicates that the existing provision of trained district nurses is insufficient to meet the increased demand for the nursing of the sick poor in their own homes. The Central Council now affords a means for the reception and distribution of charitable and other funds intended for the home nursing of the sick. It is hoped also that the council may be enabled, by means of grants, to assist those poorer parishes which cannot afford the whole cost of a trained nurse. It will be a foremost object of the council to maintain the voluntary spirit by which the district nursing of London has been so well built up, and to preserve and develop the valuable machinery afforded by the existing associations. Care would also be taken to safeguard any requirements which may arise on account of creed.

A draft report on district nursing in relation to measles, German measles, and whooping-cough, and the need of nursing for cases of those diseases in poor homes will be presented to the meeting on Tuesday, and it will be proposed to instruct the Executive Committee to confer with other bodies or persons interested, with a view to preparing a scheme for the nursing of cases of those diseases and to promote conferences with representatives of local authorities, the medical profession, district nursing associations, and other bodies or persons interested, with a view to putting such a scheme into operation.

DUTIES OF MEDICAL OFFICERS UNDER THE MENTAL DEFICIENCY ACT.

Several matters relating to the duties of medical officers under the Mental Deficiency Act (1913) were touched upon in the quarterly report of the Asylums and Mental Deficiency Committee, which was presented to the London County Council on July 6th. The council have recently approved a number of their medical officers as medical practitioners for the purpose of signing certificates in connexion with any proceedings taken under Section 3 (1) of the Act by the parents or guardians of defectives. For

the purpose of this section, which enables the parent or guardian of a defective of certain classes to deal privately with him, two such certificates have to be given by two duly qualified medical practitioners, one of whom must have been approved for the purpose by the local authority or the Board of Control. The Asylums Committee have been considering the question of fee to be charged for these certificates, and have decided not to fix a uniform fee for the present, but to determine the fee to be charged on the merits of each particular case.

The duties of the medical officer under this Act are evidently capable of more than one interpretation. A case was cited in which a lad had been transferred from an industrial school to the guardianship of his parent by an order of the Secretary of State. The local authority had nothing to do with the making of this order, but its medical officer apparently has the duty of making a medical statement and also an initial entry in the medical journal which the guardian has to keep. The wording of the regulation is such as to imply the need for periodical visits by the medical officer of the local authority, although the committee have been of opinion that visits by the medical officer subsequent to the initial visit are only necessary when the defective is wholly or partially maintained by the council. The Board of Control, however, state that in this particular case the lad must be visited by the medical officer of the local authority at such times as are satisfactory to the board, and this although the local authority has no responsibility for the maintenance of the lad. The council's medical officer finds himself unable to certify that the lad is defective within the meaning of the Act, and in view of this circumstance, and also of the fact that the guardian has not provided a medical journal as he is well able to do, the committee have decided that the book shall not be furnished by the council, and, furthermore, that in view of the officer's inability to find that the case is actually one of defect, no further visits shall be paid.

Another matter under discussion affects the medical officers of prisons. It often happens that certificates are required by the managers of certified institutions to which it is proposed to send defectives, the purpose of these certificates being to enable the managers to decide as to the fitness of the case in view of the accommodation at their disposal. In cases where the defectives have been in prison, the necessary certificate has had to be given by the prison medical officer, and the Home Office has given its decision that fees for the certificates are not to be charged by the prison officers.

Between April 1st and June 30th of this year, information was received from various sources of 147 alleged cases of mental defect. During the same period 240 cases have been placed under supervision.

MEDICAL INSPECTION AND TREATMENT OF SCHOOL CHILDREN.

The Board of Education are to make their approval of the appointment of the school medical officer of the London County Council permanent instead of annual as hitherto. The arrangements for attending to the health and physical condition of the children are still, however, subject to annual approval. The Board has also approved the arrangements for the medical and dental treatment of the elementary school children provisionally for the current year; but they state that with regard to the experiment of employing an increased number of part-time assistant medical officers for the period of two years, the general expression of official satisfaction must not be regarded as approval of this partial reversion to a part-time system of medical inspection in London. In due course the working of this experiment is to be carefully inspected by the medical officers of the Board of Education. The Education Committee of the council reported the approval of appointments during the last three months of 56 doctors, 31 dentists, and 25 anaesthetists in connexion with the work carried on by the committees of various school treatment centres. Payment has been authorized to be made to the Woolwich School Treatment Centre for the treatment of aural cases at the rate of 880 a year during a recent eight-months' period.

MANCHESTER AND SALFORD SANITARY ASSOCIATION.

At a meeting of the Manchester and Salford Sanitary Association, held on July 6th at the Town Hall, Man-

chester, under the chairmanship of the Lord Mayor, an address was given by Sir James Barr on "The advantages, from a national standpoint, of compulsory physical training for the youth of the country." Sir James Barr said that the advantage of physical training in improving the physique and health of recruits must be apparent to every one, and he believed that if suitable physical training were made compulsory for the youth of both sexes there would soon be a great improvement in the British race, as there was plenty of good stock which only required development. The Boy Scouts were receiving the best primary education in discipline and high moral character, and the appointment of Baden Powell as Minister of Education would be a great forward movement. The present system of education was not conducive to the higher development of the race. He had great faith in the women of England who, except in the lowest strata, did not show so much deterioration as men. The mothers and children needed better looking after, so as to lessen the fearful mortality that occurred in early life. There should be systematic training in the laws of health. Boys should have drill and military training, so that, if needs be, every one should be able to take part in the defence of the country, and they should be encouraged to take part in games and sports, instead of merely watching professional players. Every individual should have opportunity for the education of latent faculties, but it was no use trying to draw out intelligence where there was none. At present the lower they went in the scale of intelligence the more money was wasted on so-called education, whereas a Government anxious to cultivate the best assets of the nation ought to devote more attention to the highest education of the best intellects than to the education of the mentally defective. The attempt to educate children above their mental capacity was an utter failure. On the other hand, if their health received proper attention, if their bodies were developed by physical drill and their senses properly cultivated by technical education, they would acquire a store of practical knowledge which would last a lifetime, while the drill and discipline would make them good citizens. The idea of many sickly sentimentalists that physical training would tend to Prussianize the country had nothing in it, because the British nation was in an advanced state of civilization, and was not a nation of cultured brutes. The Englishman, though often stupid and ignorant, was naturally honest, and could not be spoiled by physical and moral culture. This country might well take a lesson from Germany in organization. In the course of the same meeting Mr. William Thompson, by means of diagrams and lantern views, gave an interesting account of the smoke pollution of Manchester.)

MANCHESTER UNIVERSITY AND THE OFFICERS' TRAINING CORPS.

Since the war began, commissions have been taken by no fewer than 490 members of the Officers' Training Corps of Manchester, and of this number 307 were students of the Manchester University. The contingent is under the command of Sir Thomas Holland, Professor of Geology in the University, who has devoted all his time to the task, and there has never been any lack of recruits. Their work at the university was cancelled on Wednesdays and Saturdays, and these days were used chiefly for field operations, while, on other days during term time, classes were held at the university in signalling, with drills in the afternoons and lectures in the evenings. At different times several small camps were arranged, and from 80 to 100 men attended at each. Now that the vacation has come round, a course of lectures and instruction has been arranged that takes up practically the whole time every day. The number of men that can be in training is limited to 360 at any one time, and the applications for admission are so numerous that the contingent can be kept up to the full strength while carefully choosing the men; it is understood that only those men are accepted who give some assurance that they will take a commission at the end of the course.

THE annual meeting of the American Society of Tropical Medicine was held at San Francisco on June 15th. Dr. Milton J. Rosenau of Boston was elected president for the ensuing year.

Scotland.

MENTAL DEFICIENCY AND LUNACY (SCOTLAND) ACT.

On July 2nd the first annual report of the General Board of Control for Scotland under the Mental Deficiency and Lunacy (Scotland) Act (1913) was issued. From its study it appears that the total number of mental defectives on the register of the board on January 1st, 1915, was 295. There were six institutions certified, with accommodation for 1,210 defectives. At the end of 1914 there were 19,557 insane persons in Scotland of whom the board had official cognizance, including the inmates of training schools for imbecile children. Of that number, 16,870 were maintained by the parochial rates, 2,621 from private sources, and 66 at the expense of the State. There was an increase in the total of 211 as compared with the previous year. During the year the voluntary patients numbered 181, and there were 98 each resident on January 1st, 1915. During the year 1,183 pauper patients were discharged as recovered, being 50 more than the five-year average; the number for the private patients was 222, or 9 above the five-year average. The number of escapes during the year was 141, of whom only 27 were still absent at the expiry of 28 days. The expenditure for the maintenance of lunatics in Scotland for the year ending May 15, 1914, was £445,967, and the total average cost per patient was £26 18s. 11d.

EDINBURGH HOSPITAL ACCOMMODATION FOR SOLDIERS SUFFERING FROM MENTAL SHOCK.

Some time ago¹ it was announced that an arrangement had been come to between the Edinburgh Town Council and the Red Cross Society whereby the latter took over the whole of the Royal Victoria Hospital for the treatment of wounded soldiers. A further development in the facilities for treating these patients has to be recorded in the establishment first of one ward of twenty-five beds, and later of a second ward of twenty beds for soldiers suffering from mental shock and nervous exhaustion. These two wards are under the management of Drs. John Macpherson, Hamilton Marr, and John Carswell (Commissioners of the General Board of Control for Scotland), who have invited Drs. Ninian Bruce and Graham Brown to act with them as neurologists, and they have readily agreed; trained mental nurses have also been added to the staff; and now the beds are all occupied by soldiers sent from various parts of Scotland. The Red Cross Society has placed all patients admitted to this neurological hospital on the same basis as ordinary wounded soldiers for whom they make provision, and the Army Council has indicated that the cases will be treated at the usual rate paid by the War Office for wounded soldiers in established civil hospitals. A considerable number of cases have now been dealt with; most of the soldiers have been found after about six weeks' treatment to be fit for duty, and have returned to their units; others have recovered from their nervous troubles, but have been prevented by their wounds from undertaking further military service, whilst a few have developed permanent mental disturbance, and have been transferred to ordinary asylums. The need for this development of the care of the soldier in war time illustrates the extraordinary strain which modern military operations place upon those engaged in them, and also shows that the profession is not behindhand in dealing effectively with the need.

Ireland.

BELFAST MEDICAL MEN AND WAR WORK.

RECENTLY some thirty-five medical men from Belfast and adjoining districts offered their services to the War Office. Many of these medical men are connected with the chief hospitals and with the local university, as professor of surgery, clinical lecturers on surgery, medicine, and on other professional subjects. The offer was that groups of twelve to fifteen should work together for a period of about six months, and that this group would be kept constantly up to the full strength and changed about every six months, so that the services of a stipulated proportion of them should be available for the duration of the war. Many

¹ See BRITISH MEDICAL JOURNAL, May 8th, p. 825.

could not afford to sign for a year or for this uncertain period, but desired to help as far as was in their power. The idea was that they could staff a base hospital from the local medical school, and so relieve a number of R.A.M.C. men, and that this principle might be followed by the large medical schools of London, Edinburgh, Glasgow, Dublin, Liverpool, Manchester, and elsewhere. A certain unity would be maintained, full military regulations enforced, and some of the best professional skill—that of many men who have examined candidates for the R.A.M.C.—would be available, without undue or unbearable strain on any one volunteer. Much regret has been caused locally by the fact that the War Office has not so far seen its way to accept the offer, but has expressed its inability to make arrangements to deal with a body of surgeons in the way suggested by the scheme. It is hoped that this decision may be reconsidered; no one can see very far into the future at present, but it seems not improbable that the strain upon the base hospitals may increase, and with proper safeguards and regulations the scheme might be found workable. At the same time the proposal is novel, and it would probably not be easy to dovetail it into the existing arrangements without careful organization.

TYPHUS FEVER IN DONEGAL.

A serious outbreak of typhus fever has occurred in the Dungloe district of co. Donegal. Six patients have been admitted to the Glenties Fever Hospital. It was stated at the meeting of the Glenties guardians, held last week, that one house where there were four patients had been slunned by the neighbours, with the result that the patients were for a number of days without attendance. Dr. Gardner reported that, owing to the failure of a relieving officer to come and bury one of the patients who had succumbed, he, with the two nurses, was obliged to bury the body in a field near the house. This was not the first time he had had to bury a fever-infected corpse. The relatives and neighbours were asked to leave milk, turf, and water on the roadside. With great difficulty the nurses managed to buy only an insufficient quantity of milk, mostly sour; but how they managed for turf and water was a puzzle, for nobody would bring them either. The relatives were anxious about the cattle. It seemed not to matter that human beings should die and rot above ground as long as the cattle were all right. A brother of the patients came in a drunken state and assaulted the nurses. The whole affair, he said, was an almost incredible example of cruelty, selfishness, and cowardice, which it was humiliating to think could occur in Ireland in the twentieth century. It was stated that one doctor at first diagnosed the disease only as influenza, and that infection had spread owing to people coming into contact with those affected. The police were censured for not remaining to protect the nurses. The necessary steps are being taken to check the spread of the disease.

Canada.

GRADUATES IN MEDICINE.

At the annual convocation of McGill University on May 12th the degree of M.D., C.M. was conferred upon thirty-one graduates. The Medical Faculty of Queen's University recently conferred the degree of M.D., C.M. upon fifteen graduates, and the degree of M.B. upon twenty-seven. At Dalhousie University, Halifax, Nova Scotia, eleven graduates received the M.D., C.M. Seventy-one graduates were successful in obtaining the degree of M.B. from the University of Toronto. At Laval University, Quebec, the medical course has been lengthened from four to five years, and the five-year course has just been completed for the first time; last year there were no graduates, this year there are twelve. The medical course at Western University, London, Ontario, has also been lengthened from four to five years, and this is the last year that degrees will be given after only four years of study. The degree of M.D. was conferred upon twelve candidates, three of whom were at the time on active service. Licence to practise medicine in the province has been granted to 133 doctors by the Ontario Medical Council; thirty-nine of these are on active service, and thirty-six others have received commissions in the Army Medical

Corps, but could not leave for the front until they had received licence to practise. This means that almost 60 per cent. of those licensed this year to practise medicine in the province of Ontario are at the front or intend to leave very shortly. The figures for the other provinces are not available, but the proportion would probably be about the same.

THE HAMILTON HEALTH ASSOCIATION.

For the past seven years the Hamilton Health Association has been doing splendid work among those afflicted with tuberculosis. In November, 1908, a free dispensary was opened; at that time there were 36 patients on the visiting list of the association; there are now 527. Some of these patients only receive occasional calls, others are visited regularly, when advice is given concerning ventilation, taking of rest and exercise, care of sputum, etc. During the year ending September 30th, 1914, 2,070 visits were paid, 2,592 patients attended at the dispensary, and 687 persons were examined, 214 being children under 14 years of age. Tuberculin was given on certain days of the week; 46 patients received the treatment, and some are showing marked improvement. The association has provided a sanatorium with present accommodation for 75 patients and a preventorium for children under 15 years of age. The latter has recently been enlarged to double its original capacity. At the sanatorium there are at present 94 patients in residence, although the accommodation is really only sufficient for 75. The plans, however, have been prepared for a new building, which will be commenced very shortly.

CALGARY HOSPITALS.

Dr. Alexander Fisher, formerly superintendent of the hospital at Port Arthur, Ontario, has been appointed medical superintendent of the hospitals of Calgary, Alberta. As was stated in a former issue of the JOURNAL, the hospitals have been under the direction of Rev. A. D. McKillop, but at a meeting held a short time ago it was decided that a medical man should be appointed to the position. Dr. Fisher took up his new duties on June 1st.

Correspondence.

LEGAL RESPONSIBILITY FOR CRIME.

SIR,—We read with great interest the letters of Sir Bryan Donkin and Dr. Mercier in the BRITISH MEDICAL JOURNAL of June 5th and 12th respectively. As no other member of the Subcommittee on Crime and Punishment has commented upon them, we think that we ought to do so.

Sir Bryan Donkin may be pardoned for thinking that the subcommittee combined Sir James Fitzjames Stephen's and Dr. Mercier's proposals. The result is almost the same as if that course had been adopted. If it had, Dr. Mercier's name would have been given due prominence. All the subcommittee, we believe, were acquainted with his writings and services. The method actually adopted was to take Stephen's formula and to subject it to minute and prolonged examination, and the results of the discussions were submitted to the Subcommittee, who finally drew up and adopted the formula with modifications approved during the discussions. That the result has led to Sir Bryan Donkin's pardonable error, we think, adds—if possible—to Dr. Mercier's reputation.

Dr. Mercier is hypercritical. The definition is put forward as a tentative one for practical use, and, though it may, in logic, be an objection that its three heads overlap, it is the reverse of an objection to the definition in its practical application. An alternative formula may be of the greatest service in arriving at a just conclusion.

Dr. Mercier again lays too great stress on classification in his criticism of the second paragraph of the Supplemental Report. "Such" and "other" are quite intelligible if applied in each case grammatically with reference to the preceding sentence and not assumed to be a system of classification. May we suggest that "other" cases would include accused persons out on bail and prisoners awaiting trial, where the prison surgeon is doubtful, and also cases where alienists have been engaged to give evidence?

Our objections to the system of calling medical witnesses *en bloc* as witnesses for the court are not, as might

be inferred from Dr. Mercier's remarks, intended to be exhaustive. We would add that in no cases are expert witnesses expressing divergent opinions called one after another. There is always an interval—sometimes a considerable interval—between the experts supporting one view and those supporting the contrary.

Dr. Mercier concludes by reference to "reported cases." This is an ambiguous expression, but, if we rightly understand it, such cases are of a class where the least risk of injustice occurs. Would Dr. Mercier care to sustain the theory that no criticism could be passed, say, upon the trial and conviction of men charged before justices for summary offences of indecency under the Vagrancy Acts?

We desire to thank both Sir Bryan Donkin and Dr. Mercier for their kind references to ourselves.—We are, etc.,

JAMES SCOTT.
ROLAND BURROWS.

London, July 1st.

THE EMERGENCY BILL FOR MENTAL TREATMENT.

SIR,—I really must protest against the way in which Dr. G. M. Robertson and Lord Russell have treated Dr. S. E. White. This lady, without help or countenance from any one, entirely by her own unassisted efforts, had discovered two delightful and beautiful grievances, and paraded them with all the pride of a mother, and then these two unfeeling men, without a word of sympathy or apology, tore them from her maternal arms and dashed their heads against the stones. But is she downhearted? No! She comes up courageous and smiling, and does her best to find substitutes, and very fair substitutes they are. She still sees in Lord Russell's bill a furtive attempt to deprive the sane of their liberty, and to guard against this danger she advises him to insert a proviso making it obligatory to obtain the consent of the patient in writing and to give him a written notice that he cannot be detained against his will. As an enthusiast for the liberty of the subject, I rejoice to welcome this suggestion, but it does not go far enough. It should be applied not only to persons who seek entrance into hospitals and nursing homes, but to every case in which a person sleeps under a roof not his own. Such documents should be exchanged whenever a traveller puts up at an hotel, whenever a guest is invited to a week-end visit. Then, at last, we might have some hope that the liberty of the subject would be respected, but the hope would not become assurance until all visits exceeding the duration of a morning call are prohibited by law.

Dr. Robertson's 150,000 cases certified as insane, in only one of which was an action brought for wrongful detention, are well criticized by Dr. White and shown to be of no value as evidence that the detention was not wrongful; but it is clear that the criticism might have been far more damaging. No candid person can deny that, in order to bring an action at law, funds are necessary. Nor can any one deny that every one of Dr. Robertson's 150,000 cases was placed under control in order that they might be stripped of their possessions and reduced to penny. How is it possible for a pauper to bring an action for wrongful detention? This is the crowning villainy of the whole scheme. It is notorious that all medical practitioners, with the possible exception of Dr. White, are in league with the relatives of the so-called insane, and share in the division of the plunder. I see no remedy for this horrible abuse except in a law that shall make it penal (1) to allege that any person is a lunatic and (2) for any person to become insane. I shall be pleased to give Dr. White every assistance in my power in drafting a bill to this effect, and I have little doubt that Mr. Wedgwood or Mr. Outthwaite would introduce it into the House of Commons.—I am, etc.,

CHAS. A. MERCIER.

Parkstone, July 10th.

THE SUPPLY OF MEDICAL MEN.

SIR,—The question of organizing the services of the empire cannot leave untouched the important problem relating to medical men.

At present the burden is very unequally borne. A large number of men have given up their practices, which they will never recover. A large number are married men who

have passed their youth, so that when the war is over the work of beginning life over again will be very hard. On the other hand, a large number of men remain behind who are young and who are even in partnerships, so that their services could be dispensed with without great hardship.

In the one case men are daily losing by their patriotism, and in the other case they are gaining through the patriotism of others.

The first duty of organization should be to consider methods by which the gains of those remaining behind might be equalized against the losses of those volunteering for service.

It would be a further incentive to men to volunteer for service if steps were taken now to pass resolutions by all authorities who have in their hands the filling of medical posts, that in all future appointments priority will be given to doctors who have served in the great war.

It would be beneficial also if you would state in one short lucid article, in a tabulated form, complete particulars as to pay, allowances, length of service, rules as to pension and compensation on injury, and rules as to promotion—with regard to (1) R.A.M.C.(T.) temporary commission in a field ambulance; (2) R.A.M.C.(T.) commission as a regimental medical officer; (3) R.A.M.C. temporary commission.

The following problem, for example, has not to my knowledge been answered: What are the advantages and disadvantages of taking (1) an R.A.M.C.(T.) commission at 14s. a day and signing for general foreign service, or (2) taking an R.A.M.C. temporary commission at 24s. a day?—I am, etc.,

Temple, E.C., June 21st.

JOSIAH OLDFIELD.

SIR,—We are informed that the War Office proposes to employ about 6,000 medical officers to look after our armies. The taking away of so many men from civil practice entails a very considerable addition to the burdens of those who are left and a corresponding difficulty in maintaining efficiency. This will be more apparent when the winter months draw near. From the national point of view it is therefore very important that the War Office should be quite sure that this number is essential. What makes one a little doubtful are the following facts:

1. A large number of medical officers are doing purely administrative work which one would imagine could be left quite well to laymen.
2. An immense amount of time is spent in clerical work; for example, a wounded man will have at least three sets of notes made about his case—A, at a station close to the firing line; B, at Boulogne; C, at the base hospital in England. The first diagnosis, however erroneous it may prove to be, clings to the patient wherever he goes; his notes are left behind to be sent direct to the War Office. Apart from the wisdom of this arrangement such reduplications result in a demand for a large supply of medical officers, of whom many may never have an opportunity for the exercise of their medical capabilities.
3. A certain number are, or were until recently, employed in quite useless occupations from a medical point of view; for example, a rule was made that every convoy of wounded must be accompanied by a medical officer. This applied even to short distances of a few miles, where the time taken in unloading the ambulance would be almost equal to that required for completing the journey to a point where something effective might be possible. Apparently the sole reason for this officer's presence was to close the mouth of criticism in the event of a patient dying on the road.

I do not know if the War Office has obtained already the full number of men asked for, but I do urge most strongly that the authorities, by the elimination of unnecessary clerical work, by modifications in administration, and by judicious redistribution, should use to the fullest possible advantage the trained minds which have been placed so unreservedly and often at so great a sacrifice at the country's service.—I am, etc.,

July 13th.

G. P.

TEMPORARY RANK IN THE R.A.M.C.

SIR,—All other temporary branches of the army and navy get rank in proportion to their ability and experience (engineers, navigators, paymasters, etc.). The medical department is the exception. A medical man must start at the bottom and remain there till the end. Unless he is a consultant his ability and experience have no value. There are many like myself who are in general practice and have surgical appointments who have done

far more surgery than many "assistant surgeons" who have suddenly acquired the rank of major, and who have had no previous experience in military surgery. What the R.A.M.C. man must know is military routine; professional knowledge is superfluous, perhaps objectionable. Deputy Surgeon-General Gough tells us we are lieutenants because we do not know the treatment of military wounds. Where did the young captains (R.A.M.C. Regulars) little more than twelve months qualified in many cases) get their special knowledge of military surgery? All grievances of the profession arise from the one cause—want of unity. For my part I will either be a private or major (R.A.M.C.). I do not mind which, but certainly not a lieutenant. Let us be loyal to our country and to our profession at the same time.—I am, etc.,

July 6th.

A FORTY-YEAR-OLD LAGGER.

SIR,—I greatly regret that so little protest has been made on the question of temporary rank in the R.A.M.C.

I trust this very important question will be vigorously taken up, especially by the British Medical Association at the next annual meeting, and then not allowed to drop. Many think this body ought to have considered this matter months ago and insisted on adequate rank being given.

I particularly refer to medical men over 40 years of age. Almost all of such have joined out of simple patriotism, and at great inconvenience and financial loss, to quickly realize what the greatly inferior rank accorded to them means in having to "give place" to majors and captains mostly their juniors in age and experience; to most this is galling and totally uncalled for.

The lowest rank that should be offered men of such age is that of captain, and ought in simple fairness to be that of major.

For obvious reasons this is a matter of great importance, and higher rank than that of a subaltern should be insisted on and obtained; if not, I am afraid after the first year's covenanted service many men over 40 years of age, and a large number of those younger also, will refuse further service.—I am, etc.,

July 10th.

TEMPORARY SUBALTERN AGED 49.

THE MORTALITY OF APPENDICITIS.

SIR,—I observe that Mr. Grey Turner finds fault with my estimate of the general mortality in cases of appendicitis when I place it as high as 25 per cent. in certain types of the disease. But according to his own figures, as given in Table III, Groups 4 and 8, I find a mortality of 33 per cent.

Mr. Hugh Lett, of the London Hospital, has made two most valuable—indeed, I might say classical—contributions to the literature of this subject. In his former paper, published in 1905, the mortality of appendicitis with general peritonitis stood at the appalling figure of 76.5 per cent. Ten years later, over a like number of similar cases, the mortality had been reduced to 20 per cent.

But both these figures and Mr. Grey Turner's underestimate the general mortality which attends this particular type of the disease, in that they leave out of account altogether the not inconsiderable number of cases which are moribund when first seen by the practitioner, or become so before operative treatment is proposed. Surgeons in large consulting practices tell me that they are constantly being brought to see such cases. It may of course be urged that if these cases are allowed to become moribund it is for want of treatment. This is so, but they must none the less be allowed for in reckoning up the total death-rate due to appendix disease. I do not think, therefore, that I overestimated the case when I wrote that in certain types under modern conditions we still had a mortality running up to 25 per cent. This ought not so to be. And the main object of my paper was to bring under the notice of practitioners a type of the disease which, while most grave from the point of view of prognosis, had not yet received the attention it deserved. It is a type, moreover, with a very definite symptom-complex and with a margin of safety extending usually to twenty-four hours. The cases may show no elevation either of pulse or temperature, and yet delay in operating means the deluging of an abdominal cavity free from protective

adhesions with a large quantity of foul infective material. Let us warn the practitioner of this type of case and the explanation of it and we shall have fewer cases of general peritonitis of appendicular origin to deal with.

If I differ from Mr. Grey Turner on one small point I admire the excellence of his results, and cordially agree with him in his general conclusion, namely, that accidents aside, with early operation mortality from this disease might nearly vanish.—I am, etc.,

Belfast, June 21st.

S. T. IRWIN.

THE PREVENTION OF GAS POISONING.

SIR,—A note by Mr. Rushton Parker which appeared in the JOURNAL, on the question of using alcohol as an antidote to chlorine gas in warfare, induced me to try a few experiments.

I find that an inhaler composed of a double fold of lint, or three or four folds of thick muslin, saturated in dilute alcohol, placed over the mouth and nose, enables one to breathe chlorine gas in air without any discomfort from the chlorine, which seems to become effectively absorbed by the alcohol.

A certain amount of the alcohol is, however, volatilized and inhaled, and after a time becomes somewhat irritating. In course of time there appears to be a synthesis of chloroform, and the vapour of the new compound has a soporific effect.

The ordinary solution of sodium bicarbonate—about 10 per cent.—tried under similar conditions, appears to be cooler and pleasanter to use.

The physical difficulty of dragging air through a respirator sufficiently closely webbed to cause the filtering out of the chlorine and its absorption by some fluid appears to be the chief drawback with most respirators.—I am, etc.,

Dublin July 9th. J. C. McWALTER, M.D., LL.D., D.F.H.

THE TREATMENT OF DIABETES MELLITUS.

SIR,—Dr. Cammidge throws light on some very dark places, and my letter has fully served its purpose in calling forth so able and lucid a reply.

The fact that the potential acidity of oatmeal is 12 per cent., a percentage considerably higher than that of other foods Dr. Cammidge mentions, will, I think, partly explain its injurious effects in many cases I have observed.

Such careful study of food constituents as that set forth by Dr. Cammidge would, of course, have a far wider application than in the mere treatment of diabetes, as the following cases will show.

A lady who had acquired an uncontrollable passion for claret and potatoes, both of which she took freely at every meal four times a day, began to suffer from rheumatoid arthritis, and ultimately had to take to her bed, as almost all her joints were steadily approaching ankylosis. It appeared that her regular medical attendant was of opinion that two such articles of diet could prove of no harm, even in excess, I suppose on the ground that rheumatoid arthritis is alone due to bacterial infection. However, on being advised as to a rational diet she partially recovered, and has remained comparatively well ever since.

A gentleman whom I saw some time ago, whose joints with few exceptions were hopelessly ankylosed, related a similar story, having had a similar liking for the same articles of diet.

A lady of 82 who had lived a most careful and abstemious life, and had known scarcely a day's illness, was induced to add chipped potatoes to her diet; of these she became very fond, and partook of them freely every day. After a few weeks in which her health steadily declined, she was struck down by an attack of herpes zoster, the pain of which and the restlessness brought on extreme exhaustion, so that her life was despaired of. She eventually recovered, and is now as well and active as ever, and adhering rigidly to her former diet. It is, however, unpleasant to think what might have been the termination of this malady, so fatal in old age, had her medical adviser been of opinion that potatoes in her case were harmless, or have thought it of no consequence to inquire into any sudden change of diet, which in one so old, and who had enjoyed such uninterrupted good health, seems certain to have been the cause of her trouble.

Though far from going the whole length with Dr. Haddon, one cannot help but admire the persistency of his teaching, and feel the truth of his assertion that the study of the physiological or pathological activity of foods has too long been neglected in the regular curriculum, and such welcome up-to-date knowledge as that set forth in Dr. Cannidge's letter very clearly shows the lines on which such study should be pursued.—I am, etc.,
Liverpool, June 21st. WM. BRAMWELL, M.D.

ON THE CURVE OF THE EPIDEMIC.

SIR,—As the address that Mr. Trachtenberg gave was insufficient my letter to him was returned to-day by the G.P.O.

Incidentally I may point out that the phrase "in my letter of June 12th" was placed by the printer at the end of the first paragraph instead of in the second paragraph, which should begin:

As stated in my letter of June 12th, my expression . . .

I had expected Mr. Trachtenberg to send a correction of his error when he stated that I gave $y = a \cos^2(mt - a)$ as the solution of Dr. Brownlee's equation. With an amazing simplicity he seems to regard a perfectly legitimate transformation, made in order to facilitate the work of integration, as my solution!—I am, etc.,

Newcastle-on-Tyne, July 10th. A. S. PERCIVAL.

Mr. Percival's letter was printed in accordance with the typewritten "copy."

INDEMNITY DEFENCE POLICIES.

SIR,—In the annual report of the London and Counties Medical Protection Society, which has just been brought before my notice, appears a statement to the effect that the indemnity policy which that society has entered into is superior to that of other similar societies in that the costs and damages are paid when an action is lost by the member either as a plaintiff or defendant. This condition of insurance is exactly similar to that which obtains in the Medical Defence Union indemnity policy, as a defensive action covered by the policy entered into by their members with the Yorkshire Insurance Company is interpreted to refer to the member either as plaintiff or defendant. It often happens that a member, being libelled or slandered, a duty involves upon the Medical Defence Union to defend his professional repute by raising an action on his behalf, and if the member is insured in the Yorkshire Insurance Company the policy covers costs of the other side should a verdict adverse to him result. Frequently the best method of defence is the institution of proceedings, and it is well recognized both by the Union and the Yorkshire Insurance Company that such proceedings constitute "defensive actions."

I ask you to allow me to communicate with the profession through your columns, as being the quickest and best means of correcting any misunderstanding which may have arisen from the misleading statement in the annual report referred to above.—I am, etc.,

London, W.C., July 12th. A. G. BATEMAN.

Public Health
AND
POOR LAW MEDICAL SERVICES.

POOR LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.

COUNCIL MEETING.

A COUNCIL meeting was held in the Council Chamber of the British Medical Association, 429, Strand, on July 6th, Dr. D. B. Balding being in the chair.

Burley Union.

The council agreed to a proposition made by Dr. Agnew of Burley, in a letter dealing with the dispute in that union, that Dr. Bird should be consulted as to whether any further assistance could be given by the association.

Poor Law Medical Officers and Military Duties.

The Honorary Secretary read the following letter which he had forwarded to the Local Government Board:

Right Hon. Herbert L. Samuel, M.P.

Sir,—Owing to complaints that have reached us from various quarters, the subject of the treatment of Poor Law medical officers undertaking military duties was considered at the meeting of our

council on April 27th, when the following resolutions were unanimously carried, and I was directed to send copies to your Honourable Board:

1. That in all cases where military duties are discharged by Poor Law medical officers, the salaries paid to such officers should be on a scale not less than paid by the War Office to members of the R.A.M.C. discharging similar duties.
2. That where the duties are part-time only, an addition should be made to the medical officer's salary in proportion to the extra labour involved.

My council especially desire to protest against the inequity of granting an inferior commission, carrying with it a lower scale of pay, to a medical officer put in charge of a military hospital with a number of beds, than according to Army Regulations would be supervised by a member of the R.A.M.C. with a higher commission.—I am, yours obediently,

MAJOR GREENWOOD, Honorary Secretary.

On May 22nd he received the following reply:

Sir,—I am instructed by the Local Government Board to refer to your letter of the 12th inst., relative to the remuneration of medical officers of Poor Law institutions used for military purposes, and to enclose for the information of the Poor Law Medical Officers' Association a copy of a memorandum, dated April 28th, 1915, which was prepared by the Board after consultation with the military authorities.—I am, Sir, your obedient servant,

L. A. BRODIE, Assistant Secretary.

A memorandum was enclosed which indicated the conditions concerning the employment of Poor Law medical officers by the military authorities as agreed to by the War Office and the Local Government Board. The terms, as recent practice had shown, were misleading. Thus it was promised that suitable commissions should be given to Poor Law medical officers employed for the whole of their time, yet a member of their council in charge of a military hospital of over 500 beds had received a major's commission, whilst the medical superintendent of a smaller hospital at Edmonton had been given the commission of Lieutenant-colonel.

The resolutions had been communicated to the British Medical Association, and considered by a special committee appointed to review the relations of the profession to the War Office. The question was raised there as to whether there was any regulation that a medical officer in charge of a military hospital of 500 beds and upwards should hold the rank of lieutenant-colonel.

Surgeon-General Evatt, to whom the Honorary Secretary had referred the matter, said there could be no doubt as to this being a military regulation, which would be found under *War Establishment Expeditionary Force, 1911-12*: "General Hospital with 520 beds to have a Medical Officer of the R.A.M.C. with the rank of Lieutenant-Colonel." The Honorary Secretary directed to communicate again with the Medical Secretary and transmit to him the information imparted by Surgeon-General Evatt. It was certainly worth an explanation why the procedure adopted at Edmonton had not been carried out in the case of Dr. Thackray Parsons at Fulham.

The Honorary Secretary read a letter from Dr. Poeh, resident medical officer to the Tuxteith Park Poor Law Institution Infirmary, Liverpool, who had charge of the male side of the infirmary, which was now entirely occupied by wounded soldiers. As he had no commission and only received his usual salary, he considered that he was entitled to some recognition of his military services. According to the recent Memorandum the Army Council was prepared to grant temporary commissions to the members of the medical staff of a Poor Law institution employed for military purposes, but it did not seem quite clear to the council that Dr. Poeh's duties were entirely confined to military work, and after some discussion it was decided to write to Dr. Poeh and point out the terms of the Local Government Board memorandum. At the same time the council was unanimously of opinion that Dr. Poeh ought to receive some recognition of the important services he was rendering.

Letter from Dr. Denning of Epping.

A letter was read from Dr. Denning of Epping, who had recently been treated by his guardians with gross injustice. There had been severe friction between the workhouse master and the medical officer, the master had issued complaints, and in consequence the guardians had suspended Dr. Denning and called for a Local Government Board inquiry, which had not as yet made any adjudication. The Honorary Secretary was instructed to watch any further developments of the case.

ANNUAL GENERAL MEETING.

The annual general meeting was held on July 6th in the Council Chamber of the British Medical Association, 429, Strand. Surgeon-General Evatt was in the chair.

Note of Sympathy.

On the report from the Honorary Secretary that Dr. Holder of Hill was seriously ill, a vote of sympathy was unanimously carried, and the hope was expressed that a better report of his condition would be forthcoming in the future. The resolution further included an acknowledgment of the services he had rendered to the association for so long a period, and of his labours to promote the interests of the Poor Law Medical Service generally.

Report of Council.

The report of the council was then put before the meeting. The Honorary Secretary said that it had already been published in the *Poor Law Officers' Journal* and in their *Poor Law Supplement*, and a copy sent to every member of the association. Their work had been a good deal hampered by the war, which

had developed other questions considerably affecting the interests of Poor Law medical officers. He specially drew attention to the urgent necessity of all Poor Law medical officers giving their utmost assistance to the work of the association.

The balance sheet was next submitted to the meeting, and, after some discussion, was unanimously approved.

Election of Officers.

Surgeon-General Ewart was unanimously re-elected President, and Dr. D. B. Balding Chairman of Council, for the ensuing year.

The Honorary Secretary drew attention to the long service of Dr. Balding, and Dr. Balding thanked the members for their recognition of his efforts to promote their welfare, and hoped that he might still be able to attend their council for a time. Dr. Major Greenwood was unanimously re-elected Honorary Secretary.

Dr. Napper stated that it was not his intention to accept re-election to his office of Treasurer. He thought, under the business arrangements, the duties of Treasurer would be better performed by the Honorary Secretary, or by Mr. Frank Greenwood, their solicitor, as most of their business was done in his office. After some discussion, Mr. Frank Greenwood, the senior member of the firm Messrs. Beckings and Co., was elected to succeed Dr. Napper, to whom a hearty vote of thanks was unanimously passed for his great services in the past. Dr. Withers Green was unanimously re-elected auditor.

The following were elected members of the Council for 1915-16: Dr. W. Holder (Hall), Dr. Gidley-Moore (Eyfield), Dr. Lloyd Brown (Eastbourne), Dr. A. Drury (Halifax), Dr. C. Biddle (Merthyr Tydfil), Dr. Withers Green (London), Dr. Napper (Cranleigh), Dr. Thackray Parsons (London), Dr. A. P. Agnew (Barnley), Dr. Geo. Jackson (Plymouth).

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

GRADUATION CEREMONIAL.

The ordinary July graduation in Medicine in Edinburgh University was this year combined with that in Arts, and the joint ceremonial took place on Thursday, July 8th. The only medical man to receive the honorary degree of Doctor of Laws on this occasion was Professor Arthur Thomson, M.B., who has recently been elected to the Chair of Department of Anatomy in Oxford University. The smallness of the class of medicine, which only contained the names of eleven men and two women, was no doubt due to the war, which cannot be regarded as favourable to the acquirement of additional degrees or to the prosecution of scientific research. No gold medals were awarded. Eighty-five students, including seven women, obtained the degrees of Bachelor of Medicine and Bachelor of Surgery, four in first class and the same number with second class honours. The lists of the M.D.'s and M.B. (Ch.B.)'s, along with the details of Fellowships, scholarships, and prizes which were gained, is appended. Sir William Turner, the Vice-Chancellor, in his address to the graduates, spoke of the Roll of Honour of the university, which contained 3,550 persons' names, of whom 2,513 had received commissions. He pointed out that the Chancellor, who headed the list, was First Lord of the Admiralty, and that the Lord Secretary was Secretary of State for War. That sixty-five members of the staff engaged in teaching and administration were serving with the forces, and that 2,200 graduates, of whom 1,255 were medical, had joined the navy and army. There were also 457 of the present students training in the Officers' Training Corps, so that the total of the Roll was 4,000. The Vice-Chancellor brought his remarks to a close by quoting from a letter from a graduate of the university and a doctor of medicine 'Sir Arthur Conan Doyle, in which he said "it was good to hear that the name from Edinburgh University had, both in the firing line and behind it, showed that the old iron was in their blood."

M.D.—D. Aitken, C. Rolton, C. H. Corbett (Lieutenant R.A.M.C.), J. Graham, Annie Jackson, I. W. H. Johnston, D. C. Macalessil, Elizabeth Macleod, J. Maxwell, E. C. Peake, A. A. Rutherford (Lieutenant R.A.M.C.), G. W. Thaxley (Surgeon R.N.), C. A. Wilson (Lieutenant R.A.M.C.).
M.B.—Ch.B.—J. C. Anderson, J. M. Anderson, J. S. Armstrong, R. W. W. Baillie, T. Y. Barkley, H. J. P. Briwer, J. E. M. Campbell, W. M. Christie, A. G. Clark, T. L. Clark, A. R. F. Clarke (Lieutenant R.A.M.C.), S. R. B. Laurie, G. Clarke, W. A. Cochrane, C. H. B. Coetzee, M. K. Cooper, M. D. Danie, M. W. Dazdig, P. C. Davie, C. W. S. Davies-Jones, D. Dunlop, Mary O. Ferrisone, E. L. Galant, A. M. Gibson, A. W. Gunn, W. M. Hilday, A. Henderson, G. Hepburn, M. Helen C. Howard, V. H. Hoashoo, R. M. Hume, E. B. Israel, T. Janakiramiah, O. D. Jarvis (Lieutenant R.A.M.C.), S. R. G. S. Johnston, D. H. Jones, Miriam H. Kerr, S. A. Kinn, P. W. Lam, Jean Blanche Larnie, N. B. Shanklin, J. W. Simpson, G. H. Law, B. Lawson, A. J. Lim, H. L. H. Lim, P. MacD. Little, G. L. Londen, J. E. M. McCartney, Helen M'Donnell, J. M'Donnell, W. E. M'Intyre, Marjorie McNaughton, J. W. Malcolm (Lieutenant R.A.M.C.), S. R. D. Mallory, Mary Martin, M. McCall, M. F. McEwing, A. R. Menon, T. C. S. C. Morton, F. H. Nixon, W. P. Patterson, J. W. Potter, O. D. Price, W. J. Purdy, N. I. Reiss (Lieutenant R.A.M.C.), R. J. W. G. Riddell, J. W. Riddoch, J. R. Rodger, C. Russell, W. Shanklin, J. W. Simpson, G. H. Sinclair, E. T. Solomon, H. M. Stewart, C. M. Stewart, H. A. Stead, J. D. Walker, J. W. Wattles, L. H. Werten, W. G. Weston, J. J. Whitehead, M. E. Wilcock, S. M. Wishart, F. G. Wright, A. Young.

* Highly commended for thesis. † Commended. ‡ First-class honours. § Second-class honours.

Fellowships, Scholarships, and Prizes.

Cameron Prize in Practical Therapeutics: Sir Lauder Brunton, Bt., M.D., Edin., LL.D., for his valuable researches in pharmacology and their applications to therapeutics, initiated in his M.D. thesis on digitalis, which was awarded a gold medal by the Senatus of this University in 1868, and continued and extended in the second edition of his work on the *Therapeutics of the Circulation* (London, 1914).

Goodsir Memorial Fellowship: Stuart Bolton, M.D. Straits Settlements Gold Medal: Donald Cameron Macaskill, M.A., M.D. Ettles Scholarship (to the most distinguished student during the five years' curriculum): James Elvins M'Cartney, M.B., Ch.B. Free-laid Harbour Fellowship: John William Riddoch, M.B., Ch.B. Murchison Memorial Scholarship in Clinical Medicine: Charles George Lambie, M.B., Ch.B. Beany Prize in Anatomy and Surgery: James Whiteford Potter, M.B., Ch.B. Moulal Scholarship in the Practice of Physic: James Elvins M'Cartney, M.B., Ch.B. Conan Doyle Prize (to the most distinguished student from South Africa): Michael Ferreira Mering, M.B., Ch.B. Buchanan Scholarship in Gynaecology: William Alexander Cochrane, M.B., Ch.B. James Scott Scholarship in Midwifery: James Wilfrid George Hewat (Killick), M.B., Ch.B. Dorothy Gilliland Memorial Prize (to the most distinguished student from India): Marjorie Macnaughton, B.Sc., M.B., Ch.B. Wellcome Medals in the History of Medicine: Gold Medal—Robert Edward Burns; Silver Medal—Charles Simpson. Cunningham Memorial Medal in Anatomy: Henry James Parish. Whiteside Bruce Bursary: Duncan Ferguson Yuille.

The following candidates have been approved at the examinations indicated:

FIRST M.B. (Physic)—J. J. R. Binnie, H. Dittmar, G. B. Falcon, M. Vera C. Kent, E. G. R. Grant, A. C. Lornie, J. C. Timothy, F. C. Veitch (Chemistry)—Jessie R. Bruce, Elizabeth E. Critchley, H. Dittmar, Millicent Fox, R. L. Galloway, Marjorie H. King, Catherine A. J. Mitchell, D. Rankin, Janet C. Rugg, Apollina A. Wright (Zoology)—Elizabeth J. Alexander, S. M. Alexander, C. S. Appleyard, A. Arnitt, C. W. Badger, C. W. Baillie, W. L. Ballour, Jean F. Bertholomew, F. D. M. Benton, H. Berelovitch, A. E. Blackley, Alice Bloomfield, L. R. Bonford, J. M. Bonnar, W. H. S. Boyd, Jessie B. Bruce, E. M. Byres, D. A. Cadman, Margaret S. Caskie, G. G. Cochrane, E. C. Clarke, C. H. Cook, Elizabeth E. Critchley, Dorothy G. Davidson, A. W. P. D. Helm, R. A. S. Hoyle, W. B. E. Hughes, W. Isbister, D. T. Jack, R. Jackson, J. Kaariya, J. O. Kelly, G. S. Kerr, Marjorie H. King, E. J. Y. Kirkbride, S. Lavery, D. R. Lewis, A. C. Lornie, J. A. L. London, W. Love, Johan Lovins, D. T. McDonald, Lillian M. M'Donnell, W. J. R. K. MacGillivray, Agnes R. Macgregor, J. M'Intyre, Jean R. Maclean, L. A. E. Malik, Isabel S. Martin, Marjorie H. Soumeville, Helen C. Spencer, J. E. Mitchell, Christine M. G. Mitcheson, Emily M. Mure, A. R. Murray, Georgina B. Nichol, H. Nichol, D. Nicol, I. A. M. Paton, E. G. H. Payne, Roberts T. Rankin, I. Katsosky, R. A. E. Rees, Ruth J. D. Ritchie, G. V. S. Rodriguez, Vera Ross, Margaret E. Ross, Janet C. Rugg, B. A. Sybil Russell, Cronica G. Salverson, Muriel Sellers, A. J. Shedd, A. Shah, Ruth L. G. Shannon, A. J. Shedd, Barbara Simpson, Alice B. S. Smith, Dorothy M. Smith, S. W. J. Smith, Dorothy J. Somerville, Helen C. Spencer, G. D. Steven, A. Stuart, J. L. Timothy, D. L. L. Todd, A. Yakkil, G. W. Veitch, Verity Walker, Grace Walker, J. Walker, N. J. Watson, W. N. B. Watson, A. G. N. Weatherhead, G. H. Webster, Edith G. Wilkes, J. H. Williams, I. G. Williams, Apollina C. Wilson, J. H. Wright, R. W. G. Yool, J. M. Young. *Botany*—Elizabeth J. Alexander, S. M. Alexander, H. P. Anderson, C. S. Appleyard, A. Arnitt, C. W. Badger, R. L. Baillie, W. L. Ballour, Jean F. Bertholomew, H. Berelovitch, L. R. Bonford, A. E. Blackley, W. M. Blakely, Alice Bloomfield, L. R. Bonford, J. M. Bonnar, W. H. S. Boyd, J. C. R. Buchanan, E. H. Burch, E. M. Byres, D. A. Cadman, Margaret S. Caskie, E. C. Clarke, D. A. Cadman, I. Cohen, C. H. Cook, Elizabeth E. Critchley, Dorothy G. Davidson, A. W. P. D. Helm, R. A. S. Hoyle, Margaret L. Dobbie, H. R. Dolsen, N. M. Doh, H. J. C. Durward, B. A. G. A. Edleston, Joann M. Falconer, Fitzpatrick, M. V. Foley, F. Friedman, J. S. Fulton, D. M. Galloway, Dora W. Gerrard, G. M. Gibbon, M. Goldberg, R. T. Goldring, Alice M. Graham, E. A. Grant, A. W. P. D. Helm, R. A. S. Hoyle, Marjorie Harris, J. E. H. Hartie, P. D. Helm, R. A. S. Hoyle, W. B. E. Hughes, W. Isbister, D. T. Jack, R. Jackson, J. Kaariya, J. O. Kelly, G. S. Kerr, Marjorie H. King, E. J. Y. Kirkbride, S. Lavery, D. R. Lewis, A. C. Lornie, J. A. L. London, W. Love, Johan Lovins, D. T. McDonald, Lillian M. M'Donnell, W. J. R. K. MacGillivray, Agnes R. Macgregor, J. M'Intyre, Jean R. Maclean, L. A. E. Malik, Isabel S. Martin, Marjorie H. Soumeville, Helen C. Spencer, G. D. Steven, A. Stuart, J. L. Timothy, D. L. L. Todd, A. Yakkil, G. W. Veitch, Verity Walker, J. Walker, N. J. Watson, W. N. B. Watson, A. G. N. Weatherhead, Edith G. Wilkes, I. G. Williams, J. A. Williams, J. H. Wright, R. W. G. Yool, J. M. Young.

SECOND M.B. (Physiology)—G. R. Anderson, J. I. C. C. Barclay, I. A. Beckles, C. Blake, S. Boodoosingh, M. R. Broadwood, R. M. Burnie, D. H. Cameron, E. Chonlop, J. M. Cole, J. A. L. Cook, J. E. Crawford, Davidson, Isabel M. Don, Jean D. Don, W. J. Eccott, D. Ferguson, G. S. Freeborn, Emily Y. Vakil, J. H. Gibson, R. N. Gibson, W. A. Gray, S. D. Gupta, A. T. Harris, C. Fiddis H. Hole, A. J. E. Jones, N. W. Johnston, D. C. Lawcutt, J. D. Lawrence, E. K. C. Lavery, H. H. Lim, M. Lipschitz, D. I. G. Macaskill, Anne L. Macdonald, B. Macgregor, A. S. M'Cartney, J. M'Nabh (M.A., B.Sc.), W. M. McPhail, A. MacPherson,

Obituary.

BRUCE GOFF, M.D., F.R.F.P.S. GLASGOW.

By the death of Dr. Bruce Goff of Bothwell the profession in the West of Scotland has lost one of its most distinguished members and the British Medical Association one of its most loyal and devoted adherents.

He was born at Hammernessmill in 1832, when it was a country district surrounded by green fields. His father died two or three years later. He was educated privately and became a medical student of Glasgow University in 1849, where he graduated M.D. in 1853, having in the interval passed part of his studentship at the University of Edinburgh. After graduation he became house-surgeon in the Glasgow Royal Infirmary to Professor Lawrie, and later was for some time his private assistant. Next he proceeded to Paris, where he worked under such distinguished masters as Nélaton and Dubois. At this time Dr. Goff was elected a member of the Paris Medical Society. On his return to this country he settled in private practice at Bothwell, then a pleasant village on the Clyde with something of a reputation as a health resort. Here his sterling qualities were readily recognized and he speedily built up a very extensive connexion, which increased considerably with the development of the Lanarkshire coalfield and became probably one of the largest mining practices in Scotland. This practice he conducted with great acceptance for over forty-five years.

When he was able to allow himself a little leisure from his purely professional duties he took an active part in medico-political work. He was the champion of the general practitioner—particularly of the country practitioner—whose status and position it was his constant endeavour to improve. Early in his career he became a member of the British Medical Association. About 1880 he was elected president of the Glasgow and West of Scotland Branch in succession to the late Sir William Gairdner, and from that time onwards he took a large share in its work. He was a regular attender at the meetings, where his opinions and advice were always highly valued. In 1884 a wider sphere of usefulness was opened up to him by his appointment as representative of the Branch on the Central Council in succession to Dr.—now Sir David C.—McVail. Dr. Goff applied himself to his new duties with characteristic energy, and from that time his commanding figure and his agreeable personality were well known at all the important meetings. He continued to represent the Branch on the Central Council till 1908, when the by-law limiting the period of service came into operation. On his retirement in that year he was invited to be the guest of the evening at a largely attended dinner at St. Enoch Hotel, Glasgow, when he was presented with a handsome service of plate as a mark of the esteem in which he was personally held and as a slight acknowledgement of his long and valuable services. Practically every medical man in the area of the Branch subscribed to the fund for the presentation.

Dr. Goff's activities on behalf of the Association did not cease at this period. Till two years ago he remained chairman of his Division and was its Representative at Representative Meetings. He was a member of the Central Ethical Committee and of the State Sickness Insurance Committee—the first committee set up to deal with the National Health Insurance Act.

In local medical circles Dr. Bruce Goff was held in the highest respect. He became a Fellow of the Faculty of Physicians and Surgeons of Glasgow by examination in 1855. Rising through the various grades of office, he was elected President in 1895 for three years, he being one of the very few country practitioners to hold that important position. For a long period he was one of the managers of the Glasgow Royal Infirmary, and later, for a considerable number of years, he was on the Board of Management of the Western Infirmary, Glasgow, a position which he continued to hold till the end of his life. In politics Dr. Goff was an enthusiastic Conservative. At the time of his death he was the oldest member of the Scottish Episcopal Church of St. Mary, Hamilton.

He was a strong supporter of the Volunteer movement, which he joined in 1859; he retired a few years ago, having received the V.D., and having been given the rank of honorary colonel R.A.M.C. (T.F.)

He gave up active general practice sixteen years ago, thereafter devoting himself to consulting work and to his various public duties.

He was always a courteous, cultured gentleman. He formed his opinions with care and deliberation, and was always prepared to uphold them. At the same time he was tolerant of the views of others.

During the last twelve months his strength had been gradually failing, although his mental faculties remained clear and vigorous to the last. He passed peacefully away at Bishopton, near Glasgow—the residence of one of his sons—on Sunday, July 4th, and was laid to rest in Hamilton Cemetery on the following Wednesday, deeply mourned by all who knew him. He is survived by four sons, two of whom are in the profession—Dr. John Goff of Bothwell, who succeeded him in practice, and Dr. Bruce Goff of London.

Professor SAUNDY (formerly President of the Council and of the Association) writes: I should like to be allowed to contribute a few words of appreciation of the late Dr. Bruce Goff, of his character as a man, and a valuable member of the Council of the Association. I cannot trust my memory to be accurate, but it seems to me that Dr. Goff was a member of the Council when I first joined it somewhere about 1885, and he certainly was still a member when I left it twenty years later, and again when I rejoined it as President-elect five years ago. The West of Scotland Branch could not have had a better representative than he proved himself to be for so many years. Few members of the Council exercised greater personal influence, for his calm and judicial speech made his colleagues recognize that there was much to be said for the side taken by him in any discussion. He was a graceful speaker, and was constantly called upon and readily performed the conventional duty of proposing or seconding votes of thanks to those who had been officially more prominent, though perhaps less generally useful. I do not know why he was never elected to serve either as Chairman of Council or Treasurer of the Association, but I think it must have been because he lived so far from London that he was unable to make the sacrifice of time which would have been involved had he accepted either of these offices. There are few past or present members of Council who do not remember with pleasure his genial presence, or recall him with other feelings than those of affection and respect. It has sometimes been said that the Council was formerly dominated by consultants; but Bruce Goff was a general practitioner, and shared with many others of the best type, of whom I need only name Husband, Clayton, Carpenter, Wheelhouse, Holman, Parsons, and Bridgewater, the influence exerted by general practitioners in the days when the Council was an unreformed body.

THE LATE LIEUTENANT T. S. LUKIS.—A correspondent in India sends us a note on the social work carried on in London by the late Lieutenant T. S. Lukis, M.D., of the 13th Battalion, London Regiment, who died of wounds on March 15th. A short memoir has already appeared, dealing chiefly with his medical career, in the JOURNAL of March 27th. He was one of the pioneers of the Boy Scout movement in East London. Starting his operations in Whitechapel, with Toynbee Hall as his head quarters, he founded the first Hoxton troop on May 27th, 1908. At first fortnightly excursions were made to Epping Forest, but his object was to show that scout work could be successfully carried out in the heart of London. With that object in view he spent Saturday afternoons, week after week, in playing scout games in an area of which Finsbury Circus was the centre. At first the movement excited a good deal of ridicule, being new to the neighbourhood, but perseverance won success in the end, and his work found imitators, several other troops being founded in that part of London, and meeting with equal success. Dr. Lukis was in camp with his scouts near Chelmsford last August when war was declared. He took the lead in forming a scouts company in the 13th London Regiment, and, following his example, over eighty of his scouts joined the army.

WE regret to announce the death of Dr. HENRY ALGERNON HOBSON, a well-known and highly-esteemed practitioner of Hove. The sudden end of a valuable life was the

result of an accident due to the darkening of the front at Brighton. Dr. Hodson, who was 63 years of age, received his professional education at University College, London, and became M.R.C.S. Eng. in 1875 and L.R.C.P. and L.M. Edin. in 1876. After qualifying he held the offices of senior house-surgeon at the Royal Free Hospital in London and clinical assistant at the Hospital for Women, Soho Square, and at the Central London Ear and Throat Hospital. He had been in practice for many years at Brighton and was surgeon to the Hove Hospital and Dispensary and to the Brighton and Hove Surgical Homes. He was surgeon to the 1st Battalion Sussex Volunteer Training Corps (Brighton). He was a member of the British Medical Association, and took an active part in its work. Dr. Hodson leaves a widow, a daughter, and three sons all of whom have been engaged in the fighting in British East Africa since the beginning of the war.

DR. JAMES McARTHUR of London, Ontario, died of heart failure on May 23rd, in his sixty-first year. He was born at Ailsa Craig, near London (Ontario), and after receiving his early education entered Queen's University, Kingston, where he obtained the degrees of B.A. and M.D. He had practised in London for the past thirty-five years with a rare devotion to duty. Dr. McArthur was one of the founders of the London Medical Association, and for fifteen years a member of the Ontario Medical Council. Last year he was elected President of the Council, and it was due largely to his efforts that reciprocal relations were established between the province of Ontario and Great Britain. He leaves two sons and three daughters.

COLONEL JOHN GASSON HARWOOD, Army Medical Staff (ret.), died at Southsea on July 8th, aged 58. He was born on August 27th, 1856, educated at Bart's, and took the diplomas of M.R.C.S. and L.S.A. in 1879, as well as the F.R.C.S. Edin. in 1888. He entered the army as surgeon on March 6th, 1880, became surgeon-major on March 6th, 1892, lieutenant-colonel on March 6th, 1900, and colonel on June 29th, 1906, retiring on March 15th, 1909. The *Army List* assigns him no war service.

LIEUTENANT-COLONEL THOMAS CANEBELL McCULLOCH, R.A.M.C., died suddenly of heart disease at the Alexandra Hospital, Coshua, Haiku, on June 25th. He was born on May 4th, 1861, educated at Glasgow, where he took the M.B. and C.M. with commendation in 1884, and entered the army as surgeon on February 5th, 1887, becoming major on February 5th, 1899, and lieutenant-colonel on July 29th, 1911. He served in the third China war in 1900, when he was mentioned in despatches in the *London Gazette* of September 13th, 1901, and received the medal. From May 1st, 1902, to April 25th, 1906, he was Deputy Assistant Director-General of the Army Medical Service, and in 1906 he served as a member of the committee for the investigation of Mediterranean fever.

CHARLES EDWARD WOODRUFF, lieutenant-colonel in the Medical Corps of the United States Army, who died on June 13th, was born in Philadelphia in 1860. After graduating in arts in the University of Pennsylvania, he spent three years at the Naval Academy, Annapolis. Abandoning his intention of becoming a naval officer, however, he turned to the study of medicine and graduated M.D. at Jefferson Medical College in 1886. After serving as an assistant surgeon in the United States Navy for a year, he was transferred to the Army Medical Corps, from which he was compelled to retire owing to ill health in 1913. Two periods of service in the Philippines convinced him that the tropics were unsuitable for white men. His views on this subject, which were strongly held, were set forth in books entitled respectively *The Effect of Tropical Light on White Men*, *Expansion of Races*, and *Medical Ethnology*. Even those who do not agree with his conclusions must admit the wealth of practical experience on which they are founded and the ingenious argumentation by which they are supported. After his retirement from the army Colonel Woodruff travelled extensively and embodied his observations in a number of pamphlets. At the time of his death he was associate editor of *American Medicine*.

WE regret to announce the death of Professor KOBERLÉ, the distinguished surgeon, of Strassburg. Born on January 4th, 1828, he was in his 88th year. He had a great influence on the progress of surgery in France. He was in a special manner the pioneer of ovariotomy in that country, and his early efforts to gain a recognized footing for the operation were encouraged by the award of a prize of £80 by the Academy of Medicine. In 1868 he had already performed the operation in 69 cases with a successful result in two-thirds of the number; at the end of the following year he was able to report to the Paris Société de Chirurgie that he had done 123 ovariectomies. In 1870 he published a treatise, entitled *Manuel opératoire de l'ovariotomie*. His name was also well known in connexion with hysterectomy, the *morcellément* of tumours, and other surgical procedures. There was a great controversy as to priority between him and Péan in regard to the invention and use of hæmostatic forceps. Koberlé remained at Strassburg after 1870, but he held himself aloof from the Germans, and refused the honours which they pressed upon him.

Medical News.

MR. EDMUND OWEN, Surgeon-in-Chief to the St. John Ambulance Association, and Consulting Surgeon to St. Mary's Hospital, was, we regret to learn, taken suddenly ill on July 13th, and is unable to attend to the business of the Joint Committee of the British Red Cross Society and the St. John Ambulance Association, in which he has taken so large a part.

DR. FREDERICK WILLIAM PRICE has been elected a Fellow of the Royal Society of Edinburgh.

At a meeting of the Royal Society of Edinburgh, held on July 1st, the Makdougall-Brisbane prize was awarded to Professor C. R. Marshall for his studies "on the pharmacological action of tetra-alkyl ammonium compounds."

MRS. SCHARLIEB, M.D., M.S., will give an address to pupils and parents at the distribution of scholarships and exhibitions won by pupils of the Manchester High School for Girls at the Free Trade Hall, Manchester, on Thursday next at 3 p.m.

THE Secretary of the Chelsea Hospital for Women has received a further sum of £1,000 from the executors of the T. S. Whitaker Estate towards its rebuilding fund. The hospital is giving special facilities for the admission of the wives and near relatives of soldiers at the front and also to Belgian refugees.

DR. J. W. AND MRS. MULLIGAN recently left Abersychan, Monmouthshire, where they have lived for nearly half a century, to take up their abode in Ireland. Dr. Mulligan has been a Justice of the Peace, an alderman of the county council, and a member of Abersychan Urban District Council for many years, whilst Mrs. Mulligan was an active member of the Pontypool Board of Guardians for twelve years. In recognition of their public services they were presented with a handsome set of candelabra, silver candlesticks, salvers, hot-water jug, flower vases, and an illuminated address.

DR. SHIPLEY, Master of Christ's College, whose papers on insects and war in the BRITISH MEDICAL JOURNAL have been read with so much interest, has prepared for the National Health Society a leaflet on mosquitoes, in which he describes the places in which they breed, the way in which the larvae and pupae can be destroyed, giving preference to crude mineral oil, 10 c.c.m. to the square metre (a tablespoonful to the square yard), or, failing that, heavy mineral oil. He discusses, also, methods of destroying the adult mosquito. He mentions experiments made by himself and Professor Nuttall, in which they found that the mosquitoes avoided a box lined with khaki cloth, and collected in that lined with dark navy blue. After stating that many essential oils, cedar wood, lemon grass, eucalyptus, or citronella, applied to the neck, wrists, and ankles are said to keep mosquitos away, he adds that the wearing of two pair of socks often protects the ankles, as the prothesis of the mosquito is too short to penetrate through the double thickness. We may add that probably it is not so much the thickness, for they will sting through thick woollen stockings, as the doubling of the close material, which makes it difficult for the insect to pass its prothesis through two thicknesses.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

CORRESPONDENTS who wish notices to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

ATTENTIONS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Atford, Westward, London*; telephone, 2531, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westward, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Muscusca, Westward, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

H. R. would like to be recommended a good carbon snow apparatus. He has used several, but finds the condensing apparatus is not satisfactory.

DR. R. R. RESTOUL (78, Hartington Road, Liverpool) will be much obliged to any one who will kindly send him his results of the treatment of urethral stricture by fibrolysis.

INCOME TAX.

TAXPAYER has been in the habit of calculating his firm's income tax return on the basis of gross receipts. For the current year the surveyor of taxes refuses to accept this, and claims that the book debts at the beginning and end of the year must be taken into account.

Theoretically the surveyor is no doubt right, but the notoriously difficult existing with regard to "bad debts" in all general medical practices has given rise to a long-standing arrangement by which the practitioner's return is based on cash receipts only. This avoids the "bad debts" difficulty altogether, and, inasmuch as in the great majority of cases the book debts at the beginning and end of the year are of approximately the same value no loss would appear to be incurred by the Revenue. Unless there are very exceptional circumstances in the case our correspondent might point out to the surveyor that his action is a distinct departure from a long-standing practice, and if he persists might communicate with the Board of Inland Revenue on the subject.

LETTERS, NOTES, ETC.

DR. JAMES HAMILTON (Chelsea) writes: During the past month I have had a series of cases all presenting exactly similar symptoms. I wonder whether other practitioners have had the same experience and whether they will agree with me as to the cause. Each case was taken suddenly ill with "cold," followed by acute pain in region of liver and umbilicus, and then diarrhoea with dark-greenish yellow offensive motions and temperature ranging from 101° to 104° and persisting for about a fortnight. The only other signs which were common were congestion of fauces, tenderness over the liver and spinal neuralgia. In two cases vomiting of a greenish matter was present, and in all nausea. The ages ranged from a schoolgirl of 14 whose temperature was still—after ten days—over 100, to an old lady of 78. The ages of the others are 48, 35, 64, 62, and 19. Some minor cases I do not record. My impression is that the hot weather with cold east or north-east winds set up changes in the liver and duodenum which interfered with metabolism. In no case was there any questionable food. Very old writers speak of bilious fever. I treated all cases with calomel in repeated doses and an alkaline and bismuth mixture, and some with resorcin and naphthalin, but medication did not seem to cut short the attack—although it might have been more serious if not treated.

THE DEARTH OF DOCTORS.

MR. ARTHUR DAVENPORT (Teignmouth) writes: In view of the frequent complaints of the "dearth of doctors," may I suggest, as a remedy, the prompt recall of our missionaries from Asia, leaving the current work of their stations in the capable hands of their devoted native assistants? The services of the surgeons of both sexes would be simply invaluable, while the junior clerical members might render good service at the front, the ladies aiding as nurses where their help was most required. The seniors might make themselves very useful in many ways—for example, in converting selfish well-to-do people who outwardly display unpatriotic self-indulgence and

the like, and in persuading those who are the victims of alcoholic thirst to amend their ways. The enthusiastic salutations of the natives in the Far East to the French priests hastening home last August to fight for their country would seem to indicate that our missionaries, by their indifferent quasi-neutral attitude, will lose much influence and respect if they coldly and apathetically remain in the mission field instead of coming to the aid of their country in its present time of trouble.

"THE POISON WAR."

MR. A. A. ROBERTS writes: By your review of the above book, contained in the BRITISH MEDICAL JOURNAL of July 3rd, I am pleased to see that there are some points of interest to the profession published in the series of articles under the title of "The Poison War." It is stated in the preface that this book is only intended as an appeal to the lay mind. Complicated or lengthy details are, in consequence, deleted as far as possible, and in any criticism, the rigidity of censorship must be taken into account, also the alterations in the text, to meet its requirements. I take it that your critic thinks there must be an error in either the description or drawing of the naval poison gas machine (p. 35). Will you allow me to say that both of these are correct. It is represented in the description that the "floats" are weighted, and the weight figures in the illustration, one of the connexions to the first air box is also weighted, to counterbalance.

The description might have been clearer if I had said that the object of the buoy is to keep the floats in position, but that is surely apparent. Your critic has misread the passages if he reads, as suggested, that I referred to sulphur dioxide as less soluble in water than chlorine. Such a remark attributed to me would be an absurdity, in view of my practical experience with these gases. Moreover, I distinctly say that, in the event of generation of sulphur dioxide, the nozzle would of necessity have to be "at or in close proximity to the surface," and I am of opinion that the solubility of the gas would to some extent be impaired by the particular method of its generation.

INSECT POWDER FOR LIFE.

WE were consulted recently by an army medical officer as to a particular powder recommended to keep lice out of the clothes. Microscopic examination showed that it consisted principally of powdered insect flowers (*Chrysanthemum cinerariae-fidum*); the powder, however, contained an undue quantity of woolly tissue, probably derived from the presence of a rather high proportion of stalk. A careful examination for other ingredients resulted in the detection of a small quantity of lead chromate, which is, no doubt, present as an impurity, since this chemical is a common adulterant of insect powder. No other substance could be found, and the powder therefore appears to be a low grade of insect powder, coloured with lead chromate. Readers might do well to consult the articles by Dr. A. E. Shipley, F.R.S., regarding lice, published in the BRITISH MEDICAL JOURNAL of September 19th, 1914, p. 497, and February 27th, 1915, p. 395.

BADGE FOR DOCTORS' CHAUFFEURS.

DISTRICT MEDICAL OFFICER writes: "A.W.'s" suggestion for the marking by a badge of doctors' chauffeurs may be useful; but the distinguishing badge for doctors, although long advocated, would be much more to the point, if now established and enforced. For obvious reasons it would identify doctors, whether for civil or military purposes.

EPSOM COLLEGE ELECTION.

MRS. JAMES WELSH, 44, Worthing Road, Southsea, widow of Fleet Surgeon Walsh, H.M.S. *Good Hope*, wishes to express her most grateful thanks to all who so kindly gave their votes, support, and sympathy to her son Raymond Neville in the June election, 1915, for foundation scholarships for Epsom College, in which he was third among the successful candidates.

THE MEDICAL DIRECTORY.

MESSES. J. AND A. CURETTE write: The annual edition for the *Medical Directory* will be posted to the profession on July 19th. We sincerely hope that all practitioners will make their returns to us as quickly as possible, so that the issue for 1916 may be accurate and full of the latest information. The list of practitioners resident abroad will be reinstated.

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THE SCIENCE COMMITTEE

OF THE

British Medical Association.

REPORT TO THE THERAPEUTIC SUBCOMMITTEE.

I.—THE COMPOSITION AND PHARMACOLOGICAL ACTION OF SPIRITUS AETHERIS NITROSI.

BY
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AND
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Sweet spirit of nitro is defined by the *British Pharmacopoeia* (1914) as "an alcoholic solution containing not less than 1.52 or more than 2.66 per cent. by weight of ethyl nitrite, together with aldehyde and other allied substances." In the 1898 edition it is more simply defined as "an alcoholic solution containing ethyl nitrite, aldehyde, and other substances," but, as shown by the quantitative test given, it must contain not less than 1.75 nor more than 2.5 per cent. of ethyl nitrite. The definition and quantitative test of the 1885 *Pharmacopoeia* are similar. In the previous (1867) *British Pharmacopoeia* the definition given is "a spirituous solution containing nitrous ether," and the quantitative test—the separation of 2 per cent. of its volume on the addition of twice its volume of saturated solution of calcium chloride—indicates that it was intended to contain at least 2 per cent. of ethyl nitrite. The mode of preparation has not been materially changed during these years. In the short-lived *Pharmacopoeia* of 1864 the spirit was prepared by distilling sodium nitrite, sulphuric acid, and rectified spirit. The sweet spirit of nitre of the London, Edinburgh, and Dublin *Pharmacopoeias* was obtained by distilling certain proportions of alcohol and nitric acid.

It is evident from the mode of preparation and the tests given that ethyl nitrite has been regarded as the active ingredient of sweet spirit of nitre since the establishment of the *British Pharmacopoeia*, although, as far as we know, this view did not receive experimental support until the investigations of Professor Leech. It does not appear, however, to have found universal acceptance, and the British Pharmaceutical Conference asked the co-operation of the Therapeutic Subcommittee of the Association in further work on the nature of the active ingredient or ingredients. The following statement was submitted to the Subcommittee by the secretaries of the Conference:

It is desirable that we should know if the important constituent in spirit of nitrous ether be the acetaldehyde, the ethyl nitrite, or the alcohol. If the first, then a pharmacopoeial test could be devised which would insist on its presence. If the ethyl nitrite be the only constituent of importance then suitable processes of preparation and testing could be defined. Since the liquor ethyl nitritis *B.P.* 1898, which is a solution of ethyl nitrite, has practically not come into use, whereas the old sweet spirit of nitre of the London *Pharmacopoeia*, containing aldehyde but little or no nitrite, is still in use, the question is of practical importance.

The matter was referred to one of us for report. For the purposes of the investigation Mr. Finemore, one of the secretaries of the British Pharmaceutical Conference, kindly prepared and sent to us samples made according to the old London *Pharmacopoeia* and the *British Pharmacopoeia* (1898) and a solution of ethyl nitrite in alcohol. We have also prepared sweet spirit of nitre according to the *British Pharmacopoeias* 1898 and 1914, and the German *Pharmacopoeia* 1900; and a solution of ethyl nitrite. These and specimens bought from a retail pharmacist have been used in the investigation.

METHODS OF PREPARATION.

The methods of making the preparations other than those of the *British Pharmacopoeia* were as follows:

London Pharmacopoeia.

Nitric acid 34 fluid ounces, alcohol 40 fluid ounces; distil 28 fluid ounces. (Prepared by Mr. Finemore.)

Mr. Finemore noticed that this product contained practically no ethyl nitrite, and he therefore decided to prepare a spirit by continuing the distillation as long as practicable. The distillate was then diluted with alcohol to the *B.P.* (1898) standard for ethyl nitrite. This preparation is labelled in Table I—L.P., mod. I (London *Pharmacopoeia*, modified I).

A third spirit was made in the same way, except that the nitric acid and alcohol were allowed to stand twenty hours before distilling, and the distillation was continued until red fumes were evolved from the liquid in the distilling flask. This preparation is labelled in Table I—L.P., mod. II.

German Pharmacopoeia.

Nitric acid (25 per cent.) 3 parts, alcohol 5 parts; allow to stand two days; distil on a water bath into 5 parts alcohol until yellow fumes commence to be evolved from the mixture in the flask; neutralize the distillate with magnesia; after twenty-four hours redistil on a water bath into 2 parts of alcohol until 8 parts of product are obtained.

Ethyl Nitrite.

Ethyl nitrite was prepared by the interaction of sodium nitrite, sulphuric acid, and alcohol in a flask surrounded by ice. The ethyl nitrite formed was distilled by gently heating the flask with warm water, and after neutralization with sodium bicarbonate was dissolved in absolute alcohol. The strength was subsequently adjusted to meet the requirements of the *Pharmacopoeia* for spiritus aetheris nitrosi.

CHEMICAL COMPOSITION.

Our analyses of the various sweet spirits of nitre showed that they contained not only ethyl nitrite and aldehyde but also ethyl nitrate and paraldehyde. If not acid or if neutralized they relatively quickly become acid on keeping owing to the formation of small quantities of nitrous, nitric, and acetic acids. The amounts of nitrite, aldehyde, and paraldehyde and the total acidity were determined for each specimen. The nitrite was estimated by the official method with potassium iodide and dilute sulphuric acid, using a mercury-charged nitrometer in place of the brine-charged one recommended. The aldehyde was determined colorimetrically by means of Schiff's reagent, a known concentration of pure aldehyde with sodium nitrite added being used as a control. The paraldehyde was converted into aldehyde by distilling the preparation with dilute acid, collecting the distillate in an ice-cooled receiver, determining the aldehyde by means of Schiff's reagent, and estimating by difference. The acidity was determined in the usual way, using phenolphthalein as indicator. As there seemed little doubt from the mode of making some of these preparations that ethyl nitrate must be formed and must be present in the final product, it was decided to endeavour to determine the quantity, if any, present. Evidence was obtained of its presence in some of the preparations, but although we tried several methods we were unable to devise one for the quantitative estimation of this substance in an alcoholic solution containing also ethyl nitrite and aldehyde. As it seems improbable that the combined nitrogen in the preparations can be present in any other form than as nitrates or nitrites, it was resolved to determine the total nitrogen by Dumas's method and calculate the nitrate by difference. This method of estimation, however, provided some unforeseen difficulties, and the various preparations, with the exception of one specimen of spiritus aetheris nitrosi *B.P.*, were not examined until some time after they were made. One of the chief difficulties was the high figure for nitrogen. A preliminary combustion of ethyl nitrate yielded the theoretical quantity of nitrogen gas, but with ethyl nitrite in alcoholic solution the yield of gas was consistently high, although a longer furnace and a longer copper spiral than usual were employed. This high yield was probably due to the formation of some nitric oxide; it was proved not to be due to undecomposed ethyl nitrite. An allowance has been made for this abnormal yield in

Table I, and the figures for ethyl nitrate must therefore be regarded as only approximately accurate. The figures refer to grams in 100 grams of spirit.

TABLE I.—Composition of Different Sweet Spirits of Nitre.

	Acidity in Terms of Nor- mality.	Alde- hyde.	Par- aldehyde.	Ethyl Nitrite.	Ethyl Nitrate (approx.)
Sp. aether. nit., B.P. (freshly made).	None	None	None	2.5	3.5
Sp. aether. nit. (Finn- more's "six month old").	0.16 N.	0.72	0.2	2.3	3.0
Do. (German Pharm.) ...	0.13 N.	0.8	0.32	2.05	10
Do. (London Pharm.) ...	0.02 N.	0.016	Trace	None	10
Do. (L.P., mod. I) ...	0.2 N.	None	None	2.04	5
Do. (L.P., mod. II) ...	0.27 N.	0.01	Trace	1.84	12

PHARMACOLOGICAL EXPERIMENTS.

The pharmacological action of these preparations was investigated soon after their composition had been determined. Considering the well known action of paraldehyde and the small concentration present in any of these preparations—the amount in a full pharmacopoeial dose of 1 drachm being not more than 3 minims—it does not seem probable that any portion of the activity of sweet spirit of nitre can be due to this substance; and, although the alcohol present will account for the carminative action of the preparation, it will not explain its whole action, and particularly its vaso-dilating action. This, as many observers have recorded, is a well marked effect of spiritus aetheris nitrosi. The acidity commonly associated with this preparation is also of no importance, except from the point of view of incompatibility. Consequently, any peculiar activity of sweet spirit of nitre must be due to the ethyl nitrite, ethyl nitrate, or acetaldehyde, which are the only other ingredients found to be present.

Ethyl nitrite is a fairly powerful vaso-dilator, and its pharmacological effects, except after excessive doses, are solely due to this action. Ethyl nitrate is also a vaso-dilator, but its action is relatively slight when compared with that of ethyl nitrite. Professor Leech showed that in man doses of 5 minims produce a mild and prolonged dilatation of the blood vessels, and no other obvious effect. In animals large doses induce an alcoholic intoxication. Acetaldehyde was shown by Professor Coppola to be a more powerful narcotic to frogs than paraldehyde; but as far as we know its action has not been investigated on higher animals.

The presence of ethyl nitrate in sweet spirit of nitre and its occurrence in larger quantity in preparations made by the older methods, for which some physicians are reported to have a preference, suggested that it might play an active part in the action of this preparation. Its effect, however, is relatively slight. It increases slightly the intensity and duration of action of the ethyl nitrite and appears to have no other effect. In comparing the action of the three preparations made by Mr. Finnemore and labelled *London Pharmacopoeia*, on the blood pressure of a dog, the preparation containing no nitrite but about 10 per cent. of ethyl nitrate caused, in doses of 0.5 c.c.m., a fall of blood pressure reaching its maximum of 7 per cent. in 115 seconds. The same dose of L.P., mod. I, containing 2.04 per cent. of ethyl nitrite and about 5 per cent. of ethyl nitrate, produced a fall of 43 per cent. in 40 seconds; and the same dose of L.P., mod. II, containing 1.84 per cent. of ethyl nitrite and about 12 per cent. of ethyl nitrate, caused a fall of blood pressure of 40 per cent. in the same time, and only differed in a slightly slower and less complete return towards the normal. Similarly, when equal doses of the spirits of the British and German Pharmacopoeias, adjusted to contain the same percentage of ethyl nitrite, were compared, the fall of blood pressure was found to be almost exactly the same in each case, although the German pharmacopoeial preparation contains much more ethyl nitrate than that of the *British Pharmacopoeia*. The average fall with different doses of the preparation of the German Pharmacopoeia was 36.1 per cent.; with the same doses of the preparation of the *British Pharmacopoeia* it was 35.5 per cent.

The injections were made into the external jugular vein in each case, and the various preparations were measured

in the injection syringe and diluted within it, in order to avoid loss of ethyl nitrite.

The intravenous injection of aldehyde in relatively small quantities also causes a fall of blood pressure. The fall is later in appearing, and is more transient than that produced by ethyl nitrite, and is usually followed by a rise extending slightly above the normal. The fall of blood pressure from injections of 0.01 gram acetaldehyde was 20 per cent.

That the aldehyde and ethyl nitrate play relatively little part in the activity of spiritus aetheris nitrosi was shown by experiments on one of ourselves (M.); 4 c.c.m. of aldehyde (more than one hundred times the amount present in a maximal dose of any of the spirits examined) was taken in 50 c.c.m. of water. It produced slight cerebral depression, slight diuresis, and a fall of blood pressure, but no other obvious effect. The influence on the blood pressure during the first hour is shown by the dotted line in the graph (Fig. 1). In a second experiment 20 c.c.m. of spiritus aetheris nitrosi, B.P.—that is, five times the maximal dose—was taken after all but traces of ethyl nitrite had been removed. It was dissolved in 100 c.c.m. of water, and contained all the ingredients of sweet spirit of nitre except the ethyl nitrite. This quantity produced no decided subjective or objective symptoms beyond some fall of blood pressure, the course of which is shown by the interrupted line in the graph (Fig. 1). For comparison, the effect

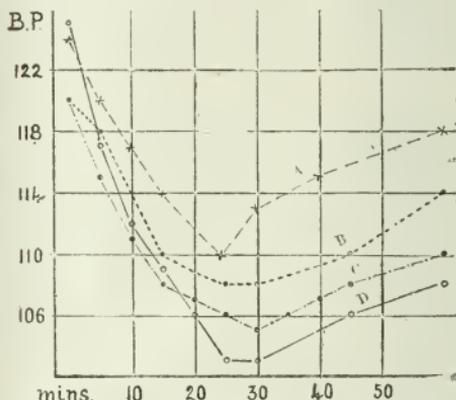


Fig. 1.—Graph showing blood pressure (Martin's instrument) after 20 c.c.m. spiritus aetheris nitrosi, B.P., deprived of ethyl nitrite (uppermost broken line, A); 4 c.c.m. acetaldehyde (dotted line, B); 4 c.c.m. liquor ethyl nitritis (dot-dash line, C); 4 c.c.m. spiritus aetheris nitrosi (continuous line, D).

of an ordinary dose (4 c.c.m.) of the same spirit of nitrous ether added to 50 c.c.m. of water and drunk immediately is shown (continuous line in graph); and for comparison with this the effect of the same amount of ethyl nitrite in the same quantity of alcohol and water (dot-dash line in graph).

In view of these and other experiments it seems to us that the activity of sweet spirit of nitre is due to the ethyl nitrite present. The ethyl nitrate, which was found in unexpectedly large amounts in some of the preparations, probably aids the vaso-dilating action of the ethyl nitrite, but its effect is relatively slight and of little practical importance. It possesses an agreeable ethereal smell and sweetish taste and, although ethyl nitrite is also somewhat sweetish, to it must be attributed most of the sweetness which spirit of nitre possesses. The aldehyde and paraldehyde merely give their characteristic odour and taste to the preparation and have no other action. The amount of alcohol in a full pharmacopoeial dose can have little action other than a local and carminative one, and in this it is probably aided by the other substances present. The diaphoretic and diuretic actions of sweet spirit of nitre which are obtained under favourable conditions, we believe, are mainly due to its vessel-dilating effects.

CONDITIONS AFFECTING ADMINISTRATION.

As we believe ethyl nitrite to be the active ingredient of sweet spirit of nitre, we have made some experiments on

the changes in concentration of this substance when the spirit is subjected to certain conditions commonly occurring in practice.

Changes on Addition of Water.

When spiritus aetheris nitrosi is added to water, bubbles of gas immediately commence to be given off. These are bubbles of ethyl nitrite, which boils at 17 C., and is insoluble in water. All the other ingredients, in the amounts present, are soluble in the diluted alcohol produced by the addition of sufficient water for the purposes of administration. Of these ingredients ethyl nitrate is the least soluble in water (1 in 64 at 18 C.) and by the cautious addition of water to certain preparations a small quantity of this substance can be thrown out.

The quantity of ethyl nitrite further decreases when the mixture is left standing, and in about an hour, if left in an open vessel, the ethyl nitrite has practically disappeared. If the mixture is constantly stirred the loss is more rapid. Equal volumes of sweet spirit of nitre and water stirred to ensure thorough mixing and left to stand for five minutes contained 71 per cent. of the ethyl nitrite previously present. A similar mixture constantly stirred for five minutes contained only 34 per cent. of the nitrite present in the spirit before mixing.

The following tables and graphs of experiments made show the loss of ethyl nitrite under varying conditions. The spiritus aetheris nitrosi used was made according to the directions of the *Pharmacopœia* (1898), and 5 c.cm. gave 35 c.cm. NO, indicating 2.6 per cent. of ethyl nitrite.

The loss of nitrite when the spirit is mixed with an equal volume of water and exposed to the air is shown in Table II. The mixture was made in the cup of the nitrometer, and after the lapse of definite intervals of time was run into the nitrometer and the amount of nitrite estimated.

TABLE II.

5 c.cm. sp. aether. nit.	Time Mixture allowed to stand.	C.cm. of NO.
5 c.cm. sp. aether. nit.	...	35 c.cm.
5 c.cm. sp. aether. nit., 5 c.cm. H ₂ O.	2 mins.	28 c.cm.
"	5 mins.	25 c.cm.
"	10 mins.	19 c.cm.
"	20 mins.	12 c.cm.
"	30 mins.	5.6 c.cm.
"	60 mins.	0.6 c.cm.

The loss of ethyl nitrite during this time is shown in the graph (Fig. 2), where the ordinate represents percentage of ethyl nitrite and the abscissa the time the mixture was allowed to stand. A similar curve was obtained when brine was used in place of water. As will be shown subsequently, the spirit itself, when exposed, does not lose nitrite anything like so rapidly. That the loss is due to

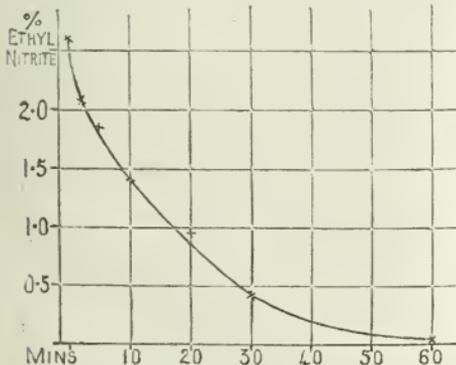


Fig. 2.—Graph showing loss of ethyl nitrite when spiritus aetheris nitrosi, B.P., is mixed with an equal volume of water and allowed to stand in an open vessel.

dissipation of the ethyl nitrite by exposure is shown by the fact that a similar mixture of equal parts of spiritus aetheris nitrosi and water immediately corked and left overnight lost only 50 per cent. of ethyl nitrite.

The following table shows the loss of ethyl nitrite when a 10 per cent. solution of sweet spirit of nitre in water is

allowed to stand in a corked medicine bottle at ordinary temperatures in a dull light; and the accompanying figure (Fig. 3) illustrates graphically the loss of ethyl nitrite under these conditions.

TABLE III.

Time after Mixing.	C.cm. of NO.
0	3.5
2 minutes	2.6
1 hour	2.2
21 hours	1.8
45 "	1.5
69 "	0.8
95 "	0.4

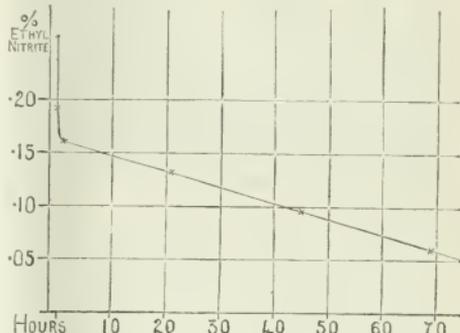


Fig. 3.—Graph showing loss of ethyl nitrite when a 10 per cent. solution of spiritus aetheris nitrosi, B.P., in water is dispensed and allowed to stand in a corked medicine bottle.

That the degree of dilution of spiritus aetheris nitrosi with water affects to a certain extent the immediate loss of ethyl nitrite was shown among other methods by running 5 c.cm. of the spirit into the nitrometer and adding successive quantities of 5 c.cm. of water and measuring the gas given off. After the first addition of water, 2.4 c.cm. of ethyl nitrite gas was liberated. With each further addition of 5 c.cm. of water 0.2 c.cm. of gas was discharged.

Dilution with water does not appear to affect the other ingredients of spiritus aetheris nitrosi to any material extent.

Changes on Keeping.

The effect of keeping spiritus aetheris nitrosi under the usual conditions of retail trade has led to some difference of opinion. Our own experience on this point may therefore

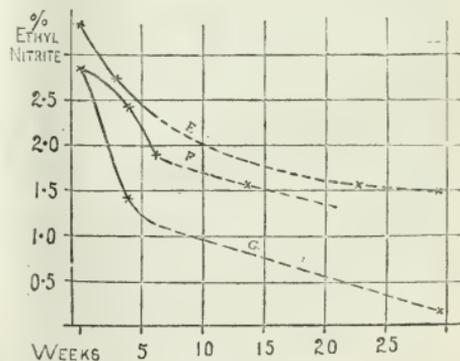


Fig. 4.—Graph showing the loss of ethyl nitrite in sweet spirit of nitre of (i) the *British Pharmacopœia* (top line, i); (ii) the *German Pharmacopœia* (middle line, ii); and (iii) in liquor ethyl nitriti, B.P. (bottom line, iii), during the time the bottles were frequently opened (continuous line), and during the time they were rarely opened (broken line).

be of value. When kept in a stoppered bottle in an upright position ethyl nitrite is lost owing mainly to its evaporation. If a full bottle is kept unopened in the dark the loss is gradual; it is much more rapid when the bottle is only

partially full. Thus a bottle nearly full lost 8 per cent. of its ethyl nitrite in little more than a month when kept unopened in the dark; the same bottle nearly empty kept under the same conditions lost 30 per cent. of its nitrite in nine days. When a bottle is occasionally opened the loss of nitrite is also much more rapid. A specimen kept in an amber-coloured bottle which was being frequently opened lost 25 per cent. of its nitrite in five weeks. When somewhat more than half full it was left unopened for four months, and only lost 27 per cent. of its nitrite. The loss of ethyl nitrite in preparations kept in colourless bottles, and used at intervals, is illustrated in Fig. 4. This graph suggests that the ethyl nitrate present in sweet spirit of nitre tends to diminish the loss of ethyl nitrite.

These observations led to some experiments on the effect of free exposure of spiritus aetheris nitrosi. When exposed in an open vessel, ethyl nitrite is lost rapidly. The spirit naturally evaporates, and the volume decreases, but to a much less extent. The effect on the volume of the spirit and the amount of nitrite produced by exposure of 50 c.cm. in a measuring cylinder for three days is shown in the accompanying graph (Fig. 5). The aldehyde present

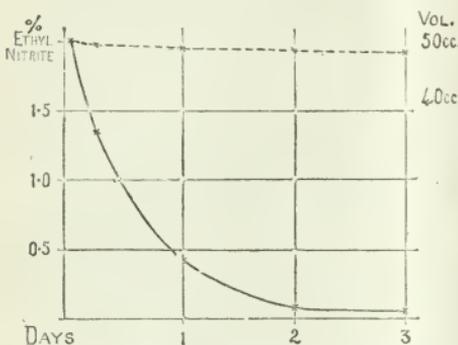


Fig. 5.—Graph showing decrease in volume of spirit (broken line) and diminution in concentration of ethyl nitrite (continuous line) when sweet spirit of nitre is exposed in a narrow measuring cylinder.

in the spirit also diminishes, but to a relatively slight extent. In four days it fell 23 per cent.—from 0.52 to 0.4 per cent.

The acetaldehyde may be a factor in causing loss of ethyl nitrite, but as we found no aldehyde in freshly prepared sweet spirit of nitre we are inclined to regard the presence of this substance as due to subsequent secondary reactions, and some of our experiments seem to indicate that an equilibrium is eventually established between the amounts of ethyl nitrite and of aldehyde present. The addition of 0.6 per cent. of pure aldehyde to a 1.85 per cent. solution of ethyl nitrite in absolute alcohol caused an initial and relatively rapid diminution in the quantity of ethyl nitrite as compared with the original solution, but eventually the loss in the two solutions became uniform.

The changes which the spirit undergoes on keeping are difficult to follow, but they are probably due in the first instance to hydrolysis of some of the ethyl nitrite and the formation of a small amount of nitrous acid. The increase of acidity was followed by conductivity experiments carried over seven days. They showed that the change during this period was practically uniform, a graph of the change in electrical conductivity forming practically a straight line.

Our examination of this preparation seems to show that the commonly accepted view that ethyl nitrite is the active ingredient is correct. Although the other ingredients play a part in its action this is a subordinate one, and is of little practical importance. The rapid loss of ethyl nitrite which follows the addition of water strongly suggests that to obtain the best effects it is necessary to prescribe sweet spirit of nitre as such and dilute it just before administration.

II.—FLUID EXTRACTS OF SENNA.

BY

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I RECEIVED from Mr. C. A. Hill three specimens of liquid extracts made from Alexandrian senna. He informed me that all three were prepared in the same way—by maceration in water, concentration, and the addition of 25 per cent. of 90 per cent. alcohol to preserve them. Sixteen fluid ounces of the liquid extract represent 1 lb. of the crude drug. The preparations were made respectively (1) from the whole fruits (the preparation commonly known as ext. sennæ leguminum liquidum, liquid extract of senna pods, or merely liquid extract of senna), (2) from the pericarp freed from the seeds, (3) from the uncrushed seeds.

I used these preparations as ordinary aperients in my infirmary wards for some months, the usual dose being 1 fluid drachm.

(2) I have no doubt that (2) is the best preparation. It usually acted as a satisfactory purgative, and caused less pain and griping than the others. Sometimes, however, there was a good deal of griping and pain.

(1) With this preparation the purging was more violent; there was often complaint of severe griping, sometimes with sickness and faintness.

(3) With this there were frequent complaints of pain and griping, and it was decidedly less effective as a purgative than (1) and 2. Possibly this might be due to the purgative principles not being fully extracted.

III.—COPAIBA OIL AND RESIN.

BY

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I RECEIVED from Mr. J. C. Umney specimens of pure oil of copaiba and of the resin of copaiba. He informed me that they were obtained from one sample of copaiba.

The object of the investigation was to ascertain whether the oil or resin, or both, constitute the active constituents in the oleo-resin of copaiba.

I gave the oil of copaiba in doses of 15 minims three daily and 15 minims six times daily and the resin of copaiba in doses of 15 grains and 30 grains three daily as an emulsion with macilage only. Their action was first tested on three cases of gonorrhoea. In each case the resin was given first—in 15 to 30 grain doses three daily. The patients were in hospital and subjected to careful daily observation. The resin was quite well tolerated by the stomach, but had apparently no effect on the urethral discharge. It caused no urethral irritation. Subsequent treatment in each case with oil of copaiba was followed by distinct improvement, especially when the dose was raised to 15 minims six times daily.

I made a large number of observations to test whether the oil and resin increased the antiseptic powers of the urine. Both substances are excreted in the urine. It is unnecessary to detail the experiments, but the result obtained was that the resin of copaiba is either inert or nearly so, while the oil of copaiba exerted a distinct effect in delaying putrefaction and in hindering the growth of certain organisms artificially added to the sterilized urine.

My conclusion is that the resin of copaiba is practically inert as a genito-urinary antiseptic.

THE Cancer Committee of the Danish Medical Association has, it is announced, decided to postpone till further notice the fourth international conference on cancer, which was to have been held at Copenhagen in 1916.

ACCORDING to the *New York Medical Journal*, scopolamine-morphine anaesthesia in childbirth has been discontinued in the St. Louis City Hospital. The treatment has been employed since last February, and the reason given for its discontinuance is that the method has not proved to be entirely satisfactory.

Experimental Observations

ON THE

ANTISEPTIC ACTION OF HYPOCHLOROUS ACID AND ITS APPLICATION TO WOUND TREATMENT.

BY

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The primary object of the following investigation was to find an antiseptic which could be applied as a first dressing in the field to prevent sepsis.

The ideal antiseptic for the type of infection which occurs in wounds received in the field must possess the power of rapidly destroying spores as well as ordinary bacterial forms. There are two chief laboratory methods of investigating the action of antiseptics:

1. By testing their action in killing or preventing the growth of organisms on artificial culture media.

2. By testing their action in sterilizing infected organic matter.

In our investigation we employed both methods, but especially the latter, as the conditions here resemble more closely those occurring in infected wounds containing much necrotic tissue or other organic matter.

The result of preliminary observations was to direct attention to the hypochlorites. It has been accepted, especially by those working at disinfectants for public health purposes, that the hypochlorites are among the most potent germicides. Rideal,¹ using carbolic acid as a standard, expresses the germicidal power of hypochlorites as follows: Carbolic acid, 100; hypochlorites, 14,600 to 22,000.

The hypochlorites, used mainly in the form of bleaching powder, have been largely employed for sterilizing water supplies, but their use in general surgery as antiseptics has been very limited. It is an interesting fact that as far back as 1846 Semmelweis stamped out an epidemic of puerperal fever in Vienna by the use of bleaching powder.

Solutions of alkali hypochlorites, for example "Eau de Javelle," have been used with success in surgical practice. The fundamental practical difficulty in the use of hypochlorites is that in solution they rapidly lose their strength by decomposition. In the case of Eau de Javelle this difficulty has been overcome by making a strongly alkaline solution; but this constitutes a new difficulty, in that such a highly alkaline solution cannot be applied to the tissues unless greatly diluted.

In our observations on the hypochlorites we found that hypochlorous acid is a more potent germicide than its salts, and we have accordingly devised a method in which the free acid is employed as the antiseptic agent. The acid may be used as a gas or as a solution in water.

HYPOCHLOROUS ACID.

For use as an antiseptic the gas is most conveniently prepared by the action of boric acid on bleaching powder in the presence of a small quantity of water. The solution is obtained when the same action occurs in the presence of a large quantity of water.

For convenience we have given the name "Eusol" to a powder consisting of equal weights of finely ground bleaching powder and powdered boric acid intimately mixed; while the solution of free hypochlorous acid prepared in this way we have named "Eusol."

METHODS OF PREPARATION AND CHEMICAL NOTES.

To prepare Eusol, ordinary commercial bleaching powder or chloride of lime is ground in a mortar to a fine powder, and then intimately mixed with an equal weight of boric acid powder. The mixture should be kept in closely stoppered bottles, and not exposed to light more than necessary.

Eusol may be prepared by two methods:

1. Twenty-five grams of Eusol are shaken up with 1 litre of water, allowed to stand for a few hours, then filtered through cloth or filter paper.

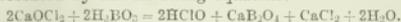
2. To 1 litre of water add 12.5 grams bleaching powder, shake vigorously, then add 12.5 grams boric acid powder and shake again. Allow to stand for some hours, preferably overnight, then filter off, and the clear solution is ready for use.

This solution contains:

Hypochlorous acid	...	...	0.54 per cent.
Calcium bichlorate	...	...	1.28 "
Calcium chloric	...	...	0.17 "
Total	...	...	1.99

The hypochlorous acid is estimated by titration with N/10 arsenious acid solution; this method is best, as the presence of chlorates does not affect the result.

The chemical reaction involved in the preparation of hypochlorous acid by the method described may be represented by the following equation:



If the reaction takes place in the presence of a large quantity of water, a solution of hypochlorous acid is formed; if little water is used, gaseous hypochlorous acid is given off.

The hypochlorous acid in the form of a gas is more mobile, and will be absorbed by the tissue more rapidly and in larger quantity than from the solution; this will explain its greater efficiency as an antiseptic.

As the ultimate decomposition product in the tissue is hydrochloric acid or sodium chloride, there is no reason to fear toxic absorption from this antiseptic.

A concentration of 0.5 per cent. hypochlorous acid has been found the most satisfactory. Stronger solutions may be prepared by this method, but no advantage is gained, as they rapidly lose strength, coming down to about 0.5 per cent. free acid, after which they decompose more slowly; for practical purposes a solution of 0.5 per cent. remains effective for from three weeks to a month. The rate of decomposition may be seen from the following experiments:

Solutions made up—

(1) March 25th, 1915	...	...	0.83 per cent.
" 26th, "	...	...	0.76 "
" April 15th, "	...	...	0.33 "
(2) March 25th, 1915	...	...	0.42 per cent.
" 26th, "	...	...	0.4 "
" April 15th, "	...	...	0.3 "
(3) March 11th, 1915	...	...	2.02 per cent.
" 12th, "	...	...	1.5 "
" 16th, "	...	...	0.78 "

From these results it appears that a solution originally 0.83 per cent. decomposes to 0.3 per cent. in the same period as a 0.4 per cent. solution. A solution of even 0.25 per cent. HClO has been found effective as an antiseptic both by experiment and in surgical practice.

Andrews and Orton² carried out an important elaborate investigation on the value of hypochlorous acid as a disinfectant. They found that very dilute solutions of hypochlorous acid have intense antiseptic properties. They showed that a suspension of *Staphylococcus pyogenes aureus* in pure distilled water was sterilized in one minute by the presence of 1 part of HClO in 100,000. In a suspension in broth I in 5,000 did not, but I in 3,000 did, kill the staphylococcus in 30 minutes. From this they concluded that the potency of the pure acid was so much diminished by the presence of organic matter that it was unsuited to ordinary use.

We carried out various tests on the decomposition of much stronger solutions in the presence of organic matter.

Decomposition in the Presence of Organic Matter.

1. To 100 c.cm. of 0.4 per cent. HClO there was added 1 gram of intestine; this was kept at room temperature and the solution tested at intervals:

Original solution	...	...	= 0.4 per cent.
After 30 minutes	...	...	= 0.34 "
After 105 minutes	...	...	= 0.33 "

2. A similar experiment:

Original solution	...	...	= 1.6 per cent.
After 35 minutes	...	...	= 1.5 "

3. To 5 c.cm. of broth were added 1.5 c.cm. 0.5 per cent. HClO:

Solution, giving	...	...	0.25 per cent.
After 30 minutes	...	...	0.18 "

4. Experiment similar to (5):

Original solution	= 0.8 per cent.
After 5 minutes	= 0.8 "
After 30 minutes	= 0.7 "

As a solution of 0.5 per cent. HClO may be safely applied to open wounds, the objection which Andrewes and Orton have based on experiments with very dilute solutions does not apply.

EXPERIMENTAL TESTS.

1. Preliminary.

In the first series of observations relatively small amounts—15 to 30 c.cm.—of the antiseptic to be tested were used. Equal portions of large intestine, or other infected tissue obtained in the *post-mortem* room, were exposed for definite times at room temperature to the action of the antiseptic. The tissue was then washed in several changes of sterile water and incubated in peptone broth. The results were read in twenty-four and forty-eight hours. It is unnecessary to detail these. The following antiseptics were tested:

Phenol	Salicylic acid (1 per cent. alcoholic solution)
Acrosyl	Sod. salicylate (10 per cent. aqueous)
Kymol	Methyl salicylate (10 per cent. in spirit)
Chinosol (1 in 3,000)	Glycerine
Hydrogen peroxide	Bleaching powder (10 per cent.)
Mercury binoiodide (1 in 1,000 aqueous)	Bleaching powder and hydrogen peroxide
Tinct. iod. mit.	Boric acid (saturated aqueous solution).
Potassium permanganate (4 per cent.)	
Methylated spirit	
Turpentine	

In the above experiments the infected tissue was sterilized on one occasion only—namely, where 1 in 20 phenol had acted for thirty minutes. In all the others growth occurred within twenty-four hours.

These results were probably due in part to the fact that so small an amount of antiseptic was used. The amount of antiseptic used has been shown to have a very important influence on the result (Chick and Martin²).

In the second series of experiments larger amounts of antiseptic were used; as a rule 200 c.cm. The details of these are shown in the following table.

(D).—The tissue used in this series was child's intestine. Consequently there was less thickness of tissue to penetrate.

Amount.	Antiseptic and Strength.	Time.	Growth.	
			24 hrs.	48 hrs.
200 c.cm....	Phenol, 1 in 20	30 min.	—	?
200 c.cm....	Salicylic acid, 1% in alcohol	30 min.	?	+
200 c.cm....	Sod. salicylate, 10%	30 min.	++	++
200 c.cm....	Bleaching powder, 10%	30 min.	—	—
200 c.cm....	Chinosol, 1 in 500	30 min.	+	+++
200 c.cm....	Eau de Javelle	30 min.	—	—
200 c.cm....	HaO ₂ (10 vols.)	30 min.	++	+++
300 c.cm....	HaO ₂ (3 vols.), 100 c.cm.; Bleaching powder, 10%, 200 c.cm.	40 min.	-?	++
80 c.cm....	Iodine	30 min.	+	++
200 c.cm....	Boric acid, saturated at 37° C.	50 min.	—	+

From this table it is seen that only bleaching powder solution and 1 in 20 phenol were effective. The boric acid solution tested at 37° C. for fifty minutes could not be exactly compared.

E.—A similar series on large intestine gave no sterilization with any antiseptic.

F and G.—Tissue used was large intestine; 1.2 grams were taken, and parallel tests were made at room temperature and at 37° C.

In this series bleaching powder, 10 per cent. and 5 per cent. was the most effective in preventing or inhibiting growth; iodine and 1 in 20 phenol caused some inhibition.

2. Experiments with the Powder "Eupad."

K.—This was the first experiment in which free hypochlorous acid was employed as a gas. The amount of

intestine used was 1 gram. Each portion was subjected to the action of the antiseptic for thirty minutes. In the first observation a 10 per cent. solution of bleaching powder was used, but in the others 1 gram of dry powder was spread around the piece of intestine and moistened with a few drops of water. The pungent odour of hypochlorous acid given off when the proportion of bleaching powder to boric acid was 1 in 1 was much more noticeable than in the other proportions.

	24 hrs.	60 hrs.
10% bleaching powder	—	+
1 bleaching powder to 3 boric acid	—	++
1 bleaching powder to 2 boric acid	—	—
1 bleaching powder to 1 boric acid	—	—
Bleaching powder alone	—	—
Boric acid powder alone	++	+++
Tissue alone	+++	++++

The conclusion from the above was that hypochlorous acid was more effective than hypochlorite.

C.C.—Effect of Gaseous Hypochlorous Acid.

In Nos. (1) and (2) the intestine was separated from the moistened powder by a layer of corrugated and damped filter paper. In No. (3), 1 gram of the moistened powder in a watch-glass was placed in a Petri dish alongside of, but not in contact with, a piece of intestine; thus only the gas was allowed to act, and that at a distance.

Antiseptic.	Tissue.	Time.	Result.
(1) The gas set free from 1 gram moistened Eupad	1 gram child's intestine	24 hrs. at 37° C.	Sterile
(2) The gas set free from 1 gram moistened Eupad	1 gram child's intestine	2 hrs. at 37° C.	Sterile
(3) The gas acting at a distance...	1 gram child's intestine	24 hrs. at 37° C.	Sterile

NOTE. In each case the hypochlorous acid was neutralized, at the end of the specified time, by a solution of sodium thiosulphate. Control experiments on tissue untreated with antiseptic, but similarly washed, gave copious growth in culture.

E.E.—1. Similar Experiment with Adult Intestine from a Case of Generalized Peritonitis.

Antiseptic.	Time.	Result. Growth in	
		24 hrs.	48 hrs. and later.
(1) 2 grams Eupad moistened and covered with filter paper (same as in C.C. (1))	24 hrs. at 37° C.	—	—
(2) 2 grams Eupad moistened and covered with filter paper (same as in C.C. (1))	1 hr. at 37° C.	?	+
(3) 1 gram used as in C.C. (3)	24 hrs. at 37° C.	—	—
(4) 1 gram used as in C.C. (3)	1 hr. at 37° C.	+	+

F.F.

Antiseptic.	Tissue.	Time.	Result. Growth in	
			24 hrs.	48 hrs. and later.
(1) 2 grams moistened Eupad applied over all surfaces of tissue	1 gram adult intestine much swollen	24 hrs. at 37° C.	—	—
(2) 2 grams moistened Eupad applied over all surfaces of tissue	1 gram adult intestine much swollen	1 hr. at 37° C.	—	—
(3) 1 gram moistened Eupad applied over all surfaces of tissue	1 gram adult intestine much swollen	20 hrs. at room temp.	—	—

The conclusion from these series of experiments was that where the gaseous acid alone was acting a marked sterilizing result followed. Where the exposure was for only one hour sterilization was produced in one case out of the three.

In all these experiments the large intestine was used; the pieces selected were of the same weight, and relatively of the same thickness. In some cases the intestine was incubated overnight. In all cases there was a strong fetor. The bacteriology was not investigated in each case, but in several instances an examination revealed the presence of innumerable organisms, both spore bearers and ordinary forms.

Immediately on the application of the gas the odour disappeared. After the action had proceeded for some time a distinct bleaching effect was produced.

3. Experiments with the Solution Ensil.

In the following experiments the strength of the hypochlorous acid is given in each case; in several instances stronger solutions than the standard 0.5 per cent. were employed. These experiments were similar to those already described for the other antiseptics. Phenol 1 in 20 was used as a control in most instances.

Antiseptic.	Tissue: Pneumonic Laug.	Time.	Result. Growth in	
			24 hrs.	48 hrs.
(1) 50 c.cm. unfiltered emulsion, approximately 2% HClO	1.0 gram 2.5 "	30 min.	2 -	++
(2) 50 c.cm. filtrate, approximately 2% HClO	1.0 gram 2.5 "	30 min.	-	++
(3) 50 c.cm. bleaching powder, 10% solution	1.0 gram 2.5 "	30 min.	+	++
(4) 50 c.cm. phenol 1 in 20	1.0 gram 2.5 "	30 min.	2 +	+++
Control: Tissue alone			++	+++
(Comparison with Espad—(1) Moistened powder	1.0 gram 2.5 "	30 min.	-	-
(2) Moistened powder	1.0 gram 2.5 "	10 min.	-	+

NOTE.—The different weights of lung used were of different thickness, the 2.5 gram being approximately twice as thick as the 1.0 gram. In all these experiments growth occurred after 48 hours, showing that penetration had not been sufficient. Experiments with dry powder on the same tissue have been added for comparison, and here it will be noticed that even after only ten minutes' exposure almost complete sterilization has been effected. This tissue contained living spore-bearing bacilli.

Further Observations on the Sterilizing Effect on Intestine of Hypochlorous Acid in Different Strengths, and comparison with Bleaching Powder and Phenol.

D.D.

Antiseptic.	Tissue.	Time. Room Temp.	Result. Growth in		
			24 hrs.	48 hrs.	72 hrs.
(1) 100 c.cm. HClO 1.0% (= 0.7% Cl)	1 gram child's colon Do.	30 min.	-	-	-
(2) 100 c.cm. bleaching powder solution (= 0.78% Cl)	Do.	"	-	-	-
(3) 100 c.cm. phenol 1 in 20	Do.	"	-	+	++
Control: Intestine alone				+++	
(5) 100 c.cm. HClO 1.56% (= 1.12% Cl)	Adult's colon 1 gram Do.	30 min.	-	-	*
(6) 100 c.cm. bleaching powder solution (= 1.12% Cl)	Do.	"	+	+	+
(7) 100 c.cm. eau de Javelle (1.12% Cl)	Do.	"	-	-	-
(8) 100 c.cm. phenol 1 in 20	Do.	"	-	-	-
Control, unwashed ...			++	+++	+++
Control, washed with thiosulphate			++	+++	+++

* Subculture + after 72 hours.

G.G.

Antiseptic.	Tissue.	Time. Room Temp.	Result. Growth in		
			24 hrs.	48 hrs.	72 hrs.
(1) 100 c.cm. HClO 3.2% ...	1 gram adult colon Do.	30 min.	-	-	-
(2) 100 c.cm. HClO 1.6% ...	Do.	"	2 +	+	+
(3) 100 c.cm. phenol 1 in 20	Do.	"	+	+	+
Control washed for one hour in thiosulphate...			++	+++	+++

H.H.

Antiseptic.	Tissue.	Time. Room Temp.	Result. Growth in		
			24 hrs.	48 hrs.	72 hrs.
(1) 100 c.cm. HClO 0.5% ...	1 gram very putrid adult colon Do.	22 hrs.	-	-	+
(2) 100 c.cm. HClO 0.5% ...	Do.	"	-	-	+
(3) 100 c.cm. HClO 0.5% ...	Do.	"	-	-	+
(4) 100 c.cm. phenol 1 in 40	Do.	"	+	+	+
(5) 100 c.cm. phenol 1 in 40	Do.	"	+	+	+
(6) 100 c.cm. phenol 1 in 20	Do.	"	-	-	-
Control: Intestine alone			+++	+++	+++

K.K.

Antiseptic.	Tissue.	Time. Room Temp.	Result. Growth in	
			24 hrs.	48 hrs.
(1) 100 c.cm. HClO 0.5%	1 gram child's colon	30 min.	+	+
(2) 100 c.cm. HClO 0.5%	Do.	"	-	+
(3) 100 c.cm. HClO 0.5%	Do.	60 min.	-	+
(4) 100 c.cm. HClO 0.5%	Do.	"	+	+
(5) 100 c.cm. HClO 0.5%	Do. (thin portion)	24 hours	-	-
(6) 100 c.cm. HClO 0.5%	Do. (thick portion)	"	-	+
(7) 100 c.cm. HClO 0.25%	Do. (thin portion)	"	-	-
(8) 100 c.cm. HClO 0.25%	Do. (thick portion)	"	-	+
(9) 100 c.cm. phenol 1 in 20	Do.	30 min.	+	+
(10) 100 c.cm. phenol 1 in 20	Do.	"	+	+
(11) 100 c.cm. phenol 1 in 20	Do.	60 min.	+	+
(12) 100 c.cm. phenol 1 in 20	Do.	"	+	+
(13) 100 c.cm. phenol 1 in 40	Do. (thin portion)	24 hours	+	+
(14) 100 c.cm. phenol 1 in 40	Do. (thick portion)	"	+	+
Control: Intestine alone			++	++

In all the above experiments the tissue after exposure to the hypochlorous acid was washed in sterile water and sterile thiosulphate until no trace of hypochlorous acid could be detected.

The thickness and state of decomposition of the portions of intestine determine the result to a large extent.

Hypochlorous acid 0.5 per cent. never completely sterilized the tissue when applied for thirty minutes; in that time, however, 3.2 per cent. HClO gave complete sterilization with adult colon. In twenty-four hours, at room temperature 0.5 per cent. hypochlorous acid did produce complete sterilization, though not invariably; and even 0.25 per cent. gave this result.

If the result of the application of the powder to intestine be referred to, it will be seen that much more uniform sterilization occurred; the antiseptic in this case being in the gaseous form.

In the control experiments with phenol, occasional sterilization occurred with 1 in 20, but failed with 1 in 40. Great variation in the action of 1 in 20 phenol was noticed in all the experiments; it is possible this may be due to

the presence or absence of spore-bearing organisms. As will be seen below, phenol has little action on spores.

4. Experiments with Cultures of Organisms on Artificial Media.

O. The organisms used were *B. coli*, *Staphylococcus pyogenes aureus*, *B. anthracis* (spores in culture). Hypochlorous acid 0.5 per cent. was applied, and control experiments were done with 1 in 20 phenol; 10 c.c.m. of antiseptic were added to 10 c.c.m. of a broth culture, or to an agar slope culture. Most of the experiments were carried out at 37° C. The results are shown in tabular form:

Antiseptic.	Medium.	Organism.	Time of Application and Result.		
			2 min.	15 min.	30 min.
HClO 0.5 %	Broth	<i>B. coli</i>	-	-	-
HClO 0.5 %	Broth	<i>Staphylococcus</i>	-	-	-
HClO 0.5 %	Broth	<i>B. anthracis</i>	-	-	-
HClO 1.0 %	Agar	<i>B. coli</i>	-	-	-
HClO 1.0 %	Agar	<i>Staphylococcus</i>	-	-	-
HClO 1.0 %	Agar	<i>B. anthracis</i>	-	-	-
Phenol 1 in 20	Agar	<i>B. coli</i>	-	-	-
Phenol 1 in 20	Agar	<i>Staphylococcus</i>	-	-	-
Phenol 1 in 20	Agar	<i>B. anthracis</i>	+	-	+

P.

Antiseptic.	Medium.	Organism.	Time of Application (5 min.) and Result.		
			-	-	-
HClO 0.67 %	Agar	<i>B. anthracis</i>	-	-	-
HClO 0.9 %	Agar	<i>B. anthracis</i>	- washed as usual.	-	-
HClO 0.9 %	Agar	<i>B. anthracis</i>	- unwashed.	-	-
Phenol 1 in 20	Agar	<i>B. anthracis</i>	+	-	-

R.

Antiseptic.	Medium.	Organism.	Time of Application and Result. (Room Temperature.)		
			1 min.	2 min.	3 min.
			HClO 0.25 %	Agar	<i>B. anthracis</i>	+	+	not washed.
HClO 0.36 %	Agar	<i>B. anthracis</i>	+	+	not washed.

NOTE.—In the case of the broth cultures, after treatment with the antiseptic a small quantity was taken and added to a fresh culture tube. The agar cultures were first washed with sterile water and then subcultures made.

From the above tables it will be seen that 0.5 per cent. hypochlorous acid in every case killed the organisms even with only two minutes' exposure. Anthrax spores were killed as readily as the non-sporing organisms. While phenol 1 in 20 killed staphylococci and coli, it failed to affect the anthrax, even after thirty minutes' exposure.

Weaker strengths of hypochlorous acid than 0.5 per cent. failed to kill anthrax spores in three minutes at room temperature.

V.—Experiments on Subtilis Spores with Eusol, Eau de Javelle, and Phenol.

An emulsion of *subtilis* spores was filtered through glass wool, and one drop of emulsion was added to 1 c.c.m. of the antiseptic; after five minutes the antiseptic was neutralized by sodium thiosulphate solution, and the whole was then mixed with 10 to 15 c.c.m. of broth and incubated. The experiments were carried out at room temperature.

A.

Antiseptic.	Result: 24 hrs.	Growth in 1 week.
(1) HClO 0.5 % (= 0.5 % Cl) ...	-	-
(2) Bleaching powder solution (= 0.15 % Cl) ...	?	+
(3) Eau de Javelle (= 0.32 % Cl) ...	?	+
(4) Phenol 1 in 20 ...	-	-

* As the phenol could not be neutralized as in the case of the other antiseptics a relatively large amount remained in the culture, and thus the negative result is not a true value.

B.—The same series of experiments was done, but the thiosulphate was added to the antiseptic before the emulsion was put in, the antiseptic being thereby neutralized before the bacteria were added. The phenol, as before, remained in the culture unaltered. The order, therefore, of the two series was as follows:

- A. Antiseptic, emulsion, thiosulphate, broth.
- B. Antiseptic, thiosulphate, broth, emulsion.

The result of B. was as follows:

(1) + (2) + (3) + (4) (phenol) -.

W.—Experiments with Anthrax, Sporing Culture.

The method was similar to that used in V. (A.). One drop of filtered anthrax emulsion was added to 1 c.c.m. of the antiseptic solution, and at intervals of one, two, and five minutes one loopful of this was taken out and inoculated into a tube of broth and incubated.

Antiseptic.	Time of Exposure.	Growth after	
		24 hrs.	48 hrs.
(1) Eau de Javelle (= 0.32 % Cl) ...	1 min.	-	-
	2 "	-	-
	5 "	-	-
(2) Eau de Javelle (= 0.32 % Cl) ...	1 min.	+	+
	2 "	+	+
	5 "	+	+
(3) Phenol (1 in 20) ...	1 min.	+	+
	2 "	+	+
	5 "	+	+

A further experiment was done on the same lines, but using five loopfuls instead of one to inoculate the broth tube. This gave the same result.

A.A.—This is a similar experiment with weaker solutions of hypochlorous acid on anthrax spores.

Antiseptic.	Time of Application.	Result.
HClO 0.25 %	1 min.	4 tubes inoculated; only one remained sterile.
HClO 0.25 %	1 min.	4 tubes inoculated, and all gave a growth of anthrax.

It will be noticed from the above that while 0.5 per cent. hypochlorous acid was effective in killing anthrax spores in one minute, 0.25 per cent. was too weak, and only succeeded in 1 out of 8 experiments.

L.L.—Experiments on the Effect of the Gaseous Hypochlorous Acid on Anthrax Spores.

A sporing culture was spread upon pieces of filter paper, which were then dried. The gas was prepared by the action of a few drops of water on 1 gram of Eupad; this was placed in a watch-glass in a Petri dish. The piece of filter paper to be tested was placed in the Petri dish alongside, but not in contact with, the watch-glass. Two series were done—one in which the paper was moistened; the other in which it was kept dry. The results were as follows:

A.—Series with Dry Filter Paper.

Time of Exposure.	Result. Growth in Broth after:		
	24 hrs.	48 hrs.	72 hrs.
Three similar experiments, 5 min. each	+	+	+
Three similar experiments, 10 min. each	+	+	+
Two similar experiments, 30 min. each	+	+	+
One experiment, 70 min.	—	—	—
One experiment, 2 hours	—	—	—

B.—Series with Moistened Filter Paper.

Time of Exposure.	Result. Growth in Broth after:		
	24 hrs.	48 hrs.	72 hrs.
Two similar experiments, 5 min. each	—	—	—
One experiment, 15 min.	—	—	—
One experiment, 30 min.	—	—	—
One experiment, 60 min.	—	—	—
Control with filter paper alone, in broth	++	+	+++

This series is especially interesting. The potency of the gas is manifest, and in conjunction with the experiments on intestine this series demonstrates the efficiency of the gas acting at a distance and its penetrating effect. No microscopical change was observed in anthrax spores when treated with solutions of hypochlorous acid of different strengths.

ANIMAL EXPERIMENTS.

In the first series hypochlorous acid alone, in different strengths, was injected into rabbits in order to test its toxic or other effects.

Hypochlorous Acid Alone.

Expt.	Where Injected.	Strength.	Amount.	Result.	Remarks.
1	Subcutaneous	0.37%	5 c.cm.	Lived	No pain, animal not disturbed.
2	Subcutaneous	1.7%	"	Lived	Slight pain, then at ease.
3	Intramuscular	0.37%	"	Lived	When killed muscle was pale from necrosis around injection.
4	Intramuscular	1.7%	"	Lived	Pain for a few seconds, lethargic.
5	Intraperitoneal	0.37%	"	Lived	Haemorrhages in stomach post mortem.
6	Intraperitoneal	1.7%	"	Died in 24 hrs.	No pain animal not disturbed.
7	Intravenous	0.37%	"	Lived	Death took place suddenly after 2.5 c.cm. had been injected. No thrombosis.
8	Intravenous	1.7%	"	Died	Necrosis of muscle, as in (5).
9	Intramuscular	1.2%	"	Lived	No disturbance whatever.
10	Intraperitoneal	1.2%	"	Lived	
11	Intravenous	0.48%	"	Lived	

It was noted in the above experiments that little or no pain resulted from the injections. In the case of the fatal result in (6) it was doubtful whether the injection was responsible, and a similar experiment with a 1.2 per cent. solution caused no disturbance. The most interesting result was seen in (7), where an intravenous injection of a 0.37 per cent. solution caused no disturbance whatever; this is a result which needs further study, and we intend to pursue the point later. The experiment was repeated with 0.48 per cent. solution, and the animal was in no way disturbed. The stronger solution (1.7 per cent.) was fatal to the animal almost immediately; it became suddenly comatose, and after a few sighing respirations it ceased to breathe, the heart beat irregularly for some seconds, and there was no clotting in the heart or vessels. The animals which survived were killed later, and at the site

of inoculation there was oedema of the tissues, and, in the case of the intramuscular injections, distinct necrosis of the muscle along the path of injection occurred, with considerable oedema of the fibres.

The next series of experiments were done with anthrax cultures containing spores. An agar culture was emulsified with 5 c.cm. of normal saline, and equal amounts of Eusol of different strengths were added; 2.5 to 3 c.cm. of this mixture were injected subcutaneously, either at once or after periods of one to five minutes. Emulsions were also made with the Eusol alone, 5 c.cm. being used to wash off one agar culture, and 2 to 3 c.cm. of this injected subcutaneously. Controls were done with equal amounts of anthrax emulsion alone in saline, and with emulsions of anthrax in 1 in 20 phenol.

"Eusol" and Anthrax Spores.

Expt.	Animal and Weight.	Material Injected and Amount.	Time of Contact.	Result.
1	R. 11 D. 2350 g.	2.5 c.cm. anthrax in saline	—	Died in 48 hrs.; anthrax recovered.
2	R. 12 D. 1820 g.	2.5 c.cm. anthrax in saline + 2.5 c.cm., 1.2% Eusol	Immediate injection	Died in 3 days; no anthrax found, but Gram-negative coccus.
3	R. 13 D. 2050 g.	2.5 c.cm. anthrax in saline + 2.5 c.cm. phenol, 1 in 20	Immediate injection	Died in 48 hrs.; anthrax recovered.
4	R. 14 D. 2050 g.	2.5 c.cm. anthrax in 1.2% Eusol	Immediate Injection	Died in 4 days; anthrax recovered.
5	R. 15 D. 1950 g.	3 c.cm. anthrax in phenol, 1 in 20	15 min.	Died in 48 hrs.; anthrax recovered.
6	R. 16 D. 1670 g.	3 c.cm. anthrax in 1.25% Eusol	5 min.	Died in 3 days; anthrax recovered.
7	R. 5 C. 2250 g.	3 c.cm. anthrax in phenol, 1 in 20	15 min.	Died in 3 days; anthrax recovered.
8	R. 6 C. 2040 g.	3 c.cm. anthrax in 1% Eusol	5 min.	Lived.
9	R. 7 C. 2300 g.	3 c.cm. anthrax in 0.5% Eusol	5 min.	Died in 3 days; anthrax recovered.
10	R. 17 D. 2090 g.	Emulsion of anthrax in saline and filtered through glass wool; 2 c.cm. of this mixed with 2 c.cm. 1% Eusol, 1 c.cm. of mixture injected (strength of Eusol = 0.5%)	1 min.	Lived.
11	R. 18 D. 2000 g.	Do. do.	2 min.	Lived.

Cultures were made from the anthrax culture before emulsification, and all were positive. After treatment with phenol, cultures were made in Experiments 5 and 7, and these were positive. Cultures made from the emulsions containing Eusol in Experiments 6, 8, 9, 10, and 11 were negative.

It was found impossible to avoid the formation of lumps of culture in the emulsions, especially those made with Eusol direct; consequently in the last two experiments the lumps were removed by filtration through glass wool, leaving a uniform opalescent emulsion. The difference between the cultural and the animal results is to be explained by the fact that, in making the culture from the injection fluid, only a loopful of the fluid was taken, while both fluid and lumps were injected into the animals.

It will be noticed that even where the unfiltered emulsion was injected death was delayed as compared with the phenol experiments; death was due to the survival of organisms in the lumps. The experiments with filtered emulsion bear this out. Where phenol was used the animals died in every case, even although the phenol was allowed to remain in contact with the anthrax for fifteen minutes before injection.

These results are quite in keeping with the previous results of the action of Eusol on anthrax cultures, and they show that the organisms are killed, and have not merely their power of growth inhibited. Further, the spores are killed as well as the bacteria.

A microscopical examination of a drop of fresh blood mixed with an equal amount of 0.5 per cent. Eusol showed

no obvious change in either red corpuscles, leucocytes, or platelets; at the end of a quarter of an hour a finely granular precipitate appeared in the film, which became slightly opaque; the colour of the haemoglobin was not discharged.

CLINICAL OBSERVATIONS.

Through the kindness of our surgical colleagues we have had the opportunity of observing the results of treatment with hypochlorous acid in a number of cases.

The following statement gives the conclusions which have been justified by the application of the method in practice. As will be seen, this part of the investigation is still in an early stage, and further clinical observations will show how far the promise of the laboratory results can be realized in practice. It is only necessary here to deal with the cases in groups, reference to individual cases will be made where some special point is illustrated.

Considerably over 100 cases of all kinds have been treated with the antiseptic in one form or another.

The first group of cases is that from the surgical out-patient department of the Royal Infirmary, Edinburgh. It comprises the usual list of injuries, wounds chiefly of the head and hands, lacerated, contused, or incised, many septic.

Eusol (0.5 per cent. hypochlorous acid) was employed in this series as a lotion, a soak covered with waterproof, or a dry dressing—that is, gauze wrung out of the solution and then applied with the usual covering of wool and bandage. For comparison, similar injuries were treated with tincture of iodine or with boric soaks.

Over 50 cases have been treated, and it was noted that the majority of septic cases were clean in one to three days and healed in seven to fourteen days. In control septic cases treated with boric soaks four to six days were usually required to clean the wound.

In clean injuries little difference was to be observed between the Eusol-treated cases and the iodine-treated cases, but much less smarting was produced by the Eusol; this was especially noticed in the case of children.

In several cases where the wound appeared to be clean sepsis appeared where only Eusol dry dressings had been applied; this sepsis was removed by one application of a Eusol soak, and its appearance is to be ascribed to a too weak application having been put on in the first instance. In some cases treated with tincture of iodine sepsis also appeared, and this was easily removed by a Eusol soak, one application for twenty-four hours usually being sufficient.

The second series consisted of fourteen cases, mostly in children, occurring in the out-patient department of the Deaconess Hospital, Edinburgh. It comprised cut heads, whitlows, septic ulcers, and boils.

Both Eusol and Eupad were used in this series. The Eusol was used as in the first series. The Eupad was employed dusted on moistened gauze, and applied as a soak for five to thirty minutes; if pain occurred the soak was removed; in two cases—a cut head and a whitlow—the soak remained on for twenty-four hours with no bad results. After the Eupad dressing was removed, a Eusol soak or dry dressing was applied as the circumstances indicated. In these cases with Eupad the gas was the chief agent.

No pain was caused by the Eupad on the cut heads, and in twenty-four hours when the dressing was removed, the cuts were clean and dry, and healing occurred uneventfully in three to six days.

The whitlows also rapidly cleaned under the Eupad dressings followed by Eusol soaks, and no pain was complained of. A large boil on the leg was opened, and a drain of gauze powdered with Eupad was inserted; on the second day the wound was dry, and no pus could be expressed; the drain was repeated for another day, and afterwards only dry sterile gauze put on; it had completely healed by the ninth day.

In one case of septic sores on the arm of a child a Eupad dressing caused pain and slight vesication. This was one of the early cases where the amount of Eupad used was in excess of what was required. Also the wound was on the flexor aspect of the arm where the skin is much more easily irritated than that of the scap.

A series similar to the last, except that the patients were adults, was obtained from the Victoria Hospital, Edinburgh, at present used as an auxiliary Red Cross hospital.

The cases were mostly superficial wounds due to shrapnel. Eupad was chiefly used and it was applied either dusted on directly as a powder, or dusted on gauze and moistened; some cases had it applied as a fomentation. The Eusol was used at first chiefly as a lotion to wash the wounds, and later fomentations of it were applied. The results were very satisfactory in whatever way used; septic wounds rapidly cleaned and only in a few cases was pain complained of. It was noticed that where pain occurred it was the skin around the wound that showed signs of slight irritation and not the wound itself; by smearing vaseline on the skin around this effect was obviated. In one case only was actual vesication produced and only of very slight degree; this was a case in which the moist gauze containing Eupad had been too long and had been folded double at one end—this caused a too great concentration of the gas from the powder and consequent irritation. One case of a discharging sinus due to a bullet wound was drained by a wick of wool dusted with Eupad; within two days the discharge became serous.

In order to see if the powder could be applied in a practical form as a first field dressing, another series of cases was done at the Royal Infirmary surgical out-patient department. Sterile gauze pads, of the same size and folded in the same way as the regular first field dressing supplied to soldiers, were made, and in the centre was placed a definite amount of Eupad; at first 1 gram was inserted, but as that was found to be completely exhausted in use, 2 grams were used later. These pads were applied to injuries such as cut heads and hands when the cases were admitted to the out-patient department; if the wound were bleeding, the blood was allowed to damp the gauze; if bleeding had ceased, the pad was moistened with a little water. The pads were allowed to remain on the wound for twenty-four hours, and then further treatment was employed as indicated. Seven cases were treated with pads, and the wounds were clean on the patients' return; no pain or discomfort was complained of.

Where only 1 gram of powder was placed in the pad, no trace of hypochlorous acid could be smelt after twenty-four hours' application, but with 2 grams a slight odour was still present in the damp powder.

Recently in the same department a number of cases of chronic ulcers of the leg have been treated with Eupad, either dusted on directly or applied on damp gauze. The results have been very striking; several ulcers which had been treated with the usual methods for weeks with no apparent improvement cleaned up in a few days under Eupad.

The antiseptic has also been applied in large wounds. In the Dalmeny House Hospital (Red Cross) a number of severe shrapnel wounds have been treated with Eusol; it will be sufficient for the present purpose to refer to two of the worst cases.

CASE I.

The first was that of a soldier who had a compound comminuted fracture of the left femur. He was admitted to Dalmeny House Hospital about one month after the wound was received. There was much pain and copious foul-smelling discharge from two sinuses on the front and back of the thigh, and there was pus around the fragments of bone seen by the X rays; the temperature was raised. The wound was treated for some weeks with hydrogen peroxide syringed through; then weak tincture of iodine was similarly employed. Progress was very slow. Eusol (0.5 HClO) was then used in the same manner, and within three days the odour had disappeared and the discharge and pain were much less; within ten days the temperature had fallen to normal and the patient felt much easier. The discharge gradually became less and serous in character and the fetor did not return. The Eusol treatment was kept up, and improvement was steady and marked. X-ray photographs showed callus forming around the splintered ends, and now the bone has united and the sinuses are practically closed. From the pus a Gram-negative bacillus of the coli group was isolated. In this case there seems no reason to doubt that definite improvement followed the application of Eusol.

CASE II.

The second case was that of a soldier who had a severe shrapnel wound of the right arm, received on May 5th at Hill 60. He had been treated with boric soaks until admitted to Dalmeny House Hospital on May 15th. On admission there was extensive laceration of the extensor muscles and the radius was shattered; a gaping defect

wound was present, bathed in foul-smelling pus; there was great pain and the temperature was swinging. A soak of Eusol (0.5 per cent. HClO) diluted 1 in 4 with sterile water was applied, but had to be removed as so much pain was complained of. A dressing of hyperisotonic saline was then applied; this was also painful. Eusol was then made up in normal saline in 1 in 10 strength, and this was borne without undue pain as an arm-bath for one hour. This was repeated daily. The odour disappeared after one or two applications, the wound rapidly cleaned up, and pain disappeared. The temperature dropped in a few days to normal. By May 31st there was marked improvement and the wound was clean and granulating in spite of the fact that there were fragments of bone and shrapnel still to come away. On June 7th healing was well advanced, and only a little serous discharge was present. Skin grafting was performed on the 19th and took, and the wound was practically completely healed on June 30th.

In the ear and throat department of the Royal Infirmary cases of cerebellar abscess have been washed out with Eusol with good results; immediate removal of the marked fetor present occurred. It has also been employed in mastoid operations with similar encouraging results.

In the maternity hospital Eusol has been used, full strength, as a douche, and caused rapid diminution of discharge.

Both Eusol and Eupad have been used in several of the wards of the infirmary and by some of our surgical colleagues in their private practice; cases such as the following have been treated: Periappendicular abscess, perineal abscess, cystitis, gangrene of feet, pyorrhoea alveolaris, follicular tonsillitis.

The general conclusion from the clinical observations is that hypochlorous acid, both in solution and as a gas, has a high antiseptic value in surgical practice.

Since there is no danger of absorption of the antiseptic or its decomposition products the rule may be safely followed of applying the antiseptic in the strongest form consistent with the comfort of the patient.

Any bad effects that might arise are purely local in incidence, and therefore easily controlled.

Eusol (0.5 per cent. HClO) has so far given no indication of deleterious action even on devitalized tissues, and may be used, therefore, with impunity in full strength. Eupad, which acts in virtue of the gas given off, is much more powerful in its antiseptic action and causes more irritation. The irritation, however, chiefly affects the surrounding skin and can easily be obviated. Pain is a useful warning that the application should be diluted.

The strongest effect observed in a wound was a superficial bleaching of the tissue and slight blistering of the surrounding skin; this was only produced by a thick layer of moistened powder. We have never seen any sign of necrosis in the form of slough formation. When the powder amounts to one or two grams enclosed in a gauze pad no harmful effect is to be anticipated.

Further investigation is required to define the nature of the reaction which hypochlorous acid causes in the tissues. Although it kills organisms so rapidly, no disintegration occurs; and there is no apparent breaking down of tissue cells.

It causes congestion and oedema, and there is a flow of lymph from the surface of the wound. Two factors are at work here: a direct action by the acid on the blood vessels, and the hyperisotonic effect of the salts in solution; when the solution is diluted the hyperisotonic effect is correspondingly reduced, and the antiseptic action alone remains. It is unquestionably of the greatest value that this solution combines the hyperisotonic effect with intense antiseptic power, small risk of damage to the tissues, and entire absence of toxic absorption.

It is a matter for further investigation to inquire how far benefit may be derived from the addition of sodium chloride to the solution to increase its hyperisotonicity.

When the antiseptic is applied to a wound the discharge in the first place loses any fetor which may have been present, and from being purulent rapidly becomes serous.

The antiseptic is easily exhausted, and therefore requires frequent renewal. It should be clearly understood that the function of this antiseptic is the elimination of sepsis; once sepsis is removed from the wound it may be discontinued and replaced by any bland dressing. It is in the treatment of septic wounds that the special power of this antiseptic is made manifest.

It is to be noted that hypochlorous acid tarnishes metals, and therefore instruments should be kept in a separate cupboard, and not left in the solution longer than necessary. It bleaches and destroys cloth fabrics if left in contact with them for a prolonged period.

An important point in connexion with this antiseptic is that the ingredients are easily obtained, and at a very small outlay. The cost of making one gallon of Eusol is approximately one penny.

METHODS OF USE.

It is convenient to group these under an independent heading. While we indicate those methods we have observed in use, there are no doubt others which further experience will suggest.

(a) *Eusol*.—Standard strength, approximately 0.5 per cent. hypochlorous acid.

1. As a lotion; diluted, if necessary, with water or normal saline.
2. As a fomentation; covered with waterproof.
3. On gauze wrung out of the solution and applied without a waterproof covering.
4. As a bath; full strength, or diluted as indicated.

(b) *Eupad*.—Where it is desired to apply a more concentrated antiseptic Eupad may be employed as follows:

1. Eupad enclosed between layers of gauze or lint charged with water sufficient to moisten the powder; this is applied to the wound and covered with wool and a bandage.
2. Applied as above, but covered with waterproof. This should be applied only for a short period—ten to twenty minutes as a rule. Occasionally this strong application causes pain, and should this occur, a weaker application is indicated.
3. On strands of gauze or wool impregnated with the powder and used for drainage.
4. As a dusting powder—for example, on open septic sores.

The general principle of the antiseptic application is that it should secure the maximum antiseptic effect with the minimum of local irritation.

Where it is found desirable to increase the antiseptic effect of the solution, a little of the powder may be added to it just before it is applied, or a small amount of powder may be dusted on to the wet gauze. In these ways the action of the solution may be reinforced.

In conclusion we have to express our indebtedness to members of the surgical staffs of the hospitals to which we have referred for their kind co-operation and help in this investigation.

CONCLUSIONS.

1. Comparative tests confirm the conclusion already arrived at by various investigators that hypochlorous acid is the most powerful antiseptic known.
2. Practical methods of using this antiseptic have been devised.
3. It can be used either as a gas or as a solution. The advantage of using the gas is that it will penetrate and will act at a distance.
4. Both the gas and the solution, while extremely potent against organisms and their spores, cause little or no harm to the tissues.
5. The effect of this antiseptic is purely local; its decomposition products are devoid of toxicity, and there is therefore no danger to be apprehended from absorption.
6. A flow of lymph is induced from the wound as part of the reaction of the tissues.
7. Fetor is rapidly eliminated.
8. If pain and irritation occur they can be easily controlled by reducing the concentration of the antiseptic.
9. The practical advantages of this antiseptic for *field use* are:

- (a) It can be used as a dry powder and therefore obviates the difficulty of procuring water.
- (b) It can be introduced into the gauze pad of the first field dressing.
- (c) Where water is available the same powder can be made up as a lotion for general use.

10. The constituents of the powder are inexpensive and easily procured; and the preparation of the antiseptic is extremely simple.

11. For convenience the powder has been called "Eupad" and the solution of hypochlorous acid "Eusol."

This investigation was undertaken at the request of the Medical Research Committee.

REFERENCES.

¹ S. Rideal, *Thorpe's Dictionary of Applied Chemistry*, vol. II, London, 1912. ² F. W. Andrews and K. J. P. Orton, *Cent. J. Bakt.*, 35, 1903-4, Abt. I, pp. 645 and 811. ³ Chick and Martin, *Journ. of Hygiene*, vol. VIII, 1908, p. 654.

HINTS ON WAR SURGERY.

BY

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THIS unpretentious paper, made up of hints derived from practical experience, has been written at the suggestion of some of my young friends who have been called to serve almost immediately after receiving their qualification to practise, and of others who have been engaged in general practice for years but have felt it their duty to offer their services to the State in this time of great national need.

Practically all the injuries requiring attention are gunshot wounds due to rifle bullets, pieces of shell or shrapnel bullets—the first being pointed, the second irregular in shape and size, and the third round.

The wounds from rifle bullets are frequently small and aseptic, but if the missile has turned on its axis, has been diverted in its course, or has first struck the ground, it may make a very large wound, and in the last case may be septic.

The velocity of a rifle bullet in the first thousand yards being very great, a hard bone if it be struck will be shattered, and the separate fragments of bone may have so much force transmitted to them that each becomes a mischievous projectile.

Tincture of iodine seems to be the best antiseptic for use in the fighting line. Every soldier should therefore have a small quantity with him, so that he can apply a little to the wounds and to the skin for half an inch around them before applying the protective gauze pads.

The first dressing should not, as a rule, be disturbed until a hospital is reached unless there be haemorrhage, in which case it will be advisable to change it at the first dressing station in order to arrest the bleeding; if the haemorrhage is only slight, compression over the first dressing may suffice until a hospital is reached.

If, on reaching a hospital, the first dressing is dry and sticking to the wound, and there is neither pain nor bleeding, the dressing need not be disturbed.

Unless absolutely necessary, as for haemorrhage or other emergency, it is undesirable to perform set operations on the field or in transit, whether on a hospital ship or train.

Although bullet wounds are frequently aseptic and do not require a change of dressing, yet, if the wound be extensive or septic, they should be treated like shell wounds.

Shell and shrapnel wounds are, as a rule, septic, and should be freely irrigated and drained, the irrigation being subsequently repeated twice or thrice daily if possible. The best fluid for irrigation is normal saline solution, but sea water drawn from the hot-water service taps on board the hospital ships or taken up from the sea two miles from shore, or plain boiled water, or weak iodine water, or a light pink solution of potassium permanganate may be equally well used. After irrigation and free drainage the wound may be filled with a 10 per cent. saline solution or with hydrogen peroxide solution 5 to 10 per cent., but it is senseless waste to use an expensive antiseptic solution to irrigate wounds.

If the drainage is not free the wound must be enlarged or a counter opening made. The dressings must be applied in such a way as not to occlude the drainage tubes.

The removal of bullets and pieces of shell is not necessary unless the foreign bodies are causing pain, keeping up suppuration, or lying in positions dangerous to vessels, nerves, or joints.

The greater number of nerve injuries recover spontaneously, therefore early operations on nerves are to be deprecated.

In primary or recurrent haemorrhage on the field pressure should, as a rule, be adopted, and only in exceptional cases is it necessary or desirable to ligature vessels, but if the pressure has not effected its purpose the bleeding vessel or vessels must be ligatured at the first dressing station.

In secondary haemorrhage it is not well to wait for repeated bleedings but to ligature the bleeding vessel without delay, as the next haemorrhage may be fatal or may so far reduce the strength of the patient that amputation may be necessary, or possibly further treatment may even be impossible.

If, owing to unavoidable delay or to deficient drainage, gas gangrene threatens or has actually developed, a 10 per cent. solution of hydrogen peroxide should be injected deeply into the tissues at various points beyond the infected area and free incision made into the gangrenous tissues and thorough irrigation and drainage carried out.

In gas gangrene of the extremities subsequent to the treatment just mentioned the arm or leg bath can be advantageously employed, but where that is impracticable boric or iodized water poultices can be used and changed every four hours.

The application of sutures to lacerated or infected wounds should be avoided.

In abdominal injuries a morphine injection should be given or a tabloid of morphine administered by the mouth immediately the patient is discovered. It is desirable to avoid giving food, and, as far as possible, even fluid, by the mouth. Thirst may be quenched by rectal injections of normal saline fluid. These cases nearly always die if transported far in an early stage, therefore let them remain as long as possible near the front.

If peritonitis supervenes, the patient should be propped up in the Fowler position, and drained above the pubes. The operation can be carried out under local anaesthesia in a few minutes. The abdomen should not be washed, and any long operation should be avoided until the base hospital is reached, when, should anything be called for, it can be done under the most favourable conditions.

Serious head injuries bear transport badly, and must be operated on as soon as possible for the removal of blood clot and depressed bone causing pressure on the brain.

Fracture of the long bones and injuries to joints should be immobilized by splints or some temporary apparatus, obtained on the spot before removal from the field.

Conservatism is the rule of treatment for fractures, and amputation should be avoided or rarely adopted as the only possible alternative. Immediate amputation is only called for in case of complete smashing or almost total tearing off of a limb.

Later, amputation may be required for traumatic gangrene or for rapid extension of gas gangrene, and, rarely, for extensive diffused aneurysm, or for serious wound complications attended with osteomyelitis and extensive suppuration.

In all shell wounds or septic bullet wounds a dose of antitetanic serum should be administered as a prophylactic as early as possible after the injury.

In erysipelas or any streptococcal infection the use of antistreptococcal serum should not be omitted.

THE late Surgeon-General Arthur James Payne left unsettled property to the value of £49,983.

THE governors of the Tower Hamlets Dispensary, an institution founded in 1732, and carried on until recently in Stepney, resolved a few months ago to close it. This resolve was due partly to the difficulty of collecting funds, and partly to the diminution in the number of patients attributed to the Insurance Act, and to the establishment of tuberculosis dispensaries, and of medical treatment centres for school children. At a meeting on July 12th the governors received a deputation from the Stepney Board of Guardians, who desired that the dispensary should be continued, and promised an increased subscription from the board. Dr. Corner said that medical practitioners in the district regretted the closing of the dispensary, but the chairman held that that matter could not be reopened, the only question to be determined being the best method of disposing of the sum of £450, the net cash balance in the hands of the governors, who, however, also own the building, valued at £550. The meeting appears to have separated without coming to any definite decision.

THE DIAGNOSIS OF TYPHOID FEVER IN INOCULATED SUBJECTS.

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(A preliminary account of a research carried out, under the direction of Professor Delépine, at the Public Health Laboratory, Manchester University. The expenses in connexion with this research were defrayed by a grant made by the Medical Research Committee.)

Some observations made whilst working with a certain strain of the *Bacillus enteritidis* (7160)* suggested that this bacillus might be of use in the diagnosis of typhoid fever in inoculated persons. In such cases the usual Widal test affords little or no help to a rapid diagnosis.

During the period January to June, 1915, quantitative agglutination tests, more than 1,000 in all, were made with the *B. enteritidis* 7160 and with the *B. typhosus* with blood obtained from the following classes of persons:

CLASS 1.—Persons who had been inoculated with typhoid "vaccine," and who, as far as could be ascertained, were not suffering and had not suffered from any illness resembling typhoid fever—50 cases. In none did the blood give a positive reaction with the *B. enteritidis* 7160. The blood of nearly all these cases caused agglutination of a typical *B. typhosus*; the reaction was very marked in most cases. In a small percentage the result of the test was negative.

CLASS 2.—Persons who had not been inoculated with a typhoid "vaccine," and who were suffering from typhoid fever—50 cases. The blood of all these persons caused agglutination of a typical *B. typhosus*. In 44 a positive result with the *B. enteritidis* 7160 was obtained at the first test. In 6 a negative reaction with this bacillus was found on a first examination, but on testing a second sample of blood in 5 of these 6 cases, each gave a positive reaction. From the sixth case a second specimen of blood has not yet been obtained.

These results showed beyond doubt that active typhoid infection confers on the blood a power of clumping the *B. enteritidis* 7160, which is not produced by injection of dead typhoid bacilli. They afforded strong presumptive evidence that an inoculated patient whose blood gives a positive reaction with the *B. enteritidis* 7160 is infected with the *B. typhosus* or a near ally.

CLASS 3.—To test these conclusions, 14 cases of suspected typhoid fever in inoculated men were investigated. Each case gave a positive Widal reaction. In 7 the clinical evidence decidedly favoured a diagnosis of typhoid fever, and in each case the blood was found to give a positive reaction with the *B. enteritidis* 7160. From 4 of these cases the *B. typhosus* was isolated, in 3 from the stools, and in 1 from the blood. From none of these cases was the *B. enteritidis* or a *B. paratyphosus* isolated. The other 7 cases, clinically, were much more doubtful. In none was a positive reaction with the *B. enteritidis* obtained. Careful bacteriological examinations of the blood and excreta failed to discover the *B. typhosus*, the *B. paratyphosus*, or the *B. enteritidis*.

CONCLUSIONS.

1. A positive reaction with the *B. enteritidis* 7160 is due to something more than previous antityphoid inoculation, and hesitation in diagnosing typhoid (or paratyphoid) infection should be occasioned only by the necessity of excluding infection with the *B. enteritidis* itself. The symptoms associated with *B. enteritidis* infection are, however, generally clear enough to make the distinction easy.

2. A single negative test with the *B. enteritidis* 7160 does not exclude a diagnosis of typhoid fever, though, if obtained late in the course of an illness, it would constitute good evidence against typhoid infection. Repeated negative tests are much more conclusive, and should be of value in deciding the nature of doubtful cases. The time required, however, is a hindrance to rapid diagnosis, which is absent in the case of a positive reaction.

A full account of this research is in course of preparation, and will be published later.

* A bacillus recently isolated by Professor Delépine from the spleen in a fatal case of food poisoning.

CHEAP ABSORBENT DRESSINGS FOR THE WOUNDED.

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1. Pinewood Sawdust.

IN THE BRITISH MEDICAL JOURNAL for October 17th, 1914, I published a short note on the value of pinewood sawdust as a cheap material from which very efficient absorbent dressings for surgical work can be easily made. In the following number of the JOURNAL favourable opinions of this material were expressed by Professor Rushton Parker and by Mr. F. D. Bennett, and on May 26th of this year an instructive paper on "Pinewood Sawdust as a Surgical Dressing," by Professor Rushton Parker, was published in the *Clinical Journal*. To these recent papers and letters your readers may be referred for information as to the value of pinewood sawdust.

My present reference to the subject will be limited to an indication of some recent improvements in the method of preparation.

Instead of a fairly open muslin we now use one with a close mesh, which has 70 by 50 threads to the square inch. This retains the finer particles of wood in the bags and renders the use of a No. 40 sieve unnecessary. It costs 2½d. a yard of 40 in. wide. A No. 8 riddle or sieve is used as before to exclude the larger fragments of wood, and all that passes through it is employed for the dressings.

The bags are now made of three sizes—namely, 12 by 8 in., 10 by 6 in., and 7 by 5 in. The same sizes are used for the other two materials recommended in this paper. The method of tearing the muslin and sewing the bags is described in one of the leaflets to be afterwards referred to.

Besides sawdust, however, there are two other substances—both also home products—which are better absorbents than cotton-wool, and are available under present circumstances at a very low cost. These are *fresh sphagnum moss*, and moss becoming peat, which for short we may call *peat moss* or *moss peat*.

2. Sphagnum Moss.

The following particulars are taken from an article contributed to the *Scotsman* on November 17th, 1914, by Professor I. Bayley Dalfour and the present writer:

Bog moss or sphagnum is the only moss which in nature has a far-reaching influence upon the surface of the earth as a soil-forming agent, and it is the only moss which has proved itself as yet to be of economic value to civilized nations. Its formative influence and its economic value respectively depend upon the peculiar construction of the plant. Its smooth stem is densely beset with leaves, and emits a branch at every fourth leaf; often these branches are turned downwards, and apply themselves more or less closely to the stem. At the periphery of the stem are one or more layers of fine colourless chambers, known as capillary cells, whose thin walls have big perforations, and are strengthened against collapse by a thickening band running spirally or in rings around the inside. The leaf is formed of a single layer of chambers or cells. Some of them, narrow and green, form a network of feeding cells, in the meshes of which are larger, broader, colourless cells, perforated and thickened after the fashion of those of the peripheral layers of the stem. The whole construction results in a system of delicate capillary tubes, having the effect of a very fine sponge. The perforated cells readily take in water and hold it firmly. The water can be squeezed out of them but they do not collapse, and are ready to take in water again.

In life the plant takes all its water from the atmosphere. It is not dependent on soil water, and from top to bottom is laden with the water retained in its delicate chambers. By its mode of branching the plant forms compact cushions. These have a bulging centre, and as the older parts die off below and pass into the condition of peat, the tops constantly and vigorously elongate and branch so long as the precipitation of moisture from the atmosphere suffices. While the older cushions are thus growing new cushions are being formed by lateral extension, and thus there is formed what is known as "High Moor." By gradual extension at the periphery the

plant may in time cover miles of country, spreading over, and in the end exterminating, adjacent vegetation, even forest. On all our mountains and moors sphagnum is found in patches of varying extent, small or large.

The presence of these capillary cells makes sphagnum economically useful. Horticulturists have long made use of it as an agent for holding moisture around such plants as orchids; moreover, by chopping it and mixing it with soil in pots, they secure that moisture does not pass too quickly through the soil. In recent years the upper layers of the sphagnum deposit have come largely into use for stable litter instead of straw on account of its great power of absorbing and retaining fluids. There is, however, a further economic use which has been found for it—the importance of which at this critical time cannot be over-estimated—that of a substitute for cotton-wool in the dressing of wounds. For this purpose its resilient perforated cells fit it admirably, and, indeed, suggest its superiority to cotton-wool in absorptive capacity. We owe the introduction of sphagnum moss as a surgical dressing to Germany, where it has been established for this purpose for many years. *Was est et ab hoste doceri?* In the early eighties of last century a workman at one of the outlying peat moors in North Germany accidentally sustained a severe lacerated wound of the forearm. In the absence of anything better to apply to the wound, his fellow-workmen wrapped it up with fragments of peat which were lying near, and after an interval of ten days he arrived at the surgical clinic at Kiel with the original dressing undisturbed. It was feared that the wound when exposed to view would be found in a very unsatisfactory state, but, on the contrary, when the peat dressing was removed the wound was found to have healed in a most satisfactory manner. The unexpectedly good result obtained with a dressing material which at first sight seemed so unpromising led to a careful inquiry into its nature and properties. An investigation was made from the physical, chemical, and bacteriological points of view of the growing plant on the surface of the moor, downwards through its various stages of decay to the brown amorphous deposits of fully-fermented peat at a varying distance below. The practical outcome of this inquiry was that the value of sphagnum moss as a surgical dressing was found to be due to its marvellous power of absorbing fluids. The growing plant, collected and dried, has this power at its maximum, but the light brown layers of semi-decayed moss which lie above the peat proper retain great absorptive powers, and constitute the valuable material known as "moss litter." It was probably from this layer that the extemporized dressing already referred to was taken. After its value had been discovered, many papers dealing with sphagnum moss as a surgical dressing were published in German surgical journals, by Neuberger and others. Before long "moss" (that is, sphagnum moss) came to be accepted as the standard material for surgical dressings and other similar requirements in medical practice in some of the largest German hospitals and in private practice. Thirty years' experience has not lessened the favourable opinion at first formed of it in Germany, but we have been slow in this country to recognize its value. British surgeons use mostly the prepared product known as "absorbent cotton-wool." It is much less efficient than sphagnum moss, and is considerably dearer than moss would be if we used the moss which grows plentifully in our own country instead of importing it prepared from abroad. The methods of preparation employed are not designed to improve the absorbent powers of sphagnum moss; they could not do that. They only furnish the surgeon with the moss in more compact and more conveniently handled forms. For practical purposes, however, sphagnum moss, which can be gathered on our moors and damp places, can be utilized without any preparation worthy of the name in a technical sense. The growing plant and its underlying layers of withered stems and leaves should be collected, picked free of other plants, and dried. It has afterwards only to be lightly packed in bags of "butter muslin," which are then sewn up and handed to the surgeon, to sterilize and place on the wound. Such pads are soft, elastic, and very comfortable for the patient. They are easily packed, convenient to handle, and extraordinarily absorbent.

No doubt many proprietors in districts where moss grows plentifully would allow school children, Boy Scouts, and others to collect the moss, and members of the Red Cross Society with time to spare might be found willing to carry out the simple preparation which

the surgeon requires. An organization for the purpose would have to be formed, but this should present no great difficulty.

It would be well if moss destined to be sent by train to any centre or centres were dried in the district in which it was collected, as by far the greater part of the weight of the fresh plant is due to the water it contains. This will be evident from the following simple experiment recently performed in the Royal Infirmary: 5 lb. of the fresh moss were weighed out, then pressed, and slowly dried by heat. It was found that the dried plant, which had retained 4 lb. 6 oz. weight of water, itself only weighed 10 oz.

Until the British firms can put on the market the moss from our own moors at a moderate price, much may be done by voluntary workers to make use of this at present neglected but most valuable surgical dressing for our wounded men.

Since this article was written several letters on the subject, from the Marquess of Breadalbane and others, have appeared in the *Scotsman* and other Scottish newspapers, and the moss is being collected and sent into the War Dressings Supply, Edinburgh, by voluntary workers from all parts of the country. The same might, no doubt, be done in many parts of England, Wales, and Ireland.

As an inducement—if such be required—to proprietors to allow this moss to be collected and removed from the moors it may be mentioned that sphagnum moss harbours the beetle which is responsible for grouse disease. This was pointed out recently in the *Scotsman* (June 19th):

For this well-known plant an unusual demand has recently sprung up in hospitals, as it is believed to be an excellent substitute for cotton-wool for dressing purposes. In numerous parts of the Highlands it is being gathered by many willing hands and forwarded to the receiving depôts. . . . Proprietors and shooting tenants would hail with pleasure the total extermination of this pest. It is within its narrow, simple leaves that the destructive leather beetle lays its clutch of eggs. A widely acknowledged authority on the economy of moors—Mr. Percy H. Grimshaw—has given it as his definite opinion that practically all cases of diseased heather are due to the ravages of this insect. A somewhat similar statement was made in the report of the Grouse Committee issued seven or eight years ago. Owing to its perennial dampness, it is difficult or impossible to destroy sphagnum by burning, and the picking of it by hand will operate potentially to the benefit of game preserving.

Peat Moss.

This name has been given to the semi-decayed sphagnum moss which forms the upper layers of certain deposits of peat. Other deposits have been formed from heather. As a material for surgical dressings the less decayed and therefore more fibrous upper layers are preferable. These are selected at Messrs. Richardson's "moss litter" works by the instructions of Mr. Richardson, who has kindly interested himself in this matter. The selected "bricks" after being torn up by machinery are compressed into bales and sent out like those of ordinary moss litter. After the removal of the binding wires the bales are easily broken down into a loose material which can be further reduced by rubbing between the hands. In this process a good deal of fine dust is produced, but, like the fine wool dust, it is retained by the close mesh of the muslin employed for the bags and is a valuable absorbent. These peat moss dressings are extremely absorbent and very light.

As absorbents all three of the above-mentioned materials—sawdust, dried sphagnum moss, and peat moss—are superior to cotton-wool in one important particular: they diffuse the discharges in the bags and retain them much better. While a mass of absorbent cotton-wool laid over a freely discharging wound will allow the discharge to pass through to the bedclothes before the greater part of the cotton-wool has been used, bags of these materials suck up the discharges and become filled with them. They are all very valuable also where there is an outflow of urine.

As regards price, the chief expense is the muslin for the bags. Sawdust and peat cost a fraction of a penny per pound. Voluntary workers in the country collect and dry the moss, and in most cases send it to the War Dressings Supply Organization in Edinburgh carriage paid. What the price would be were all the workers paid is another matter, but in present circumstances the cost is very little.

The following appreciation of the value of pinewood

sawdust as a dressing for septic wounds is very valuable. It is the translation of a letter from Dr. Stauffer, Médecin en Chef, Hôpital Dumerloque, Dinard, to Mrs. Bronckley-Davenport, of the War Hospital Supply Depot at Hove. She has kindly given me permission to publish it:

Madame, Miss du C gave me, from you, a few days ago, some bags of pine sawdust to try as a wound dressing. I have used the bags in my treatment for ten days. I found them very satisfactory, and it is with pleasure I communicate to you the result.

1. From the point of view of absorption the bags are more advantageous than the best cotton, one bag alone of 45 grains takes the place of 250 of cotton. The absorption takes place equally slowly, and, thanks to the large pores of the sawdust, the infiltration is much more general in the case of the bags than it is in that of the cotton-wool. The bag never gets wetted right through in one place alone before the whole of the sawdust has become absorbed. The opposite takes place in a wound dressing of cotton. One spot is wetted through quickly, and spoils the bandages, the body linen, and the sheets, whilst the surrounding dressing remains dry.

2. Its power of deodorization is very strong. The smell of the pine is so penetrating that it covers nearly always that of the wounds; and the bandages become impregnated with this smell, and can therefore be used again, which, for a military hospital, means a considerable economy in bandages.

3. From the two preceding considerations there necessarily follows a very appreciable economy in bed linen.

I shall be pleased and infinitely grateful if, Madame, you would send me a considerable quantity.

Conclusions.

To sum up, there are several advantages in using absorbent dressings made of the materials mentioned: they are thoroughly satisfactory as dressings, are very cheap, and can be prepared by voluntary workers without technical training. None of them is injured by sterilizing.

The War Dressings Supply Organization in Edinburgh prepares all three forms of dressing, and sends them out to hospitals for the wounded, where necessary, free of charge, in other cases at a minimum cost to cover working expenses.

As some of the leaflets drawn up to help workers to collect sphagnum moss and to prepare the dressings from it as well as from sawdust and peat may be useful to others wishing to organize similar work, I shall be glad to see that they are supplied if requests are addressed to me at the Royal Infirmary, Edinburgh.

REFERENCE.

1. Erfahrungen über Iodoform und Torf-Verbände, Arch. f. Klin. Chir., Bd. 27, 1882, S. 757.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

WOUND DRESSING.

I HAVE found the following method useful in the treatment of many of the wounded arriving from the front:

Take an ordinary patty tin and punch a hole about the size of a shilling through the middle. These tins may be bought, of various sizes, at a cost of 2d. or 3d. a dozen. They are saucer-shaped, with rolled-over edges. Place the patty tin over the wound, resting by its rounded border on the healthy skin beyond the wound; fix it to the skin by one or two narrow pieces of rubber strapping, and cover it with sufficient antiseptic gauze and wool (or oakum) to absorb any escaping discharges, and apply a bandage over all in the usual way. The patty tin should be bent, if the part be rounded, to fit comfortably. This is easily effected by hand.

The advantages of this method of treatment are many:

1. There is no pressure on the wound, as the dome of the tin stands half an inch above it. Any drainage tube projecting from the wound is likewise shielded from pressure.

2. If there be much discharge, it can easily escape into the hollow of the tin, instead of being blocked in the wound by the dressings.

3. When a dressing is changed there is nothing adhering to the wound, since nothing touches it. There is consequently no bleeding or pain and no damage to granulation tissue or young skin when the dressing is removed.

4. The patty tins may be boiled and used over and over again, thus making for economy.

5. The state of the wound can be judged by looking through the hole in the tin, which may often be left an extra day in position.

6. Should a wet dressing be desired, an unpapered tin may be used to cover it, instead of oilskin.

Exeter.

D. W. SAMWAYS, M.D., D.Sc., M.R.C.P.

ECLAMPSIA OF PREGNANCY.

I was recently called in by a colleague to see a woman suffering from acute eclampsia in the seventh month of her eighth pregnancy. She was unconscious, and fits were occurring every few minutes; the tongue protruded for about 4 inches from the mouth; the urine was loaded with albumin, and there was no sign of commencing labour.

Injections of morphia had proved unavailing. Hyoscine and morphia were injected, and the patient was put under chloroform and a lumbar puncture made till the canal was drained; it was under pressure (120 drops to the minute). She was next bled to 1 pint, and was then given 2 pints of Rogers's hypertonic solution intravenously. Two phials of pituitary extract were afterwards injected. The tongue was well slit from tip to base at each side.

After six hours I found her sitting up in bed, quite sensible. There had been no further fits, and large quantities of urine had been excreted. I then gave 40 grains of calcium chloride, and injected two more phials of pituitary extract, and twelve hours later spontaneous delivery occurred without any one being present. The child was dead. There have been no unpleasant symptoms since, but her urine still contains some albumin.

Nairobi.

R. W. BURKITT, F.R.C.S. (Irel).

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

DORSET AND WEST HANTS BRANCH.

At a meeting held at Sherborne on July 7th, Dr. C. D. MCBRAT, President, in the chair, Dr. CUNWY of Yeovil read a paper on *The thyroid gland*, which dealt with the development, anatomy, physiology of and pathological changes in, the gland. Under the latter heading was given a description of Graves's disease, which was looked upon as a disease arising from a derangement of the perfect balance normally existing between the actions of all the internal secretory organs, more especially the thyroid, suprarenals, and pituitary gland, the cause of the derangement being, more often than not, a sexual one. An allied condition, though not true Graves's disease, occurred in young married women after the birth of the first child, and the underlying cause here was certainly a sexual one. This condition was characterized by a loss of flesh and colour, and a placid nature became an easily worried one. These women always felt better when pregnant. Cases coming under the heading of thyroid inadequacy were next dealt with, and lastly the treatment of the various conditions was described and illustrated by the treatment of actual cases. The paper was discussed by the PRESIDENT, Dr. EDWARDS, Dr. MIDELTON, Dr. HAYLOCK, and Dr. SIMMONS. Dr. WHITTINGDALE showed a case of *Complete ophthalmoplegia* in a woman, aged 68. She was married, and had one child; there had been no miscarriages; no history of syphilis. She first noticed drooping of the left eyelid about Easter, 1915, and at the same time had pains behind the left ear running up to the vertex, sickness and slight vertigo occasionally. Later complete ptosis supervened, with a fixed pupil and loss of all power of movement in the eye. The other eye and both discs were normal. The knee-jerks were not very active. She had been taking antispasmodic remedies, but without any benefit except to the headaches. Dr. MCCARTHY showed a case of *Dermatitis* of six months' standing in a healthy domestic servant, 22 years old, immediately following a severe scald of the foot. The affection was symmetrical in character, covering the face and neck, and in the former situation having the distribution of lupus erythematosus. The general opinion expressed was that it was an artificial eruption, the agent employed being probably lysole.

Rebickos.

MOYNIHAN'S "ABDOMINAL OPERATIONS."

THE commanding position held by Sir BERKELEY MOYNIHAN in the surgical world is sufficient to ensure a warm welcome for the published records of his experiences in any branch of surgery, and with the surgery of the abdomen his name has been long associated as a daring pioneer and brilliant exponent of the highest achievements. We are accordingly more than gratified at the issue of a third edition of his work on *Abdominal Operations*.¹ In the preparation of this edition extensive revision has been necessary, and considering the rapidity of progress in abdominal surgery, it is not surprising that much has had to be rewritten. The work is essentially practical and personal, only operations and methods practised by the author himself being described, and it is only his own opinions which are freely given. The book, therefore, appeals directly to the operating surgeon of any grade of experience.

The general arrangement of the material follows ordinary lines. The first section, on general considerations as to abdominal work, includes technique, splenic abscess, incisions, wounds; the second is concerned with the stomach; the third with the intestine, and so forth. The individual sections contain far more than bare descriptions of operations; complications; post-operative treatment; results of operations in other hands; conditions of success, warnings to avoid failure—all are discussed in the frankest informal way. On most of the abdominal states found in surgery the author has opinions fairly well fixed.

The problem of the surgical treatment of gastric ulcer is still unsolved. Sir Berkeley Moynihan's experience is that routine performance of gastro-entostomy is insufficient. If the ulcer be in the pyloric region, and if there be obstruction from contraction of the scar of former ulcers, gastro-entostomy will cure. Ulcers lying in parts of the stomach other than the pyloric antrum are best treated by excision. An ulcer on the lesser curvature, if of large size, should be excised and gastro-entostomy performed. An ulcer on the posterior wall may be reached by the trans-gastric route. Large ulcers involving liver or pancreas cannot be excised, and the treatment is gastro-entostomy combined with jejunostomy. The discussion on the operative treatment of gastric cancer is appropriately most elaborate, and forms a treatise in itself. The diagnosis of cancer of the stomach in the early stage can be assured only in one way—by thorough examination of the viscus as it lies in the surgeon's hand. Searching inquiry into the history, chemical examination of stomach contents, Roentgen-ray inspection of the behaviour of a bismuth meal, may all go towards the diagnosis; they will not certify it. There are three main indications for operation in chronic gastric diseases: In all cases of chronic gastric ulcer; when gastric stasis is present; when a tumour is present. In all these three conditions medical treatment may relieve, but it cannot cure. Early operation may discover an early cancer. The author is emphatically of opinion that in all cases of cancer wherever possible a radical operation should be attempted. He is in agreement with Mayo in the opinion that gastrectomy may with great benefit be performed not only as a possibly curative operation, but also deliberately as a palliative operation when growths are present in inaccessible glands or in the liver.

We have endeavoured to indicate in an imperfect way some of the wealth of surgical experience contained in this book, but readers will only know its value by exploring for themselves. The work is a classic written with freedom and informality of style. The author's scientific keenness vies with his human "desire to rob surgery of its terrors." The main terror of surgery is its death-rate, and thanks are due in great measure to Sir Berkeley Moynihan that the mortality of extensive abdominal operations is gradually diminishing. This consummation is being attained on the one hand by earlier diagnosis, and on the other by more perfect technical skill—gentle manipulation, careful protection of delicate structures, absolute asepsis,

¹ *Abdominal Operations*. Vols. I and II. By Sir Berkeley Moynihan, M.S. Lond., F.R.C.S. Eng. Third edition, revised. Philadelphia and London: W. B. Saunders Company, 1914. Roy. 8vo. pp. 492; 371 figures. 42s. (the two volumes.)

and operating with that "speed which should be the achievement not the aim of the operator."

We cannot praise this work more highly than to say that it is well worthy the reputation of its author, and that it should be the cherished possession of every active-minded surgeon.

OSTEOLOGY AND ARTHROLOGY.

IN the first part of the fourth volume of *Quain's Anatomy*² Professor BRUCE deals with the bones and joints, subjects which, in our opinion, had not in earlier editions been treated with the attention to detail which characterized, for example, the descriptions of the muscular and nervous systems, an attention which we felt we had a right to expect in a book that for a good many years past has been regarded as a work of reference. The defect was all the more glaring in that it occurred in so characteristically English a textbook, for English teachers have always set great store on a knowledge of osteology as the basis for a knowledge of anatomy generally.

In the present edition the defect is more than made good; in fact the subjects are more fully treated than in any other textbook in our language, and only the absence of the outline markings on the bones for muscular attachments remains to remind us of the former shortcoming. The editor has incorporated in the volume all the recent work which has been done on the subjects in Britain, on the Continent, and in America, and he rightly takes the opportunity presented by the preface to acknowledge particularly his debt to Le Double and Pick. We are, further, glad to find Piltner's work on the accessory elements in the carpus and tarsus so well represented, but regret that greater prominence has not been given to Schwabe's description of the markings on the endocranial surfaces of the temporal bone. The attention paid to the morphological side of the subjects is an old feature, and is well maintained in the present edition, while the fullness with which the embryological side is considered is an innovation rendered necessary by the great advance in embryology.

The form and arrangement of the book are the same as those to which we have become accustomed from past editions, while the changes in nomenclature are so few and are made with such judgement and discretion as to disarm all criticism.

A large number of new illustrations have been added, and are in every way worthy of the place they occupy.

We have no hesitation in stating that the volume furnishes us with the most interesting and readable account of the parts of anatomy of which it treats with which we are acquainted.

GUIDES TO DIAGNOSIS.

WE are pleased to see that Dr. LEFFWICH'S *Index of Symptoms*³ has reached a fifth edition. It is a distinctly healthy sign that a work of this character should be in constant and steady demand. For a young man just starting practice no sounder investment could easily be named than a copy of this excellent work; and no surer way of progress in diagnostic method and acumen than the establishment of a habit of referring to it in every case of doubt or perplexity. It is not, of course, a book that can be read in the ordinary way, but, as the title suggests, an index and purely a work of reference. As such its completeness is admirable, and its compilation must have entailed a vast amount of thought and research. In his preface to the first edition the author points out that in doubtful cases a diagnosis is commonly reached by process of exclusion. The physician, having seized upon a few prominent features, is at once able to say that the disease is one of perhaps a dozen. Further investigation may narrow down the possibilities to one ailment. But if, on the contrary, he find himself at fault and proceeds to a hunt through his library, he is met by the difficulty that in most medical works diseases, not symptoms, form the headings. In the present work he can, however, follow the same order as that which is taking place in his own brain. By turning

² *Quain's Elements of Anatomy*. Edited by Sir E. A. Schäfer, LL.D., Sc.D., M.D., F.R.S., J. Symington, M.D., F.R.S., and T. H. Bryce, M.A., M.D. Vol. IV, Part I, *Osteology and Arthrology*. By T. H. Bryce, Eleventh edition. London: Longmans, Green, and Co. 1915 (Roy. 8vo, pp. 337, 28 plates; 247 figures. 12s. 6d. net.)
³ *An Index of Symptoms with Diagnostic Methods*. By R. Winnington Leffwich, M.D. Fifth edition. London: Smith, Elder and Co. 1915. (Post 8vo, pp. 528, 85 figures. 10s. 6d. net.)

up one after the other the symptoms of which he seeks the source, he is guided to the diseases in which they concur, and, as the author truly remarks, "a mere glance will often furnish the missing clue." In the present edition a large number of new symptoms and many new clinical tests have been added, and the interlineary notes have been considerably amplified. This increase in matter will doubtless enhance the value of the book, which, although of handy size, is no longer adapted for carrying in the pocket. In a work of so comprehensive an aim perfection is not reasonably to be expected, but the author comes as near it as may be. We are surprised to miss phthisis from the list of diseases causing reflex or irritative vomiting, although enlarged bronchial glands and fibroid lung are included.

The book now published by Dr. R. C. CABOT, on *Differential Diagnosis*,⁴ is the third edition so far as regards the first volume of a work we noticed some four years ago (August 26th, 1911, p. 447); but the second volume is entirely new, being an extension of the original plan on the same lines, but including a number of other headings. The plan of the book is to take a subject, such as pain, distinguished as to its situation, or fever, cough, or hæmaturia, and after somewhat brief general remarks on the bearing of these "presenting symptoms," the subject is illustrated and amplified by descriptions of cases, which are discussed, and a diagnosis arrived at on the facts so far as they are available. The first volume dealt with pain in various situations and with eleven common symptoms. In the second volume nineteen other symptoms are discussed, including abdominal and other tumours, ascites and abdominal enlargement, vertigo, hæmaturia, hæmoptysis, dyspepsia, melæna, pallor, and polyuria. The major part of the book is taken up by the reports of cases; there are 383 in the first, and 317 in the second volume. In noticing the first edition we ventured to express a doubt as to the utility of these discussions, as in the majority of cases the correctness of the diagnosis is, after all, left in doubt. In very few of the cases was there either a necropsy or such a biopsy as places the condition beyond dispute. For example, there are 12 cases of hæmoptysis, with two deaths, but only one *post-mortem* examination. In one other the existence of tuberculosis is affirmed on the basis of the inoculation of a guinea-pig. In all the other cases the diagnosis is doubtful; the author comes to a conclusion in many cases, and gives his reasons for doing so; but such disquisitions are scarcely convincing, and, although the reader is in no position to dispute the conclusions, he may feel himself unable to derive much benefit from the exercise. Leaving aside the cases and passing to the general introductory remarks, we find these are marked by extreme dogmatism; it is surprising to be told that it is questionable whether vertigo bears any relation to stomach derangement, or that diarrhoea is rarely caused by errors of diet, or that the "truly gastric causes of indigestion may be reduced almost entirely to two—cancer and ulcer." It is quite true that vertigo is rarely seen in grave cases of stomach disorder, but it is none the less very frequent in cases of slight stomach derangement, the greater number of which are too transient to call for medical assistance. Similar considerations apply to those most numerous cases of diarrhoea which are caused by indiscretion of diet; further, we are unable to follow the ruling that excludes from among the common causes of dyspepsia gastritis, either acute or chronic, and atonic dilatation of the stomach. The time devoted to the study of such a book as this might be better given to the observation and recording of cases in the wards.

NOTES ON BOOKS.

*General Surgery*⁵ is part of an annual series, and is adorned with forty-five excellent half-tone plates representing advances in operative surgery and technique.

⁴ *Differential Diagnosis*. Vols. I and II. By R. C. Cabot, M.D. Philadelphia and London: W. B. Saunders Company, 1915. (Roy. 8vo, Vol. I, pp. 754; 155 figures; 2s. net. Vol. II, pp. 708; 254 figures; 2s. net.)

⁵ *The Practical Medicine Series*. Under the general editorial charge of C. L. Mix, A.M., M.D., and R. P. Vaughan, Ph.D., M.D. Vol. II: *General Surgery*. Edited by John B. Murphy, A.M., M.D., LL.D., F.R.C.S. (Eng.), F.A.C.S. Series 1915. Chicago: The Year Book Publishers, 1915. (Cr. 8vo, pp. 602; 97 plates, 180 figures.)

Dr. MURPHY has evidently spared no pains in order to keep the work up to date. The summaries on anaesthesia and analgesia are of special importance, because in the introduction the editor lays stress on the fact that the number of deaths from anaesthetics reported in the public press of Great Britain from 1910 to 1915 was 700. In the text he analyses a review, by A. L. Flemming, of inquests in England on cases of death during anaesthesia, which was the subject of an editorial in an American contemporary. Chloroform comes out very badly, but the percentage of fatalities with other less frequently used anaesthetics cannot be accurately compared with the percentage of chloroform deaths. In Flemming's opinion a large number of these fatalities would not have occurred if ether had been used during the induction, or at any rate during the struggling stage. The volume contains abstracts of recent work on the gall bladder; infections of that reservoir independent of calculus are not so rare as is generally believed. Bacteriological examination of the fluid contents of the gall bladder gives trustworthy results only in the acute stage. The editor himself insists that a diagnosis of the presence or absence of infection in the gall bladder can only be made with certainty by excising portions of its wall for cultural and microscopic purposes.

The ninth volume of the American Society of Tropical Medicine⁶ contains the papers read before the society and published under its auspices in 1914. The papers show that a considerable amount of work has been devoted to amoebic dysentery, a branch of tropical medicine to which Americans have paid special attention. The volume also contains papers on plague, beri-beri, leprosy, malaria, and other tropical diseases, and is well worth careful study by those interested in tropical medicine.

⁶ *The American Society of Tropical Medicine*. Vol. ix, 1914. New Orleans: Tulane University Press, 1915. (Roy. 8vo, pp. 248; illustrated.)

IMPERIAL CANCER RESEARCH FUND.

The annual meeting of the Imperial Cancer Research Fund was held on July 20th; Sir William Church, in the unavoidable absence of the President, the Duke of Bedford, occupied the chair. The Committee re-elected Professor G. Sims Woodhead and Dr. Bulloch, F.R.S., as their representatives on the Executive Committee, whilst Sir Thomas Barlow, Bt., K.C.V.O., was nominated for election by the Royal Colleges as an additional member of the Executive Committee. Sir Rickman Godlee, Bt., K.C.V.O., was elected a member of the General Committee.

REPORT OF EXECUTIVE COMMITTEE.

The report of the Executive Committee stated that owing to the serious depletion of the staff caused by the fact that most of its members had obeyed the call of the War Office for trained investigators and were on active service, the work of investigation had been greatly interfered with. Fortunately Dr. Tsurumi, formerly assistant to Professor Kitasato and Dr. Takahashi, recommended by Professor Honda, Director of the Imperial Naval Medical College, Tokio, came to this country from Germany on the outbreak of the war, and had offered their services. They had been selected as suitable workers, and had carried out valuable researches and materially assisted the Director in the routine work. Of the seven laboratory attendants of serviceable age, four joined the army with the result that the work had been further limited for want of trained assistants. In December Dr. Bashford, owing to failure of health, resigned his appointment of General Superintendent of the Fund and Director of the Laboratories. The Committee, in accepting his resignation, fully recognized that to him the successful organization of the Imperial Cancer Research Fund was mainly due. He ably represented the Fund both at home and abroad at various congresses and other meetings, and his acknowledged position as the head of cancer research in this country was largely due to the judicious manner in which he assisted and encouraged investigators in other laboratories, whilst always taking care to emphasize the value of the support he received from the Executive Committee and from the Royal Colleges of Physicians and Surgeons. It was to his foresight that the Fund was indebted for the firm opposition taken in regard to the German Cancer Committee, which, with its head quarters at Berlin, endeavoured to gather all cancer research under its control. Great

Britain alone, through the action of the Executive Committee, remained outside the German net, and it was gratifying to know that this attitude was endorsed by the subsequent withdrawal of France and the United States of America. Dr. James Alexander Murray was appointed to succeed Dr. Bashford as General Superintendent of the Fund and Director of the Laboratories.

REPORT OF GENERAL SUPERINTENDENT OF RESEARCH.

The investigations of the past year which called for notice dealt with the factors determining metastasis formation and immunity.

Metastasis Formation.

The process of metastasis formation consisted of two phases. The initial phase was comprised in the passage of the tumour cells through the endothelial layer of the lymphatic or blood vessels in the primary focus, whether this was a spontaneous or a transplanted tumour. This might take place early or only after a long delay, this feature being characteristic of the new growths of many organs and determining largely the prognosis and surgical treatment of the disease in man. The second phase was separated from the first by the mechanical transport and arrest of the intravascular emboli in sites remote from the primary focus. It comprised the processes which ensued at the place of arrest, ending with the new vascularization and establishment of the secondary or metastatic growth. By intravenous inoculation of tumour emulsions the factors concerned in the first phase were eliminated, and success or failure of growth were determined entirely by the processes at the site of arrest. This was carried out with a number of carcinoma and sarcoma strains by Dr. Takahashi, and on comparing the frequency of growths resulting in the lungs with the other characters of the tumours, it was found that the results corresponded closely with the occurrence of metastasis when the strains used were transplanted subcutaneously. Those which naturally metastasized grew in the lungs with ease, while those which had never done so were uniformly negative on intravenous implantation. On the other hand, the percentage of success on subcutaneous transplantation furnished no indication of the probable fate of intravascular emboli. The investigation had shown that, in the transplanted tumour strains examined, the occurrence of pulmonary metastases depended on the ability of the tumour cells to survive and proliferate after arrest in the lungs. The property of the cells which especially favoured metastasis was a capacity for rapid growth leading to organic union with the vessel wall before destructive vacuolation occurred.

Immunity.

As had frequently been pointed out in communications from the laboratory, immunity to cancer had only been demonstrated against cancer grafts and the tumours arising from them. The procedures which were effective under these conditions were without effect on spontaneous tumours or autologous grafts of spontaneous tumours. So long as a passive transference of the resistant condition from actively immunized animals to fresh individuals, and particularly to spontaneously affected animals, remained an unattained ideal, no application could be made of the knowledge acquired of cancer immunity to the treatment of cancer. While in the past resistance to grafted carcinoma had been clearly demonstrated, technical difficulties had militated against an equally satisfactory study of sarcoma immunity. The frequency of spontaneous absorption of transplanted sarcomata and the high resistance to a subsequent inoculation of carcinoma and sarcoma of such cured animals seemed to contrast strongly with the apparent indifference of most sarcoma strains to immunity induced by preliminary treatment with normal tissues. Dr. Tsurumi had succeeded, by using a suitable sarcoma strain and careful attention to dosage, in demonstrating a complete parallel between carcinoma and sarcoma immunity. The time of development after the preliminary treatment, the acme of resistance, and the subsequent decline had been shown to be the same as those already established for carcinoma. In addition, Dr. Tsurumi had carried out an elaborate serological study of the properties of cancer cells by using them as antigens to immunize animals of strange species. The haemolytic, cytolytic, precipitating, and agglutinating

characters of the immune serums obtained in this way had been tested in a variety of combinations. The results were unsuited for a short summary, and a full account was in preparation and would be published as soon as possible.

Statistics.

It had frequently been noted that in the progressive recorded increase of cancer mortality the death-rate from uterine cancer had remained stationary. Cancer of the breast, on the other hand, participated in the general recorded increase. In past years relative ease of diagnosis and success of operative treatment had been put forward tentatively to account for this difference. In the Registrar-General's Report for 1913 the deaths from cancer of the female generative system had been distributed according to the marital condition of the victims, and from the proportions of single and married (including widowed and divorced) in the population, the death-rates in the two classes had been calculated. The results confirmed the generally accepted view that cancer of the uterus was more common in the married than in the single. The excessive mortality of the married commenced at once, and was well marked throughout the child-bearing period. Towards the end of life the mortality of the single rose steadily till it equalled that of the married. It was usual to attribute this increased mortality to the greater exposure of the uterus in those who had borne children to damage and infection with the accompanying chronic irritation. Cancer of the ovary showed the opposite condition. The mortality was greater in the single throughout life, and it was only in the highest age-periods, where a slight terminal decline could be seen, that the curves approached each other. In cancer of the breast the curves run closely together for the greater part of the active sexual period. As the menopause was approached, the mortality of the single began to exceed that of the married, and continued in excess to the end of life. Dr. Stevenson correlated the contrasted behaviour of uterus and mamma with the decline in fertility, which was so marked a feature of recent vital statistics, and the results might be summarized by saying that while child-bearing increased the liability to cancer of the uterus, normal activity of the mamma acted as an insurance against cancer of that organ. The protection was even greater in the case of cancer of the ovary. These data were practically incompatible with the parasitic hypothesis of the etiology of cancer, for the argument which might be supported by the figures for cancer of the uterus was refuted by the data relating to the breast and ovary. Again, the excess of mortality in the unmarried from cancer of the breast would appear to be at variance with the generally observed association of chronic irritation with the induction of cancer. The hypertrophy and liability to inflammatory and other injury associated with pregnancy and lactation would seem to be of subsidiary etiological significance. The extent to which the recorded mortality from cancer coincided with the absolute incidence of the disease had a topical interest from the effect which the present abnormal conditions might have on the registration of the causes of death. The profound dislocation of the civil medical service might be expected to enhance the discrepancy, due to errors of diagnosis, between the absolute incidence and the recorded frequency of cancer. The point would have to be borne in mind when the data for these years came under review, and the results should supply a valuable indication of the magnitude and distribution of the errors of diagnosis of cancer in the country generally.

The report was adopted.

REPORT OF HONORARY TREASURER.

Sir W. Watson Cheyne stated that during the past year the list of subscriptions and donations, as compared with the year 1913-14, showed a reduction of £600, which was to some extent compensated for by a slight increase of legacies, amounting to £378. The expenses of the Research had exceeded the fixed income of the Fund from investments by the sum of £1,444 16s. 7d. It had in hand at the present time on deposit and on current account a sum of £2,877; in view of possible loss of income, it was thought advisable to retain a substantial balance on current account, but it was intended to invest at once the sum of £2,000 in the War Loan.

British Medical Journal.

SATURDAY, JULY 24TH, 1915.

THE RISK OF MALARIA IN THE SUMMER AND AUTUMN CAMPAIGN.

It has been suggested, and not without good reason, that there is a danger of malaria becoming prevalent in Flanders this autumn. Though this disease has practically completely disappeared from England, it still occurs in Holland, and there is no reason, given the proper conditions, why it should not appear now in Flanders.

To appreciate the extent of the danger, certain conditions must be kept in mind. In the first place a malaria-carrying mosquito must be present; in the second, human beings carrying gametocytes (that is, the sexual forms of the malarial parasite) in their blood must be there to infect the mosquito; and in the third place, a suitable temperature must exist in order that the development of the parasite may take place in the insect host.

As regards the first of these conditions, a suitable mosquito, the *Anopheles maculipennis*, which is the chief malaria carrier of Italy, Greece, and the southern parts of Europe, is present, not only in Flanders and France, but, as a matter of fact, in England itself. Malaria carriers—namely, people harbouring gametocytes in their blood—are probably present, because Indian troops are employed in Flanders at the present moment. Such being the case, the question arises whether malaria may be expected to break out. Practically the answer will entirely depend on the weather. If the season is sufficiently hot malaria may be expected.

To those not conversant with the somewhat intricate epidemiology of malaria the truth of this may be explained by turning for a moment to the conditions which prevail in Italy. The malarial season there commences about the middle of June, and the incidence goes on increasing through July, August, and September; it then falls as the weather becomes cooler, and disappears entirely during the winter and spring months. Throughout the year people who have suffered from malaria and who have not been properly treated are subject to relapses from time to time, and in the agricultural areas, where the disease chiefly prevails, there must be many such persons. They are not specially dangerous in the cold months, but when the temperature becomes sufficiently high the mosquitos begin to bite, and if they bite such individuals they will take up the parasites, which will undergo development in them, and thereby render them infectious. It is on this account that fresh attacks of malaria in climates with a cold season are limited to certain months of the year—namely, those months with a high temperature. Experimental work on filariasis and malaria has demonstrated how important a suitable temperature is to the life-history of parasites. The development of the embryo, *Filaria bancrofti*, and of the gametocytes of malaria, in the mosquito is dependent upon the temperature of the air being high, 80° F. or over; if the temperature falls below this the development is at once checked, or does not take place at all.

In the tropics, where high temperatures are practically always present, there is no definite malarial season, and people may acquire malaria at any time. Such conditions are very rarely present in England, and that is one of the chief reasons why indigenous malaria is so rare in this country. It must be remembered, however, that it may occur, because in certain summers spells of suitable weather are met with (in the Coronation year, 1911, for example). Lately there have been three or perhaps four cases in which people have contracted malaria in England; all have occurred during the late summer—that is, during the warmest time of the year. As a rule, however, the English summer is so variable and cold that the *Anopheles maculipennis* does not condescend to bite, and so never runs the chance of becoming infected.

The temperature of Flanders and the North of France may be a little hotter than that of England, but does not differ very much; a cold summer in one usually means the same condition in the other. So far the weather in England has been this year quite unsuitable for the development of the malarial parasite in the mosquito, and unless a very much warmer spell occurs in August and September, there will be little or no chance of a malarial epidemic or outbreak in the North of France. Another point of interest about the indigenous malarial cases in temperate climates, such as those mentioned, is that they are generally of the benign tertian type, a form of malaria that is not specially dangerous or associated with a high death-rate. The North of France and Flanders, like England, are too cold for the development of the malignant types of the disease.

Apart, however, from the danger of malaria, mosquitos are likely to be very troublesome in Flanders this summer owing to the large amount of flooded country that now exists. In some places where the sea-water gains an entrance, it may be too salt to suit the larva of the mosquito, but further inland where the influence of the sea is not felt there will be vast breeding grounds. Varieties such as *Culex pipiens*, *Grabbania dorsalis*, *Theobaldia annulata*, *Anopheles maculipennis*, and *A. bifurcatus* may be expected; but here again the amount of annoyance these will cause will depend largely upon the temperature. If the weather becomes hot they may quite easily become an intolerable nuisance, whereas if it keeps cold and wet they will not bite much. *Grabbania dorsalis* is very common in the marshy ground north of the Royal Albert Docks in London and bites persistently in hot weather. This is the real explanation of stories of the yearly invasion of the East End of London by hordes of mosquitos imported in steamers coming from the East. It can hardly be necessary to say that any mosquitos taken on board such steamers die before they reach England, probably long before.

In certain favourable localities oiling the pools and collections of water where the mosquitos breed will help to keep down their numbers, and this method would seem to be the only one to adopt in Flanders and France, because mosquito nets for the troops are impossible, although those out of the firing line living in houses may find that a portable mosquito net will save annoyance and trouble.

In the Dardanelles the conditions as regards climate and temperature are similar to those found in Italy, Greece, and Cyprus. In all these places the weather is now getting very hot and the malarial season beginning. What will happen in the Gallipoli peninsula will depend on whether or not there are suitable collections of water—streams and swamps—for the *Anopheles* to breed in. The scarcity of water

is, however, one of the difficulties with which the French and British forces have to contend, and the accounts which have hitherto reached this country seem to show that there is little or no malaria there and few mosquitos. Flies, however, are present in enormous numbers and are causing much trouble, and the part they may play in the spread of disease deserves further consideration.

HOSPITALS AND DUTY-FREE ALCOHOL.

As some misapprehension appears to exist with reference to the action of the British Medical Association with regard to the matter of the exemption of hospitals from duty on alcohol used for medicinal purposes, it may be well to give a brief statement of the facts. In the first place, it should be said that in the action it has taken the Association has been in co-operation with the Pharmaceutical Society. When the Finance (No. 2) Bill came up for second reading it was found that the Government had introduced into it a new clause extending the provisions of 2 Edw. VII, c. 7 (authorizing the use of duty-free alcohol) to hospitals, and in a special section a definition of hospitals was given. No warning had been given that such a clause would appear in the bill, and when its terms became known the representative organizations of medicine and pharmacy, which were both concerned in the matter, called the attention of the Chancellor of the Exchequer to certain objections to the clauses as drafted. The clauses after some debate were withdrawn, and thereupon Mr. Bridgeman, one of the junior Lords of the Treasury, asked representatives of the two associations to meet him with a view to devising some form of words which would obviate the difficulties anticipated. Mr. Bridgeman fully understood that the opposition of the British Medical Association and the Pharmaceutical Society was not to the principle of making a concession to hospitals, but to the method by which this concession was proposed to be made. At the interview the defects in the official clause were pointed out, and an alternative method of procedure suggested. This alternative commended itself to Mr. Bridgeman, and he has since written stating that the suggestions have been accepted by the Government, but that seeing that the new clause desired would necessitate a recommitment of the bill, the Government had decided to incorporate the suggestions in the next Finance Bill.

Stated briefly, the criticisms of the British Medical Association and of the Pharmaceutical Society were directed to two points: The first was that the clause as originally drafted, and now withdrawn, would have based the amount of the grant to a hospital on the amount of alcohol which it had contrived to consume; the second was that the whole question of duty-free alcohol was one which had exercised both medical and pharmaceutical opinion for a long time, and could not properly be dealt with in the summary fashion proposed. It was pointed out that the official definition of a hospital opened the door to widespread abuse in the formation of one-man "hospitals," and that a later addition to the official clause limiting the benefit to institutions not run for gain was insufficient to shut out the possibility of abuse.

The constructive suggestions put forward by the British Medical Association and the Pharmaceutical Society were, first, that a full and proper inquiry should be held into the best way of dealing with the subject of duty-free alcohol in medicine; secondly, that in the meantime there should be made to duty

recognized hospitals a fixed grant equal to the tax on all the alcohol used for medicinal purposes in the year 1914; and, thirdly, that an advisory committee should be appointed to assist the Commissioners of Customs and Excise in determining whether applications from hospitals claiming the benefit of the Act should be approved.

The whole profession, hospitals included, have to thank the British Medical Association, acting in co-operation with the Pharmaceutical Society, for ensuring that medicine shall be exempt from the new eighteenpenny tax on raw alcohol. It cannot be doubted that the action of the Association on the further and larger matter will be as fruitful of good.

INCOME TAX.

WE have on more than one occasion called attention to the unfairness which arises in cases in which the Income Tax authorities insist on a strict application of the rules under which expenses are deductible from assessments made under Schedule E on fees or other emoluments of "offices." In the issue of July 2nd, 1910, we dealt with the question at some length, and the Board of Inland Revenue not very long afterwards apparently waived the technical right—which still exists—of separately assessing such fees under Schedule E, and, so far as can be ascertained, the method of assessment now usually adopted is to create one assessment under Schedule D, into which is gathered the professional receipts from all sources, whether private or "public." Generally speaking, this tacit concession fairly meets the case, although from time to time correspondents have informed us that in particular cases surveyors of taxes appear to be reluctant to recognize that this method of assessment is really in operation. Moreover, this concession seems to be subject to certain limitations. For instance, at present a considerable number of doctors hold commissions in the R.A.M.C.(T.) as medical officers attached to local military hospitals, and carry on their civil practice and appointments concurrently. In these cases the army pay is taxed by the Paymaster-General through the pay agents, with apparently no deduction for the expenses incurred for the use of the telephone, private instruments, motor car, etc., of the practitioner. In the case of an appointment to a civil hospital the difficulty would be avoided by returning the remuneration as part of the general profits, and deducting therefrom the whole of the expenses of the practice. In equity there is no reason why a similar course should not be adopted where a military hospital is concerned, but in law there appears to be this difficulty, that the department of the Paymaster-General is a separately constituted assessing authority, and therefore the whole income of the practitioner does not fall within the purview of the local officials. In the result he is in some cases deprived of an adequate allowance for the expenses incurred by him in carrying out his military work. The whole matter shows the impossibility of applying equitably the venerable rules of assessment contained in the Income Tax Act of 1842 to an income earned in modern conditions. In these days of high rates of duty the taxpayer is entitled to expect careful consideration and strictly just treatment, not by a tacit or avowed concession but by right of statutory provisions open to judicial interpretation. The income tax machine which was set up by the Act of 1842 has certainly been subjected to many additions and improvements, but, if we may judge from the public statements of leading politicians, all parties are agreed that it is now high time that the old machine was laid aside and replaced by one embodying all the improvements made in the old, but fully adapted to deal with the more complicated professional and industrial conditions of the twentieth century. We trust that when that work has been done the medical practitioner will find

it easier to obtain those allowances to which he is entitled, but which the archaic redivision of his income into "schedules" too often denies him.

THE HISTORY OF SPECTACLES.

So many myths surround the history of the invention of spectacles that the task of sifting truth from fiction is almost heroic. We are indebted to Dr. K. K. K. Lundsgaard,¹ of Copenhagen, for a critical view of the numerous and conflicting accounts of this invention, which, though about six centuries old, has been of general value for the past century only. The popular notion that spectacles were used by the Chinese has been dismissed as erroneous by Professor F. Hirth, of Columbia University. Some historians have attempted to credit the Romans with the use of spectacles on the rather flimsy assumption that Nero was in the habit of holding an emerald to one eye to see the better. It is highly improbable that he was short-sighted, for this would have disqualified him as a charioteer, in which capacity he seems to have given, to himself at least, perfect satisfaction. His eyes, it is true, were weak, and it is conceivable that the emerald was used to relieve photophobia. Emerald-gazing has from time to time been regarded as a valuable remedy for weak eyes, and it is, therefore, also possible that Nero followed the dictates of his oculist while enjoying the pleasures of the arena. Again, he may have flouted his emerald to point his political sympathies with the so-called Green Party. It is not even stated that the emerald was polished; and the view that it was used as an aid to vision seems to depend for its correctness solely on Pliny's words: *Nero principis gladiatorum pugnas spectabat in smaragdo*. Coming to a much later date, Dr. Lundsgaard does not give Roger Bacon much credit for the actual invention of spectacles; he thinks it is even doubtful whether Bacon's speculations on vision and his optical theories were original. The magnifying properties of glass spheres were, at any rate, recognized before this time. Yet, the invention of spectacles was made in his lifetime, and it is impossible altogether to dissociate him therefrom. It is very probable that the invention was made independently by different workers towards the close of the thirteenth century, for the use of spectacles was apparently introduced simultaneously in widely separate localities. Important among these is Florence. Here the church of St. Maria Maggiore contained the grave of one Salvino Armati, with an inscription to the effect: "Here rests Salvino Armato Armati of Florence who invented spectacles. May God forgive him his sin. In the year of Our Lord 1317." Francesco Redi of Pisa discovered a manuscript of the year 1299 in which the writer referred to the benefit he had derived from the use of the newly invented spectacles. In a sermon preached in Florence in 1305 Giordano da Rivalto said: "It is not twenty years since the invention was made of eyeglasses, which improve vision, and are one of the most useful inventions known to the world." For some centuries only convex glasses were used, and it was not till the middle of the sixteenth century that the value of concave glasses was appreciated. The earliest evidence we have of their use is probably the painting of Pope Leo X by Rafael, who represents the Pope as holding what is evidently a concave glass in his hand. In a painting of the same period by Lucas Müller, of Christ and His companions, a man is portrayed with concave glasses—an anachronism of which the painter was doubtless blissfully unconscious. In 1760 Benjamin Franklin, who was short-sighted, had spectacles made with the upper halves concave and the lower convex; but it was not till 1823 that McAllister of Philadelphia succeeded in grinding glasses so as to correct astigmatism. Spectacles were usually made of glass, the best specimens of which came from Murano, where the secrets of its

manufacture were successfully preserved from the thirteenth to the sixteenth century. Towards the close of the seventeenth century Christian Porschmann of Königsberg made spectacles of amber, which he boiled in oil to get rid of the yellow colour. The Scandinavian and German name for spectacles is *brille*, which is probably derived from the word "beryl," although Stilling has traced it to the word *parilla*, a pair.

THE NATIONAL ASSOCIATION FOR THE PREVENTION OF CONSUMPTION.

The annual meeting of the National Association for the Prevention of Consumption and other Forms of Tuberculosis was held on July 15th at 20, Hanover Square, London. In reviewing the year's work, Lord Balfour of Burleigh, who was in the chair, said that new ground had been broken by the association in connexion with the National Insurance Act; it had got into touch with a number of the approved societies. Unfortunately, much of this work had been arrested, only temporarily it was hoped, by the war. The war, itself, however, had furnished practical evidence of the value of the principles which the association inculcated, for the advantage of open-air life and physical drill to those members of the new armies who had been accustomed to sedentary occupations was very quickly made manifest. It was also gratifying to know that in Leeds alone forty-seven men who had been successfully treated in the sanatorium were serving with the colours. The annual report was adopted on the motion of the chairman, seconded formally by Sir William Osler, and to the vacancies on the Council caused by the death of Lord Justice Kennedy and the resignation of Sir James Kingston Fowler, the meeting elected the Right Hon. Charles Hobhouse, M.P., and Dr. F. N. K. Menzies. Professor Joseph Denys, the director of the Bacteriological Institute of Louvain, who was greeted with special warmth on account of the misfortunes which have befallen his university, then delivered an address on the eradication and prevention of tuberculosis. So far as the human sources of tuberculosis were concerned, the mediums through which the disease was spread might be restricted for practical purposes to the sputum and to supporting discharges. In the latter the germs were comparatively few, and to destroy them it was only necessary to take the ordinary precautions of disinfection. With the sputum it was a different matter; in the first place, because of its more easy dispersal, and in the second, because of its enormous germ-content: 1 c.cm. of sputum might contain a million million germs, and taking the moderate estimate of 20 c.cm. as representing one day's expectoration of a single patient, and supposing only 1 per cent. of the germs to be living, this would mean the setting free of germs to the number of two hundred thousand millions a day. The sputum was the real enemy against which unceasing war must be waged. It should never be allowed to adhere to linen or any surface, for, once dried, it would scatter into the air as dust, a certain proportion of which would find a lodgement in the respiratory or digestive tracts. It was necessary that the patient should use a spitting vessel or flask, and that the contents be destroyed several times a day. The value of the spitting flask was proved beyond doubt by experiments which had been carried out under his direction, when a large number of samples of dust were collected from hospital walls and elsewhere, and injected into some hundreds of guinea-pigs. The results proved (1) that it was easy to find germs in the immediate surroundings of a consumptive who did not use a spitting flask; (2) that outside the immediate surroundings of a consumptive such germs were not to be found, owing to the effect of light, desiccation, etc.; and (3) that germs were not found in the surroundings of consumptives using spitting flasks. The careful consumptive,

¹ *Medicinsk-Historiske Smaaskrifter*. Edited by Vilhelm Maar, pp. 79. Vilhelms Trydes Forlag, Copenhagen.

therefore, was not a danger to the community. The perspiration of consumptives, he thought, could hardly be an infective agent, nor could the breath during normal quiet breathing, though it was otherwise during the paroxysms of a cough. Infection from cattle might come through meat or through milk. Infection through meat was less likely, because the bacilli were not usually in those parts of the animals used for food; animals known to be diseased were segregated and destroyed, and, moreover, cooking was a sterilizing process. In the case of milk, however, bacilli were very liable to be absorbed alive by the mucous membrane of the digestive tissues, and the obvious preventive was sterilization by boiling. He thought that something might be done in the human subject while the tuberculosis was still in the closed stage, before the bacillus had communication with the exterior. The object was to prevent the foci of the disease from becoming open, and he was among those who considered that by means of tuberculin treatment it was possible to destroy the germs in the persons in whom they were interned. Every measure of diagnosis and early identification should be taken, and it would be useful if some information were printed on the rules of all dispensaries as to the symptoms of early tuberculosis. The medical man should also bear in mind the fact that consumption generally existed in nests, and the most stringent inquiry should be made into the family history. Another desirable thing would be to send to a sanatorium for a brief period cases with regard to which there was even the slightest amount of suspicion, so that the patients would have a discipline in personal hygiene which would stand them in good stead on returning to ordinary life. No extreme measures were required; it was a matter of goodwill, knowledge, and understanding. The first of these could generally be depended upon, but if it were not forthcoming, then recourse must be had to the public opinion of the culprit's neighbours, who were the first to suffer for his refractoriness. The thanks of the meeting to Professor Denys were expressed by Lord Balfour.

PITUITARY EXTRACT AS A GALACTAGOGUE.

As is well known, the administration of extract of the posterior lobe of the pituitary gland to a lactating animal is followed by an increased secretion of milk from the mammary gland. It is indifferent whether the extract is given by subcutaneous, intramuscular, or intravenous injection; the effect appears within half a minute or less. Two explanations of this occurrence have been offered. One view is that pituitrin is a powerful stimulant for non-striated muscle generally, and that its action as a galactagogue is confined to expulsion of the milk already secreted in the gland, by causing contraction of the involuntary muscle with which the gland tissue and its ducts are freely supplied. The other view asserts that the pituitary extract stimulates the secretory mechanism of the gland. Evidence in favour of each of these views has been brought forward by different physiological experimenters. Quite recently Simpson and Hill¹ have shown experimentally that the injection of barium salts has no such galactagogue action. Now it is generally recognized that involuntary muscle fibre, like that of the mammary glands, is very sensitive to the influence of barium salts, which immediately throw them into a state of tonic contraction. It is argued that if the galactagogue action of pituitrin is by way of these muscle fibres, barium salts would necessarily be effective galactagogues. Simpson and Hill, therefore, conclude that pituitary extract acts on the secretory mechanism of the mammary gland when it produces a quickened flow of milk. Physiologists, however, will perhaps be slow to accept so positive an

assertion as this while it is based on what may be called merely negative evidence. There is nothing to show that barium salts actually do cause contraction of the involuntary muscle fibre in the mammary glands, as they do in other parts of the body. Again, pituitrin, though generally a powerful tonic stimulant of non-striated muscle, acts inhibitorily on it in some organs—in the arteries of the kidney, for example. To Sir Edward Schäfer² it appears impossible to accept the view that pituitrin stimulates the secretory mechanism of the mammary gland. If it did, the extract would be able to produce a flow of milk from the gland after it had been emptied of milk; experiment shows that it cannot do this. He offers two alternative explanations. One, already mentioned, is that the extract causes the involuntary muscle of the lactating gland to contract and squeeze out the milk it already contains. The other, suggested by Milroy, is that injection of the extract causes relaxation of the tonically contracted muscle fibres round the ducts, allowing the milk retained in the gland to escape; this hypothesis would fit in with the result of the experiment with barium salts described by Simpson and Hill. Sir Edward reasserts the presence of unstriated muscle fibres in the reticulum supporting the mammary alveoli, and pins his faith to the first of the alternative explanations mentioned above. He points out that the *vis a tergo* of the secreting cells in forwarding their secretion could hardly empty the mammary alveoli to the extent to which pituitary extract empties them.

SPANISH "INTELLECTUALS" ON THE WAR.

The manifesto of the ninety-three German "intellectuals," which was so startling a revelation to the world of the true nature of Teutonic "Kultur," called forth vigorous replies from leaders of thought in this country, in France, Russia, Portugal, Roumania, the United States, and Brazil. Quite recently the "intellectuals" of Spain have joined in the denunciation of the German manifesto. In a declaration signed by the foremost representatives of science, medicine, philosophy, literature, and art, they warmly profess their sympathy with the cause of the Allies as representing the ideals of justice. "Our conscience," they go on to say, "condemns, wherever they occur, these deeds which degrade human dignity, and the respect which men owe each other even in the fiercest excitement of war." They hope that the triumph of the cause which they hold to be just will "establish the essential qualities by means of which each people, great or small, weak or strong, has brought human culture into being, will destroy the ferments of egoism, domination, and shameless violence which are the causes of catastrophe, and will firmly cement a new international fraternity in which force will fulfil its object, which is to safeguard right, reason, and justice." The signatories state that they have been moved to break silence because, owing to the pusillanimity of her politicians, Spain has been made to appear as if she held herself aloof and feared to express any opinion on the great issues now being decided in this supreme moment of the world's history. This declaration will be welcomed by the countries which are fighting for the cause of civilization and the liberation of the world from an attempt to crush it under the heel of Prussian militarism. Hitherto Spain has, owing to a particularly active German propaganda, political and commercial, and to other causes which need not be discussed here, appeared to be pro-German in her sympathies. The manifesto from which we have quoted will serve to redeem her from the reproach of being on the side of barbarism. To us it is a matter of special satisfaction to see the names of many distinguished representatives of Spanish medicine in the list of signatories.

¹ S. Simpson and R. Hill, *Quart. Journ. of Exper. Physiol.*, London, 1915, viii, 372.

² *Ibid.*, 373.

MODERN ARMOUR.

The war has had many surprises in the way of the re-introduction of appliances which were supposed to be entirely out of date, such as hand grenades, but perhaps the most curious is the revival of armour for the person. The French War Office has issued a number of metal skull caps to be worn under the kepi, and Le Dentu and Devraigne have recently presented a report to the Paris Academy of Medicine which affords evidence that this metallic cap may be of considerable value. Owing, apparently, to the nature of trench warfare, the number of wounds of the head seems to be unusually large; thus, among 105 soldiers killed or wounded during a single week the wounds were of the head in 14 cases—that is to say, in nearly one-eighth. Devraigne has collected some further statistics, from which it appears that of 55 cases of wounds or blows of the head from projectiles 42 occurred in men who had not worn the metal cap, and of them 23 suffered fracture of the cranium, while 19 had scalp wounds only. On the other hand, of 13 who were wearing the metal cap, 8 suffered from concussion only, and 5 escaped without abrasions. Le Dentu concludes that the metal skull cap is a real protection, but states that it is not popular with the men, owing, probably, chiefly to defects in its construction; it is too hemispherical to fit the cranium well, and it keeps in the perspiration, and for this reason and on account of its weight is apt to produce headache. The main reason why the use of metal armour has been abandoned in modern warfare is the belief that the thin sheet of metal would not turn a bullet and that fragments from the armour might make the wounds worse. There can be no doubt as to the possibility expressed in the second objection, but as to the first the facts are not conclusive. Le Dentu quotes two cases in which a bullet perforated a metal skull cap in the temporal region, circled round between it and the scalp, and escaped through the cap on the other side in the same region. One of these men suffered no wound, the other had an abrasion of the scalp. From the metal cap to armour for the chest is so small a transition that it is not surprising to find that the use of such a protection for the chest has been suggested. So far as we are aware, however, there is no evidence at present forthcoming as to its efficacy.

THE LONDON SCHOOL OF MEDICINE FOR WOMEN.

A LETTER signed by the Prime Minister, Lord Curzon of Kedleston, and Mr. Arthur Balfour, dated July 15th, has been published in the following terms: "The war has constituted a turning-point in the position of medical women, and there are new openings and new opportunities for them in many directions. Increasing numbers of women are desirous of entering the profession, and to provide for their adequate educational needs the London (Royal Free Hospital) School of Medicine for Women is now practically doubling its laboratory accommodation. The council of the school has already received £15,000 of the £30,000 required for the additional buildings and their equipment. We would direct your attention to the effort started by a number of representative men and women to help to raise the balance of £15,000 by means of subscriptions of £1 each." The school was founded in 1874 by Dr. Sophia Jex-Blake in a small private house in Hunter Street, Brunswick Square; larger premises were built on the original site in 1900, but the school has now outgrown these buildings also. In 1874 there were 14 students, to-day 220, and a further entry of over 60 is expected next term. The Royal Free Hospital has not only thrown open its wards to women students, but has made qualified women eligible for resident and visiting appointments. The school is a school of the University of London in the Faculty of Medicine, and of the thousand women on the *Medical Register*, over 600, it is stated, have received their

training at it. They are doing good work in public health departments, in sanatoriums, in Poor Law institutions, in medical missions, and in hospitals both in Great Britain and India, as well as in private practice. Many of them are working among the sick and wounded both in this country and in France and Serbia, and a military hospital in Endell Street for 550 wounded soldiers is in charge of former students of the school. The Queen recently allotted £250 from a fund placed at her disposal by the wives of Freemasons to pay for the training and expenses of a woman student. The council of the school has secured from the Foundling Hospital a piece of land adjoining the present premises, and the building of an extension, comprising enlargements of the present laboratories, new research rooms and new lecture rooms, from the designs of Mr. H. V. Ashley, F.R.I.B.A., has already been begun. Subscriptions may be sent to Her Grace the Duchess of Marlborough, the Honorary Treasurer of the Extension Fund, London (Royal Free Hospital) School of Medicine for Women, 8, Hunter Street, Brunswick Square, W.C.

THE WAR REGISTER.

It is hoped that those members of the profession who have not yet returned the War Register form, sent to them by the British Medical Association, will do so without delay, in order that the Register may be completed as soon as possible. The forms have been issued by the British Medical Association in order to find out if there are any members of the profession still available for whole-time service with the Royal Army Medical Corps.

THE Marine Department of the Board of Trade has issued a notice with regard to sight tests in the mercantile marine and fishing service announcing that the Board has decided to discontinue the use of wool tests in the examination of candidates in the sight tests after January 1st, 1916.

Medical Notes in Parliament.

R.A.M.C. and Territorial Force: Promotion of Lieutenants.—Viscount Middleton asked the Government in the House of Lords, on July 21st, whether it was intended to make any increase in the pay of medical officers of the Territorial Force, who had been obliged to give up their home practice on volunteering for foreign service. Lord Newton stated in his reply that, in view of the admitted grievance of the junior officers, it had been decided to promote to the rank of captain all lieutenants in the R.A.M.C. and the Territorial Force who had given six months' mobilized service. This would be done immediately, and would date as from April 1st last. The further consideration of this question was not entirely precluded.

Promotions in the R.A.M.C.—Sir Joseph Walton asked, on July 19th, whether, in consequence of the war, a large number of R.A.M.C. lieutenant-colonels had been promoted to colonels, and similarly a large number of majors had been made lieutenant-colonels; whether all lieutenants had been made captains, and why no captains had also received accelerated promotion. Mr. Tennant said that a number of captains had received accelerated promotion, and further promotions would be made when the necessity arose. The names of several had been recently submitted for gazette.

Medical Officers and War Office Services.—Mr. Charles Duncan asked the Financial Secretary to the War Office, on July 15th, whether the medical officers of Rochester, Chatham, and Gillingham were performing any services for the War Office, and, if so, would he state the amount of remuneration being paid to them. Mr. Forster said that

the answer to the first part of the question was in the affirmative. In the case of Chatham the remuneration was 24s. a day and in the others 15s.

Asylum Medical Officers.—Sir Philip Magnus asked the Under Secretary of State for War, on July 20th, whether a retired medical officer of the asylum service who accepted medical duties under the military authorities was deprived of his pension under Clause 7 of the Asylum Officers' Superannuation Act to the extent that no such officer might receive more of the superannuation allowance than, together with the pay from the military authorities, was equal to the remuneration of the office or employment in respect of which the superannuation allowance was awarded; that, consequently, in some cases the officer employed worked for less than half the salary paid to other men; and that no such disability applied to military and naval pensioners; and whether, in view of the scarcity of medical men at the present time both for the army and for civil practice, he would take steps to ensure the restrictions under Clause 7 of the Asylum Officers' Superannuation Act being waived. Mr. Tennant said that the provision in question was not peculiar to asylum officers, but was applicable generally to persons drawing civil superannuation allowances. It was not proposed to alter the law, so far as he was aware, but the matter was one for the Treasury rather than the War Office.

Retransfer to Royal Army Medical Corps.—Mr. Tennant stated, on July 15th, in reply to Mr. Jowett, that under instructions already issued men might be retransferred to the Royal Army Medical Corps provided it was clearly established that they had conscientious scruples as regards taking life. In replying to Mr. Suowden, on July 19th, Mr. Tennant repeated his previous statement that men in the R.A.M.C. who had conscientious objections to taking life would be specially dealt with, and added that he hoped that the great bulk of those members of the R.A.M.C. who had been transferred to other regiments would be reinstated in their original corps.

Treatment of Nerve Strain.—Dr. Macnamara, in reply to Mr. Rendall, who asked a question on July 14th regarding the treatment of sailors in the Royal Navy disabled by nerve strain, said that suitable accommodation and treatment were provided in the base naval hospitals for all cases of nerve strain and neurasthenia. All such cases were naturally most carefully diagnosed before any decision was come to as to whether they were certifiable or not. Certification of all naval cases was carried out by naval medical officers and not by an asylum doctor. No man so certified could, however, be sent to any asylum until his discharge had been approved by two Lords of the Admiralty. All cases of insanity attributable to the service, and all men who had length of service to their credit, were treated in the naval asylum, and not in a general asylum. Mr. Tennant, in replying to Mr. Ginnell on July 20th, referred to the answers already given in the House of Commons, stating that every endeavour was being made to treat soldiers suffering from traumatic neurasthenia and mental strain in such a manner as to avoid sending those not certifiable into asylums, and for this purpose arrangements had been made to treat such cases in certain private and civil hospitals in the United Kingdom; a Red Cross military hospital had been opened in Lauchshire for their reception. The question of the boarding out of such persons had been considered, but the practical difficulties in the way were considered insuperable.

Naval and Military War Pensions Bill.—On the motion for the third reading of this bill, on July 20th, the Chancellor of the Exchequer moved to recommit the bill in order to omit from the statutory committee the representatives of the National Relief Fund and the Soldiers' and Sailors' Families Association. He did this on the ground that members of the National Relief Fund did not think that they would be justified in handing over the funds entrusted to them by the public to be administered by any other body. The omission of the representatives of those bodies from the statutory committee would not preclude

representatives from sitting on the local committees. After some discussion the amendment was accepted, and the bill read a third time.

Dardanelles Operations: Casualties to End of June.—In reply to Mr. Joynson-Hicks the Prime Minister stated that the total casualties sustained by both naval and military forces in the Dardanelles up to June 30th are as follows:

Officers:	Killed ...	...	541
	Wounded ...	...	1,257
	Missing ...	...	135
			1,933
Men:	Killed ...	...	7,543
	Wounded ...	...	25,557
	Missing ...	...	7,401
			40,501
Total casualties	...	...	42,434

Sir Ian Hamilton's further dispatch, containing his recommendations promised in his dispatch of May 20th, would be published as soon as the names had been checked; it was also stated that Admiral de Robeck's dispatch dealing with the landing operations would be published shortly.

Inoculation for Enteric Fever.—Mr. Yeo asked the Under Secretary of State for War, on July 14th, whether some of the British soldiers in Europe who were inoculated against typhoid fever a few months ago were being reinoculated; whether these men were being told that in order to be properly protected against typhoid they must be inoculated every six months; and whether periodical reinoculation for the troops was being generally recommended. Mr. Tennant said that the answer to the first two parts of the question was in the negative. Reinoculation was recommended after two years for men protected by two doses, and after six months for men who had been only partially protected by single doses of vaccine. On July 15th Mr. Chancellor asked the Under Secretary of State for War if he was aware that on June 28th the H Battery, Royal Horse Artillery, mobile section, 2nd Cavalry Brigade, who had been serving at the front for eleven months, were paraded and addressed by Colonel Budworth, who called the men who had exercised their legal right to refuse inoculation cowards, said he would like to hand them over to the Germans, threatened refusal of leave, and in some cases sent them to the trenches as punishment; whether the War Office sanctioned the calling men cowards and refusing leave after eleven months' fighting without a complaint; and whether he would reprimand this officer and protect from such treatment soldiers who had acted on the faith of his word. Mr. Tennant said that he had no information about this case, but if the information was correct he felt sure that the Field-Marshal Commanding-in-Chief, in whose hands the discipline of the Expeditionary Force rested, would have taken proper notice of the matter. Mr. Chancellor asked, on July 19th, by what means the cases of typhoid, which on May 4th numbered 963, had been reduced on May 22nd to 827, although deaths from typhoid had increased from 100 to 128, and whether the reduction was due to mistakes in diagnosis, or to the transfer of typhoid cases to other classifications so as to make the failure of inoculation as a preventive less apparent. Mr. Tennant said it would be well if Mr. Chancellor refrained from suggesting that the medical authorities were guilty of manipulating the statistics in an untruthful, unscientific, and *ex parte* manner. The reduction in the number of cases was due to the original (that is, clinical) diagnosis not having been confirmed in some cases by the subsequent bacteriological examination, which disclosed that those cases, though originally returned as enteric fever, were not that disease at all. The House generally and the public at large would hear with satisfaction that inoculation was abundantly proving its efficacy in preventing enteric fever and in lowering the incidence of death amongst those who were unfortunate enough to contract the disease.

Vaccination of Territorial Troops.—Mr. Tennant informed Mr. Yeo that as the result of inquiries he was informed that the statement that men of the Queen's Royal West Surrey Regiment (T.) had been threatened with compulsory vaccination on board ship was absolutely unfounded.

Convalescent Accommodation for Scottish Soldiers.—Mr. Tennant stated, on July 15th, in reply to Sir A. Williamson, that endeavours were being made to find a suitable place in the north of Scotland for the establishment of a hospital for convalescent soldiers belonging to that part of the country.

Hospital Ship "Oxfordshire."—Mr. Tennant stated in reply to Mr. Watt, on July 19th, that there was no truth in the allegation that on the hospital ship *Oxfordshire*, from Havre to Southampton, on March 19th, sixty wounded British soldiers were taken out of their cots to make room for sixty Germans. He was glad to have the opportunity of correcting a rumour as unpleasant as it was ill founded.

Asphyxiating Gas.—Mr. Tennant informed Sir Henry Dalziel, on July 15th, that the communiqué issued by the War Office to the press on July 11th, stating that the allies had not resorted to the use of gas, referred to the operations in the Gallipoli Peninsula, and was a denial of statements made by the Turks that gas had been used by the British forces. There was no change of the policy announced by the Secretary of State for War in the House of Lords.

Civilian Dispensers.—Mr. Glyn-Jones on July 14th asked whether the War Office had during the past few weeks engaged as civilian dispensers in military hospitals qualified pharmacists on the condition that they receive 40s. a week with free rations and free accommodation; and whether the War Office would permit the pharmacists so engaged to enlist for the purpose of performing the same duties and receiving therefor the same emoluments as they now received from the War Office as civilians. Mr. Tennant said that if the men in question were of military age and were otherwise fit to enlist, they could do so, but they would be required to come on the ordinary Royal Army Medical Corps rates of pay. Mr. Glyn-Jones: Then the War Office is not prepared to pay them the same rate of pay inside the army as they are prepared to pay for exactly the same skilled work to civilians. Mr. Tennant said that he did not know whether that was an accurate statement of the comparison between the two rates. Local commanders, he understood, had encouraged the service of these men on a temporary basis, and they were paid as were all people engaged temporarily—at a higher rate than if they came on the permanent rate. In answer to a further question Mr. Tennant added that he would be very glad to make use of the assistance of the Pharmaceutical Society with a view to meeting any further need for the use of pharmacists in the army or navy.

The Milk and Dairies (Consolidation) Bill passed through Committee of the House of Commons on July 19th without any amendment, and was read a third time. The bill, which was introduced in fulfilment of a promise made during the discussion of the bill of last session, consolidates without any amendment the main provisions of the law relating to milk and dairies. It does not profess to be a complete code of the law relating to these matters, but in the fifth schedule an attempt has been made to collect, for the information of dairymen, the chief provisions affecting them outside the scope of the present bill. This schedule enumerates the provisions of the Public Health Acts, and the Public Health (London) Act, 1891, with respect to nuisances and the sale of food so far as they relate to milk and dairies, the Sale of Food and Drugs Acts, 1875 to 1907, the Public Health (London) Acts, sections 69 and 71, the Public Health Acts Amendment Act, 1907, sections 53 and 54, and the Infectious Disease Prevention Act, 1890, section 4.

Payment of Vaccination Officials.—Mr. Hayes Fisher, in replying to a question by Mr. Peto on July 14th regarding arrears of pay of vaccination officials, said that the President of the Local Government Board agreed that a case had been made out for the change of payment from a system of fees to a system of salaries, but felt that the present was not an opportune time for a general change in the method of remuneration of vaccination officials.

Supply.

Treatment of Tuberculosis.—In Supply on June 15th a vote of £235,000 for the year ending March 31st, 1916, for the payment of grants towards the cost of sanatorium benefit to the dependants of insured persons under the

Insurance Act, 1911, and of the treatment of tuberculosis generally, was agreed to. In reply to questions Mr. Montagu said that it did not necessarily follow that the money voted would be spent; as a matter of fact, there was a decrease this year as compared with last year of 195,000. Mr. Charles Roberts, Chairman of the Joint Committee of Insurance Commissioners, repeated the statement that an arrangement had been made whereby soldiers suffering from tuberculosis discharged from military hospitals should immediately be transferred to sanatoriums or other residential institutions, and said that the grant was being applied with great economy, and the scheme for the benefit of tuberculous soldiers was for the moment holding the field. The existing sanatoriums were taking over the soldiers as beds became available.

Pathological Laboratories.—On the vote for £25,000 to assist in the provision of laboratory facilities with a view to the prevention, diagnosis, and treatment of disease, Mr. Pringle asked for explanations. Not only the staff of ordinary practitioners, he said, but also the staff of specialists had been largely depleted and many pathologists had been drafted into the ranks of the Royal Army Medical Corps, so that there was practically nobody left in this country to run the laboratories. Mr. Montagu said that the scheme had been started last year, but the money voted had not been spent, because it was not found possible to set the machinery going. Local pathological investigations would be of the utmost value in arresting the spread of disease, and it was desirable that they should be started with the least possible delay. The sum originally granted was £50,000, but it was felt that for the reason suggested so large a sum could not be utilized. At the same it was desirable to make a start, and the need had been increased in consequence of diseases resulting from the war. If the necessary medical and expert knowledge for carrying on the scheme could not be obtained the money would not be spent. After some further discussion the vote was withdrawn.

Highlands and Islands Medical Service.—On the vote for the expenses of the Highlands and Islands Medical Service Board and for a grant-in-aid of the Highlands and Islands Medical Service (£42,015), Mr. Macpherson (Ross and Cromarty) said that a great many doctors and nurses in the highlands and islands of Scotland had left for the front, and he asked for an assurance that the wild parishes in those districts would not be deprived both of doctors and nurses. He hoped that a certain amount of money would be used to provide a comfortable house, well situated in the midst of the parish, for a doctor in each of the districts. Referring to the prevalence of consumption in the island of Lewis he expressed the hope that the Medical Service Board would formulate and bring into operation a scheme for dealing with the disease. After some further discussion, the Secretary for Scotland (Mr. McKinnon Wood), who replied, said that the provisions of the Insurance Act, and now the war, had made it very difficult to obtain doctors for places where the practice was not very lucrative and where the work was often very arduous. The country owed a great debt of gratitude to the Highlands and Islands Board, the members of which were unpaid. Mr. Morton (Sutherland) criticized the Board on the ground that certain schemes it had prepared had not been approved by the Treasury and the Secretary for Scotland. Mr. Montagu said that the schemes were now in course of being approved, and there was no desire to block them. The vote was agreed to.

Friendly Societies' Deficiency.—A sum of £14,712 was voted for the year ending March 31st, 1916, to make good the deficiency on the income account of the fund for friendly societies.

Universities and Colleges.—On the votes for universities and colleges, including special grants, the whole amounting together to £356,200, Mr. Montagu said that among the first institutions to feel the brunt of the war were certain universities, colleges, and medical schools which were depleted to a very large extent of their students, and which had suffered a serious diminution in their income from sources other than fees. Special grants would be paid only to those universities, colleges, and medical schools which were already in receipt of parliamentary grants. The special grants were to assist them over a period of difficulty, and no new expenditure was contemplated. The votes were passed, as was also a vote of £64,000 for universities and colleges in Ireland. In reply

to Mr. King, Mr. Birrell said that Ireland would not benefit by the special grants.

Scientific Investigation.—A vote of £48,582 and a supplementary grant of £25,000 for scientific investigations, etc., were passed.

Navy and Army.—Token grants for the navy and army expenditure for the year 1915-1916, including the medical establishments and services, were passed under the 10 o'clock rule.

The National Registration Act, 1915, which received the Royal Assent on July 15th, directs a register to be formed of all persons, male and female, between the ages of 15 and 55, not being members of the Naval Forces, or of the Regular or Territorial Forces. It applies to all other persons except prisoners in a prison, certified lunatics or defectives or the inmates of any Poor Law institution, hospital, or any other prescribed institution, prisoners of war, or persons interned. The central registration authority is the Registrar-General, acting under the directions of the Local Government Board, and the local registration authorities are the Common Council of the City of London, and the councils of metropolitan and municipal boroughs, and of urban and rural districts. It is the duty of the local registration authority to compile and maintain a register, to tabulate the contents thereof, and to make them available for any purpose that may be prescribed in accordance with the instructions issued by the Local Government Board. The central registration authority will prepare and issue forms to local registration authorities which will cause them to be distributed to every dwelling house. It will be the duty of every person to fill in the forms and to give the following particulars:

- (a) Name; place of residence; age; whether single, married, or widowed; number of dependants (if any), distinguishing wife, children, and other dependants; profession or occupation (if any), name and business address of employer (if any), and nature of employer's business; and (in the case of a person born abroad) nationality, if not British; and
- (b) Whether the work on which he is employed is work for or under any Government Department.
- (c) Whether he is skilled in and able and willing to perform any work other than the work (if any) at which he is at the time employed, and, if so, the nature thereof.

Any person refusing or neglecting to fill up the form, or making any false return, will be liable, on conviction under the Summary Jurisdiction Acts, to a fine not exceeding £5, and, in the case of a continuing offence, to a further fine of £1 for each day during which the offence continues. When the form has been filled up, completed, and corrected, the person to whom it refers is to be supplied with a certificate of registration, which must be signed and preserved by him. No person is to be registered in more than one area, and employers are required to furnish information and to render such assistance as may be prescribed in respect of all persons in their employment required to be registered. The Act applies, with necessary modifications in administration, to Scotland and Ireland, and will continue in force during the continuance of the present war, and no longer. The expenses, both of the central and local registration authorities, are to be met out of moneys voted by Parliament, but if a local registration authority exceeds the amount sanctioned by the Treasury the excess must be paid out of the rates.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE CENTRAL COMMITTEE.

A MEETING of the Central Committee was held on July 15th, when the following brief statement of the receipts was submitted by Dr. Des Voeux, the honorary treasurer:

Total Contributions Received.			
£ s. d.		£ s. d.	
From November 24th	... 921 15 0	April	... 2,308 19 5
to end of month	... 1,516 10 0	May	... 3,368 0 5
December	... 2,106 15 0	June	... 1,212 11 8
January	... 2,436 10 0	July (to date)	... 447 5 6
February	... 1,137 16 8		
March	...		£15,456 4 2

Detailed Source of Contributions.			
£ s. d.		£ s. d.	
From Australia	... 1,859 0 0	From Scotland	... 1,161 9 3
Canada	... 1,450 4 5	Ireland	... 129 17 10
New Zealand	... 1,095 19 0	England	... 9,735 15 8
Colonial total	... £4,405 3 5		

The statement does not include the money which has been collected by the Irish Branch Fund, the receipt of which is acknowledged in the list of the week's subscriptions below. The greater portion of the money received is still on deposit at the bank and bearing interest, but, as already announced, arrangements are now in force for sending regularly large sums to the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés, sitting at Brussels.

THE WEEK'S SUBSCRIPTIONS.

The week's subscriptions include £983 received from Dr. C. M. Benson, Secretary to the Council of the Royal College of Surgeons in Ireland, and Dr. T. C. P. Kirkpatrick, Registrar of the Royal College of Physicians in Ireland, the joint secretaries and treasurers of the Irish Branch Fund. A previous sum, amounting to nearly £130, received from Ireland was largely made up by subscriptions received through Dr. Macnaughton-Jones and mainly from Cork.

The subscriptions received from a group of medical men in Cheltenham represent the balance of a fund raised among themselves to provide a furnished house for two Belgian doctors, who resided in it for nearly three months before returning to Belgium.

Thirty-Dial List.

£ s. d.		£ s. d.	
Sir George Savage	... 5 0 0	Lieut.-Col. G. T. Birdwood, I.M.S.	... 5 0 0
Aberdeen Division, R.M.A. (per Dr. Le-Vack, Hon. Sec.) (3rd donation—total, £95 13s.)	... 1 1 0	Mr. R. L. Baskin, Royal College of Physicians of Ireland and Royal College of Surgeons of Ireland	... 983 14 1
Dr. William Christie	... 1 1 0	Cheltenham Medical Men, balance of fund raised by them to provide a furnished house for two Belgian doctors now gone back to Belgium (per Drs. Cardew and Merrick-Jones)	...
Salisbury Division, B.M.A. (per Dr. L. S. Luchman) (2nd donation—total, £185. 7d.)	... 1 1 0	Drs. Attek, Beresford-Jones, Hakeney, Boyer, Brance-Havington, Evelyn Carrill, Arthur Cardew, Richard Collins, Lloyd-Davies, Richard Davies, Drew, Evans-Lansdown, Folanbo Forster, Gairner, Garrett, Hebblewhite, Holmes, Howell, Hutton, Johns, Kirkland, Lidderdale, Longbridge-MacMahon, Merrick-Jones, Pike, Allan Powell, Hugh Powell, Alice Sanderson, J. S. Darling, Billings, Clay Shaw, Tatham, Bansall Todd, Edward T. Wilson	... 37 10 0
Dr. C. R. Gunn	... 2 2 0	Belfast Local Medical Associations (per Dr. H. L. McKisack)	...
Dr. C. R. Gunn (Hon. Sec.) (3rd donation—total, £56 10s.)	... 1 1 0	Dr. W. M. Burasid	... 1 1 0
Collected by Dr. Fairfax—	...	Dr. Carlisle	... 0 10 0
Dr. N. P. Fairfax	... 1 1 0	Dr. T. C. D. Cathcart	... 1 0 0
Dr. P. C. McKisack	... 1 1 0	Dr. Foster Coates	... 1 1 0
Dr. C. R. Gunn	... 1 1 0	Dr. J. F. Craig	... 1 1 0
Dr. L. R. H. P. Marshall	... 1 1 0	Dr. G. Darling	... 1 0 0
Dr. G. H. Wilson	... 1 1 0	Dr. J. R. Gillespie	... 1 1 0
Leeds and West Riding Medical-Chirurgical Society (per Dr. Harris)	... 5 5 0	Drs. D. and H. Gray	... 3 3 0
Dr. Bates	... 5 5 0	Dr. W. E. Hadden	... 0 10 0
Dr. Wages	... 1 1 0	Dr. J. Campbell Hall	... 1 1 0
Dr. Edgecombe	... 3 3 0	Dr. S. T. Irwin	... 2 2 0
Dr. Peter Macgregor	... 2 2 0	Dr. R. B. Johnson	... 1 1 0
Dr. Crawford Watson	... 1 1 0	Dr. J. B. Johnsons	... 3 3 0
Dr. Moore	... 1 1 0	Lydney Local Medical Association (per Dr. W. Lyle)	... 4 0 0
Dr. Pearson	... 1 1 0	Dr. W. Lyle	... 1 1 0
Dr. Scott	... 2 2 0	Dr. P. C. McKisack	... 1 1 0
Dr. Hart	... 2 2 0	Dr. H. L. McKisack	... 1 1 0
Dr. Archbold Smith	... 1 1 0	(2nd donation)	... 21 0 0
Dr. Logan	... 1 1 0	Dr. A. H. Milroy	... 2 2 0
Dr. Dolson	... 1 1 0	Dr. J. B. Mitchell	... 5 5 0
Dr. Seachain	... 1 1 0	Dr. J. S. Morrow (2nd donation)	... 5 5 0
Dr. Bedford Pierce	... 3 3 0	Dr. Johnson Symington (2nd donation)	... 1 1 0
Dr. Schofield	... 1 1 0		
Dr. Kershaw	... 2 2 0		
Dr. Grey-Shaun	... 2 2 0		
Dr. Beattie	... 1 1 0		
Dr. Bailey	... 2 2 0		
Dr. W. Handcock	... 2 2 0		
Dr. Brennan Watson	... 5 5 0		
Dr. Priestley Leach	... 1 1 0		
Dr. Craig	... 1 1 0		
Mr. Ernest Gantt	... 5 5 0		
Dr. Dawson	... 1 1 0		
Dr. Allan	... 1 1 0		
Dr. Jason Wood	... 0 10 6		
Dr. Geo. Handcock	... 1 1 0		
Dr. Hann	... 2 2 0		
Dr. Phillips	... 1 1 0		
Dr. Cheetham	... 1 1 0		
Liverpool Belgian Doctors' Relief Fund (subscribed entirely by doctors) (2nd donation—total, £422 2s.)	... 22 2 0		

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE APPEAL FOR SURGICAL INSTRUMENTS.

Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C.

THE WAR.

THE WORK OF A HOSPITAL SHIP.

In the July number of the *Journal of the Royal Naval Medical Service*, Fleet Surgeon Trevor Collingwood, M.V.O., Senior Medical Officer of H.M. Hospital Ship *Soudan*, gives an account of her work in the Dardanelles. The *Soudan* is a converted transport of 6,696 tonnage, with bed accommodation for 202 cases and arrangements for 100 more beds in an emergency. From the first operations, which consisted of the destruction of the forts at the entrance, 137 naval casualties were received between February 25th and March 19th. After this there was a lull for a time, only 4 wounded being sent on board. The next operations consisted in a landing of the army, supported by the navy, under a very heavy fire from both sides of the Straits. From April 25th to May 1st, 429 wounded were received, 352 military and 30 naval ratings being admitted on the same day.

On February 25th, about noon, the *Soudan* arrived at Tenedos: in the evening 7 cases of shell wounds were received from the *Ayamemnon*. Four of these were very severe: in one, a case of extensive deep wound of the right thigh with splintering of the femur and wounds of both legs, signs of tetanus showed themselves on the sixth day; antitetanic serum was used, but death occurred two days later. No definite cause was discovered; but Fleet Surgeon Collingwood says, "It is of interest to note that the guns on board were protected by bags of sand, which I believe were not obtained locally, but brought from England, and that some of the bags were struck by the shell fire near this boy." There were no cases of gangrene. Two cases of compound comminuted fracture of the leg were treated with pure carbolic applied under an anaesthetic, and antiseptic serum was administered at the time. In one of these, in which both legs were injured, the wounds of the right limb, when the man was taken on board six days after, were foul and septic, and were again treated with pure carbolic under an anaesthetic. The wounds of the left leg were fairly healthy, and were not again treated with carbolic, yet after a few days both wounds seemed to be going on satisfactorily. "This," says Fleet Surgeon Collingwood, "may be of some interest in connexion with the present discussion about early treatment of wounds with pure carbolic. The second application, though not quite orthodox, was apparently beneficial."

In addition to the wounded 83 cases of disease and injury were treated on board the *Soudan*. Special mention is made of two cases of paraplegia, one the result of an injury to the spine by a coal hoist, the other due to caisson paralysis from diving.

On March 22nd the *Soudan* left for Malta, where 113 cases, including 76 wounded, were landed at the Royal Naval Hospital. On April 25th the *Soudan* was again at the entrance to the Dardanelles then the scene of great naval and military activity. By the evening 10 military officers and 342 soldiers had been received. In 230 of the more serious cases the following regions were injured: Shell wounds—head, 8; chest and back, 3; upper limbs, 13; lower limbs, 22. "In many cases it was difficult to say whether the wounds had been inflicted by shell fragments or bullets, for many of the latter were very severe; one bullet extracted was about 1 in. in diameter, of cast iron with ring of casting marked; another was about 3/4 in., and made of lead; from one wounded officer were extracted seven fragments of an electric flash lamp, four pieces of metal, a small piece of glass, two pieces of the composition, and a small piece of the splintered femur." By 8 p.m. 382 had been received, making, with 48 already on board, a total of 430 cases. Permission was therefore given by the Vice-Admiral Commanding for the *Soudan* to draw off in order that the staff might be able to attend more carefully to their patients. During the period from February 25th to May 2nd the number of cases treated on board the *Soudan* was 733, of whom 570 were wounded and 163 ordinary medical and surgical cases. By midnight most of the men were asleep and as comfortable as could be expected in the circumstances, except about a hundred who required special attention. The profound shock in several of the abdominal cases made operation

impossible. Five amputations were performed, with two deaths.

On May 2nd, the army having established a footing ashore, the *Soudan* was ordered to withdraw to a safer anchorage a little way off. On May 17th, at noon, she was again placed at the disposal of the military, and proceeded to Gaba Tepe to receive wounded from the Australian and New Zealand contingents. On that day 34, on May 18th 90, and on May 19th 190 were admitted, but later in the day 104 of the less severely wounded and sick were transferred to the *Gateka*, an army hospital carrier, as it had been arranged that as far as possible the *Soudan* was to receive only seriously wounded that required prompt and expert surgical treatment. On May 20th 67 were received, and on May 21st 30, making in all 411 cases in the five days, only a few being medical; included amongst the wounded were 9 Indian soldiers. Nine wounded prisoners were also received, including an Albanian lieutenant and Turkish warrant officer. There were three deaths, but no cases of tetanus. During this period some sixty anaesthetics were given for major operations (six laparotomies with five deaths, and six amputations with one death), and for examination and dressing of some severely wounded. The *Soudan* left the Dardanelles on May 21st, and arrived at Malta on May 24th, when all the army wounded were transferred to the old military hospital at Valetta, and were accommodated in the large ward, over 500 ft. in length, used in the past by the Knights of Malta.

FLIES IN FRANCE.

From many letters—some published in the newspapers and some private—it is clear that flies are causing a good deal of annoyance to the British forces in the field, especially to men in certain parts of the actual front in Northern France, and in the Dardanelles. In France the extent of the nuisance does not seem to be nearly so great as might have been expected. The weather conditions this summer have not so far been highly favourable to non-parasitic insect life, and the medical authorities of the army, we learn, have paid great attention to the extermination of flies in camps and billets and hospitals.

The general character of the steps that have been and are being taken is indicated by the following paragraphs which we derive from a memorandum on the subject addressed by the Director-General of Medical Services, Sir Arthur Sloggett, early in the spring, to the principal medical officers of all army corps, divisions, and areas, as also to the commanding officers of all medical units and the medical officers in charge of regiments.

In a preliminary note the Director-General pointed out the reasons why great numbers of flies might be expected in default of the adoption of adequate measures for their prevention, and then directed that the carrying out of those recommended by him should be ensured by constant expert supervision. Continual search was enjoined for breeding places; the appearance of house flies in excessive numbers was at once reported through the usual channels, and attention be paid to the whole subject by all officers responsible for the sanitary supervision of troops and areas.

Fly Development.

The memorandum itself, after the allusion to the evidence that flies, especially house-flies, are capable of transmitting disease, stated that the eggs of house-flies, when deposited in suitable media in the presence of heat and moisture, hatched into larvae in from six to twenty-four hours.

The larvae become pupae or chrysalids in from four to six days, and the adult flies emerge about five days later. Complete development thus takes from ten to twelve days, but in very hot weather may be accomplished in seven days.

Their usual breeding place was horse manure, but house-flies would also breed in human excreta, garbage, and other organic refuse.

Ninety per cent. of all house-flies lay their eggs in stable manure. Uncovered accumulations of all such substances constitute a risk of infection, and should, therefore, be sought out and put in a state of defence against deposition and development of eggs, or burnt, buried, or removed at least once in every seven days.

Destruction of Breeding Places.

The treatment of manure was considered under three headings: (1) Existing manure heaps in farmyards; (2) fresh accumulations of manure belonging to inhabitants; (3) manure and scrapings from military horse-lines.

(1) Flies, it was pointed out, do not breed readily in stale or fermented manure, so old manure is less dangerous than fresh; nevertheless old manure heaps in farmyards should always receive special treatment.

Fresh additions should be prohibited; the heap should be concentrated as much as possible, and should then be lined and covered over (top and sides) with one foot of earth, well beaten down with spades. Fly maggots congregate chiefly at the outer edges of manure heaps, but they also tend to migrate and may even be found some distance away in wall crevices, under rubbish, or several inches beneath the soil. Attention should therefore be paid to the sides of the manure pit, where exposed by concentrating the manure, and these should be well sprayed with cresol, and the spraying repeated after a few days. If it is necessary to open the heap after it has been covered, in order to withdraw manure, the exposed surfaces must, as soon as possible, again be protected as described above.

(2) Fresh accumulations of stable manure belonging to civilian inhabitants should if possible be carted to a general dumping ground, several hundred yards from the nearest farm or village; and should there be either concentrated and sprayed with cresol once a week, or be spread out to dry.

Although somewhat resistant to drying and sunlight, fly larvae usually seek cover and moisture. On the other hand, the eggs are susceptible to desiccation, which prevents hatching, and thus in dry weather the spreading of manure on suitable dumping grounds may give good results.

(3) Manure from military horse-lines should, together with horse-line scrapings, be incinerated whenever possible. If this be impracticable it should be either—

(a) Removed in carts or by means of a tram-line, where one exists or can be made, to a dumping ground as far from the camp or billeting area as possible, and preferably in a valley. Here it should be lined and earthed over (one foot of earth on top and sides of the heap) as it is deposited, or spread out and burned when dry. To avoid nuisance from heaps awaiting removal, the manure may be temporarily stored in the cart, which should be tightly rammed. When sold to farmers, precautions and supervision are necessary pending and after removal.

(b) Made into heaps, which may be dealt with by either of the following methods:

- (i) Lined over and covered with an even layer of earth 12 inches deep.
- (ii) Sprayed with kerosene or cresol, or with borax solution $\frac{1}{2}$ lb. to the gallon.
- (iii) Sprayed with kerosene and the top layer burned.

The treatment should be applied particularly round the margin of the heap, and to the walls enclosing it if such exist, and each fresh addition of manure must be treated immediately it is thrown on. Crude borax, in the proportion of 1 lb. to 15 cubic ft. of manure, is said to have been tried with considerable success. Though destructive to the ova and larvae of flies, it is non-poisonous, and does not lessen the value of the manure.

The memorandum also pointed out that horse-lines should not be stabled or picketed close to billets or dwelling huts, or near to kitchens or dining-rooms of standing camps.

Cleanliness of stables and horse-lines, and the daily removal of horse droppings and manure must be ensured. When possible fresh straw-stuff should be used instead of litter. A single neglected stable or horse-line may cause a plague of flies in an entire camp. Picket lines should be burned over once a week.

In regard to other possible breeding places than manure, it was pointed out that all human excreta should either be incinerated or covered with earth. Trench latrines should be shallow whenever possible, and constantly supervised to ensure that the excreta were kept covered with earth. Less than 1 ft. of dry earth over excreta would not infallibly prevent flies from emerging if eggs had been deposited before the faeces were covered. When latrine buckets were used, sufficient cresol solution should be added to cover the excreta completely. If the contents were to be incinerated, kerosene or crude tar oil might be used instead.

All garbage, kitchen, and other refuse, including empty meat and jam tins, should be placed in covered water-tight receptacles, and burnt as soon as possible. The

receptacles should be regularly cleaned with cresol solution, or, after washing, smeared with crude tar oil. Liquid kitchen garbage should be kept separate from dry. All camp refuse should be burnt where practicable; otherwise it should be buried at a sufficient depth. Fresh additions to refuse pits should be covered over at once with a layer of earth, not less than 1 foot in depth. Chloride of lime, if used, should be renewed periodically.

Old collections of garbage, if their incineration or removal or burial is not practicable, should be treated in the same fashion as manure and scrapings from horse-lines.

General Precautions.

The keeping of pigs in close proximity to standing camps should be prohibited, and the carcasses of animals should be efficiently buried.

The floors of dining-rooms and kitchens should be kept free from grease and organic matter, and tables, meat blocks, and kitchen utensils cleaned immediately after use.

The men should be warned of the necessity of cleanliness in the handling of food of all kinds, and all available precautions should be taken to prevent the access of flies thereto. Whenever possible all kitchens, meat stores, and dining-rooms should be fly-proofed by wire meshing. Food in hospitals should be kept covered with gauze.

When any pollution of the ground had occurred, especially around kitchens and latrines, chloride of lime should be freely used. Living larvae present in the soil were likely to be destroyed if the earth were impregnated with lime or chloride of lime.

Fly Destruction.

Various fashions of destroying fly eggs and living flies were mentioned. In stables a trap for fly eggs could be made by putting some fresh manure on a tray. Flies would lay their eggs therein, and each evening the tray could be removed and incinerated. In hospitals, kitchens, and billets, "fly balloons" made of wire gauze and baited with jam or sugar were useful as traps, as also were "bangle foot" tapes, and other like contrivances, coated with a sticky gum. A fashion was also described and illustrated of adapting a galvanized iron refuse bin to form a fly trap while still serving as a receptacle for refuse. Two fly poisons were also recommended for use.

A fly poison, which is harmless to man, can be made by mixing one teaspoonful of formalin with eight teaspoonfuls of milk (or condensed milk diluted 1 to 1 with water). This mixture should be placed in open saucers and exposed in living rooms and other places, care being taken that no other liquid is accessible. The flies which drink of it die in from fifteen to twenty minutes.

Under strict supervision, and with due precautions to ensure the safety of man and animals, sodium arsenite, as employed in South Africa, may be used in base camps. An effective formula is 1 lb. of the poison and 12 lb. of coarse black sugar or treacle dissolved in 20 gallons of water, but the exact proportions are not material. The arsenite, which is not readily soluble in cold water, should be dissolved first in a little boiling water, and can then be added to the sweet solution. This poisoned bait is distributed where flies congregate, by being sprayed with a syringe or spray-pump over such places as manure heaps and the surrounding vegetation; or leafy branches are dipped in the solution and hung up, out of harm's way, over latrines, etc. Where the poison is sprayed on and about manure heaps, or elsewhere in the open, it need only be applied very lightly, and must, of course, be renewed after rain. When thoroughly carried out and combined with the measures detailed above for the covering over or destruction of breeding places, this method has given excellent results.

Since the date of the issue of this memorandum the importance of attention being paid to the subject has, we hear, been further emphasized by the Director-General in sundry other ways. In particular, the principal medical officers of all Divisions have been directed to draw up periodical reports on the measures adopted in their areas for the destruction of flies, manure, and food refuse, and to submit them through the usual channels to the Director-General in order that the most effective system may be brought into general use.

There has also been included in orders a statement to the effect that in the opinion of an advisory committee of entomological experts established some time ago, sodium arsenite is to be regarded as the most effective of all possible fly poisons.

GERMAN EXPERIENCES OF WAR SURGERY.

(Continued from p. 111.)

The following notes on the proceedings of the Deutsche Gesellschaft für Chirurgie which met in Brussels on April 7th are published in continuation of those which appeared last week:

GAS GANGRENE.

Fränkel's bacillus was the cause of the gas gangrene, which occurred chiefly among the wounded who had been neglected in the field for a long time. It was of the greatest importance to detect the disease in its first stage, for only by early treatment could the patient's life be saved. The condition was not difficult to diagnose, for the skin acquired the colour of copper, was puffy, and gave a hollow note on percussion or stroking, and emphysematous crackling on palpation. The discharge also contained bubbles of gas. By energetic operative treatment it was possible, not only to save the patient's life, but also the limb involved. Professor Kümmell was surprised to find the results of this treatment in war time better than in times of peace, when the mortality was 80 to 85 per cent. It was necessary to decide whether gangrene was already present or not. In the latter case extensive incisions were often sufficient to arrest the further spread of the disease, particularly when hydrogen peroxide was applied to the widely opened wound. When, however, gangrene had supervened, it was necessary to amputate at once, to cut no flaps and use no sutures. It was not essential to amputate much above the level of the healthy skin, but deep incisions had to be made as far as the emphysema extended. It was improbable that tetanus and gas gangrene could be completely avoided, even if it were possible to excise the wounded tissues early in every case. Early radical treatment was, indeed, apt to interfere with the uncomplicated recovery of many wounds, and the speaker had learnt to open and excise the channel of the wound, and remove the bullet, only when fever developed.

Herr Franz had not observed a single case of tetanus among 2,000 wounded soldiers who had received prophylactic injections of serum. Gaseous infection was observed in 2 per cent., and the mortality from this complication was 55.4 per cent. The disease usually developed within four days of the infliction of the wound. The discoloration of the skin was not pathognomonic, for the same discoloration might be observed over an infected hæmatoma. When the gaseous infection was deep-seated, crackling of the skin, drying up of the wound, and the characteristic odour might not be present. In these cases the development of severe, inexplicable pain, of œdema, of a boxy note on stroking the skin with a razor, the increase of the pulse-rate to 140 or 150, and striking pallor of the face, were of diagnostic importance. The moist tongue distinguished the case from one of sepsis, and there was neither enlargement of the spleen nor albuminuria. Gaseous infection was five times more common in the lower than in the upper limbs, probably because the former were more exposed to contamination with the soil. Bacteriological examination showed the blood to be infected with toxins, but not with bacteria. It was, however, pointed out by Professor Kümmell that, in cases terminating fatally from gas gangrene, Simmonds had invariably found Fränkel's bacillus in the blood of the heart.

WOUNDS OF THE CHEST.

Professor Sauerbruch said the proportion of wounds of the chest to other wounds was as 836 to 22,145. In this estimate the wounds terminating fatally on the field, and representing about 30 per cent. of all the chest wounds, were not included. Pressure symptoms caused by hæmorrhage into the pleural cavity were seldom so great as to necessitate puncture of the chest. On the other hand, secondary hæmorrhage occurring two to three weeks after the infliction of a wound, often at first slight trivial, frequently proved fatal. A closed pneumothorax, produced by a bullet leaving small wounds of entry and exit, was not of itself a serious condition. Extra-pleural bullet wounds of the chest usually did well without active treatment, whereas shell wounds of the chest, even when the pleura was intact, invariably required immediate radical treatment, consisting of removal of the shell, free opening of the wound and application of tampons. The results of this treatment were

satisfactory. Still more active measures were required where shell wounds extended to the lungs; and Professor Sauerbruch said that he had recently succeeded in saving several cases by operating under a negative atmospheric pressure. He had operated on only two cases of wounds of the heart and mediastinum, and both patients had died.

Professor Borst considered the prognosis of bullet wounds of the chest was good, provided complete rest were ensured, and the patients were kept under morphine. The mortality was 24 per cent., but when those cases were excluded in which fragments of rib or foreign bodies had been carried into the wound, the mortality was only 12 per cent. The temperature in these cases was often raised at first, then it fell to normal, and rose again on the sixth or seventh day, and remained high for some time. This fever was due to acute inflammation of the lung, and not simply to absorption of exudate, as many surgeons believed. The treatment of such cases of infected hæmatothorax should be limited to frequent aspiration, which had a beneficial effect on the temperature. Resection of ribs was superfluous. In shell wounds, on the other hand, recovery could be ensured only by radical treatment; among 83 such casualties he had seen, 74 terminated fatally in a field hospital, and others probably proved fatal at a later date. When the chest was penetrated in the axilla, at the level of the seventh to the ninth ribs, the abdominal cavity was usually involved. Of 82 such cases 71 terminated fatally. He made a rule of operating on all such cases, whether the wound were inflicted by a bullet or a shell, and he had lost only four out of fourteen such cases.

Professor Forchard insisted that effused blood should be withdrawn from the chest as soon as compression of the lung was no longer necessary for the arrest of hæmorrhage. He had never caused a hæmorrhage by the early aspiration of effused blood from the chest, and he was convinced that such a secondary hæmorrhage could not be provoked by the changes in the intrathoracic pressure caused by aspiration. Only 5 per cent. of the deaths from wounds of the chest were due to hæmorrhage, whereas more than 60 per cent. were due to infection. A wound of the lung might become septic more than a fortnight after it was inflicted, and he was, therefore, in favour of deferring the transport of such cases till the third or fourth week.

(To be continued.)

ROCKEFELLER WAR RELIEF COMMISSION.

THE report of the Rockefeller Foundation, dated June 27th, which is published in the July number of the *Military Surgeon*, the organ of the Association of Military Surgeons of the United States, gives an account of the work of the Foundation's War Relief Commission. It was decided in October, 1914, to send a War Relief Commission to Europe for the purpose of obtaining expert advice based upon a first hand study of conditions as to the time, place, and means of rendering aid most effectively. The Chairman of the Commission was Mr. Wickliffe Rose, Director-General of the International Health Commission, the other two original members being Mr. Ernest P. Bicknell, Secretary of the American Red Cross Society, and Mr. Henry James, jun., Manager of the Rockefeller Institute. The Commission, which sailed for Europe early in November, soon came to the conclusion that the most urgent problem of the moment was to provide relief for starving and, in some cases, disease-swept nations. The following is a summary of the work done in various countries:

Belgium.

As immediate action was called for, the Foundation, without waiting for the report of the Commission, devoted itself to the relief of the Belgians, co-operating for this purpose with the Belgian Relief Committee of New York and the Commission for Relief in Belgium. The expenditure in providing the greater part of five full cargoes of supplies amounted to a little more than a million dollars (£200,000). The War Relief Commission went to Belgium in November and made a thorough inspection of the agencies for relief in that country. It then organized an office in Rotterdam for receiving, storing, and shipping the large quantities of clothing sent to the Commission for Relief in Belgium from different parts of the world. Later, the Foundation organized several thousand Belgian women—refugees in Holland—into sewing camps, for which raw materials and sewing machines were provided, in order that useful employment for the idle, and the need of refugees for underclothing, might be supplied. In this relief work in

Holland the Foundation has expended about 90,000 dollars (£18,000). The Foundation has also appropriated funds at the rate of 20,000 dollars (£4,000) a year for the payment of stipends to scientific professors of Belgian universities, for whom laboratory facilities have been provided in England.

France.

As a result of a tour of inspection through Northern France made by three members of the Commission in December, immediate relief was supplied to certain communities where distress was great and no other source of food supply was available. This led to the organization of a comprehensive plan for the relief of the whole of that portion of France occupied by the German army. At the outbreak of the war Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, was spending his vacation in France, his native country. He was detailed by the Government to the military hospital at Lyons, but later was placed in charge of a hospital, with about 100 beds, established in a hotel at Compiègne. The French Government provided administrative officers as well as competent surgeons, and the Foundation funds with which, under the direction of the Rockefeller Institute for Medical Research, Dr. Carrel's hospital was equipped with complete apparatus and supplied with technicians to assist him in research in such bacteriological, pathological, chemical, and surgical conditions as might arise.

Serbia.

About 125,000 dollars (£25,000) has been expended for the equipment and maintenance of this Commission, of which the Rockefeller Foundation has furnished about 85,000 dollars (£17,000), the rest having been supplied by other contributors to the Red Cross.

Poland.

As the result of an inspection of that part of Russian Poland controlled by the Austrian and German armies, the Foundation authorized the War Relief Commission to assist in the establishment of a neutral Commission for Relief in Poland, and guaranteed its administrative expenses up to £2,000 a month.

Turkey.

The War Relief Commission has now completed a careful survey of conditions as they affect non-combatants in all the belligerent countries except Italy and Turkey. It has been arranged that a member of the Commission shall visit Turkey at an early date.

Future Work of the Commission.

The War Relief Commission has established head quarters in Switzerland, and its members will continuously keep track of conditions which may develop in the various war areas, and advise the Foundation of such needs as may be found to exist. It will also study the work of existing relief organizations, including the sanitary work in Serbia, with a view to rendering immediate advice or aid when and where it may be required.

OUTFITS, R.A.M.C.

"MOBILE" asks for advice as to the outfit which a lieutenant R.A.M.C. should take with him when ordered overseas, whether to France or to the Dardanelles, and whether employed at a base or sent on more active service; he asks also whether swords and revolvers are now taken by medical men.

The official information on this subject is contained in the official publication (79.6167) *Field Service Manual, 1914, Army Medical Service (Expeditionary Force)*, issued with Army Orders, November 1st, 1914. Price 3d. The pamphlet is published by Wyman and Sons and the Government publishers in Edinburgh and Dublin, and for abroad by Mr. T. Fisher Unwin, Adelphi Terrace, W.C. It can be obtained through any bookseller. The following short list, which is official, may be of service:

LIST OF ARTICLES OF OUTFIT REQUIRED BY OFFICERS OF ROYAL ARMY MEDICAL CORPS.

British warm great-coat (optional).	Service dress cap.
Service dress great-coat.	Service dogskin gloves.
Service dress jacket.	'Sword (R.A.M.C. pattern) with sword knot.
Service dress trousers.	'Pistol (any pattern, but must take Government ammunition).
Bedford cord breeches.	Haversack.
Leggings, brown leather.	Waterbottle (aluminium), with stop.
Spurs, brown straps.	Mess tin.
Brown leather marching boots.	Sam Brown belt.
Khaki shirts.	
Khaki collars.	
Khaki ties.	

* Not required on home service.

Camp Kit.

The actual cost of which, up to a maximum of £7 10s., on production of the receipted bill, will be refunded by the Accountant for Regimental Services at Aldershot:

1 camp bedstead and bag.	1 chair.
1 pillow.	1 blanket.
1 waterproof sheet 7 ft. by 4 ft. 5 in.	1 valise or bag to hold above, with name painted on it.
1 wash-stand with basin, bath, and bag.	

In addition to the above articles, three general service blankets will be issued on application to the officer commanding the unit to which posted.

Field Kit.

The following additional articles are required for active service in the field. (The articles may be varied, but a total weight of 35 lb. must not be exceeded:

- Brassard (issued on joining).
- Identity disc (issued on joining).
- Books (Army Book 153 and Field Service Pocket Book). (Issued on joining.)
- Cap-comforter in pocket of great coat.
- Compass, magnetic, pocket (or prismatic, in case).
- Dressing, field (issued on joining).
- Glasses (binoculars or telescope, or both, in one case).
- Grease or vaseline.
- Holiday containing knife, fork, and spoon; hair-brush and comb; tooth-brush, shaving-brush and razor.
- Instruments, pocket case of.
- Knife, clasp, with ring and swivel.

N.B.—Candidates for commissions should not provide themselves with uniform or equipment until they receive from War Office instructions so to do.

It will be seen that the sword and pistol are not required on home service, and we understand that many officers do not go to the expense of purchasing a sword, which is not worn in the field. We believe also that R.A.M.C. officers are advised that it is unnecessary to carry a pistol. We understand that the latter can best be obtained through a Government source, and that both are issued by the various units, on repayment, when the officers join the forces overseas, if considered necessary. It is not, we understand, necessary to provide both a service dress great-coat and British warm great-coat; apparently most officers prefer the latter. For the Dardanelles a jacket and trousers of thin serge or drill will probably be preferable to cloth, but these are matters upon which it would be well for the inexperienced officer to take the advice of reputable army outfitters. The outfit required is the same whether at the base or otherwise.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN JOHN FITZGERALD GWYNNE, R.A.M.C., was killed in action in Flanders on July 8th. He was born in August, 1889, the eldest son of the late Charles Nelson Gwynne, M.D., of Sheffield, and was educated at Sheffield University, where he took the degrees of M.B. and Ch.B. in 1911. After filling the posts of resident medical officer to the Sheffield Royal Infirmary and assistant medical officer to Southark Union Infirmary, East Dulwich, he entered the R.A.M.C. as lieutenant on January 30th, 1914, and was promoted to captain in the general promotion of all the lieutenants in the corps on March 30th, 1915. He had been serving with the Expeditionary Force in Belgium and France since August last. While holding the post at the Sheffield Royal Infirmary his charm of manner and high character endeared him to all with whom he came in contact, and the same qualities earned him many friends since the war began. A brother officer R.A.M.C. in a private letter writes: "It was awfully sad about Jack Gwynne. He was shot through the head. He had the D.C.M., had been mentioned three times in dispatches, and recommended for D.S.O. or V.C. He made a tremendous reputation for cool bravery and courage out here, not only in his own division but all along the line where he has been. We all hope the V.C. will be awarded."

Captain James Johnstone Dykes, of the 15th Battalion King's Own Scottish Borderers, is reported in the casualty list published on July 20th as killed in the Dardanelles. He took the L.D.S. of the Royal College of Surgeons, Edinburgh, in 1907, and the Scottish triple qualification in 1911. He was honorary dental surgeon to the Dumfries and Galloway Royal Infirmary and to the Dumfries and Maxwelltown industrial schools and girls' home. He was also a member of the British Medical Association. He joined the Territorial Forces as a combatant officer in 1906, and became Captain on June 2nd, 1913.

Wounded.

Lieutenant O. H. Blacklay, R.A.M.C.(T.F.), Dardanelles,

Invalided.

Lieutenant-Colonel Peter Murray Kerr, commanding the 15th Battalion of the King's Own Scottish Borderers, now in the Dardanelles, has been invalided home for dysentery. Colonel Kerr, who took the M.B. and C.M. at Edinburgh in 1867, is, in civil life, surgeon to the Dumfries and Galloway Infirmary at Dumfries.

DEATHS AMONG SONS OF MEDICAL MEN.

Only three cases of the sons of doctors having been killed in action appear to have been reported during the past week. Two others from the earlier months of the war are added.

Ingram-Johnson, Reginald James Theodore, Second Lieutenant 3rd Durham Light Infantry, elder son of Dr. A. E. Ingram-Johnson, of South Moor, Stanley, County Durham, killed in action in France, aged 20. He joined the special reserve of his regiment on November 7th, 1914.

Martin, Cecil Taylor, R.N., Assistant Clerk, H.M.S. *Monthorn*, elder son of Dr. George Martin, of 4, Park Terrace, Nilloth, Cumberland, killed in action off the coast of Chile, on November 1st, 1914, aged 17.

Prairie, Thomas, Lieutenant Leicestershire Regiment, only son of Lieutenant-Colonel Sir David Prairie, C.I.E., I.M.S. (ret.), Director, Royal Botanic Gardens, Kew, killed in action in Flanders, October 21st, 1914. Lieutenant Prairie got his commission on October 9th, 1912, and qualified as interpreter in French in 1913.

Ranking, James Gabriel Lancaster, Captain Indian army, eldest surviving son of Lieutenant Colonel G. S. A. Ranking, I.M.S. (ret.), killed in action in the Persian Gulf on July 12th. Captain Ranking was born on October 14th, 1883, entered the army on January 21st, 1903, joined the Indian army on April 23rd, 1904, and became Captain on January 21st, 1912. He entered the Political Department on December 8th, 1907, and at the time of his death was British Vice-Consul at Akwaz, and Assistant to the British Consul at Basra. He was married to Miss Stanwell, William Alexander, Second Lieutenant 2nd Lancashire Fusiliers, only son of Dr. Stanwell, of Rochdale, killed in Flanders. He was educated at Blundell's School and at Guy's.

*NOTES.**BRASSARD FOR CIVILIAN DOCTORS.*

A WAR OFFICE notification, No. B.M. 2306 1915 (T.F.3), dated June 30th, states: "Medical practitioners specifically engaged for continuous duty in military hospitals (voluntary or otherwise), or in medical charge of troops, or in recruiting duties, may be allowed to wear the Red Cross brassard."

WOUNDED ALLIES RELIEF COMMITTEE.

The Wounded Allies Relief Committee (Sardinia House, Kingsway, W.C.), has issued a report on the work done since it was established with the approval of the War Office and Admiralty and of representatives of the Allied Powers shortly after the outbreak of war. Its earliest act was the escorting to England of the first batch of Belgian wounded, for 1,600 of whom it found hospital accommodation. A register of the men's names, addresses, and regimental details was compiled; an inquiry bureau established to assist the reunion of scattered families; and a military post office, working in connexion with the Bureau de Correspondance Belge at Havre, was set up. The register, which records over 100,000 names, has been continued at the request of the British Registrar-General, is partly subsidized by the Local Government Board, and is consulted by the Belgian Government for all military purposes, such as the tracing of soldiers destined to return to the front, the granting of pensions, etc. For those Belgian soldiers who are permanently disabled, the Committee has provided financial homes, which, being rent free, are run with a minimum of expense. To numerous crippled soldiers it has supplied artificial limbs and surgical appliances. It has in process of equipment a home for men who, through exposure in the trenches, have contracted tuberculosis. In Belgium itself the Committee supports a fleet of motor ambulances and a number of caravans, equipped with hot baths, scrub kitchens, and disinfectors. In France it maintains and manages two hospitals—at Dieppe and Lianozes—which have a total accommodation of between 200 and 300 beds. At a time when the Serbian Red Cross organization was in great straits the Committee dispatched £500 by telegraph, and later, at the request of the Serbian Government, equipped and sent out a typhoid hospital, with the result that at the end of March doctors, nurses, and hundred beds, and 100 patients, left for Kragevitz, the headquarters of the Serbian army. Owing to the disappearance of the epidemic, the unit is now adapted for the reception of the wounded. The Committee dispatched a Sanitary Commission to Montenegro, and, on its advice, two units of 100 beds each were sent on June 2nd to combat typhus in Podgoritz and Nikshich. These units, which, owing to the state of Montenegro, had to be accompanied by over £2,500 worth of stores and food.

The Committee has received from Dr. Isobel Ormiston, head of its Sanitary Commission to Montenegro, a letter in which she states that owing to the decrease of the epidemic these units will probably shortly be adapted for the reception of wounded. The epidemic appeared during the later part of March in the new provinces on the Serbian side. It was

brought from Serbia by soldiers who were brought in for artillery purposes. Very few civilians have been attacked up to the present, and general opinion inclines to the view that typhus fever or any infectious disease will not, owing to the configuration of the country, tend to spread from the new provinces and Serbia into Montenegro proper save by the passage of infected individuals. A mild type of enteric fever with a low mortality is endemic in various parts of Montenegro. Dr. Druetti, who was sent to Montenegro in April by the Italian Government, has been responsible for all the isolation and disinfection arrangements, and has also prepared an isolation hospital for imported cases of typhus discovered in Cetinje. He has likewise inaugurated a scheme for the massing of convalescing travellers coming from high ranges of mountains which separates the old from the new provinces. There is great distress among the refugees and the civil population owing to the impossibility of getting food into the country. The useful and patriotic work done by the Wounded Allies Relief Committee is constantly expanding. The honorary treasurer is Mr. T. O. Roberts (Manager), London County and Westminster Bank, 217, Strand, W.C.

SERBIA.

The Special Correspondent of the *Times*, writing from Salonika, says that there are now some 420 British doctors and nurses in Serbia. They have comparatively little to do, for there have been no new cases of wounded men for some five months; typhus, practically extinct, and typhoid has ceased to be a serious public danger. Besides their own staff of 200, and of thirty officers of the R.A.M.C. who are at Belgrade, there are the following British hospital units in Serbia: At Skopje, Lady Paget's and Lady Wimburne's Hospitals, each with a staff of 45; and the British Field Hospital with a staff of 25; at Kragevitz, the Scottish Women's Hospital with a staff of 40; Mrs. Sinclair Stobart's Hospital with 47; the Wounded Allies' Aid (second unit) with 16, and the Allies' Field Ambulance (B.R.C.) with 16; at Vrnjetka Banja, the British Red Cross (second unit) with 50, and Mr. James Berry's Hospital with 24; at Belgrade, the Scottish Women (second unit) with 50; the British Farmers' Unit with 45; and the British Eastern Auxiliary with 16. There is said to be a want of nurses in the Serbian hospitals, there being no trained women in Serbia itself. The British Red Cross is in some straits for ready money, and for a long time to come funds will be badly needed.

An International Sanitary Commission, of which Sir Ralph Paget is Chairman, has been established, with head quarters in Nish. Under it the general medical and sanitary work of the country has been roughly apportioned between the different co-operating nations. France has the charge of the northern half of the country, and the United States of America the south and its immediate neighbourhood is under the Russians. The British have had the care of the army and most of the hospital work, except that done by the Serbians themselves. The share of the burden which the United States is bearing continually increases, and will increase. Dr. Strong is a man of wide experience, and he has behind him the practically unlimited financial resources of the Rockefeller Foundation.

FRENCH HONOR FOR BRITISH MEDICAL OFFICER.

Lieutenant Oswald Robert Kelly, son of the late Dr. Bernard Kelly, of Rotherhithe and St. John's, S.E., who has been serving at the front since last September as a medical officer of the Red Cross, has been awarded the Cross of the Legion of Honour, and the Military Cross, by the French Government. Dr. Kelly, who received his medical education at Westminster Hospital, graduated with honours at the London University.

AN AMBULANCE TRAIN.

The London and North-Western Railway Company has completed for the War Office two additional ambulance trains for use in France, and some of the most interesting vehicles were open for inspection at Euston station on Wednesday. According to the plan exhibited, the complete train will measure 925.6 ft., and will consist of sixteen coaches; of these, nine are yard coaches of the staid length of 60 ft., and seven are accommodation coaches which will carry thirty-six cot cases in three tiers on either side; the two upper cots fold back, when the lower can be used for sitting-up cases. There is in addition at the rear of the train a coach providing eighteen cots for infectious cases; accommodation for a guard is also provided in this coach, which is 57 ft. long. In the front of the train there is a second brake of the staid length of 60 ft., and a room for the guard and room for stores. Two kitchen cars were shown, both fitted with cooking ranges, a room for the cooks, steward's store, and pack store. The staff car provides accommodation for three medical officers and four nurses, and the personnel car has sleeping accommodation for 28. There is a well-appointed pharmacy car, which provides also stores for linen and medical comforts, an office, and a treatment room. Movable buckets are used throughout for the disposal of excreta. The train is very well appointed, and the cots of good design and easily adjusted; it seems, however, that it will not be easy to get a helpless man into the topmost tier of cots.

*MEDICAL OFFICERS WANTED.**2nd London Sanitary Company.*

Qualified medical practitioners engaged in public health work, preferably those holding the D.P.H., are required at once for commissions in the 2nd London Sanitary Company (R.A.M.C.T.).

There is every probability of successful candidates being sent to the front at an early date. Apply personally or by letter to Captain Coley, R.A.M.C.T., 2nd London Sanitary Company, Duke of York's Head Quarters, Chelsea, S.W.

23rd North Midland Field Ambulance.

Two medical officers are required to complete establishment, which is expected to go abroad shortly; also two medical officers for the third line of the unit. Applications to Lieutenant-Colonel Pockett, O.C. 23rd North Midland Field Ambulance, St. Albans.

22nd East Lancashire Field Ambulance.

Three medical officers are required to replace three officers proceeding overseas. Must be under 40 years of age and willing for foreign service. Pay and allowances as in regular army. Applications to Lieutenant-Colonel A. Callum, O.C., Heathfield, Sussex.

England and Wales.

DISTRICT NURSING OF MEASLES AND WHOOPING-COUGH IN LONDON.

The meeting of the Central Council for District Nursing in London at the offices of the Local Government Board on July 20th was well attended. Sir William Collins was in the chair, and the principal business was to consider a report of the Executive Committee on the subject of district nursing in relation to measles, German measles, and whooping-cough.

Mr. Walter Long, the President of the Local Government Board, welcomed the members, and referred to the fact that it was under the aegis of the department that the work of the Council was started two years ago, when his predecessor (Mr. John Burns) opened a conference in that same hall on the subject of district nursing in London. Mr. Long said that it had been suggested to him recently that there were more reasons than one, by no means all of them military, why the word "German" should not be introduced as a description of one of the affections they had to consider. He was assured that German measles might with advantage be regarded as a form of measles proper, and both diseases considered as one. Measles had proved itself a serious affection, and its prevalence, its treatment, and its prevention were matters for the most serious consideration. As to the general question of the position of nursing organizations, he said that one of the practical difficulties the Council had to contend with was an almost inevitable tendency towards jealousy (for want of a better word) as between different bodies which were formed for similar purposes. It should be remembered that they all had a common object, and in their special concern at the moment—that of saving the lives of the children—there was no room for antagonisms. That work always important, was probably more important to-day than it had ever been before. He was able from his own experience as a patient to compare the nurses of his childhood with those of the present day, and the change within the space of fifty years was, indeed, marvellous. Without the nurse the efforts and skill of the greatest of doctors would be thrown away.

Mr. Hayes Fisher, Parliamentary Secretary to the Local Government Board, who paid a tribute, as Mr. Long had also done, to the public work of Sir William Collins, said that a danger in front of a body such as the Central Council was that, being fed with money from official sources, the local sources would tend to dry up. He trusted that the Council would do something to stimulate local rivalries and arouse local interest.

The report of the Executive Committee on the subject of measles and whooping-cough, which was presented to the meeting by Sir William Collins, stated that, while conducting a larger inquiry, the Committee had found its attention arrested by the special need for the more effective care of children suffering from these diseases. The information collected showed that in the five years 1905-9 measles alone caused 9,301 deaths in London, almost entirely among little children. The mortality increased in proportion to overcrowding and poverty, and diminished with every improvement in the social status. Much of the mortality was due to the common impression that the disease might safely be treated by the mother

alone. It was estimated in the evidence taken by the Committee that in 50 or 60 per cent. of the cases no medical man was called in. This, indeed, was one cause of the failure of compulsory notification in the towns which had tried it. A system of notification through the school teachers and attendance officers was in process of organization by the London County Council authorities, and there was reason to believe that the machinery already at work might be linked up with arrangements whereby the early services of a trained nurse might generally be made available.

After quoting the advice of Dr. Ford Cager, of the South-Western Fever Hospital, Dr. Rindell, of the Liverpool Hospital at Fazakerley, and Dr. Biernacki, of the Plaistow Hospital, as to the desirability of district nurses dealing with cases of measles or whooping-cough in the course of their duties, the Committee advised that, given suitable training and special instruction, district nurses, acting as they did under rule and supervision, might safely be trusted to undertake the nursing of these diseases in the course of their ordinary work. The question of the nursing of infectious and obstetric cases by the same persons was also considered, and the Committee was of opinion that, provided due care was taken to comply strictly with the rules laid down, a district nurse need not be debarred from attending to simple cases of measles or whooping-cough and also to maternity cases; but in the event of any complication she should seek medical aid. With regard to the relation of the district nurse to the medical practitioner in the nursing of measles or whooping-cough, the Committee suggested that possibly the special circumstances might be met if an arrangement could be made, following the precedent of the Midwives Act, for the payment of a medical man called in to attend a child of poor parents on the recommendation of a recognized district nurse. If this could be done, under suitable safeguards, it would provide a systematic means of bringing medical assistance to bear on the cases most in need of it, and at an early stage instead of too late. Possibly the public authorities and district nursing organizations concerned could confer with representatives of the medical profession in each borough, with a view to settling the methods of procedure which should be reciprocally acceptable.

Sir Arthur Downes formally moved the recommendation of the Committee that the report be approved, printed, and placed on sale, and further—

That the Executive Committee be instructed to confer with the Associations for District Nursing in London and other bodies or persons interested, with a view to preparing a scheme for the nursing of cases of measles, German measles, and whooping-cough; and

That the Executive Committee be authorized to promote conferences with representatives of local authorities, the medical profession, district nursing associations, and other bodies or persons interested, with a view to putting in operation a scheme for the nursing of measles, German measles, and whooping-cough.

There was no discussion, and the recommendations were carried *unanimé contradictoire*. The remaining business before the meeting, which included a grateful acknowledgement to the trustees of the London Parochial Charities and to the Worshipful Company of Salters for grants, the appointment of a Finance Committee, and the approval of draft standing orders, was carried through with equal expedition, and the gathering broke up after a vote of thanks, moved by the Bishop of Southwark, and seconded by Sir William Church, had been accorded to the President and Parliamentary Secretary of the Local Government Board, and acknowledged by Mr. Hayes Fisher.

MEDICAL INSPECTION OF SCHOOL CHILDREN IN MANCHESTER.

The number of children in the public schools in Manchester in 1914 was about 123,000, and the report of the school medical officer states that in the year the total number of examinations at medical inspections on school premises was 34,836. The average time occupied by the examination of each case—excluding the special cases of epilepsy, mental defect, etc., which attended at the offices for more extended examination—was about 7½ minutes, but, partly owing to interference by the war, the speed of examination had to be considerably accelerated. Parents had been notified that treatment was required in about 12,600 cases, and the report gives full details of the facts

disclosed by the inspection. In the reports of the last three years it was noted that there had been a small but definite increase in the average height and weight of the children, but in 1914 it appears that there was a small decrease all round. All the figures for both boys and girls being below the anthropometric standard of 1885. The standard of cleanliness in the schools, it is stated, has undoubtedly risen, and though vermin and nits are still very common, gross cases are now comparatively rare. During the year 293 cases were cleansed at the cleansing station, and in 57 cases parents were prosecuted for carelessness. In order to deal more effectively with verminous and dirty children four nurses were added to the staff, and raids are made from time to time, without notice, on the schools for the purpose of detection. Something like 800 children have been attending at the office of the school medical officer for medical supervision, the cases being mainly of phthisis, rickets, debility, anaemia, ringworm, chronic skin or eye disease, epileptics, mental defectives, and miscellaneous cases which have been referred by the assistant medical officers. Of this number no fewer than 406 were cases of phthisis or suspected phthisis. There were 2,585 children excluded from school under the official authority of the school medical officer, 1,720 of these being on account of ringworm. Arrangements have now been made for the treatment of chosen cases of ringworm by x rays, and the total cases treated in this way were 185. It is also noted that the x rays have been used in the diagnosis of certain diseases, especially diseases of the chest. Special attention has been paid to physical children; 64 have been admitted to the Summerset Home, 125 sent to sanatoriums, and 409 sent into the country for a holiday in 1914. Altogether 951 children were reported as physically or mentally defective, including mental defectives, epileptics, cripples, pre-tuberculous children, blind, deaf, and dumb. Of this number, 440 were mental defectives, and during the year 124 mental defectives were admitted to special schools. But it is noted that there are now a large number of mentally defective children attending the ordinary elementary schools, for whom there is no suitable provision, while the policy is continued of excluding from the special schools that grade of child which is uneducable. At the Soss Moss School for Epileptics there are now 100 children in residence, 26 having been admitted during the year, and 21 discharged. Of 122 cases treated at this school, 12 are said to be probably cured, 66 improved, 36 stationary, and 8 worse. At the Residential Schools for Cripples 44 cases were admitted during the year, the total number under treatment at the schools being 157, of whom 96 were suffering from tuberculous disease of bones or joints, and 53 from rickets. Operations, mostly for deformities due to rickets, were done in 34 cases sent to the Royal Infirmary from the schools.

Towards the end of 1913 the school medical officer, in a report on the question of the provision of school clinics, stated that for a full provision six centres would be needed, each centre having a doctor, a half-time dentist and one nurse, and that treatment should be provided for skin disease (including ringworm), defective eyesight, dental caries, and diseases of eyes and ears, with provision later for the operative treatment of tonsils and adenoids. During 1914 the committee endeavoured to secure premises for three centres. One of these was ready in January, 1915, and a smaller but useful clinic was later acquired in a second district.

MEDICAL INSPECTION OF SCHOOL CHILDREN IN SALFORD.

It is evident from the annual report of the Education Committee for Salford that treatment is becoming an increasingly large part of the work of the school medical staff. The staff consists of the M.O.H. of Salford, two whole-time medical officers, a whole-time dentist, and five nurses. During the year 1914 treatment was advised in the cases of 1,019 children. The parents were notified that treatment was necessary, but they are said never to be advised to take their children to the hospital unless they state definitely that they cannot afford private treatment. Inquiries by school attendance officers later showed that 443 had actually received treatment, 322 other parents promised to obtain it, but in 254 cases the parents refused to obtain treatment. The conditions for which treatment is provided by the authority at the school clinic are as follows:

1. Visual defects: In addition to the routine eye-sight examination, 548 children were specially examined by retinoscopy, and spectacles were prescribed for 212.

2. Ringworm: Out of 497 cases of scalp ringworm, 117 were treated by the x rays, the parents paying a nominal charge of 2s. 6d. per child treated. With 15 exceptions, it was found necessary to depilate the whole scalp according to the live exposure method of Kienbock, and the children were allowed to return to school wearing a cap as soon as epilation was complete and no stumps remained.

3. Ailments such as chronic ear discharge, chronic nasal discharge with obstructive deafness, eczema, impetigo, and septic conditions of the skin: During the year 565 new cases were treated under this head, requiring 7,354 attendances. Treatment is carried out by the school nurses under the direction of the M.O., who devotes one half-day per week to the supervision of these cases.

4. Tuberculosis: The routine inspection revealed the fact that 1 per cent. of the children were suffering from actual and 2.9 per cent. from suspected pulmonary tuberculosis, 1.4 per cent. from glandular tuberculosis, and 0.1 per cent. from other forms of the disease.

5. Dental disease: The actual treatment of dental disease was only commenced last August, but from then to the end of the year 472 children received treatment.

In addition to the treatment given at the school clinic, 17 new cases have been sent to special institutions for the blind, deaf, and dumb, and a total of 69 children are now being maintained in institutions at the part cost of the town council.

Ireland.

LUNACY IN IRELAND: ANNUAL REPORT OF INSPECTORS OF LUNACY.

INSANITY, as far as it comes officially under the notice of the Inspectors of Lunacy in Ireland, is still on the increase. The annual report of the inspectors states that the total of insane persons in establishments in Ireland at the end of last year was 25,180—an increase of 171 on the previous year. This increase, however, was 50 less than the average increase for the preceding ten years—a fact from which some little comfort may be derived. The opinion has often been expressed that the increase of lunacy in Ireland is more apparent than real. Constant improvements in the treatment of lunatics in public asylums has led a great many persons to place their insane or mentally afflicted relatives in these institutions. Thus, in the years from 1880 to 1914 the number of inmates of district and auxiliary asylums increased by 12,860; the criminal lunatics in Dundrum Central Asylum decreased by 9; the patients in private institutions increased by 283; while the pauper lunatics in workhouses decreased by 1,073. In the same period the proportion of insane under care to the total population was more than doubled, but the rate of increase appears to be lessening. Another reason why the number of lunatics in Ireland appears to be increasing is that the immigration authorities in foreign countries are becoming stricter, and none but persons of perfectly sound mind are now allowed to enter the United States or other countries. Thus, the insane, as well as the aged and infirm, are left with us, while only the sane and healthy are able to emigrate.

The report discusses the question of the effect of the war on persons of unstable brain, and finds that there is no evidence, so far, that the horrors of war had any influence in increasing insanity in Ireland, but it is noticed that there was an increase last year in the number of cases admitted in which alcohol is assigned as the principal cause, and this is considered an indirect effect of war conditions.

COLLECTION FOR THE IRISH HOSPITAL IN FRANCE.

In Dublin, as in London and many other towns, July 14th was celebrated as "France's Day." In Dublin the collection in the streets was for the benefit of the Irish Hospital in France, a hospital which is one of the nearest, if not the nearest, to the fighting line in Flanders. In addition to the large number of voluntary lady collectors, valuable aid was given by the City of Dublin Voluntary Aid Detachments and the Boys' Brigade, the total number of collectors being about 1,500. The day's programme was carried out under the auspices of "La Croix Rongou Française." The directress of the Irish Hospital in France travelled specially to Dublin to help in carrying

out the day's programme, and was one of the busiest workers throughout the day. The Honorary Secretary and Committee were well pleased with the reports of the workers, and anticipate a very substantial measure of assistance for the Irish Hospital.

VACCINATION IN IRELAND.

Last week, in the King's Bench Division, before Mr. Justice Ross, in the case of the Local Government Board *v.* Letterkenny Board of Guardians, an application was made on behalf of the Local Government Board for a conditional order of *mandamus* to compel the Letterkenny Board of Guardians to put the provisions of the Vaccination Acts into force in their Union. An affidavit of the Secretary of the Local Government Board stated that the attention of the guardians had been called to the necessity of putting these Acts into operation, as the Board were of opinion that there was a real and imminent danger of an outbreak of small-pox should this disease be conveyed to Ireland after the war. It was stated that after the Franco-Prussian war of 1870 there was a world-wide diffusion of the disease. Various proposals were made by the guardians, and correspondence followed, but in the result no action was taken, and the guardians were then notified that legal proceedings would be taken to compel them to enforce the Acts. Under these circumstances the present application was brought. Mr. Justice Ross granted the conditional order.

At the last meeting of the North Dublin Union a letter was read from the Local Government Board relative to a notice of motion authorizing that in future no prosecution be brought under the Vaccination Act by a relieving officer without the consent of the Board being first obtained. The Local Government Board, in its letter, stated that such a resolution, if passed, would impede the due administration of the Acts, and pointed out that the guardians should not entertain the proposal contained in the notice of motion. The opinion of the legal adviser to the guardians was read, and was to the effect that the magistrates were the authority to decide whether there was valid reason for exemption in any case, and that if the resolution were passed it would be a direct breach with the Local Government Board, and would, if adopted, be illegal. The Chairman said, in view of the Local Government Board's letter and their adviser's opinion, it was his duty to refuse the motion.

PUBLIC HEALTH OF BELFAST.

At the meeting of the City Council on July 1st the medical officers of health reported the notification of 177 cases of scarlatina during the last month. The Public Health Committee has now had five years to study and deal with this outbreak, and the public fail to see any advance; in fact, as the Irishman said, we seem to be "progressing backwards." Measles is also rife, and will raise the infant mortality.

The tuberculosis scheme does not appear to prosper. A sum of £13,000 was to have been obtained from the Government for the enlargement of the Whiteabbey Sanatorium when it was taken over by the City Council from the Poor Law guardians; this has been held up, and now it may be taken for granted that no Government will expedite the giving of such a sum. Again, £10,000 a year has been for the time lost, apparently owing to failure to come to an agreement with the Insurance Committee. The Whiteabbey Sanatorium costs over £14,000 a year; a large number of medical appointments had been made, representing payments of over £2,000 a year. The Chairman of the Committee of Management of Hospitals and Dispensaries (Alderman Dr. King-Kerr) said the matter had been hanging over for more than a year; they had admitted over 100 insured persons into the sanatorium for whose treatment they had not received a penny; they had notified the Insurance Committee that they would refuse insured cases. The Insurance Committee were paying their tuberculosis officer £500 a year; the Corporation were paying their officer the same sum; amalgamation would save £600 a year. The dispute between the Local Government Board, the Insurance Commissioners, the Insurance Committee, and the Hospitals and Dispensaries Committee of the City Council had been going on ever since; there were fewer patients in the sanatorium now than when the Council took it over. A new responsible head of the sanatorium (Dr. Gilliland) had

been appointed, but the Council could not get rid of their obligation to the guardians' officers, Dr. Hall and Dr. Rankin. Dr. Hall was now appointed a visiting physician at a salary of £175 a year, although his relations with Dr. Gilliland are not set forth.

The ratepayers sincerely hope that the recent exhortation of the Chancellor of the Exchequer as to economy will be taken to heart by all these bodies.

Correspondence.

LEGAL RESPONSIBILITY FOR CRIME.

SIR,—Kindly allow me to thank my friend Dr. James Scott, and Mr. Roland Burrows, for their very courteous reference to me in their letter to the JOURNAL last week; and also to add a few explanatory words to what I said in my letter which was published in the JOURNAL of June 5th.

What I said, or at least intended to say, was that the subcommittee's proposal was in effect a combination of Sir James Stephen's and Dr. Mercier's. I certainly did not insinuate that the subcommittee had not thought the whole question out for themselves, both individually and collectively. I recognized explicitly that the omission of Dr. Mercier's name was unintentional, but deemed it fitting to call attention to this omission in view both of what I hope will be the signal and enduring importance of the subcommittee's recommendation, and also of Dr. Mercier's undoubtedly original publication of the new proposal embodied therein.—I am, etc.,

London, W., July 18th.

H. BRYAN DOKKIN.

SIR,—I am grieved that Drs. Scott and Burrows should think me hypercritical. I had no intention of pointing out any errors except those that seemed to me material. I think no cases would come under A (c) that would not already have been covered by A (a) or A (b). Drs. Scott and Burrows virtually admit that this is so, but they say it may be of the greatest service to have an alternative formula. It may be so, but I do not think it is hypercritical to doubt it. I should fear that an alternative formula, which is not an alternative formula, but, as Drs. Scott and Burrows admit, an additional formula, may confuse the issue.

When I express my difficulty in discovering what cases are included under "such" and what are included under "other," I am told that I lay too great stress upon classification. It is true that I used the word "class," but I am not wedded to it, and it is not necessary to my argument. When the report speaks of "such cases," it refers, I suppose, to some kind, sort, variety, aggregate, group, batch, lot, or bunch of cases; and when it speaks of "other cases" I assume that it refers to a different kind, sort, variety, aggregate, group, batch, lot, or bunch of cases; and I could not on reading the report, nor can I now, discover what difference is made between the two kinds, sorts, varieties, aggregates, groups, batches, lots, or bunches.

It was my mistake, no doubt; but I had no idea that what the reporters objected to was the system of calling medical witnesses *en bloc* as witnesses of the court. The objections to this course certainly do seem to me real, great, and manifest. Structural alterations would be required in the courts. Either the witness-box must be enlarged or additional witness-boxes must be provided. The simultaneous examination and cross-examination of several witnesses must inevitably confuse the court, jury, counsel, and each other. I cannot doubt that the plan of calling the witnesses one after the other is much to be preferred, and this is the plan that I have always seen followed in court; but it seems that the practice must have been altered since last I gave evidence, for Drs. Scott and Burrows assert that "in no cases are expert witnesses expressing divergent opinions called one after another." It must be bad enough to call simultaneously witnesses who express similar opinions, but to have several experts simultaneously expressing divergent opinions must turn the court into a bear-garden, and I am surprised that the judges allow it.

I abhor ambiguous expressions and cannot but feel humiliated at being charged with using one. If I had

been charged with using ambiguously such expressions as "either" or "one after another," I do not know how I could have survived the exposure; but when I am told that the expression, "reported cases," is ambiguous, I may, perhaps, be permitted to clear up the ambiguity by substituting the expression, "cases reported in the *Times* newspaper."

Lastly, the reporters pin me down with a definite question, and ask me if I should "care to sustain the theory that no criticism could be passed, say, upon the trial and conviction of men charged before justices for summary offences of indecency under the Vagrancy Acts." Well, Sir, I must admit, as the chairwoman admitted when she was asked for a character, "There you 'ave me." The difficulties are so numerous and stupendous that I give it up at once. The question planks me down in a new and unknown world, and leaves me completely at fault. To begin with, I do not know what a summary offence is. Summary jurisdiction I know, and summary conviction I know, but how am I to know whether or not an offence was committed summarily unless I was there to see? Again, that passing criticism or not passing criticism can be a theory gravels me; and I hasten to say that it would gravel me just as much to find a theory in passing hypercriticism. The only way that I know of to sustain a theory is by adducing evidence in its favour, and where and how am I to find evidence that no criticism can be passed upon this trial? It was a trial and conviction of unspecified men, charged at an unspecified time and place, before unspecified justices, and they were charged for offences, and summary offences into the bargain. I am not told even how much they were charged for their offences—their summary offences. The whole system of criminal jurisprudence seems to have been revolutionized since I frequented the courts, and it seems that we have gone back to the Saxon system of *wer-geld*, and charge the offenders so much for their offences. No, Sir, I do not care to sustain the theory. There is no need for Drs. Scott and Burrows to shoot. I will come down.—I am, etc.,

Parkstone, July 17th.

CHAS. A. MERCIER.

THE SUPPLY OF MEDICAL MEN.

SIR,—“A. M. E.’s” letter in the BRITISH MEDICAL JOURNAL of July 3rd should not be allowed to pass without a protest. He evidently is well satisfied with the position in which he finds himself owing to the war, and this has led him to think he possesses the faculty of summarizing the positions of many different classes of medical men of whose private matters he must be absolutely ignorant. His classification of “mankind” (which includes only the *English*) is extremely narrow, and necessarily most unjust to many. He seems to forget that of the many medical men “who had given up lucrative practices” some, at least, have done so—(a) because they had to as officers of certain units; (b) because they foresaw the effect of the war on their practices, and the war enabled them to tide over the time; (c) because, having made their bit, they could well afford to go. If “love of the country” is to transcend “all else,” then surely, indeed, the war would leave many widows and orphans, and increase the liabilities of the State. It is quite easy for young unmarried men and very young married men to accept the generous rates given for a temporary lieutenancy with the R.A.M.C.; but it is rather hard that married men who could not afford to accept those rates without loss and incurring bankruptcy should be regarded as unpatriotic because they wish to be clear of debt, and thereby help their country. If “A. M. E.” still holds the opinion he does, he should publicly state he is willing to pay all expenses above the war rates of those of his classes whose expenses exceed the pay offered by the War Office.—I am, etc.,

July 11th.

COMMON-SENSE.

SIR,—Our experience in West Sussex makes us wonder whether the shortage of medical officers in the army is a fact. Some weeks ago a meeting of practitioners in West Sussex was addressed by the Director of Medical Services of this district, and they were asked to help by giving whole or part time service as far as they possibly could. As a result of several further meetings a certain number of

medical men were enabled to offer their services for a stated period.

Recently about 1,000 troops were quartered in this town and were placed under the medical care of a local doctor. After a short time he was superseded by an officer of the R.A.M.C. If such an officer can be spared to do such work in a town where there are upwards of twenty practising doctors, it would seem that the “shortage” has been exaggerated.

Are we to be guided by the spoken words or by the action of the Director of Medical Services?—I am, etc.,

FRANK HINDS,
Chairman, Worthing and Chichester
Division, B.M.A.

TEMPORARY RANK IN THE R.A.M.C.

SIR,—In support of your correspondent, “A Forty Year-Old Lager,” may I say that the authorities have made a great mistake in giving us temporary R.A.M.C. officers any substantive rank whatever—it is most misleading? Juniors of the rank and file and other corps believe that being subalterns we are mere makeshifts of no professional standing, and, what is worse, our patients think the same. In the Boer war, through which I served as captain (two medals, seven clasps) in an irregular corps, temporary officers were either civil or consultant surgeons—that is, general or special practitioners, as in civil life. “Way-back” practitioners, of no military training whatever, are being enrolled from obscure practices in far-away colonies, and arrive here as captains. I, with almost twenty years of commissioned life in a colonial militia, though also from such an obscure practice as I suggest above, having gained promotion by examination and trained on R.A.M.C. lines, travelled at my own expense for two months across the world, and have been rewarded with a lieutenancy. The R.A.M.C. has not adopted the present plan because it assumes that we have no professional standing—are, in fact, mere embryonic practitioners—but because we have no special military training, and are, most of us, incapable of successfully taking command of ambulances, hospitals, boats, and companies. Therefore we should have no substantive rank. But as we have, in the name of sense let us be graded sensibly—say, as honorary or brevet captains—so that we shall assume no superiority over those who though junior in rank, are trained lieutenants and recently promoted captains.

Then, too, let me speak of that absurd age limit which as yet prevents the vigorous hard-riding athletic man of 46 from going to the front and doing the work he is physically adapted for, whilst the studious, artistic idealist of 40 is sent instead, whose pluck leads him into dangers from which his physique provides no means of escape.

Also, why are we in base hospitals on the northern side of the Channel not to receive the “honours of war”—medals which will be given to those who are just as stung at bases on the southern side or on hospital boats? It is through increase of well-earned public esteem that we alone can expect to balance our losses—and we have lost heavily, and will lose more. Any man who loyally and voluntarily leaves his work, whatever it may be, and devotes his whole time to purely military work, be he surgeon, cook, or clerk, should receive his medal. As we now have rank, we surgeons, let us be at least captains. I am an old M.D., and answer to the name of “Mister” now, and in selecting us for duty at base or front let the personal equation be considered. One man working with me has been kept back because his vision does not meet a stereotyped and archaic test long known to be useless. I have seen him operate without glasses and count cattle at over two miles.—I am, etc.,

July 17th.

OVER FIFTY.

SIR,—“Temporary Subaltern,” in his letter of July 10th, strikes the right note, only not quite strong enough. I sympathize with him, also with myself. This is my case: In August last I resigned a good permanent appointment to offer my services at the earliest moment. I was kept waiting for weeks, and at last obtained a lieutenancy, R.A.M.C.(I), with the assurance that I would be promoted to captain’s rank in a month’s time, but no promotion yet. I have served overseas, and am now engaged at depot work, not looking for or caring much for promotion

any longer, but intending to "pull out" when my year is up, as the position is *infra dig.* and humiliating. If only young enough, I would much rather serve as a private. I see Colonialists and others who have started with rank of captain—good men, no doubt, but not better than many senior and efficient men who have to masquerade as lieutenants and subs. with a paltry star or two. I have the Queen's medal with four clasps for service in South Africa, where, I will say in justice to myself, I made good. Although gazetted in October last, I have not received my ordinary allowances up to date; it was nearly six months before I could extract my pay through the "proper channels," apparently because I had moved about, having been willing to go anywhere or do anything in the way of duty. It is all very well for the War Office to appeal to the patriotism of the profession, but I fear we have made ourselves too cheap, and are treated accordingly. This is my first grumble, but not necessarily my last.—I am, etc.,

July 6th.

GROWLER.

A SCALE OF FEES FOR MEDICAL EXAMINATIONS FOR LIFE INSURANCE.

SIR,—In the report of the Council to the Representative Meeting the attention of the latter is drawn to the question of fixing a scale of fees for medical examination for life insurance, and emphasis is laid upon the fact that this matter has been more or less under consideration since 1904. I think that this statement is a proof of the difficulties that militate against any satisfactory settlement of the question, and hope that the meeting will consider very closely the possible result of any decision it arrives at. We have a recent example of an attempt to get unanimous action throughout the profession in the passing of a resolution by the Representative Meeting which fixed the fee for referee work under the Insurance Act at 10s. 6d., and many of us are aware of the ethical questions that were created by that resolution, and by the attempt of those who loyally obeyed it, to bring to book those who failed to do so. A far worse state of things will arise if an attempt is made at present to enforce a certain scale of fees for life insurance work, and until those affected are agreed upon unanimous action, while a resolution of the Representative Meeting which is to be only a pious opinion, to be generally disregarded by those concerned, will, I fear, be very little helpful. When we realize that in every town each of the large insurance companies doing both "ordinary" and "industrial" work employs one or more local practitioners, who are often men in good class practice, to examine their cases at fees varying from £1 1s. to 2s. 6d., and that frequently the larger fees so far outnumber the smaller ones that the examiners express no discontent with the scale of pay for the work they do, then I think we must first of all secure the co-operation of those interested before passing any resolution in either the Divisional or Representative Meetings, which will oblige loyal members of the Association to either resign the appointments they hold from the insurance companies, with the knowledge that other men will be found who are less scrupulous, or alternatively resign their membership.—I am, etc.,

July 12th.

S.

BRITISH AND FRENCH SALVARSAN PRODUCTS.

SIR,—In the BRITISH MEDICAL JOURNAL of July 10th Dr. C. F. Marshall, commenting on the occasional toxic results of salvarsan injections and the manufacture of the British product, states: "Whether English salvarsan is more or less toxic than the German product is immaterial, considering that this drug is not essential in the treatment of syphilis. The labour and ingenuity expended on its manufacture would be better applied in the production of high explosives," etc. Salvarsan is not essential in the sense that it is the only drug with which we can treat syphilis, but it is essential in that it is by far the most powerful antidote to syphilis which we possess, and that a proper course of treatment consisting of salvarsan and mercury not only gives better results but takes up far less time than one of mercury alone.

The duration of the course of treatment is of extreme importance, particularly at the present time. The number of soldiers who contract syphilis is considerable. It is not only desirable but essential that their course of treatment

should be short as well as efficient, so that no unnecessary delay may take place and prevent them from joining their units abroad. Salvarsan and mercury can do more for them in nine weeks than mercury alone can do in two years. From this point of view alone, therefore, salvarsan must be looked upon as a most essential drug, and the labour and ingenuity expended on its manufacture and control as fulfilling a national necessity and worthy of every encouragement. I have now given 123 intravenous injections of the British preparation, kharsivan. The two batches used, 49 and 54, have given rise to no toxic effects, and have proved every bit as good as the original German preparation. I hope members of the medical profession who deal with these injections will comply with the request of the National Research Committee, published in the BRITISH MEDICAL JOURNAL of June 26th, and forward to them accurate records of their results, paying particular attention to the points mentioned in the communication.—I am, etc.,

H. C. LUCEY, Lieutenant, R.A.M.C.,
Specialist in Venereal Diseases, Royal Herbert
Hospital, Woolwich.

Woolwich, July 18th.

SIR,—Great as is Dr. C. F. Marshall's reputation as a syphilologist, it is not well that he should make a statement "that this drug (salvarsan) is not essential in the treatment of syphilis" without being invited to produce at the same time the evidence on which he bases his remark.

His letter is an open invitation to us to discard the use of salvarsan; but the mere weight of Dr. Marshall's opinion, unsupported by data from his own experience in the use and administration of this drug, will not be sufficient to convince those of us whose favourable opinion of salvarsan is founded upon first-hand observations of its value. The advice of Arctæus the Cappadocian should be remembered: ἀγαθὴ δὲ διδασκαλία ἢ πείρα, χρῆ δὲ καὶ αὐτὸν πείρα. εἰλαβὴ γὰρ ἀπειρία (which Adams translated for us, "For experience is a good teacher; one ought, then, to try experiments, for too much caution is ignorance.")—I am, etc.,

Clifton, Bristol, July 12th.

J. A. NIXON.

THE SO-CALLED "NEW DISEASE" (STREPTOCOCCAL NEPHRITIS).

SIR,—I do not know who is responsible for labelling a streptococcal nephritis "a new disease," but it seems to me strange to do so. It has been well known to me—and I imagine to most other clinicians—for many years that nephritis may follow non-specific sore throats. Before the days when it was customary to look for the particular micro-organism this was surely well known, but in recent years I have often ordered vaccines to be prepared for the treatment of such cases of nephritis dependent upon various infections of the throat. Moreover, it is a familiar fact that streptococcal infection anywhere may give rise to nephritis, meningitis, endocarditis, osteo-myelitis, and so forth, so that there is not only nothing new in this particular disease, but it is merely an illustration of a quite well known pathological process. In these circumstances your correspondent's references to ancient history are out of place; instead of referring to the records of ancient Nineveh, he might have looked into some modern textbooks.—I am, etc.,

Birmingham, July 19th.

ROBERT SAUNDY.

NERVE SUTURE AND BULLET WOUNDS.

SIR,—In his letter of July 5th, which appeared in the JOURNAL of July 10th, Captain Roth has accused us of serious error in stating in our paper on nerve suture for bullet wounds that "within two months of the operation there was good voluntary power of contraction of the flexor carpi ulnaris." This is not a serious error, but a serious fact. Knowing that it is generally considered that a three months' interval, at least, is necessary for the recovery of function in muscles whose nerve supply has been cut, we nowhere stated that this return of power was due to the suture of the nerve, though it may be hard to explain it otherwise. Certainly Captain Roth's simple anatomical explanation cannot be correct; we mentioned that "the proximal end of the nerve was freed up to the internal condyles," and if there had been branches passing from this part of the nerve into the flexor carpi ulnaris we

would have mentioned it; there were no such branches. It is possible that the supply came from the ulnar nerve in its course in the upper arm, but if so, it is difficult to explain the paralysis of the muscle—it could scarcely have been the "paralysis of disuso or concussion" which lasted for four and a half months, during the last month of which the case received daily massage and electrical treatment.

With regard to the question whether or not an operation for suture should be performed where there is a septic wound, we did not wish to dogmatize, merely stating our preference, to await healing as a rule. In individual cases much must depend on the degree of sepsis and the other complications which may be present.—I am, etc.,

Dublin, July 16th. R. ATKINSON STONEY, F.R.C.S.I.

THE TOURNIQUET IN WAR.

Sir,—Your issue of July 17th seems to me to raise, incidentally, a very important question, and one of which the importance is not quite as generally recognized as some would think desirable.

Briefly, the point is the utility or otherwise of the tourniquet in war and of teaching the soldier the use of this means of arresting haemorrhage.

May I contrast the following statements from your last issue:

1. This is from a review of a pamphlet entitled *Instructions for Rendering Immediate Aid*, by Major Maclure, and reads as follows:

Over 120,000 copies of the leaflet had been supplied gratuitously to regiments on service, and Sir Frederick Treves has stated that 25 per cent. of casualties had been saved thereby from bleeding to death.

2. These two quotations are from your account of the annual meeting at Brussels of the *Deutsche Gesellschaft für Chirurgie*, and are as follows:

Professor Garré: The use of elastic bandages (for the arrest of haemorrhage) should be avoided as much as possible, as their timely removal was often not feasible.

Herr L. Rehn: Much harm had been done, particularly in the beginning of the war, by the improvised use of straps, belts, etc., by soldiers for the arrest of haemorrhage.

3. This is from your *précis* of the experience of Dr. F. Demmer with the Austrian amicus:

Here he was struck by the frequency with which the arms had been injured by bandages, which had been applied too tightly on account of haemorrhage, either by a comrade in the trenches or at a first dressing station.

Dr. Demmer is also reported as saying that, although he worked at the front on three occasions, he never once had to apply an Esmarch's bandage or to ligature a vessel for haemorrhage.

The experience of British surgeons in this matter has not, so far as I am aware, formed the subject of discussion in the medical press. I can only quote my own to the following effect. I never put on a tourniquet (even at amputations, when I preferred to find the artery and tie it at the point of amputation rather than do anything to risk the vitality of the leg above). I invariably took off immediately every tourniquet which had been applied, and never had any occasion to regret this practice. I often thought, and still think, that these constricting bandages had been of no use and very often of active harm to the wounded. This harm occurs for three reasons or in three sets of circumstances—namely:

- (a) If not tightly enough applied, they prevent venous return, although allowing arterial supply to continue. I have known this to be the apparent cause of death on more than one occasion.
- (b) If properly applied, they often stay on too long—in some cases being covered with a neatly-applied bandage, which gives no hint of their presence. I cannot see how this is to be prevented when there is a rush of wounded, say, 500 in the day.
- (c) The onset of sepsis, which is very rapid and accompanied by swelling, accentuates the evils referred to.

Consequently, I have always in lectures to soldiers emphasized the point that they are on no account to use tourniquets, but rather to apply pressure to the bleeding point if this be particularly necessary, as is very seldom the case. This advice I had long ago from my former teacher, Mr. W. G. Spencer, of the Westminster Hospital,

and experience in France has convinced me anew of its wisdom.

One would very much like to know on what grounds Sir Frederick Treves formed the opinion attributed to him and also the views of others on what is really a very vital matter. This is not a question of whether the tourniquet is a good thing, but whether it is useful and often required in war time.—I am, etc.,

GORDON WARD, Capt. R.A.M.C.(S.R.),
Military Hospital, Lydd, July 19th.

THE PREVENTION OF GAS POISONING.

Sir,—I have read many suggestions as to the treatment for soldiers poisoned by German gases. I have vainly searched for suggestions as to the prevention of such poisoning by the use of other gases.

Would not a liberal supply of oxygen to the trenches, to be used in the event of a gas attack, overcome the horrors of their chlorine and cyanide poisons and so annul their effect?

I have sometimes wondered whether it would be possible to drive the gases back by water hoses as in case of fire, but the water might not be attainable. The oxygen could be made so.—I am, etc.,

Bewley, July 8th. JANET G. HORWOOD.

THE IRISH APOTHECARIES' HALL AND THE GENERAL MEDICAL COUNCIL.

Sir,—Adverting to certain comments made at the General Medical Council which suggested leniency on the part of the examiners in medicine of the Apothecaries' Hall, may I be permitted to point out that, according to the returns for 1914, just published by the General Medical Council, the percentage of candidates who pass our examinations is smaller than at any other examination in Ireland:

Medicine.	Passed.	Rejected.	Percentage Rejected.
Apothecaries' Hall, Dublin...	17	11	39.28
University of Dublin	60	34	36.17
Irish Conjoint Board	59	28	32.18
University of Belfast	47	23	32.33
National University of Ireland ...	53	21	28.38

—I am, etc.,
J. C. McWALTER, M.A., M.D., LL.D., D.P.H.,
Dublin, July 9th. Governor, Apothecaries' Hall.

Medico-Legal.

UNREGISTERED PRACTITIONER FINED.

BEFORE the Sheffield magistrates on July 16th William Williams Abwick, of 8, Underwood Road, Woodsteads, was summoned for that, not being a registered medical practitioner within the meaning of the Medical Acts of 1858 and 1886, and not being a person recognized by law as a physician, surgeon, licentiate in medicine, or an apothecary, he did unlawfully pretend to be, and take and use the title and description of, a surgeon on three different occasions.

Mr. Neal, who is, instructed by Messrs. Hempsons, appeared to prosecute on behalf of the Medical Defence Union, said, defendant, had attended a soldier and members of his family. He had rendered bills calling himself M.B. New York, M.D. Lond., a registered dental surgeon, and a surgeon. As far as could be ascertained the defendant had no title at all and was not on the *Medical or Dental Register*.

The police officer who served the summons stated he had known defendant as a doctor for over fifteen years.

Defendant, who put in a dental registration form dated 1895, said he was a registered dental surgeon as far back as 1875, but had not been on the *Register* because he had not troubled about it. He had been assistant at different times to several doctors, but he had never pretended to be a doctor. He attended the soldier as an ordinary man without any medical knowledge.

Mr. Neal said that in 1906 defendant had been fined £5 for forging a death certificate.

The magistrates being satisfied that the case had been proved imposed a fine of £10 in each of the three cases, with the alternative of one month's imprisonment. The defendant was allowed time to pay at the rate of £1 a week.

Universities and Colleges.

THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMMITTEE was held on Thursday, July 15th, Dr. Frederick Taylor, the President, being in the chair.

DUTY OF MEDICAL PRACTITIONERS IN CASES OF CRIMINAL ABORTION.

A report was received from the Censors Board on the duties of medical practitioners in cases of criminal abortion. After discussion the report was finally adopted as follows:

Report.

The College is of opinion:

1. That a moral obligation rests upon every medical practitioner to respect the confidence of his patient; and that without her consent he is not justified in disclosing information obtained in the course of his professional attendance on her.

2. That every medical practitioner who is convinced that criminal abortion has been practised on his patient, should urge her, especially when she is likely to die, to make a statement which may be taken as evidence against the person who has performed the operation, provided always that her chances of recovery are not thereby prejudiced.

3. That in the event of her refusal to make such a statement, he is under no legal obligation (so the College is advised) to take further action, but he should continue to attend the patient to the best of his ability.

4. That before taking any action which may lead to legal proceedings, a medical practitioner will be wise to obtain the best medical and legal advice available, both to ensure that the patient's statement may have value as legal evidence, and to safeguard his own interests, since, in the present state of the law, there is no certainty that he will be protected against subsequent litigation.

5. That if the patient should die, he should refuse to give a certificate of the cause of death, and should communicate with the coroner.

EXAMINATION IN PRACTICAL PHARMACY.

A report was received and adopted from the Committee appointed to report upon the examination in practical pharmacy. It contained the following general recommendations:

1. That for the title "Examination in Practical Pharmacy" be substituted the title "Examination in Materia Medica and Pharmacology."

2. That the examination be *à la fois*, as at present, but that the time for each candidate be extended from ten minutes (the present time) to a quarter of an hour.

3. That candidates be not examined upon the experiments by which the actions of drugs have been determined.

4. That all questions on therapeutics be excluded.

5. That the examination form part of the second examination (that is, of the examination in anatomy and physiology). [The object of this recommendation is to keep the subsequent period free for the study of medicine, surgery, and midwifery.]

6. That no change be made in the status of the examiners nor in the method of selecting them.

UNIVERSITY OF OXFORD.

Degrees.

THE following degrees have been conferred:

B.M., B.Ch.—C. M. Burrell, R. J. Inman, R. C. Fairbairn, O. H. Goteh, J. M. Guilfoyle, H. A. B. Whitelocke, R. W. J. A. Cushing, J. B. Cavenagh, A. H. Southam.

Examinations.

The following candidates have been approved at the examinations indicated:

FIRST M.B. (*Organic Chemistry*)—E. H. Cluver, F. B. Dutton, R. Ginzburg, H. F. Hodge, J. G. Johnston, W. N. Robinson, E. A. Woods. (*Anatomy and Human Physiology*)—R. A. I. Mackenzie.

SECOND M.B. (*Materia Medica*)—F. L. Apperly, J. N. L. Flanery, G. K. Bowes, C. M. Burrell, J. B. Cavenagh, J. L. P. Cavenagh, J. C. Crow, W. S. Dawson, G. Perkins, A. Trull, S. C. Varley, D. M. P. Whitcombe, C. D. Wood. (*Forensic Medicine and Hygiene*)—C. M. Burrell, J. B. Cavenagh, A. G. East, L. Gannon, G. T. Ginnette, O. H. Goteh, J. M. Guilfoyle, R. J. Inman, H. S. Jeffries, M. R. Lawrence, H. M. Oddy, J. F. West. (*Pathology*)—F. L. Apperly, C. M. Burrell, J. M. H. Campbell, G. I. Evans, G. T. Ginnette, H. S. Jeffries, T. E. Mickletham, A. Trull, S. C. Varley, D. M. P. Whitcombe, C. D. Wood. (*Medicine, Surgery, and Midwifery*)—F. L. Apperly, C. M. Burrell, J. B. Cavenagh, R. W. J. A. Cushing, R. C. Fairbairn, O. H. Goteh, J. M. Guilfoyle, R. J. Inman, J. B. West, H. A. B. Whitelocke.

UNIVERSITY OF BRISTOL.

The following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B. (*Part D*)—Hilda Kate Evans, D.P.H.—A. Seiple, R. E. Thomas.

UNIVERSITY OF EDINBURGH.

The following candidates have been approved at the examinations indicated:

THIRD M.B. (*Pathology*)—J. Aitken, Janet C. P. Alison, L. G. Allan, H. M. Anderson, G. Baislich, C. G. Booker, C. C. Boudou, J. S. Bow, R. M. Bowman, W. D. Brunton, J. C. Burns, Gladys Carleton, Isa Thuan Chan, D. C. Chalmers, C. C. Clark, W. C. Crawford, P. C. Datta, T. S. Duncan, D. W. Dunlop, J. W. C. Fairweather, D. T. P. Gay, J. A. Hadfield, N. K. Henderson, N. Hirschman, A. Joe, Ying C. Lee, V. St. C. Lucas, D. MacEachran, R. D. Mackenzie, I. F. MacLeod, A. MacRae, R. Miller, A. Maja, J. B. Martin, A. R. Matheson, C. J. van der Merwe, J. H. Neill, R. B. Okholm, R. D. Osier, F. W. Poole, H. B. Renton, A. Robertson, S. A. Robertson, S. S. Roseenthal, L. C. Rudd, R. Sandilands, J. Schneider, S. N. Seal, J. M. H. Smellie, J. O. P. Smith, Janet Smith, J. H. R. Smith, R. B. Smith, S. L. Smith, D. G. Sinton, A. Strachan, J. H. H. Spykens, D. R. Thapar, A. Ba Thaw, J. M. Tyrrell, L. Walker, R. Walker, W. A. Weatherhead, D. H. Williamson, J. Wolfson, J. W. van Zyl.

FINAL (*Foroens Medicin*)—C. B. C. Anderson, J. Bennet, K. P. Brown, W. Brownlie, A. J. Caird, R. D. Cameron, Yun Y. Chan, J. E. Chow, A. H. Chu, F. W. Clark, C. T. I. Clarke, A. Cleland, D. Colombose, T. F. Corhill, J. A. Crawford, B. C. Crawford, A. L. V. Davin, J. Dick, J. Dickson, A. V. Dill, D. G. Duff, J. J. B. Edmond, W. H. Ferguson, A. M. Ferrie, G. H. Fraser, J. S. Galvin, A. K. Gibson, G. W. Grant, W. S. Green, C. Harris, F. J. Hauptfleisch, C. S. van Hercken, W. Helming, W. Hendry, C. E. Hill, R. L. Impey, J. M. Johnstone, H. B. Kirk, A. C. Kirtou, Marjorie L. S. McGregor, I. Mackenzie, J. A. Mackenzie, Isobel M. MacLulich, Annie M. Madin, P. T. Majumdar, J. C. J. O. Mearns, J. de Vos Meiring, E. de Vos Meiring, E. Mills, C. Milne, J. S. Moore, G. Morris, J. L. Owen, M. S. N. Panikar, A. M. Paterson, D. H. Paterson, A. Prentice, K. S. Ray, W. Richards, P. A. Rostant, A. J. D. Rowan, B. J. Rytic, G. C. Salgad, E. G. Seash, J. J. Shannon, H. S. Simons, E. O. A. Singer, N. H. Smith, E. D. Sölerström, M. Stuart, M. D. Thakore, D. R. Thomas, W. E. Thompson, J. G. de Villiers, W. Waddell, Gladys Ward, R. A. Waters, H. W. Williamson, W. Williams, D. Wilson, H. D. Wright, W. Ngai-Yow.

FINAL (*Public Health*)—C. B. C. Anderson, J. Bennet, K. P. Brown, W. Brownlie, A. J. Caird, R. D. Cameron, Yun Y. Chan, A. H. Chu, F. W. Clark, F. W. Clark, C. T. I. Clarke, A. Cleland, J. A. Crawford, B. C. Crawford, J. Dick, J. Dickson, A. V. Dill, D. G. Duff, J. J. B. Edmond, W. H. Ferguson, A. M. Ferrie, G. H. Fraser, J. S. Galvin, A. K. Gibson, G. W. Grant, W. S. Green, F. J. Hauptfleisch, C. S. van Hercken, W. Helming, W. Hendry, C. E. Hill, H. H. Impey, J. M. Johnstone, H. B. Kirk, A. C. Kirtou, I. Mackenzie, J. A. Mackenzie, Isobel M. MacLulich, P. T. Majumdar, Annie M. Madin, J. Manuel, J. de Vos Meiring, F. H. van der Merwe, E. A. Mills, C. Milne, J. Milne, H. S. Moore, G. Morris, J. L. Owen, M. S. N. Panikar, A. M. Paterson, D. H. Paterson, A. Prentice, K. S. Ray, W. Richards, P. A. Rostant, A. J. D. Rowan, B. J. Rytic, G. C. Salgad, E. G. Seash, Eng S. Seash, J. J. Shannon, B. H. Simons, H. S. Simons, E. O. A. Singer, N. H. Smith, E. D. Sölerström, M. Stuart, M. D. Thakore, D. R. Thomas, W. E. Thompson, W. G. Thomson, J. I. de Villiers, W. Waddell, Gladys Ward, R. A. Waters, H. W. Williamson, D. Wilson, Tin Fo Woe, H. D. Wright, C. W. Ngai-Yow.

UNIVERSITY OF GLASGOW.

SPECIAL GRADUATION.

A SPECIAL graduation ceremony was held on July 14th at Glasgow University for the "capping" of medical students most of whom had accepted commissions in the Royal Army Medical Corps.

Principal Sir Donald MacAlister, who presided, said that the casualties and the distinctions of the Royal Army Medical Corps which were already recorded in the roll of honour testified to the peril and glory of that service. By the application of medical science to prevention as well as to cure it had doubled the efficiency of the fighting forces. In no previous campaign had the losses from disease been so small, the operations and the recoveries from wounds so large a proportion to the total casualties.

The following degrees were conferred:

M.B., CH.B.—I. M. Macfie, J. D. Milligan, H. S. Weatherhead, R. S. Gibson, M. W. Cantor, J. K. Ronnie, W. F. Shanks, W. Cunningham, R. M. Lang, D. S. Campbell, W. Campbell, J. Gilchrist, C. B. Gilmour, Janet F. Henderson, Helen I. W. Kerr, J. A. Leiper, R. Lyon, D. J. Sandilands, F. M. Intosh, G. Maclean, P. D. MacLeod, D. MacLeod, D. McNeill, F. W. Morrison, Mary A. Noble, A. Scott, J. T. Smith, Isabel S. Thomson, A. J. van der Spuy, J. D. Watson, R. J. Wilson, Mary F. Wood, A. Young.

B.Sc. (*In Zoology*)—T. Rogers.

* With honours.

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scholarship of £30 for being first in surgery, and Miss Walker a scholarship of £30 for being first in obstetric medicine. Dr. Harold Black and Dr. John Gibson received the degree of M.D., the former with commendation, and the latter with a gold medal for his thesis on heart-block. The degree of D.Sc. was awarded to Major McCarrison, I.M.S., M.D., F.R.C.P., Lond., an old Queen's man, for his original work on the etiology of endemic goitre.

CONJOINT BOARD IN ENGLAND.

The following candidates have been approved at the examinations indicated:

FIRST COLLEGE (*Part II, Practical Pharmacy*).—J. H. Allan, E. R. Audrene, W. G. Barnard, W. E. Barnes, K. L. Bates, L. M. Billingham, L. G. Blackmore, E. J. S. Bonnett, J. Brooks, W. H. Butcher, A. J. Chappie, W. Colborne, A. I. Cox, W. Davies, T. H. Dobrashi, F. S. Drewe, W. F. Eberl, B. Graves, J. C. N. Harris, M. L. Hatch, S. Hazeldine, T. R. E. Hillier, A. B. Isaacs, J. Jackson, T. James, L. P. Johns, E. F. J. Jones, J. W. Jones, L. K. Leitch, P. Lindsay, Louisa M. Lister, T. D. Llewellyn, J. M. J. MacDonnell, G. B. McMichael, F. K. Marriott, W. H. Manning, J. S. Moore, E. C. M. de M. Moreau, C. P. Nagamittin, W. W. Newton, C. Nicory, A. E. Parkes, J. Peter, R. B. Powell, R. L. Robinson, J. A. M. Ross, M. M. Sheeh, J. A. D. Skinner, N. H. Smith, E. A. Sparks, I. H. Syed, R. R. H. Oo Tha, B. Whitehead, Gladys M. T. Williams, H. W. M. Williams, P. E. Williams, W. R. Wilson, R. Wolf, P. V. Wynne-Verelick, C. Young.

SECOND COLLEGE (*Anatomy and Physiology*).—G. V. W. Anderson, K. A. Anklesaria, H. C. Apperly, E. R. Batho, J. C. Blake, H. W. Breeze, R. Calvo, F. Cameron, G. W. Coombes, J. R. Cox, James Crawford, L. P. de Abrew, H. E. Ekansyake, F. M. T. Flintan, M. Gourevitch, T. C. Higgins, M. Ibrahim, A. Ismail, A. K. I. Jones, D. J. H. Jones, Lilyan Lewenstein, K. McFadyen, L. H. McLeod, H. L. Martine, P. Chisholm, C. E. Meryon, J. M. Milandis, H. Palmer, C. S. Parker, A. Peine, P. Randall, C. G. J. Rayner, C. C. Rowland, R. J. Saunders, I. Shwartz, Flora Singh, F. H. Scottford, C. H. Warner, G. A. O. White, G. Winter S. To Yong.

CONJOINT BOARD IN SCOTLAND.

The following candidates have been approved at the examinations indicated:

FIRST COLLEGE.—J. H. Scott, R. E. Hopton, J. K. Steel, D. Mackay, *In Physics*.—T. R. O'Keefe, W. Gibb, D. Gilmore, E. J. Allan, J. B. Singh. *In Biology*.—W. Gibb, D. Gilmore, E. J. Allan, A. S. Irvine, W. S. Moir. *In Chemistry*.—T. R. O'Keefe and W. H. Kerr.

SECOND COLLEGE.—L. L. Rupasinghe, E. E. Bronstorff, Mahmood Ahs of Kader Motref, L. MacDuff. *In Physiology*.—D. A. Walpole, J. B. Welby, A. F. Brighson, A. S. Hughes. *In Anatomy*.—G. P. de Silva.

THIRD COLLEGE. Ethel M. Dukes, S. D. Vania, W. McElroy, I. Borrall. *In Pathology*.—J. H. Brown, J. M. Barrine. *In Materia Medica*.—J. Meak, B. T. McColou-Gasper.

FINAL.—J. L. Hendry, W. Ainsley, W. D. Bathgate, J. Baumanman, W. A. Backhouse, M. McL. Bainbridge, A. C. Taylor, W. J. F. Craig, H. A. L. Guthrie, P. Chisholm, C. E. Meryon, J. M. Hiddleston, A. Burns. The following candidates pass in: *Medicine and Therapeutics*.—Elfrida H. B. Coshill, J. W. Robertson, J. S. Dickson, C. K. Carroll. *Surgery and Surgical Anatomy*.—E. A. Neilson, J. Ross, D. C. M. Page. *Midwifery and Gynaecology*.—E. C. Haller, E. A. Neilson, J. H. Blackburn, Elfrida H. B. Coshill, D. C. M. Page, J. W. Robertson. *Clinical Jurisprudence*.—T. D. Renwick, O. G. Evans, Z. A. Green, J. E. Kitchin, Phoebe Trapp, J. A. Tolmie, J. Jones, Martha Hoising, J. S. David, S. Luther, A. Farker, C. K. Carroll.

The Services.

INDIAN MEDICAL SERVICE.

The result of the July examination was announced on July 16th. There were twelve candidates, the first seven being admitted as lieutenants on probation, with effect from July 16th, 1915. The names of the successful candidates, with the marks obtained by each out of a possible total of 5,100, are given below, together with their degrees and medical schools.

	Marks.
H. G. Alexander, F.R.C.S., L.R.C.P., Middlesex Hospital	3,363
O. Wilson, M.B., B.Ch.Belfast, Queen's University, Belfast	3,246
J. J. Liston, M.B., B.Ch.Cork, University College, Cork	2,961
K. R. Batra, M.R.C.S., L.R.C.P., Government College, Lahore, University College Medical School, London	2,679
B. H. Singh, M.R.C.S., L.R.C.P., Lahore Medical College, Middlesex Hospital	2,631
P. D. Chopra, M.B., B.S.Punjab, Lahore Medical College, University College, London, Middlesex Hospital	2,627
O. R. Unger, M.R.C.S., L.R.C.P., University College Medical School, London	2,599

Obituary.

COLONEL WILLIAM GEORGE HUME HENDERSON, Bombay Medical Service (retired), died at Kensington on July 15th, aged 64. He was born on May 16th, 1851, the eldest son of the late General Hume Henderson. He received his

medical education at the school of the Royal College of Surgeons, Dublin, and took the diplomas of L.R.C.S.I. and L.R.C.P. in 1875, and in 1889 that of F.R.C.S.I. He entered the I.M.S. as surgeon on March 31st, 1876, became surgeon-major on March 31st, 1888, surgeon-lieutenant-colonel on March 31st, 1896, and colonel on November 11th, 1905, retiring on November 14th, 1908. He served in the Burma campaign of 1887-88, and received the medal.

Medical News.

THE late Dr. Ernest Wilson Stoker left estate valued at £18,240.

AMONG the Justices of the Peace appointed by the Lord Chancellor for the County of London is Dr. T. A. Ives Howell, of Upper Richmond Road, Putney.

SURGEON-GENERAL RUPERT BLUD, of the Public Health Service, was elected President of the American Medical Association at the annual meeting recently held at San Francisco.

THE eightieth annual report of the Royal Medical Benevolent Fund for the year 1914, presented to the annual general meeting held on February 9th, has recently been issued. The chief event of the year was the incorporation of the fund: this was rendered necessary by the magnitude and importance of the charity. During the year to which the report refers the total sum distributed was £5,392 10s. 8d., an increase of £182 5s. 8d. as compared with the previous year. To this amount must be added £540 8s. 7d. distributed by the Guild, bringing the grand total expended in relief in 1914 to £5,842 19s. 3d. The working expenses are as nearly as possible 6.3 per cent. of the income. Full accounts of the objects and work of the Fund and Guild are given, and an earnest appeal is made for support in view of the rapidly growing demands made by the war.

THE usual monthly meeting of the Medical Sickness and Accident Society was held at the offices of the society on July 16th. Dr. Major Greenwood was in the chair. It was reported that the society had been allotted £5,000 in the new War Loan, which, together with the amount secured in the previous War Loan, makes a total of £15,000. The new business showed a falling away in comparison with last year, but the combined tables issued by the society are still much in demand, and constitute a good proportion of the total. The claims were less than in the previous month, and the first half of the year has been average in this respect. It was reported that three of the society's candidates were successful at the Epsom College election; one widow of a late member was elected to a pensionership, and two sons of late members to foundation scholarships. This shows the great benefit the members secure through the society's annual subscription to this college. Further information and particulars of the society can be obtained on application to Mr. Bertram Sutton, Secretary, Medical Sickness and Accident Society, 300, High Holborn, W.C.

IN a circular letter addressed by the Treasurer of the Royal Earlswood Institution to its supporters it is pointed out that, although it is thought best to abandon for this year of grave crisis the customary festival dinner, the maintenance of this large establishment is more costly than ever, and consequently the loss of the £2,000, or thereabouts, usually resulting from the festival will be seriously felt. An earnest plea for increased support from subscribers and others is therefore made, and, by way of strengthening the appeal, an admirably illustrated pamphlet has been issued, under the title of "What is being done at Earlswood." This has a striking frontispiece representing a Mongolian imbecile squatting in characteristic fashion, with an Oriental screen as background; and there are pictures of cretin and other patients at various stages of progress which have medical as well as general interest. Having but recently noticed the Earlswood annual report and set forth the excellent work done (which during its nearly seventy years' existence has supplied care and training for upwards of 5,000 patients), we need only express our entire sympathy with the object of the appeal for this national institution for mental defectives. Medical readers may help the cause by recommending paying patients, for whom there is special accommodation at Earlswood; the excess of payments beyond the cost of maintenance of those more well-to-do is applied to that of the poorer cases, which form the majority of the 500 now resident.

OBSERVATIONS ON 685 CASES OF
POISONING BY NOXIOUS GASES
USED BY THE ENEMY.

BY

J. ELLIOT BLACK, ELLIOT T. GLENNY,

AND

J. W. McNEE,

LIEUTENANTS R.A.M.C., BRITISH EXPEDITIONARY FORCE, FRANCE.

*With a Note by*COLONEL SIR WILMOT HERRINGHAM,
CONSULTING PHYSICIAN TO THE FORCES OVERSEAS.

The following notes are founded on observations on 685 cases of gas poisoning which came under treatment in a casualty clearing station between May 2nd and May 7th, 1915. The patients were brought in by motor ambulance convoys from the field ambulances—a journey of about ten miles. Some arrived only six hours after being "gassed," while in other cases a much longer period had elapsed before they were brought in. They were detained in the casualty clearing station only until they were deemed fit to evacuate to the base. The slighter cases were sent down at the earliest possible moment, the majority were evacuated within forty-eight hours, while a number of severe cases were kept for several days while their condition remained critical. The total number of cases admitted during this period was 685. They were suffering from all degrees of asphyxia, but no good reason could be given why some cases were much worse than others from the same trench. It was, however, observed that the older men were almost all severe cases.

Extreme pressure of work made it impossible to make notes on each case, but the following general features have been observed with care, and it is hoped may be of interest and assistance to others.

The whole series could be roughly divided into two groups:

- (a) Those who seemed in imminent danger of death from asphyxiation—about 120 in number.
- (b) The remainder who, although suffering from the effect of the gas, did not appear in immediate danger.

Of the first group 33 died, giving a death-rate in the total number of cases observed of just under 5 per cent. It must be added here that many other cases died either on the field or at the field ambulances.

Of the 33 deaths:

- 16 died on the day of admission.
- 13 died on the day following admission.
- 2 died on the second day following admission.
- 1 died on the third day following admission.
- 1 died on the fourth day after admission.

It will be seen that 29 of the 33 deaths took place within thirty-six hours after admission, only 4 dying at a later period.

CONDITION OF CASES ON ADMISSION.

The first intimation that the urgent problem of asphyxia would have to be faced on a large scale was the arrival of the convoy, and it is difficult to convey the mental impression produced when the first batch were unloaded. It was 1.30 a.m. when they reached the casualty clearing station, the gas having been used against them about 7.30 p.m. on the previous evening. One man was dead before he could be removed from the ambulance. Most of the others were in a choking condition, making agonizing efforts to breathe, clutching at their throats, and tearing open their clothes. At one moment they propped themselves up to gasp, at another they fell back exhausted by their struggles. There was marked cyanosis, especially of the lips and ears, and in a few cases a light yellowish frothy discharge was escaping from the mouth and nose. Some, especially the older men, were in a condition of collapse; their faces and hands were of a leaden hue, their heads fallen forward on their chest. The majority of these cases did not rally. In addition to the asphyxiating effects of the gas, most of the men, although young

and robust, were greatly exhausted by continuous fighting against the poison.

All, except those moribund or collapsed, were fully conscious, and fighting desperately for life.

Fourteen men died out of the first batch of seventeen admitted.

Among the hundreds of cases subsequently observed, all degrees of asphyxia were evident, and it is difficult to convey a composite clinical picture of all of these. Certain common features, however, stood out so prominently that our purpose will be served by calling attention to them. Certain of these have been alluded to already.

The typical case was on admission cold, with a sub-normal temperature, conscious but restless, the pulse slow and full (except in the collapsed cases). The face was cyanosed, intensely so in many cases, and the expression was strained and anxious. The posture varied. In some cases the patient sat propped up, with head thrown back, gasping for breath; in others he lay on his side with his head over the edge of the stretcher in an attempt to aid expectoration. The respirations were jerky and hurried, often numbering forty a minute, and were associated with a choking cough, accompanied by a varying amount of frothy expectoration.

With each inspiration the chest was expanded to its fullest, all the auxiliary muscles being brought into play just as in an asthmatical paroxysm.

The percussion note over the chest was somewhat impaired without being actually dull. Auscultation revealed the presence of moist sounds of different qualities all over the chest.

PROGRESS OF THE CASES.

It was noticed that the patients who lived tended to pass through three more or less definite stages while under our observation:

1. The asphyxial stage.
2. The quiescent or intermediate stage.
3. The bronchitic stage.

Nearly all the cases on admission were in the first or asphyxial stage, which has just been described. This condition demanded immediate and energetic treatment, and was that which chiefly occupied us at the casualty clearing station. Grave symptoms appeared with startling suddenness, but if patients could be safely brought through this stage, recovery was the rule.

The first stage gradually passed off after some thirty-six hours, and the patient fell into a sleep from which he woke feeling much better. He continued in this state for perhaps half a day, and during this period every effort was made to evacuate him safely to the base.

After these few hours of comparative quiet, symptoms of bronchitis began to manifest themselves. In the majority of cases, as far as our experience went, these were not severe. In the cases, however, which had been kept alive with difficulty there was a very short quiescent stage, followed by intense bronchitis. Four of the most severe cases died in this bronchitic stage. Their symptoms, as compared with the first stage, were as follows: The frothing secretion gave way to thick greenish mucopurulent expectoration, consciousness was replaced by delirium, temperature rose from subnormal up to 104° F., and the pulse became of small volume, while its rate increased to perhaps 160. Respirations were less choking, but more shallow, and numbered up to 70 per minute before death.

TREATMENT.

As *post-mortem* examination showed that the patients died of acute congestion and oedema of the lungs, the aim of our treatment was:

1. To expel the excessive secretion from the lungs by emetics and stimulating expectorants.
2. To diminish the secretion.
3. To support the failing heart and reoxygenate the blood.

General Treatment.

On arrival the patients were placed in the open air, and, as they were very cold, extra blankets, hot-water bottles, and hot drinks were provided.

A little later on, as the weather was unsettled and to facilitate nursing, the worst cases were placed in a large, lofty room with open windows on opposite sides, giving a

through draught. Here about 120 out of the 685 cases were treated, the maximum number in the ward at one time being 30.

Special Treatment.

1. *Emetics.*—As a routine measure, the first 80 cases admitted were treated with emetics. Later on their use was confined to those cases which were obviously choked with secretion, and had not already been sick. The most successful emetic was salt and water, administered in 10 oz. doses, followed by large draughts of lukewarm water; vomiting was immediately induced by tickling the back of the throat with a soft brush, or by the patient using his own finger. In all cases marked relief was experienced, the patients bringing up quantities of yellowish frothy fluid. In fact, so pronounced was the relief, that many tried to make themselves sick again. *Vinum ipecacuanhae* and *apomorphine hydrochloride* were also tried, but were discarded, neither being so certain in their action as salt and water. There was no difficulty in getting the men to take the latter remedy, even in the most acute cases.

2. *Artificial Respiration.*—The action of the emetics was furthered in selected cases by the application of Schaefer's method of artificial respiration. The results at times were strikingly successful, notably in the case of one man, almost moribund, who was treated in this way on four successive occasions, and who ultimately recovered.

3. *Stimulating Expectorants.*—Every case was given ammonium carbonate gr. x every three hours, as a stimulant and expectorant. Later this dose was increased to gr. xv and *vinum ipecacuanhae* ℥ xv added. This mixture, although containing a somewhat large dose of ammonium carbonate, frequently given, gave very good results, producing copious expectoration followed by improvement in colour and general relief. In the 80 cases treated with emetics the expectorant followed.

4. *Posture.*—The action of emetics and expectorants was sometimes aided by altering the position of the patient, from sitting up to lying on the side, with the head low down to aid expectoration.

To Diminish Secretion.

In the hope of being able to check the excessive secretion in the lungs, atropine was administered to several severe cases, in doses of gr. $\frac{1}{2}$. We cannot say we found any beneficial result from this treatment; doubtless its administration was too late, but it might have been of use if given earlier—that is, in the field ambulance.

To Support the Failing Heart.

Venesection.—In view of the cyanosis and marked dyspnoea, venesection was attempted, 10 to 15 oz. being removed on each occasion. This proved very difficult to carry out satisfactorily as the blood clotted rapidly, and the relief given was very transient. It occurred to us that a more gradual and protracted depletion of the right heart would give better results. Accordingly leeches were procured. Sufficient suitable cases did not then remain, however, to enable an opinion to be formed as to their value.

Pituitary Extract.—Whenever the pulse showed signs of weakening—which was rarely seen except in cases approaching a fatal termination—1 c.cm. of pituitary extract was given, with marked benefit, the pulse becoming fuller and slower.

Oxygen.—As most cases presented marked cyanosis and dyspnoea, oxygen was given freely by inhalation; there was no doubt that temporary benefit resulted, the restlessness decreasing and the colour improving. Continuous inhalations appeared to give no more benefit than intermittent ones. In one or two cases oxygen was given by subcutaneous injection in the pectoral region, the amount being sufficient to cause a lump in each side of the chest about the size of a small football. This was absorbed very slowly, and no relief was apparent.

Benzoin Inhalations.—In milder cases, when the alveolar and bronchial secretion was not so marked as the irritation of the larynx and trachea, inhalations of steam impregnated with compound tincture of benzoin, in a closed tent, were tried with some relief.

Opium.—There was a type of case in which the mental strain was a more marked symptom than the pulmonary distress. This type was characterized by extreme rest-

lessness rather than by dyspnoea, and in these cases tincture of opium, ℥ v administered every half-hour until ℥ xv had been given, gave certain relief, the patients quietening down and falling into a peaceful sleep.

Other Remedies.—Other remedies, such as inhalation of chloroform and amyl nitrite, were tried, but without success.

Routine Treatment Evolved from Experience.

The routine treatment evolved from the experience gained was:

1. Abundant supply of air and warmth.
2. An emetic of salt and water if the patient was very cyanosed and had not already vomited, followed by the
3. Administration of ammonium carbonate gr. xv and *vinum ipecacuanhae* ℥ xv three-hourly.
4. Oxygen inhalation in cases of marked cyanosis and dyspnoea.
5. Opium ℥ v to ℥ xv in restless cases to allay the mental strain.
6. Pituitary extract (1 c.cm.) and brandy when the heart threatened to fail.

PATHOLOGICAL CHANGES FOUND IN CASES DYING FROM THE EFFECTS OF THE GAS.

Post-mortem examinations (10 in all) have been made in cases dying at periods varying from less than a day to five days after inhalation of the gas. Only relative differences were found, even in cases dying at different periods after the gas attacks, so that a general description is sufficient.

The most important changes were found in the lungs, but some changes of note were present in the heart and stomach.

Respiratory System.

In the larynx there was in several of the acute cases a distinct but not marked degree of oedema glottidis. The internal surface of the larynx was congested, even the epiglottis being involved, but not nearly to the same extent as the trachea.

The mucosa of the trachea showed in nearly all the cases intense congestion and oedema, and this could be traced down into the larger bronchi. In almost every case *post-mortem* the trachea and bronchi were filled with a thin, light yellow frothy secretion, which was found escaping from the nose and mouth of the cases when they were laid on the *post-mortem* table. This secretion was highly albuminous and solidified like white of egg when heated. The large bronchi only could be traced, the smaller being lost in a condition of intense congestion and oedema, which affected the lungs as a whole. The lungs *in situ* were in most cases voluminous, and bulged forward so as partly to cover up the area of pericardium normally left bare. The most notable characteristic of the lungs, when removed, was their increased weight, which was several times greater than the normal. The pleural surfaces of the lungs could be mapped out into patches of lighter grey and dark greyish brown, and the pathology of their appearance will be returned to in a moment.

There were subpleural haemorrhages in all but one case. These haemorrhages were small, but in some cases extremely numerous; the lung tissue when incised was found to be of deep maroon-red colour, and fluid secretion flowed in great abundance from the cut surfaces. The structure of the lung could scarcely be made out on the cut surface, the small bronchi being hidden amid the intense congestion. In one case considerable haemorrhage had occurred into one lobe, giving rise to an area about the size of an orange, resembling microscopically a large haemorrhagic infarction. A slice of lung cut from this area sunk in water.

To return now to the light grey patches on the surface of the lungs. These were most numerous along the margins of the lungs and on the diaphragmatic surfaces, but were present up to the very apices. They were found to be areas of actual acute emphysema, and air could readily be made to pass from one side of such an area to the other. In one case bullae of about the size of a small marble were present along the interior margins of the lungs. The emphysematous process did not extend in any area for more than a depth of half an inch into the tissue of the lung from the pleural surface. The margins of

these patches were clearly, but not quite sharply, demarcated from the lung tissue beyond, as the congestion was not at all marked in these emphysematous areas. In several instances the lymphatic channels below the pleural surface of the lungs stood out as prominent lines filled with opaque fluid, there being evidently considerable obstruction to the lymphatic flow.

The Heart.

The heart was in all cases seen to be distended even before the pericardial sac was opened. The dilatation affected all four chambers of the heart, but especially the right auricle and right ventricle. On opening the heart all the cavities were found filled with recent clot, no *ante-mortem* thrombus being found.

Abdomen.

None of the abdominal organs showed more than a condition of venous congestion, except the stomach. The liver in the case of one man who died five days after inhalation of the gas appeared fatty, but this observation has not so far been controlled by microscopic examination.

The Stomach.

The stomach when opened was in all cases found to be in a condition of marked catarrh. The mucosa was covered with a thick yellowish mucus, and submucous haemorrhages were present in nine cases out of ten examined. In one case the amount of submucous haemorrhage present was extreme, and covered almost half of the inner surface of the organ.

The Head.

The head was examined in the majority of the cases, but nothing beyond marked congestion of all the vessels, both of meninges and in the cerebral tissue, could be found.

Histology is pursued here under great difficulties, and in consequence microscopic sections have only been prepared so far from the lungs. The specimens are interesting, however, as they bear out all microscopic observations with regard to the areas of emphysema. The chief microscopic appearances were briefly these: The parts of lung tissue not affected by the emphysema showed marked congestion of the capillaries, and many alveoli, but not by any means all, were seen to be filled with an albuminous amorphous substance taking up the eosin stain. In this substance fibrin could be here and there detected, along with red corpuscles and a few leucocytes. A few alveoli were observed filled with preserved red blood corpuscles.

In the portions of lung affected by emphysema the microscopic changes were very different. Many of the alveoli were broken down, so that perhaps a group of five or six had run into one. The broken free ends of the alveolar walls appeared in the sections more or less bulbous shaped, with a darkly stained cap of amorphous appearance on the top. The alveoli not broken down were obviously much distended, being almost twice the size of the normal lung alveoli under the same magnification. This condition of distension had quite obliterated any tendency to congestion of the alveoli capillaries, the walls of the alveoli being found thin and practically free from blood corpuscles.

These facts account for the light grey colour of the emphysematous patches as compared with the rest of the lungs. The bronchi in the areas of emphysema were empty of contents, in contrast to the congested and oedematous lung tissue in other parts, where the alveoli were found filled with the amorphous eosin-staining material already referred to.

SUMMARY.

From the foregoing account, it seems desirable to emphasize certain points again. None of the cases remained in the casualty clearing station for more than five days after the inhalation of the gas. It is thus the acute stages only which are described in this paper.

On admission the cases were of two chief classes:

1. The acute asphyxial.
2. The subacute.

Of the first class almost one-quarter died. This class was characterized by orthopnoea and marked cyanosis. The subacute cases, on the other hand, showed dyspnoea never amounting to orthopnoea, and were cyanosed to a lesser degree.

It must be admitted that treatment of the acute asphyxial cases was unsatisfactory, which is not to be wondered at when considered along with the changes found in the lungs *post mortem*. The subacute type, however, responded well to treatment, and the cases, although distressed by constant coughing, all admitted the relief gained. The treatment found most satisfactory in such cases was the frequent administration of ammonium carbonate in full doses.

Now that respirators of an efficient type have been issued to the troops it is hoped that many cases requiring to be dealt with will conform to the subacute type, when treatment is of avail.

NOTE BY COLONEL SIR WILMOT HERRINGHAM, Consulting Physician.

I saw a large number of these cases myself and can confirm the report in every particular. Subsequent experience has shown that the milder cases, which are the large majority, recover fairly well. A medical officer of one battalion, who stayed with the battalion in the trenches through a fairly severe "gassing," is now back again in good health after about a month's convalescence.

The problem is how to prevent the severe cases.

I have not the least doubt that proper respirators properly used will almost entirely stop their occurrence. This was proved in the last attack. One battalion with a fairly good pattern of respirator, well used under the intelligent direction of its officers, stayed in its trenches and suffered hardly at all.

Accidental cases will now and then occur, however.

In experiments on animals, atropine given in the earliest stages undoubtedly prevents oedema. I have, however, been surprised to find that no field ambulance reports very favourably upon it. In fact, of the five or six field ambulances which have treated these cases and have told me their experience, no two recommend the same drug or the same method. This difference of opinion shows at least that no other drug appears to be of great value. I hope that if more gas attacks occur we shall be able to try the effect of atropine at an even earlier stage than the field ambulance, and to try it rather more systematically.

When the oedema has once set in there is nothing to be done but to aid the patient to expel the fluid and maintain his strength. The opinion at the casualty clearing stations is almost unanimous in favour of ammonium carbonate.

Only a few cases have remained in the stations, and therefore under my observation, to the stage of bronchitis and bronchopneumonia. These patients, who are dangerously ill, seem to do better with soothing than with stimulant remedies.

The later stages will, however, I hope, be described by medical officers of the base hospitals, who have seen far more of them than I.

It seems certain that the drift gas whose effects are here described is either entirely or almost entirely chlorine. The shells contain other poisonous gases.

MR. HEATH HARRISON, shipowner of Liverpool, has presented a sum of £10,000 to the university of that city for the endowment of the chair of organic chemistry recently established by the council, and filled by the appointment of Professor R. Robinson, of the University of Sydney.

We learn from *Nature* that Mr. C. W. Mally has published an account of the use of sodium arsenite in South Africa as a poison for flies. The bait used is made by dissolving one pound of sodium arsenite and ten pounds of sugar in ten gallons of water. The liquid is applied with a syringe to non-absorbent surfaces, to pieces of canvas, to manure heaps, and rubbish tips. Bunches of twigs, of trees the leaves of which, when plucked, do not crinkle and drop off, are dipped in the solution and hung up where the flies congregate; the flies drink the poison, and die, it is said, literally in heaps. In military camps the method has been applied with success, and, in the absence of suitable trees, pieces of canvas have been sprayed and hung up, and the bait has been sprinkled near manure heaps and other places where flies gather; the bait is, of course, a human poison, but in military camps there is no risk in its use. The method has proved extremely effective for the house-fly out of doors, and its use for fruit-flies has shown that an apparently reckless use of arsenite is not attended with risk to human beings.

PHLEBOTOMUS FEVER

(SANDFLY FEVER)*

PHLEBOTOMUS OR SANDFLY FEVER.

BY

COLONEL C. BIRT, A.M.S.,
OFFICIATING A.D.M.S., 6TH (POONA) DIVISION.

SANDFLY FEVER is of scientific interest because its causation has been established by means of experiments on volunteers, experiments which were justified by the fact that the disease does not endanger life.

Newcomers to tropical or subtropical places where the phlebotomus abounds are attacked during their first summer of residence with a fever which incapacitates them completely for several days. After an incubation period of four to seven days the onset of sandfly fever is usually sudden, although sometimes the pyrexia may be preceded by lassitude for a few days. Chilliness may be complained of, but the severe rigor of the ague fit is never observed. The writer, who had suffered from both ailments, recognized at once that the shivering and chattering of his teeth, so violent that he was constrained to hold his jaw with his hands, which were the prelude of his first ague seizure, distinguished the attack from the sandfly infection which he had experienced previously. Giddiness, severe headache, most often limited to the forehead and the back of the eyes, which is aggravated by the least movement of the head, pains in the back and in the legs, and general stiffness of the muscles of the body, induce the patient to take to his bed. He is drowsy and resents being disturbed, but sleep is broken or absent. His face is deeply flushed, and his features are tumid. His eyelids are swollen and partially closed; the conjunctivae are injected, but there is no lachrymation; his eyeballs are sensitive to movement and gentle pressure. He has complete loss of appetite, with pain or discomfort in the epigastrium; vomiting and diarrhoea occur in about one-quarter of the cases, but constipation is the rule. The tongue is coated with a thin white fur, except at the tip and edges. There is often congestion of the fauces and palate on which vesicles may be seen. Epistaxis is observed in a fifth of the attacks, mostly towards the end of the illness. The skin is generally dry, but may be moist; beyond flushing of the face, neck, and upper part of the chest, no rashes are present except the effects of blood-sucking insects. The temperature rises rapidly until it attains 101° to 103° F. on the evening of the first day; it is not quite so high on the second evening, and falls gradually on the third or fourth day—hence the termination of the attack is very different from that of ague, in which the pyrexia abates suddenly amidst profuse sweating. The pulse does not rise in frequency with the fever and generally becomes slow. Leucopenia with relative decrease in the polymorphs is an almost constant sign which persists throughout the illness and the early days of convalescence. The eosinophiles are decreased during the fever, but are increased afterwards as in dengue.

Depression, lethargy, and dyspepsia often continue for a fortnight after an attack, but epidemics vary in this respect. Sometimes vigour is restored rapidly.

In Malta the duration of 20 per cent. of 243 cases of sandfly fever was two days or less, of 30 per cent. three days, of 23 per cent. four days, of 12 per cent. five days, of 9 per cent. six days, and of 5 per cent. seven or eight days. Wymberley's figures of his observations on 160 cases of sandfly fever at Nasheda, India, are—three days' pyrexia in 22 per cent.; four days' in 27 per cent.; five days' in 24 per cent.; six days' in 20 per cent.; and seven or eight days in 6 per cent.

The susceptibility of British troops is very high. Sometimes more than half a regiment has been attacked during its first hot weather. Ninety-five per cent. of all the cases occur in people who have resided two years or less in the endemic area. A high degree of immunity is afforded by the fever. Second attacks occur in only 5 to 10 per cent. of the cases. Relapses are sometimes caused by excessive exercise during convalescence.

Inoculation of non-immune persons with $\frac{1}{2}$ to 3 c.c.m. of the blood or serum withdrawn from sandfly fever patients during the first twenty-four hours of the illness excites the fever without fail (nineteen experiments). Blood taken after the first day is harmless (five experiments). On fourteen out of sixteen occasions inoculation with infective serum which had been passed through a bacteria-proof filter induced the malady. In twenty-one experiments the bites of sandflies which had been fed seven to twelve days previously on sandfly fever patients during the first day of their illness gave rise to the disease. A single phlebotomus is sufficient to infect.

The disease is often called "summer influenza," but bronchitic symptoms are uncommon, and the influenza bacillus is not present. Atypical cases of the mosquito-borne dengue closely resemble sandfly fever; a dengue outbreak, however, is usually more explosive in character than a phlebotomus fever epidemic; rashes also are present in 70 per cent. of dengue patients.

Abortive attacks of enteric, paratyphoid, and Malta fevers may be mistaken for the sandfly infection.

In malarious climates it was formerly confounded with ague, and at the present time this still occurs. Bellile, writing in 1913 of the outbreaks of sandfly fever in Crete, states that the Cretans name it ague. In Malta, where endemic ague may be neglected, sandfly fever, which has caused much sickness among our soldiers and sailors quartered there, has been recognized during the last hundred years as a malady distinct from malaria.

In India, until ten years ago, sandfly fever was for the most part diagnosed "ague." Without doubt many of the cures attributed to quinine have been in times past nothing but the natural terminations of cases of sandfly fever. Since five or six thousand attacks of sandfly fever occur annually among the European and Indian troops, the amount of quinine which has been uselessly expended has been enormous. Great progress has now been made in the identification and classification of fevers in India. In a memorandum issued in 1913 by the Director of Medical Services of India instructions are given that the blood of every case of pyrexia is to be examined before the administration of quinine, by the thick film method, by which parasites can be detected in 94 per cent. of malarial patients. Leucocyte counts are to be made, including differential estimations. Serum reactions are to be undertaken every two days in order to trace the agglutination curve of the serum with the suspected microbe. Cultures of 5 to 10 c.c.m. of the patient's blood are to be made in bile or tartrate media. The dejecta are to be investigated bacteriologically. Given a short fever in which the results of these examinations are negative, except the leucocyte estimation which shows leucopenia, in a locality where sandflies are numerous and culices and stegomyia are few, then the diagnosis of sandfly fever is correct. In another memorandum it is suggested that experiments on volunteers with the above-named mosquitos should be carried out if these insects are abundant, as they are the suspected carriers of dengue-like fevers which may be prevalent in the station.

The advance which has taken place in the recognition of sandfly fever in India appears in the following figures: In the year 1910 among the 71,000 European troops there were recorded 512 admissions for sandfly fever; in 1911, 1,393; and in 1912, 2,163. The laboratory facilities for diagnosis are not so great in hospitals for Indian troops as in those for British; 508, 114, 1,316, are the numbers of the admissions on account of sandfly fever among the 131,000 Indian troops for the above-named years. Many sandfly infections are recorded under the headings of "influenza" and "pyrexia of uncertain origin" tables of the seasonal prevalence of which are given, from which it is estimated that five or six thousand cases of sandfly fever occur annually in the European and Indian armies of India.

It is to be regretted that the heading "sandfly fever" does not appear in the annual statistical reports of the health of the navy. In the report for the year 1912 326 cases are registered "pyrexia"; it is stated that many of these were instances of the sandfly infection.

Quinine is without effect prophylactically or therapeutically in sandfly fever. Aspirin and pyramidon are of some use for the relief of pain. An antitoxin is present in the blood of persons immunized by an attack of this

* Papers read in the Section of Tropical Medicines at the annual meeting of the British Medical Association, 1914. Publication of these papers has been delayed owing to exigencies of space due to the outbreak of war.

fever, for Doerr found that 1 c.c.m. of virulent blood mixed with 1 c.c.m. of the serum of a man who had suffered from phlebotomus fever two years before, was innocuous when inoculated into a susceptible individual. McCarrison, moreover, injected four immune men with doses of 2 c.c.m. of virulent blood without exciting the disease. It seems probable, therefore, that the infection might be aborted by injections of the serum of convalescents.

Sandflies are widely scattered throughout the tropical and subtropical world. There is a close correlation between the number of sandflies and the fever. In Poona they are scarce and the admissions for sandfly fever are few. In the north-west of India these flies are abundant and the fever is very prevalent. The phlebotomus is so small and elusive that it often escapes notice at night. During the day careful search may find it resting in dark corners, behind clothes, etc.

In the *Transactions of the Society of Tropical Medicine and Hygiene* (1913, vol. vi, No. 7) a survey of our knowledge of the distribution of the phlebotomus and of the fever was made. We learn from the Army Medical Report for 1912, which has appeared since the date of this paper, that there were 104 attacks of sandfly fever registered among the British troops at Malta, 144 in Egypt, and 108 in North China.

The bionomics of the sandfly are being investigated by Howlett, the Imperial Pathological Entomologist of India, and by Marett in Malta. It breeds in caves and in the interior of rubble walls, and in collections of damp material, such as fragments of bricks and stones. *Phlebotomus minutus* feeds on the blood of the common wall lizard. King discovered the larvae of phlebotomus in cracks of the alluvial soil near Trinkitat on the Red Sea. Wenyon succeeded in keeping a sandfly alive in captivity for forty-six days. Doerr's observations tend to show that the summer epidemics of sandfly fever are bridged over by the virus being carried in the larvae, which hibernates in the winter.

The knowledge which has been acquired has been instrumental in reducing the incidence of sandfly fever among the British troops stationed in Malta from more than 300 attacks in 1908 to 104 only in 1912.

SANDFLY FEVER IN CHITRAL (N. INDIA).

BY

CAPTAIN G. F. GRAHAM, M.D., I.M.S.

DURING the three years 1911-13 I have had the opportunity of studying between 700 and 800 cases of this fever in its epidemic form in Chitral—a British outpost beyond the north-western frontier of India. Attention was first drawn to this fever in these parts in 1906 by Captain McCarrison of the Indian Medical Service, who called it the "three days fever of Chitral." It is now fully recognized as identical with sandfly fever, which occurs in many parts of India, especially in the north of India, Punjab, and Himalayan stations, and also in many other parts of the tropics and subtropics. As far as India is concerned, I shall have occasion to point out that probably this fever is by no means of recent appearance, but has previously passed under various names, as Peshawar fever, or pyrexia of uncertain origin.

Distribution of the Fever.

Sandfly fever appears to be a rare disease actually in the tropical zone, being much more frequently found in subtropical regions, and especially in stations at the foot of the Western Himalayas. Chitral itself, where this fever would appear to be most constantly and persistently prevalent, is a narrow valley in the Hindu Kush range of mountains to the east of Afghanistan beyond the Himalayan range. I may mention in passing that Chitral is about the same degree of latitude as the south of Spain. The disease is present throughout the whole of the Peshawar-Chitral Valley at all levels below 7,000 ft. It would appear that the sandfly cannot live and breed at any level over 7,000 ft. The highest level at which I have found it was 6,500 ft.

Climatology.

The disease is strictly limited to the summer months between May and September, more especially June, July,

and August. During these months alone are the sandflies prevalent in their active winged stage of development. In my experience of three successive annual epidemics a very dry season was most favourable to the spread and severity of the epidemic. During the months of June-August there is practically no rainfall at all in Chitral, which becomes exceedingly dry in parts. I found it very difficult to reconcile the necessity for moisture being essential for the life-history of the sandfly in its early development. The only water flowing through the Chitral fort in which the garrison were all quartered was a tiny brick-lined drain about one foot wide, with a very rapid flow of only a small quantity of water down the steep incline on which the fort is built. This drain was repeatedly searched for larvae or pupae, but invariably with negative results. No other open drains or tanks exist in the fort, in which and in similar buildings alone these pests were found. Heavy rainfall—which did occur on one occasion—appeared even to reduce the fever incidence somewhat, possibly by killing off some of the infecting sandflies. High temperatures up to 110° to 115° F. of the Punjab hot weather are favourable, but the cold season of the Himalayas stops breeding and development entirely. Apparently the temperature which is necessary for the imago to hatch out from the pupa is between 70° to 80° F. This temperature is reached as a shade maximum in Chitral about the end of May. It is almost certainly in the egg stage that the sandfly rides over the cold winter months, when the temperature frequently drops to 10° to 15° below freezing point.

Etiology.

It is now, I think, established beyond all possible question or dispute that this fever is spread by the agency of the sandfly, though the nature of the infecting virus is not quite certain. The sandflies, or Phlebotominae, belong to the family Psychodidae. The two special species which are known to convey the virus are the *Phlebotomus papatasi* and *P. minutus*, both of which species I have been able to identify in Chitral. These sandflies are of a light straw colour, with wings carried divergent and pointing backwards and upwards. The sexes are easily distinguished by the large and complex clasping apparatus of the male genitalia on the hinder end of the abdomen. The whole process of life-history from egg to adult fly lasts about one month, this period, however, varying with the surrounding conditions. The methods I adopted in examining specimens were as follows:

The sandflies, young and adult, were caught alive in small glass-covered entomological boxes. In this small cell they could be easily examined with a hand lens and the general characters of the specimen made out. If necessary it was transferred to a small glass cell and examined on the stage of a microscope with a low-power lens. Mounted specimens were also made by the following process:

1. Kill by inverting the small glass bottle in which they were caught over some cotton-wool or blotting paper soaked in a little chloroform, or, better still, over a board with some chloroform soaked into it.
2. Transfer the killed specimen to 60 per cent. alcohol.
3. Clear in oil of cloves.
4. Mount in Canada balsam, arranging the legs and wings carefully with a fine needle and cover over with a coverslip.

Large numbers of sandflies could easily be caught daily in the barracks of the Chitral forts during the summer months. Owing to their small size, they can easily pass through the meshes of an ordinary mosquito curtain used everywhere in India. This necessitates the use of one of much finer mesh to ensure their being unable to bite the individual while asleep at night. This, I need hardly point out, adds very considerably to one's discomfort, as circulation of fresh air through the curtain is greatly impeded by the fineness of the mesh. The flies exist in large numbers in all buildings, especially on the walls and near the ceilings or the roof of the building during the daytime. Towards evening they commence their search for food. The females alone are blood-suckers; they frequently feed by day, and are capable of easily biting through thin socks or cotton summer clothing. The males probably live on vegetables, juices, and other similar materials. The virus which exists in the blood of patients is only infective during the early stages of the fever, and the blood of patients, after being passed through a Berkefeld-Reichel filter, is still infective if injected into

the veins of another. No parasite or germ of any description has ever been identified in connexion with this fever, and if such should ever be shown to exist it will probably be ultra microscopic. The incubation period has been shown to be from two to four days; this was found to be more or less constant in many of my cases in which this point could be made out.

Racial Incidence.

This is peculiar. In Chitral it is remarkable that Europeans and Gurkha sepoys suffer to the extent of 60 per cent. to 80 per cent., while other details of the garrison who have lived previously for the most part in the plains of the Punjab have been practically free from the fever. The Chitrali people themselves do not appear to suffer from the disease except in early infancy. Doubtless they acquire a high degree of immunity in early childhood which protects them throughout later life. The existence of the disease in the Punjab will also explain the fact that while a hospital may be crowded out with Gurkha sepoys, who go down like flies before the epidemic, hardly a single Punjabi will be attacked. The Gurkhas have always previously lived in hill stations where the fever has not existed, while the Punjabis has come up to Chitral for his year's duty from the plains of the Punjab where he has acquired a high degree of immunity from previous attacks. The percentage of Europeans attacked is even greater than among the Gurkhas of the garrison. As a rule one attack confers immunity against fresh attacks, though this is by no means constant. I have seen fresh attacks to the extent of 5 per cent. of all cases, and have myself contracted the fever in each of two successive years. Even cases of third attack have been noted in the same epidemic, though these are rare.

Some epidemics are much more severe than others, and the circumstances which influence the type of the severity of an epidemic are difficult to make out. In the first of my three epidemics (in 1911) something over 200 cases occurred, being about 40 per cent. of all who had been exposed; while in 1912 exactly 400 cases occurred, that is, about 70 per cent. of total exposed, though the conditions in the two years were almost identical and the type of the actual cases of the two epidemics showed no marked difference.

Symptoms.

After an incubation period of from two to four days, during which there are usually no prodromal symptoms beyond slight headache and general malaise in some cases, the disease usually begins with a rigor. The temperature rises rapidly in a few hours, reaching a maximum varying from 103° to 105° or 106° F. by the end of the first twenty-four hours. The fever usually lasts two to three days, generally with a slight remission on the second day. The action of the virus manifests itself by general symptoms: Acute aching pains and stiffness all over the body, especially in the muscles of the back and limbs, severe frontal headache, and pain in the back of the eyes. Injection of the conjunctival vessels is also present, producing the "pink eye" described by some observers in Crete. Nasal and pharyngeal catarrh are occasional symptoms, but this catarrh never extends to the bronchi or lungs. Disturbances of the digestive system are invariably noticed; anorexia is a pronounced symptom, vomiting is not common, constipation is the rule. The spleen is generally unchanged.

Among the circulatory signs most noticeable is bradycardia. Many cases, even with a temperature of 103° or 105° F., will show a pulse-rate of less than 80, or even less than 70, and rarely over 100, and during convalescence this bradycardia is still more pronounced.

Blood changes are very slight. Leucopenia, with a relative large mononuclear increase, was found in some cases. No protozoal or other micro-organisms were ever found in any cases, though the blood of all cases was carefully examined microscopically with a high power. Epistaxis was a very common symptom, being noticed in over 20 per cent. of my cases. In some cases this epistaxis was a troublesome symptom and hard to control, possibly indicating a diminished degree of coagulability of the blood. No cases showed any sign of a rash, which has occasionally been noticed by other observers.

Treatment.

Treatment on the ordinary lines for pyrexia was adopted as a routine. Quinine has absolutely no effect on the fever. Aspirin I found of use; if given in fairly large doses the aching pains in the muscles and the severe frontal headache were considerably relieved. Given shortly before the usual hour for sleep, the use of this drug made all the difference in the night's comfort in many cases. Tincture of opium and salicylates were also used in many cases with gratifying results, at least from the former.

Diagnosis.

The diagnosis seldom presented any difficulty during the epidemic season. The sudden onset, with rapidly rising temperature and slow pulse, are characteristic.

Prognosis.

The prognosis is never serious. No cases terminate fatally, and complications or troublesome sequelae are exceptional, except the very marked degree of prostration, which lasts from ten days to a fortnight at least, and is very constantly present in almost all cases. It would appear that the virus has a marked depressing effect on the central nervous system, producing this severe prostration. Occasionally the temperature chart will show a sharp rise of temperature about three or four days after its return to normal. Such relapses, however, are not common; my figures only show 1 per cent. of such cases.

Prophylaxis.

Evacuation of localities where the disease is known to be present should be carried out where practicable. It is not always possible, however, to do this, especially in a frontier station where a fort has to be kept occupied.

Experience in Chitral has proved that if the troops of the garrison can spend the three or four special fever months of the hot weather under canvas at an elevation of anything over 7,000 ft. not a single case of sandfly fever will occur amongst such troops, while any troops remaining in the fort, which is situated at an elevation of just under 5,000 ft., will contract the fever to the extent of nearly 80 per cent. during the epidemic season.

Very early isolation of cases should be strictly carried out, inasmuch as inoculation experiments have shown that it is only during the early stage of the disease that the case can be considered infectious. All cases should be kept under a (fine mesh) sandfly-proof curtain erected over each bed. A similar curtain should, of course, be used by all persons living in an infected area. The demolition of all unnecessary buildings and old walls—ideal haunts for the sandfly—is desirable. Various drugs have been recommended for external use as repellents, but they have not proved of much value. Fumigation of rooms of barracks has been tried, with temporary good results in some cases by killing off numbers of sandflies. Destruction of sandflies by spraying the walls of buildings with some insecticide, such as formalin solution, has been recommended, but I have not given this method a trial in Chitral, as I do not consider that it could be conveniently carried out. Indeed, it must be admitted that very little reliance can be placed on any methods hitherto employed with a view to reducing the fever incidence by diminishing the number of sandflies.

In conclusion I should like to emphasize the fact that although sandfly fever is a very distressing type of fever, I do not think that of the 700 cases or more which came under my notice during the years 1911 to 1913 any one patient is now any the worse for his attack. The fever is not a serious one when compared with other tropical fevers, such as malaria. Recovery from sandfly fever may be considered to be absolute in all cases, and a considerable degree of immunity from fresh attacks usually results. But as a severe cause for temporarily rendering a large percentage of a unit inefficient it requires to be dealt with carefully.

SANDFLY FEVER IN PESHAWAR.

BY

CAPTAIN J. W. HOUSTON, M.B., R.A.M.C.

As long ago as 1899 Colonel Fooks saw an epidemic of short fever cases at Landi Kotal, in which he considered the sandfly to be the infecting agent, and later he described

an epidemic which he saw amongst the 15th Lancers at Sialkote in 1907, and was again of opinion that it was conveyed by sandflies. He considered this epidemic to be one of dengue, of a three-day and a seven-day fever type, but writing later, in 1911, he said that the disease would be known as sandfly fever; but although medical officers were cognisant of this fever, it was not until 1910 that the evidence was sufficiently strong to warrant its being officially recognized. In that year, under the heading of sandfly fever, we find that there were 103 admissions to hospital amongst the British troops in the division. In 1911 it is evident that the diagnosis was more readily made, as there was a sharp rise in the number of admissions to 782, and this was maintained in 1912 and 1913, when the admissions were 823 and 746 respectively. In the years previous to 1910 sandfly fever was doubtless recorded under various headings, the principal one being malaria, but influenza and pyrexia of uncertain origin also took a share.

With regard to susceptibility and incidence it would seem that all ages and both sexes are prone to be infected, but the disease has not been observed much here amongst women and children as they all depart to the hills at the commencement of the hot weather. Fresh arrivals from stations where the disease is not prevalent appear to be particularly susceptible, whilst the stay of a battalion or other unit in an infected station such as this is marked by a gradual rise in immunity. An example of this may be given.

The 72nd Battery R.G.A. arrived from Nowgong last cold weather. A perusal of their medical history sheets showed that none of their men had suffered from sandfly fever. They were quartered beside, and practically in the same barracks with, the 75th Battery R.F.A., who had been in Peshawar and district for over four years, and whose medical records show that 37 per cent. of their men have been infected at one time or another. During a period of one month after the appearance of sandfly fever in April, 1914, 19 cases occurred in the fresh battery, an incidence of 112 per 1,000. Amongst the old battery 8 cases occurred, an incidence of 61 per 1,000, or just about half. All these men were living side by side under practically identical conditions, so that it would seem that in the 75th Battery a certain degree of immunity has been established.

A perusal of the figures for the two British infantry battalions in the station gives a similar, though less marked, finding.

The incidence among the men of the 2nd King's (Liverpool) Regiment, a new arrival here, was, up to April 28th, 6 per 1,000, and during the month following that date 41 per 1,000; April 28th was the date on which half of each battalion left Peshawar for the hills. In the 1st Royal Sussex Regiment, who are old inhabitants, the rates of incidence before and after April 28th were respectively only 2 and 12 per 1,000, so that here again it seems probable that some immunity has been attained.

The incidence in the two batteries was considerably greater than in the two infantry battalions, and so far as can be observed, this coincides with the relative numbers of phlebotomi present in the various barracks. They are distinctly more numerous, and certainly occasion more complaints, amongst those inhabiting the gunner lines than amongst the residents in the infantry barracks. An interesting feature, too, is that the infection appears to cling more particularly to certain bungalows, and with the appearance of sandflies in April, cases of the fever begin to occur in these, which then form foci from which it spreads in all directions.

The varieties of phlebotomi commonly seen in this district are *P. papatasi* and *P. minutus*. *P. papatasi* is, however, by far the most prevalent and widely distributed, and, so far as can be judged, outnumbers all the others by at least 20 to 1.

The disease makes its appearance with considerable suddenness about the middle of April annually, and as this coincides with the yearly advent of numbers of phlebotomi, also as the usual type of fever seems identical with that described in other parts of the world as sandfly or pappataci fever, it is reasonable to suppose that they are identical in every respect, and that the *P. papatasi* is the vehicle of infection from person to person.

As well as the sandfly, the north-west frontier is the

home of several of the other blood-sucking diptera, but it does not seem likely that any of them will be found to be implicated in the spread of this particular fever.

The disease reaches its maximum incidence annually in May and June, though in 1913 this did not occur until August; the tendency for it then is to show a decided fall until October is reached, after which month practically no cases occur. The clinical manifestations of sandfly fever may be described as follows: The onset is sudden—a man goes to bed feeling either absolutely well or he may notice some chilliness or shivering in the evening. There is no rigor. He wakes up in the morning "with the fever on him," as he expresses it. Frequently it is ushered in with nausea and vomiting. Severe headache is almost always complained of, the main seat of pain being at the back of the eyes. Joint pains and aching pains and cramps, chiefly in the lower limbs, are usually present, and the patient feels ill and depressed. The face is flushed and the eyes suffused. A rash has not been noted. The temperature runs up rapidly, reaching 102° F. or 103° F., or even higher during the first day. It tends to fall gradually until the second day, when it is usually about 100° F. or 101° F. The third day it may be still falling and quickly reach normal, or show a slight exacerbation to 100.8° F. or 101° F., this being followed by a rapid, sometimes almost critical, fall to normal. It is unusual to find any fever at all after the third or fourth day. The pulse is full and compressible. The rate is not markedly increased, seldom being beyond 88, even when the fever is high.

The tongue is coated with a whitish fur, and a constant complaint of the patient is "a bad taste in the mouth." The bowels are, as a rule, constipated. No abdominal distension has been noted; the heart sounds do not change, and the lungs remain clear. There is no enlargement of the liver or spleen.

The blood picture is characterized by a leucopenia, the total leucocyte count averaging about 5,500 per c.m.m. Differential counts show that the polymorphs are usually below 60 per cent., while the mononuclears show an increase up to 15 per cent. or over. An increase in eosinophiles up to 5 or 6 per cent. has also been noted in a few cases, but it cannot yet be said whether this feature is at all constant or not. There is no diminution in the number of red cells, nor does there appear to be any blood destruction as evidenced by an examination of the urine. In other respects also the urine is normal. As soon as the temperature becomes normal the patient usually states that he feels perfectly well, but in many instances he finds that it is a considerable time before he fully recovers his strength. One attack does not appear to confer absolute immunity against the disease, as a second or even a third in consecutive years have been noted in a few cases. In a very small percentage two attacks in one year have been recorded.

There is another type of fever seen in this part of the country during the summer months which some observers also attribute to the presence of sandflies and designate sandfly fever. In it the duration of the pyrexia is longer and runs a course of seven days so consistently as to be known as the seven-day fever type, as opposed to the three-day fever type described above. The general symptoms resemble those of the three-day variety, but are much less marked, and in a considerable proportion of the cases there are practically no subjective symptoms, the only marked objective one being the pyrexia. A rash is also sometimes seen. In other words, these cases resemble the "seven-day fever" described as occurring in the large coast towns of India, but also seen in Poona, Bangalore, Belgaum, and various other places. They are well marked off from the classical dengue by their more sporadic appearance and much less epidemic character, combined with their general mildness of symptoms. Nor does the evidence in favour of their being a variety of sandfly fever appear to be strong, the main arguments against that assumption being again their rather sporadic appearance during the later warm months when phlebotomi are disappearing, whilst if we are to regard sandfly fever here as being identical with that occurring in Malta, Crete, and other places, there is the fact that when the disease has been produced experimentally it has never undergone any marked modification in the person artificially infected but has been of the original three-day type. As *Stegomyia*

are found here it is at least as likely that they may be a factor in the causation of this seven-day type of fever, as they appear to be now generally regarded as being the active agents in its propagation in other parts of the country.

THE BIONOMICS OF THE MALTESE PHLEBOTOMI.

By CAPTAIN P. J. MARETT, R.A.M.C.,
BETT MEMORIAL RESEARCH FELLOW.

It is places which are dark, damp, and usually inaccessible, and with a requisite temperature and a suitable food supply, that the phlebotomus flies select for their breeding grounds.

That darkness is the natural condition is to be deduced from an examination of the larvae, which are devoid of eyes, their place being taken in the adult larvae by two patches of pigment. A certain amount of moisture is necessary, for two reasons—the one, that, if placed in dry surroundings, the larva will shrivel up, and the other that the food of the larva being excretal matter, cannot be eaten when in a dry condition. Excess of moisture is equally harmful, as has been experienced in breeding experiments, where excessive spraying of a breeding dish resulted in the loss of all the larvae.

Quiet is essential, as the larval stage is somewhat lengthy, and if exposed to inclement weather during this period a fatal result is a foregone conclusion. The proper food supply of the larva has been found to be the excreta of the various insects and animals found in walls. Special attention has been paid to the excrement of woodlice, lizards and bats, and undoubtedly, in experimental breeding, the first—that of woodlice—gives the best results. The requisite temperature for active breeding is above 70° F.; below 60° F. larvae appear to roll themselves up in detritus, whilst the higher the temperature is above 70° F. and up to 86° F. the more rapid is the life cycle.

All the above physical conditions are to be found in the interior of rubber walls, in crevices of caves, artificial embankments, and, in Malta especially, in the interior of the old bastions, many of which contain long disused chambers. In searching these places, of which only the interiors of the first three have been examined, the number of specimens of larvae and pupae found has not been in proportion to the quantities of flies prevalent, but this has been found to be due to the fact that the larvae bury themselves, and that of the pupae, in nature, only those adhering to stones have been found. In experimental breeding only about 5 per cent. of pupae so attach themselves, the remaining 95 per cent. lie free on or under the detritus.

Newstead, in his article on the Papatasi flies (Phlebotomus) of the Maltese Islands, describes three varieties: *P. papatasi* Scop, *P. perniciosus* Newstead, and *P. minutus* Rond; of these *P. papatasi* is the largest, *P. minutus* the smallest, whilst *P. perniciosus*, as regards the size of its body, resembles *P. papatasi*, but its legs are not nearly so long. *P. papatasi* breeds out in caves and in embankments, whilst *P. perniciosus* and *P. minutus* breed chiefly in the rubble walls and in bastions, the result being that the two latter species are seen more often in dwellings, unless caves and embankments are in close proximity.

Flies appear about the middle of May, in small numbers; they gradually increase, and by the end of June they are numerous; during July, when the breeding grounds are somewhat dry, their numbers decrease, and only on the onset of the damp sirocco, about the middle of August or beginning of September, do their numbers rise once more, when they appear in far greater numbers than earlier in the year, and persist till the onset of the rains and wind, about the middle of November. They can still be found in their breeding haunts in small numbers during December.

The latest date on which a fly was seen was January 14th; this was in a breeding ground where the temperature kept up to 70° F. till January; on the temperature falling to 60° F. no flies were seen. There is thus an interval of about four months during which the adult fly is not to be found; that is to say, the fly does not hibernate, but the winter is passed in the larval stage.

The causes for the fluctuations noted in nature have been worked out experimentally; it is found that dryness of surroundings prolongs the length of the various stages, and on the other hand, that with suitable moisture and heat the various stages are passed through rapidly; in the former the complete cycle takes up to four to five months; in the latter, the shortest time has been found to be thirty-four days.

A summary of the length of life of the different stages, for wild flies and for tame flies, is best given in tabulated form.

Summary of the Length of Life of the Different Stages, for Wild Flies and Tame Flies.

Stage.	Duration of Stage:	
	Wild Flies.	Tame Flies.
1. Pregnancy stage ...	Unknown	7 to 10 days.
2. Egg stage ...	(a) 6 to 9 days (b) In dry weather up to 20 days	(a) Average, 8.4 days. (b) Shortest in incubator at 30 C., 5 days. (c) Longest in October at room temp., 10.1 days.
3. First larval stage ...	14 days	(a) Shortest, 6 days. (b) Longest, 14 days.
4. Total larval stage ...	Up to 5 months	(a) Longest, 140 days. (b) Average longest, 92 days. (c) Average shortest, 24 days.
5. Pupal stage ...	11 to 16 days	6 to 16 days.
6. Length of life of fly	8.4 days	Females: (a) Shortest, 7 days. (b) Longest, 25 days. (c) Average, 12.5 days. Males: Average, 4 days.

The above data are gathered from breeding experiments. Of tame flies from the middle of August, 1913, to the end of March, 1914, four generations were bred out.

The eggs are white, but rapidly darken; they are marked with distinct patterns (36 μ by 12 μ). The larvae on hatching are minute and with a dull white body, the head and the two tail hairs being a shiny black; at two days old the size of the larva is 0.4125 mm. and the length of the tail hairs 0.5 mm.; total length, 0.9125 mm. They rapidly increase in size and take on the brownish colour of their surroundings; on moulting, which they do once, they once more become white, and shortly after the head and tail hairs assume the black colour, but now the larva has two pairs of tail hairs. The larva is motile and eats voraciously; when about to pupate (its size is then about 4 mm. and tail hairs 1 mm.; total length, 5 mm.) it becomes motionless, empties its intestinal canal, and its head curves over till it touches its abdominal surface.

The colour of the pupa, which is obtectate, is on emergence a dull white, having its terminal segments covered by the remains of its larval skin. In a couple of days the eyes show their black pigment, and about two days prior to emergence the wings, body and legs take on their pigmentation, brownish to jet black. The size of the pupae varies with species and with sex; in *P. papatasi* the males are 4 mm. long and are thin in comparison to the female flies; the females are 3 mm. The extra length of the males is due to the claspers, which are held fully extended. Pupae are more resistant to the action of water than larvae.

When a larva is about to pupate, it comes up to the surface; if the surface of the detritus, however, is dry it will remain in the depths, so that under these conditions, when the fly hatches, it has to work its way up to the surface. The fly emerges from its pupal case through a sagittal slit at its anterior extremity.

Flies are sexually mature within a few hours of emerging, thus it is impossible to state the duration of pregnancy in the wild fly.

Tame flies usually feed before pairing, the females alone suck blood; when pregnancy is short (for example, seven days), the eggs are more likely to be fertile, and when this is the case, the eggs are all laid within twenty-four hours, and the fly is found dead by the last of her eggs—this is the usual course with wild flies.

With the tame fly, where eggs are laid and the fly dies

after ovipositing, the eggs are usually fertile; where flies do not lay their eggs all at the same time, they do not succumb till some days later and the chances of their eggs maturing is much lessened.

Examples.

In the third generation of laboratory-bred flies, one fly hatched on January 18th, 1914, and died on the 25th of the same month, having completed oviposition, a length of life of seven days; from her eggs 40 larvae hatched on February 1st and 2nd—that is, all eggs were fertile. Another fly of the same generation, hatched on January 19th, 1914, laid eggs from the 28th of the same month for some days; the first lot of eggs produced 2 larvae on February 3rd, and the fly died on February 5th. Here out of all the eggs only 2 were fertile.

The longest life of a fly in these experiments was 25 days, and all her eggs were unfertile.

The average length of life of female tame flies is 12.5 days, of males 4 days.

The average longevity of both sexes of wild flies in captivity has been worked out at 4.2 days, and is inferred to be one half the viability. In this experiment, which was continued for a month, the true viability works out at 8.4 days.

On warm sirocco nights the flies appear just before sunset; leaving their haunts, they are attracted to uninhabited dwellings, where they cause annoyance by their persistent biting. Flies bite both warm and cold blooded animals. At sunrise they disappear, either to their breeding haunts, which they can be seen to enter, or they retire to dark corners of rooms, where they are to be found seeking shelter behind hangings; on windy nights they do not leave their haunts. The flies dislike sunlight, but are attracted by artificial light, and are to be found in considerable numbers on and around paraffin lamps.

The only way in which the distance of their flight has been worked out has been from a knowledge of the habitats of the different species—that is, knowing that *P. papatasi* bred out in a certain cave, it was found that this fly was present in dwellings within fifty yards of the cave, but only rarely beyond this limit. They do not fly high, and the top rooms of houses which are not shut in by high walls are comparatively free from flies.

In the course of breeding experiments it has been found that abnormalities occur, the most noticeable being varying degrees of malformation of the male claspers, up to complete transposition of superior and inferior claspers. At present the males are identified by their claspers and by the number and arrangement of hairs thereon; these minute details being inconspicuous characters are stated to be uninfluenced by adaptation; however, the fact of these abnormalities occurring is rather against such a classification. Among the females there is a gradual loss of fertility, due probably to in-breeding; the eggs of such flies assume abnormal shapes, but the pattern of the reticulations does not appear to be altered.

The fly possesses one fairly common ectoparasite, a mite, which hatches out in the woodlouse excreta, and is to be found hanging on to the thorax of the fly; apparently it is not a true parasite, as it lives in dishes in which no flies have been present and it does not injure the larval stage. On the other hand there is a minute pseudoscorpion which does injure the larval stage.

Work is being done in the bacteriology of the various stages. Mention will here be made of a fungus only. This fungus is pathogenic to the fly and is provisionally called *Empusa papatasi*. A fly so infected is recognized by the fact that ingested blood appears to remain in the thorax, causing it to appear nearly as red as the abdomen. On dissection of such a fly the salivary glands show motile forms, "swarm spores," whilst the mycelial form is seen in the intestines. When such an infected fly is dipped in absolute alcohol and flamed till the wings and legs are burnt off and is then emulsified in 10 per cent. citrate, a flocculent growth is obtained, consisting of mycelium and spores. Subcultures from the citrate on to Sabouraud's medium and on to glycerinated egg medium give rise to a white fungus; in this stage spore formation is by intercalary formation. When the growth in citrate is subcultured into N.N.N. highly motile forms are seen, corresponding to those seen in the salivary glands. Experimental inoculations with the motile forms into rabbits and guinea-pigs give rise to symptoms. The white fungus under certain conditions gives rise to yellow bodies (ascospores); here apparently spore formation is by aecrogenous segmentation, which would allow of its being

included in the Entomophthoreae, to which family the *Empusae* belong.

In conclusion, it is thought advisable to make a note of the effects of inoculation, as this *Empusa* appears to have pathogenic properties, and involuntarily the thought arises that it is quite possible that the *Empusa muscae domesticae* may be the cause of infantile diarrhoea.

NOTES ON THE TRANSPORT OF CASES OF FRACTURED THIGH.

By C. MAX PAGE, M.S., F.R.C.S.,
CAPTAIN, R.A.M.C.(S.R.).

The provision of satisfactory methods of fixation for cases of fractured femur has proved most difficult in the present war.

It is not surprising that adequate results have not always been secured in these cases, for all the appliances in common use for fractures of the femur have been developed in order to deal with cases under stationary conditions and, in general, for simple fractures.

It is true that reasonable comfort of the patient is usually secured by the administration of morphine. On the other hand, in the later course of these cases a good many amputations have been necessary, and the mortality has proved surprisingly high. It seems probable that the complications of severe infection and haemorrhage—both reactionary and secondary—should be attributed in some degree to the unsatisfactory fixation of the injured limb during the necessary period of transport. Laceration of muscles and vessels is bound to occur under such conditions, and, unless efficient extension is exerted on the limb, any wound, unless very large, becomes plugged by ruptured muscle. This obstruction to free drainage in the early days of the injury obviously assists the development and spread of any infection present in the wound track.

It is noticeable that the patients themselves seldom complain of great discomfort during the journey. This is undoubtedly due to regular and proper use of morphine. Yet the position of the limbs in such cases by the time they reach the base generally leaves much to be desired. The foot is usually rotated inwards, and the thigh is commonly telescoped owing to the lack of proper extension.

I propose to show that the method in common use of fixing these cases in some form of long outside splint is not satisfactory, and that in the majority of instances a modified form of Thomas's knee splint gives much better results.

Requirements to be Fulfilled.

If one defines the ideal requirements of a method of fixation suitable for use in the transport of these cases from the field ambulances to the base and thence to England, one would set down the following requirements—the first four apply to the present conditions in relation to the rapid handling and transport of large numbers of wounded; the last two are more purely surgical:

1. The splint should not be cumbersome, and should be standardizable.
2. The standard pattern should be easily adapted to all varieties of individual cases.
3. The application of the splint should be simple, and effected with the least possible disturbance of the patient.
4. After application of the splint, movement of the patient and his transfer from stretcher to bed should not displace the splint.
5. The apparatus should secure steady extension in the long axis of the limb; the fulfilment of this requirement presupposes fixation in the natural position, and secures the comfort of the patient.
6. When the splint is in position, access to any part of the limb for the purpose of changing dressings should be possible. Nursing duties should be rendered simple.

At the present time, for the transport of cases from the front to the base, an interrupted or bracketed long outside splint with an adjustable foot-piece is generally used. If one compares the features of this apparatus with the

standard above set out, it may be said to conform to the first requirement, and very imperfectly to the second.

As to the third, in order to apply the splint, considerable movement of the patient's body is involved, and to fix it properly an anaesthetic is necessary.

It very frequently fails to comply with the fourth



Fig. 1.—The skeleton splint, padded.

requirement in practice, as the upper end of the splint tends to rotate forward on the trunk.

The fifth important requirement, of extension of the limb, is seldom attained with this splint; theoretically it is effected by the use of a perineal band, but this appliance is usually very uncomfortable, and seldom efficient in its action; moreover, the fixation of the thigh is not in the natural position—any outside splint is bound to lateralize the fragments. The splint is firmly attached to the foot and leg, and so to the lower fragment, but as its hold of the upper fragment and trunk is at the best approximate, and is often unsatisfactory, such an arrangement often fails to prevent rotation of the foot and lower section of the leg.

As to the sixth requirement, of accessibility, the fixed interruption by no means gives free access to all wounds, while the splint is in position. The use of the bedpan is an awkward problem.

Method Recommended.

I will now detail the features of the modified Thomas's knee splint which I described in the *BRITISH MEDICAL JOURNAL* (May 15th, 1915). This splint is made from the standard aluminium material supplied in the regulation



Fig. 2.—The splint padded and with slings in position for application.

field fracture box. It has, with slight modifications, been in use for the majority of the cases of fractured femur admitted to this hospital since January last, both for their treatment here, and for their transfer to England.

Reports of the medical officers of hospital ships, and from the hospitals at home, support the value of the method.

The form of the splint is shown in the figures (Figs. 1, 2, and 3). As before described, it is made by joining together two standard lengths of splinting suitably bent. The only material addition is that of a wide based prop, attached as shown in figure. This prop is bent, when necessary, so as to project inwards and downwards, so that, in spite of the sagging of the canvas of the stretcher, no rotation of the splint takes place.

Jaconet covering of the tow padding on the crutch has not proved durable. If, instead, a length of Panl's india-rubber intestinal tubing is rolled on like a cricket bat handle, the result will be found good.

As stated in the first article, for application of the extension stirrup, a plaster-of-Paris bandage gives satisfactory results, but if that or an ordinary adhesive extension are not available, a simple ankle strap will give sufficient hold for a few days.

This splint will be found suitable for use in any case of fractured femur in the lower four-fifths of the thigh.

One can enumerate its claims to comply with the above requirements as follows:

1. The splint is made and its application can be completed from the materials supplied in the Standard Field

Fracture Box, with which all the units concerned are equipped. One of two standard sizes of the splint can be adapted to fit any case. A certain stock can be made and padded ready for use in times of pressure.

2. The malleability of the material and the system of staples by which the pieces forming the splint are joined together make it possible to fit any case accurately.

3. For the application of the splint the only movement of the patient called for is a slight raising of the injured leg from the stretcher. The application is completed in two or three minutes as follows: An extension stirrup is fixed to the injured leg; long axis traction is then made on the limb, and it is steadily raised through about 30 degrees. The splint, with slings in their approximate place, is then laid below the leg, the crutch of the splint is bent open, and made to abut against the ischial tuberosity. The limb is then lowered on to the slings. The crutch is moulded round the hip and the lateral limbs of the splint are bent in so as to support the leg evenly. A webbing strap is applied round the bottom notch of the splint and the extension stirrup. The slings are then adjusted so that the limb lies comfortably in

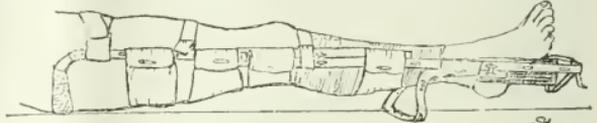


Fig. 3.—The splint applied. The extra strap passing across the front of the thigh is unnecessary.

about the midplane of the splint. Two webbing straps are carried across the front of the limb, one between the extremities of the crutch and the other just below the knee. These two straps need only be tight when the patient is being moved about or rolled on his side for dressing; the extension strap should always be kept taut.

4. The splint does not become readily displaced when once applied if the above directions are carried out—the continuous fixed extension, acting between the notch of the splint and the stirrup and countering against the ischium, makes a single manageable unit of the limb and splint.

5. As above described, steady fixed extension in the natural line of the limb is provided. The amount of tension necessary to secure the limb for transport is not very great, but sufficient pull to prevent any shortening of the leg during treatment is easily obtained. The position of the leg in the splint is the natural one, and so lateral displacement of the fragments cannot occur. The question of flexion of the fragments is alluded to below.

6. Dressing of wounds in any part of the leg is easily accomplished owing to the detachability of the slings and the ease with which the patient can be rolled on his side. The side members of the splint can be bent so as to avoid

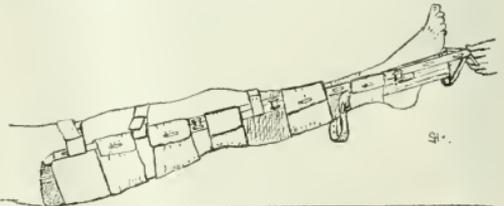


Fig. 4.—The splint applied and held in flexed position.

any lateral wound. Use of the bedpan is simple owing to the mobility of the trunk.

As before stated, this splint is suitable for fractures in the lower four-fifths of the femur. For injuries near the hip-joint it can be used if there is no wound where the crutch would lie. The latter, so long as it bears centrally on the tuberosity of the ischium, can be bent downward or arched forward in order to avoid wounds in its vicinity.

In some cases of high fracture, flexion of the upper fragment of the femur may be present, though this is not as common in gunshot injuries as in those due to indirect violence. For purposes of transport this will not affect the satisfactory action of the splint. In such cases, when the patient is stationary, the fragments can be brought into line by bending the splint at the level of the knee as in a Hodgen's splint. The leg should thereafter be suspended, as in fact it usually is during hospital treatment in straightforward cases.

REMARKS ON THE MOVEMENT OF THE DIAPHRAGM IN EARLY PULMONARY PHTHISIS.

BY

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A DIMINUTION in the extent of the inspiratory depression of the diaphragm accompanies many diseases of the lungs and pleura, including pulmonary phthisis. This loss of movement in tubercle occurs at an early stage on the affected side, and is known as Williams's sign. It is by no means universal.

1. The origin has been attributed to several causes, and it will be profitable, in the first place, to subject each of these to a brief examination. (a) It is assumed that there is a diminished power of retraction or loss of contractility in the tissues of the implicated lung. (b) The diaphragm may be intimately connected with pleuritic adhesions, which hinder its excursions. (c) The terminal branches of the vagus are involved, being unduly exposed to the effects of pressure or strain. A reflex follows which inhibits inspiratory movements or stimulates broncho-constrictor fibres. (d) The phrenic nerve becomes invested in pleuritic thickenings at the apex of the lung. This idea was more acceptable some years ago, when hilum phthisis was little regarded. (e) Toxicæmic conditions arise as the result of the disease.

2. *Average Position of Diaphragm.*—In the erect posture the highest point of the arch in front lies near the upper border of the fifth right and lower border of the fifth left rib. In recumbency the position is slightly higher—namely, the lower border of the fourth right and upper border of the fifth left rib. Behind on standing, the level is about the lower border of the ninth right and lower border of the tenth left rib; in the horizontal position the lower border of the eighth right and lower border of the ninth left rib. In quiet normal breathing the amount of movement is practically half an inch; in deep inspiration about two inches, being rather more on the left side in both conditions.

3. A reduction in the amount of shortening, after extension of the elastic fibre, or a condition of atony in the unstriped muscle will be followed by an increased volume of the lung, since the force of contraction of the diaphragm during the act of inspiration, which opposes the stretching of the elastic tissue, will be less restrained. On relaxation, moreover, the vigour of the elasticity which apparently assists in the preservation of the convex outline of the diaphragm being lowered, the height of the latter is diminished. The neutral position will be depressed, and during quiet breathing the excursions will be deficient. But there is no such general downward displacement of the diaphragm; on the contrary, it may be somewhat higher during the pause than in the normal. A jerky or stammering movement is occasionally observed. In some endothoracic growths—lymphosarcomata, etc.—at times an expiratory fluttering also is noticed, and some of these cases appear to exhibit a diminished elasticity.

4. Diaphragmatic pleurisy manifests itself either as a marked prominence in the curve during inspiration, or as a series of small irregularities in the contour. But in

cases where Williams's sign is obvious the shadow of the diaphragm is often quite smooth and regular.

5. The vagus is a nerve endowed with great possibilities. The area of its distribution is extensive, and it is the motor (cranial autonomic) as well as the sensory nerve of the lung and pleura. It transmits from afferent end organs—the nature of which is still unknown—inspiratory and expiratory impressions to the medullary respiratory centre. It is possible that the inspiratory inhibiting impulses differ from the purely expiratory. When the central stump of the vagus is excited with weak stimuli inspiratory movements are inhibited, partially or completely, producing either small movements or—in a condition of narcosis—complete cessation of respiration with the thorax in a state of passive expiration.¹ It has also been suggested that the nerve-endings of the vagus may become hyperæsthetic in inflammatory conditions like pneumonia,² and produce rapid breathing by affecting both halves of the respiratory centre. Where small unilateral lesions exist a similar condition of hyperæsthesia of the terminal fibres may arise, producing a greater reaction during the inspiratory dilatation of apical alveoli; or vagal branches caught in diseased and enlarged glands within the hilum and along the extra-pulmonary bronchi may be subjected to increased pressure or tension during the same phase of respiration. The vagus also contains broncho-constricting fibres. Afferent impulses from the nasal mucosa produce reflexly broncho-constricting effects. In the same manner irritation may be transmitted from sensory areas of the lung and pleura. On the other hand, efferent vagal branches, situated in the immediate vicinity of enlarged glands, may be affected directly by pressure. Irritation of the sympathetic (dorso-lumbar autonomic) is followed by bronchial dilatation. It is also conceivable that excitation of afferent vagal branches during inspiration, either by pressure of glands or on account of pleuritic adhesions at the apex, might induce a reciprocal expiratory reflex with cessation of the inspiratory act before its full completion is reached.

6. Paralysis of the phrenic on the same side has been mentioned. But the effect of division of the nerve results in a unilateral paradoxical movement of the diaphragm; moreover, it is difficult to see why the nerve should be implicated at all. Conditions of toxæmia would influence both sides equally and indiscriminately.

7. The elasticity of the lung appears to play a passive part only in the act of expiration.³ During this phase a hardening of the upper part of the rectus may be felt.⁴ When a healthy individual is breathing quietly and deeply, the extent of movement of the diaphragm can be estimated by means of the fluorescent screen. If now, after a long pause following expiration, both mouth and nostrils are closed, and an attempt be made to inspire, the halves of the diaphragm move scarcely at all, or move in the reverse direction (paradoxical movement). There is an inhibition of the diaphragm, due, it has been asserted, to the production of a negative pressure within the pleural cavity. As a matter of fact, this negative pressure is produced by the contraction of the inspiratory muscles themselves, and is the effect, not the cause. On further investigation it will be found, first, that the sterno-mastoids, scaleni, and intercostals harden, and the muscles closing the glottis also come into play; secondly, that the auxiliary muscles of expiration commence to contract, and, so far as can be ascertained by the fingers, at the same period of time. These are the recti, obliqui, and inner intercostals. Moreover, both sets of muscles continue to contract with the perseverance of inspiratory effort, so that there is here no question of reciprocal reflex action. The result must be an inhibition of the diaphragm.

It is an error to suppose that the auxiliary expiratory muscles are easily exhausted, since in reality the recti and obliqui, at least, pass into a state of tonic activity whenever the erect posture is assumed and maintained. In cases of unilateral extensive pleuritic adhesions, hypertrophy of the abdominal muscles on the same side is sometimes observed. These facts may assist in the explanation of certain signs of early phthisis, and of the behaviour of the diaphragm in the various types of pneumothorax.

8. In the hilum and peribronchial phthisis of children there is occasionally noticed towards the end of a deep inspiration an apparent retraction—really an incomplete expansion—of the lung on the diseased side. This is

most apparent in the two upper interspaces near the sternum, and has been termed the dimpling of the hilum.⁴ At the same time the scapular and sterno-mastoid of the same side—incidentally of both sides—may be seen to contract. Simultaneously, with care, a unilateral hardening of the rectus and obliqui may be felt. This sign may be suggested as a test for the determination of the presence of incomplete expansion of the lung. A sudden rigidity of the intercostals may also occur (Pottenger's sign of early phthisis). In conditions of insufficient pulmonary dilatation there appears to be a struggle between opposing muscular groups—the sterno-mastoid, scalene, external intercostals and diaphragm on the one hand, and the rectus, obliqui, and internal intercostals on the other.

9. In hilum phthisis some impairment of expansion exists at least in the terminal areas supplied by the three chief upper bronchi. These should correspond to the inner and outer ends of the superior interspaces anteriorly and to the apex of the lower lobe behind at the fourth rib, near the spine of the scapula. In ordinary and in stereoscopic radiograms we have been able to trace conspicuous linear shadows to these three areas.⁵ In addition to venous and lymphatic stasis induced by the pressure of enlarged glands (often the right tracheo-bronchial group) on vessels at the root of the lung, there may be a condition of partial atelectasis in these situations produced by pressure on the bronchial wall. Before the absolute termination of a deep inspiratory movement, when the limit of expansion is prematurely reached, the auxiliary inspiratory muscles are called into activity, but their contraction will be readily overcome by the auxiliary expiratory muscles, since the inspiratory impulse is now on the wane and rapidly approaching its normal conclusion. In other words, if mechanical conditions forbid further dilatation, the expiratory muscles contract forcibly. The resistance of the chest to further expansion probably excites end organs within the tendons of the inspiratory muscles, the effect of which leads to the reflex contraction of the recti, obliqui, and others. Moreover, in a similar manner, a very small difference of pressure within and without the lungs renders inspiration impossible.⁶ Dr. Steuart, late chief assistant in the x-ray department at St. Bartholomew's Hospital, found in some cases, which exhibit the sign, if the breath be held for a few seconds after a deep expiration, the movement of the diaphragm in the succeeding inspiration is apparently normal.⁷ The explanation appears to be that during the longer pause the blood within the centre itself becomes increasingly loaded with carbon dioxide, so that the next inspiratory discharge becomes excessive. Reinforced by the inspiratory reflex from the pulmonary vagus itself this is able, under suitable circumstances, to overcome any expiratory muscles which might otherwise prove efficacious in curtailing the diaphragmatic movement. If the experiment fails, a real mechanical hindrance to full dilatation is present.

10. It has been stated that when the locus of disease is situated posteriorly, the diminished excursion is more evident in the dorsal half of the arch.⁸ In other words, the spinal part is affected more than the sterno-costal. The muscles which oppose the crural fibres may be the deeper muscles of the back and possibly the quadratus. In any case, the effect of this reflex must be a reduction in duration and amplitude of the ordinary inspiratory wave, and its object the attainment of a definite measure of rest and protection for the diseased area of the lung.

NOTE.—In this communication the occurrence of an early expiratory reflex (preceeding from nerve-endings of the vagus in alveoli or in unstriated muscle in the manner described) is not sufficiently emphasized. The necessary condition is the presence of diseased and hypersensitive areas within the lung. Actual proof might be afforded by the determination of the time relations of the antagonistic muscles by means of tambours and a revolving drum. When the loci become quiescent, the second and later expiratory reflex, under suitable conditions, would still persist.

REFERENCES.

- ¹ Howell: *Text-book of Physiological Pathology*, 2d ed., p. 679. ² Pembrey and Ritchie: *Text-book of General Pathology*, p. 492. ³ Keith: *Further Advances in Physiological Pathology*, p. 192. ⁴ Stoll and Heublin: *Archiv. f. Klin. u. Exp. Med.*, September, 1914. ⁵ Lect. BRITISH MEDICAL JOURNAL, 1915, vol. ii, p. 461. ⁶ Pembrey and Ritchie: *Text-book of General Pathology*, p. 492. ⁷ Walsbain: International Congress, 1913, Section 21, vol. i, p. 103. ⁸ Orlow: BRITISH MEDICAL JOURNAL, 1910, vol. ii, p. 550.

BETA-NAPHTHOL POISONING OCCURRING DURING THE TREATMENT OF ANKYLOSTOMIASIS.

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AN obvious instance of this complication has recently been the subject of inquiry at Sandakan, British North Borneo. As it is only one of a series coming under the writer's notice, the time is apparently ripe for a word of warning.

Beta-naphthol was introduced at a much later date than thymol and eucalyptus, Nicot probably being one of the first to use it on a large scale in Natal (*Transvaal Medical Journal*, June, 1910). Beta-naphthol was particularly welcomed as by reputation it was safe, and in 1911 it was common to see it exhibited in the Federated Malay States in three doses of 20 grains each, preceded and followed by Epsom salts. Among thousands of cases treated with these doses, in the writer's memory only one fatal case occurred. Of late, however, it has become the fashion to use it in enhanced doses, three portions of 30 grains each being quite usual, and even larger being exhibited by some. We are inclined to deprecate such large doses as a routine administered by dressers in native hospitals. In the fatal case about to be recorded the medical officer, had he been at hand and able to see the patient two or three times daily, would have reduced the dose. I may add that two other fatal cases have come under my notice, though, unfortunately, notes were not recorded; both resembled the present case very closely.

L. T., a Chinaman, 28 years of age, was admitted on August 26th, 1914, into the Gaol Hospital, Sandakan, for a trivial abscess on the knee, and being somewhat anaemic his faces were examined for ova, the result being recorded as follows: Ova of *Ankylostoma*, of *Clonorchis*, and of *Trichuris trichiura*. On the same evening 5 grains of calomel were given. Half an ounce of Epsom salts was administered two days later, and on August 29th 30 grains of beta-naphthol were taken at 7 a.m. and at 9 a.m., and again at 11 a.m. At 1 p.m. the patient took Epsom salts, and the resulting stool contained seven ankylostomata.

The treatment was repeated on August 30th. When the dresser visited the hospital at 7 a.m. on August 31st the patient was given his first dose of the beta-naphthol mixture, but as he began to vomit shortly afterwards the second and third doses were not administered. Whenever the gaol dresser has finished his morning duty he leaves, in order to take up the non-working hours at the Sandakan Civil Hospital—namely, 11 a.m. to 2 p.m. and 4 p.m. to 7 p.m. This being the case, second and third doses are left in charge of an attendant, who in this instance did quite correctly in not giving the second and third doses, but unhappily did not mention this fact to the medical officer nor call his attention in any way to the patient.

At 6 p.m. another dresser was at the Gaol Hospital and recorded the patient's temperature as 102.8° F. On the morning of September 1st the fever had fallen to 99° F. Vomiting continued, the urine became extremely dark in colour, and slight jaundice showed itself. In the morning the medical officer found the patient in so collapsed a condition that $\frac{1}{10}$ grain of strychnine was ordered at 11 a.m., 4 p.m., and 9 p.m. The temperature in the evening, however, again rose to 101° F., and in the early hours on September 2nd the patient died.

On the bed head ticket being examined, it was found that, as usual, before such treatment the urine had been tested, the record being: Specific gravity 1010, acid, cloud of albumin.

It is felt that the presence of albumin is of paramount significance, as it was also found in the other fatal cases mentioned above.

At the *post-mortem* examination it was found that the liver weighed 3 lb. 5 oz., was deep yellow in colour, and contained numerous *Clonorchis sinensis*. The right and left kidneys weighed respectively 4 and 5 oz. The capsule peeled off without tearing the tissue beneath. The most characteristic feature was the colour of the cortex on section. It had much of the aspect of the liver itself, though it was less deeply stained and was rather narrow. The cut surface was quite dry, and appeared somewhat fatty. A sample of urine which was removed after death

was highly albuminous, very dark, partly owing to bile pigments, but partly no doubt to the beta-naphthol. Microscopic examination showed a quantity of debris and a few scattered red blood cells. No spectroscopic examination was made.

Conclusion.

These cases teach us that in individuals suffering from diseases of the kidneys beta-naphthol should be used with the utmost caution, if at all. Probably it would also be wise to go back to the old Egyptian rite of leaving an interval of a full week between any two treatments.

Dr. J. E. A. Ferguson of British Guiana administers to patients with ankylostomiasis 10 grains of thymol in a cachet every night for many weeks, and finds that it cures the disease completely without any ill effects on the kidneys. Perhaps other physicians who have had experience in this thymol treatment may publish their results in the JOURNAL, especially noting its effect on kidneys.

One more observation, which may be interesting to those in charge of hospitals in the tropics, is that in the writer's experience, whereas in *Necator* infection one treatment is usually sufficient to dislodge all the worms, in infection with *A. duodenalis* three are generally necessary. Can it be that the more formidable mouth parts of the latter are responsible for this difference?

A FURTHER CONTRIBUTION TO THE DIAGNOSIS OF GOUT.

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A PAINFUL inflammatory swelling of the big toe, apparently of constitutional origin, or pain only, which soon after the consumption of a glass of generous wine is felt in a small bone of the hand or the foot, is commonly regarded as pathognomonic of gout. If that term is meant to denote a specific pathological process, of which a deposition of urates is supposed to be the exciting cause of its clinical manifestation, then its indefinite application to all cases presenting such symptoms is not only misleading, but, for more reasons than one, mischievous also in its consequences. For there are numerous cases called gout in which, when they happen to come to *post-mortem* examination, not a trace of a uratic deposit can be found. If, nevertheless, the clinical diagnosis of them is upheld, as is frequently done, it is on the alleged ground that the urates have been absorbed. This explanation would have some validity if it were conclusively established that the urates had been previously deposited. As it is, there is nothing to support it but the tacit yet unfounded assumption that the region above referred to has a singular immunity from other pathological processes except the one connected with uric acid. There is proof, however, of its inadequacy; for whether a deposit of urates acts as a mechanical irritant or as a toxic agent, invariably it leaves behind it indelible changes in the articular cartilage in which it has taken place; whereas, in the unanimous opinion of those who advanced it, there are numerous instances in which the articular cartilage appears on *post-mortem* examination to be perfectly normal.

The fact is that there is a pathological process of frequent occurrence which gives rise to clinical phenomena closely similar to those commonly called a gouty paroxysm, but which is not due to uric acid. The habit of looking for the cause of the painful swelling to the surface of the joint has diverted attention from its other constituents. Yet if the corresponding bone be carefully examined, it will be found that very often take place within it, silently and almost imperceptibly, changes which in their last stages fully account for those symptoms. Such examination discloses in the first metatarsals, and occasionally also in the phalanges, a cystoid degeneration, which starts in the epiphysis, extends to the articular cartilage, and after perforating it allows the discharge of the cystic contents into the joint, thus producing an acute "perforative synovitis." The resulting fistulous openings are generally minute (Figs. 1, a; 3, a), and readily escape detection, as do the cysts themselves so long as

they are of small size and concealed by the fat marrow; but when the bone is fully prepared for microscopic examination they are easily recognized, and are found to be either isolated in their earlier stages (Fig. 1, b) or



Fig. 1.—Section through the subchondral portion of a first metatarsal bone. a, Fistulous opening through the articular cartilage; b, b, softening of connective tissue and formation of cysts; c, c, c, areas of fibroid tissue; d, transverse section of an artery.

multiple (Fig. 2, a), and gradually coalesce so as to form a macroscopic excavation (Fig. 3, b).

Of the contents of those cysts little is definitely known, as they rarely, except in accidents or surgical operations, come under anatomical observation. They appear to consist, when of comparatively recent origin, of a conglutinal substance (Fig. 2, b), which later on softens and becomes serous or haemorrhagic. So long as the canal thus formed remains pervious, or when its calibre becomes enlarged, the necrotic matter periodically passes into the joint and gives rise to periodic attacks of synovitis; only in the cases which are not here under consideration, where the cysts are situated near or within the diaphysis without reaching to and perforating the cartilage, it accumulates within the bone, which then is gradually expanded by its pressure.

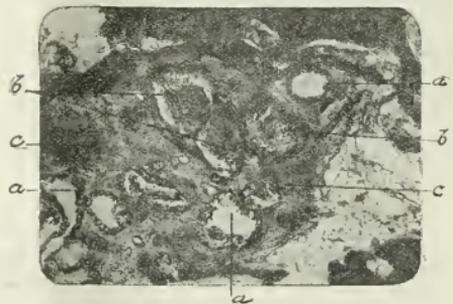


Fig. 2.—Section through the epiphysis of a first metatarsal bone, of which the articular cartilage was worn off. a, a, a, Cysts; b, b, conglutinal substance; c, c, fibrous tissue.

From the histological details of the affected epiphyses it may with safety be inferred that this cystoid degeneration originates from an anomaly of the vascular and osseous systems. Conspicuous amongst them is the abundance of dilated and thin-walled veins which are here and there studded with emigrated blood corpuscles.

There is consequently evidence of a state of chronic congestion under the influence of which the trabeculae are decalcified and the adjoining fat marrow becomes fibrous. From both these sources are formed patches of fibrous

tissue (Figs. 1, c, 2, c, and 3, c) which owing to thrombosis of the neighbouring vessels soften and are converted into cysts. To this abnormal vascularity also must be attributed the pain which some individuals feel in the smaller bones of the hands or feet after the consumption of even one glass of a generous wine. This pain is commonly regarded as a sign of gout and attributed to uric acid, whereas in reality it proceeds from an undue relaxation and consequent over distension of the vessels which are deprived of their normal support by the osseous trabeculae.

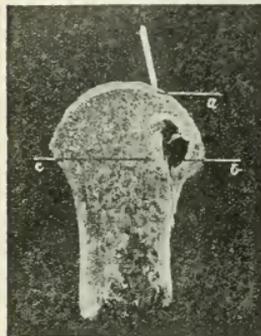


Fig. 3.—Section through the epiphysis and adjoining part of the diaphysis of a first metatarsal bone. a, Fistulous opening through which a glass rod has been passed into a cyst b, which has formed in the area of fibrous tissue, c.

deflected outward. A frequent complication of this condition is a lymphangitis, and the whole leg may thus become the seat of a leucoplasmic oedema. It is easily intelligible what mischief may be done if an obscure affection of some internal organ be supposed to be due to "misplaced gout," and if on the advice of some authorities the alleged materia peccans is then directed by mustard poultices to its supposed normal place of exit by the big toe. Such naive practice presumes that the redness due to the irritation by mustard is equivalent to an attack of gout and serves to relieve the blood of its contained impurity.

This cystoid degeneration is readily distinguished from gout by the absence of swelling of the regional lymphatic glands. It may, however, become gouty if from a concomitant disease of the kidneys uric acid is retained and accumulates in the blood. The tissues, especially those of an inflammatory or a metaplastic nature, then undergo hyaline degeneration, and favour the deposition of uratic crystals.

Such change in the type of the disease is then shown by the accession of the diagnostic element of gout—namely, the enlargement, as just mentioned, of the regional lymphatic glands, which have also become hyaline, as I have already pointed out.¹ My observations of the involvement of the lymphatic system in these circumstances have been confirmed by Minkowsky, who apparently was unaware of my statement to that effect, which had been published ten years before the appearance of his work on gout.

REFERENCE.

¹ Vide *Lancet*, December 16th, 1895, Fig. 3.

WE learn that work has been begun on the hospital which is to form part of the School of Tropical Medicine in Calcutta, and that it is hoped that the building of the hospital will be completed next year, the necessary funds having been collected.

The United States Public Health Service has recently set on foot an active campaign of education for the prevention of typhoid fever. The proportion of typhoid cases in the United States is said by the *Bulletin* of the Service to be from two to five times that in many European countries where systematic preventive measures are enforced. The number of deaths from the disease in the United States last year is stated to have been 30,000, while 400,000 persons were incapacitated. During the last forty years, although there has been a considerable reduction in the prevalence of the disease in some cities, the United States as a whole are a generation behind the time in respect to the reduction of the typhoid rate.

THE CARE OF THE ILLEGITIMATE BABY.

BY

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I AM UNWARE of any reports of investigations into the welfare of poor illegitimate babies throughout the early years of life, and consequently the results of an investigation undertaken in Edinburgh in the early part of 1914 may be of interest.

The object of the investigation was to trace the history of illegitimate babies in the city for three years after birth in order to gain an idea of the care bestowed upon them as compared with legitimate babies of their own class. Several ladies very experienced in social work most kindly assisted me in the work, and their aid proved invaluable, as is evident from the very considerable number of cases in which a thoroughly satisfactory and first-hand history was obtained.

Conditions in Edinburgh.

Illegitimate infants born in the Royal Maternity Hospital, Edinburgh, January 1st to June 30th, 1911, and their history for three years—that is, till June 30th, 1914:

(a) Dead-born or died practically at birth...	14
(b) No trace of mother or child ...	38
(c) "Reports" about ...	7
(d) Satisfactorily traced ...	82
Total ...	141

Of 82 cases traced for three years:

Child known to be alive and cared for ...	54
Child presumably cared for ...	9
Cases in which child died and mother known to have been good ...	6
	69

So that in 69 out of 82 cases the babies had fair attention.

Cases in which baby died in questionable circumstances ...	5
Cases in which the conditions prior to death were uncertain ...	8
	13

What do these statistics show?

1. It was possible to trace 82 cases for three years after the birth of the child out of 127 cases in which the child survived birth.

2. Of these 82 cases, the mother afterwards married in 36 cases.

3. In 69 out of these 82 cases the baby had fair attention.

4. Forty-five cases could not be traced satisfactorily, or at all.

It would seem that of cases under heading 4 a certain number could not be traced because of shame on the part of a good mother, but in many cases it was certainly because an undesirable mother wished to leave no tracks. It may be taken that in 75 per cent. of cases the illegitimate baby received fair attention, and that in 40 per cent. of cases the unmarried mother later married.

It seems reasonable to conclude that an illegitimate baby in 1 out of 4 cases does not receive the ordinary attention given to his legitimate brother. This does not mean that 3 out of 4 are properly attended to. At best it means that 3 out of 4 receive the ordinary treatment of legitimate children of that class. In the out-patient department of any sick children's hospital in a large city the time of the physician is to a very large extent occupied by attending to children under 3 years of age who suffer from preventable diseases. Their mothers are well-meaning and kindly, but, either from ignorance on their part or the effect of an unwholesome environment, or both combined, the children become unhealthily. But, distinct from these well-meaning though ignorant mothers are most of the unmarried mothers. In some cases they are as unselfishly devoted to their child as any mother could be. More commonly they are fond of their child, but the times of stress they have been through have left their indelible mark; they are laden, overborne, oppressed by the difficulties of their situation, they recognize the claims of the child on them and would respond if they could; but they cannot, and though they sincerely regret it, there seems little hope

for the future except by the death of the child. Other illegitimate babies there are who are brought to the hospital when practically moribund, in whose cases death is obviously wished for, and the doctor is looked upon not as a curer of disease, but as a necessary means of securing a death certificate.]

Let us not save our conscience with the unctious that three out of four illegitimate babies are properly attended to. They are not. But all I have been able to show is that one out of four is improperly attended to.

In Hungary since 1903 every homeless child—every child for whom there was no obvious means of suitable support—has had a right to support by the State, and has been so supported.

The result has been that during the years 1904 to 1908 the number of births in the country increased by over 2 per cent., while the number of illegitimate births decreased by over 4 per cent.!

In Edinburgh an infants' home was opened in 1912. Unmarried girls with their first illegitimate baby are admitted to it on quitting the maternity hospital, and on signing a promise to remain in the home for at least two months, and to suckle their babies. Each girl pays 5s. weekly for the first two weeks, and thereafter 2s. 6d. weekly. Girls who spend three months in the home may leave their babies there at a charge of 5s. weekly until they are a year old. The mothers of babies who have been left in the home visit them almost invariably twice a week, and stay to bath, feed, and put them to bed.

The home saves many girls from finding themselves in a hopelessly difficult position on leaving the maternity hospital at the expiry of ten days. Some have no home, and others are forbidden by their relations to return with their babies to the home they have disgraced. The only course open to them is to board out their young babies with the first person who offers, and to seek work, however unfit physically they may be. In the home they have a refuge. A certain amount of the money in payment is sometimes obtained at first from the father of the child, and otherwise the amount is usually obtainable from relatives, or, if necessary, from charitable sources.

The babies are cared for and nursed by their own mothers. They usually thrive well and become strong and healthy. When the baby cannot later go with his mother or to her relatives, the mother has time and the assistance of the matron to find a good home, where he may be boarded out or adopted. This "good home" is, however, extremely difficult to find.

As regards the mother, the first object of the home is to strengthen and develop her character generally, so that when she leaves she may be able to lead a better life.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PLUMBISM IN A BRANCH OF THE HOSIERY INDUSTRY.

THE following brief report may lead, in other places where the making of military pants is carried on, to the detection of further cases of plumbism.

A. K., a man aged 28, came to see me on May 31st, 1915, complaining of abdominal pains, so severe at times that he could not sleep at nights. On the night of May 30th he was "up all night" in pain. He had been very constive for some weeks. There had been no vomiting, but his appetite was poor and he had lost flesh lately. He referred the pain to the umbilical region. The abdomen was flaccid, not tender to touch; in fact, the pain was somewhat relieved by pressure. He had also "rheumatically" pains in the left arm and leg during this period of poor health, of some weeks' duration. There was a typical blue line on the gums, but no ankle or wrist drop.

The condition at once suggested plumbism, but his employment, which he described as that of cotton spinner in the hosiery trade, seemed at first to negative this possible source of the poison. On closer inquiry, however, he explained that, in passing the cotton through a rolling machine, it was impregnated with a dry ochre pigment, which gave the pants the regulation tint.

In visiting the "blowing room" where he worked, it

was seen that a cloud of this pigment pervaded the room in the neighbourhood of the machine, and even at some considerable distance from it, covering the walls and roof. The workers stated that they were frequently spitting up the pigment "from their lungs." The strong air draught from below upwards is necessary in order to drive the cotton into the machine. Since a new machine had been introduced some weeks previously the dust had been much more dense. There had also been a much heavier pressure of work owing to large Government orders.

Two other rooms in the same factory have similar machines, and many of the operatives within the dust radius, including some women, are reported to have had poor health lately.

A sample of the ochre revealed the fact that it consisted of "almost pure basic chromate of lead." This induced me to make further inquiry.

A. K. rapidly recovered from his acute symptoms under treatment, while absenting himself from work, and has now returned to the blowing room.

Another worker, G. S., a man aged 40, was seen by me at his home on June 20th. He had been under another medical man's care for some weeks for symptoms similar to those of A. K., accompanied by marked loss of weight and weakness. When I examined him I found a well-marked blue line on his gums.

As no other source of plumbism could be discovered (the water supply of Nottingham being now above suspicion) both cases were notified to the Home Office.

Subsequent inquiry was made by the Medical Inspector of Factories, and I learn from A. K. that precautions are being taken by using another pigment.

Nottingham.

A. CHRISTIE REID, M.D.

Reports of Societies.

OXFORD OPHTHALMOLOGICAL CONGRESS.

THE annual meeting of the Oxford Ophthalmological Congress was held on July 15th and 16th in the Department of Human Anatomy of the University of Oxford, by the kind permission of Professor Arthur Thomson. Notwithstanding the inevitable absence of some of the regular attendants owing to military duties and other regular connections with the war, a good number were present during the proceedings, which were opened at 9 a.m. on July 15th by a hearty welcome from the Master, Mr. Sydney Stephenson. The morning of this, the first day, was devoted to addresses by Sir ST. CLAIR THOMSON, Sir MACKENZIE DAVIDSON, Lieutenant-Colonel R. H. ELLIOT, Messrs. W. H. H. JESSOP, HARRISON BUTLER, and STEPHEN MAYOT. The subjects chosen were of considerable interest, and each address was followed by discussion. Lieutenant-Colonel ELLIOT prefaced his remarks with words of congratulatory welcome to Mr. Sydney Stephenson on his first appearance as Master of the Congress in place of Mr. Robert W. Doyne, now the Past Master. The afternoon was spent at the Oxford Eye Hospital, where interesting cases were shown by Messrs. P. H. ADAMS, WILLIAM ROBINSON, N. C. RIBLEY, E. H. EDWARDS STACK, and B. CRELDAN. Messrs. RIBLEY, STACK, and MADDOX also gave demonstrations. The whole of the second day (July 16th) was occupied by a discussion, opened by Dr. FRANK SHUFFLEBOTHAM, on *Industrial diseases and accidents*. The subjects dealt with comprised coal-miner's nystagmus, eye injuries caused by occupation with their prevention and first aid treatment, industrial cataract, plumbism as it affects the eye, siderosis, and the rarer industrial diseases and injuries of the eye, and were introduced by Messrs. PRICIVAL J. HAY, EDGAR COLLIS, WILLIAM ROBINSON, S. McMURRAY, J. GRAY CLEGG, and SYDNEY STEPHENSON respectively. The papers were extremely interesting and evoked considerable discussion, in which many members took part. During the two days demonstrations were given by Mr. SYDNEY STEPHENSON, Lieutenant-Colonel R. H. ELLIOT, Messrs. J. BURDON COOPER, R. J. COULTER, W. H. H. JESSOP, F. H. ADAMS, N. C. RIBLEY, J. GRAY CLEGG, C. T. REES WOOD, and S. E. WHITNALL, comprising pathological specimens, apparatus, and instruments of much interest. An exhibition of ophthalmological instruments and apparatus was open daily. The official dinner of the Congress took

place on the evening of July 15th in the hall of Keble College, and was well attended. The chair was occupied by Mr. ROBERT W. DOYNE, and amongst the guests present were Sir St. Clair Thomson, Sir Mackenzie Davidson, Surgeon-General Sir Frederick Bradshaw, K.C.B., the Rector of Exeter College, the Bursar of Keble College, and others.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE seventy-fourth annual meeting was held on July 22nd at the rooms of the Medical Society of London under the presidency of Dr. DAVID G. THOMSON of Norwich. The annual meeting is usually held in London or in one of the large provincial centres, and two days are devoted to the business of the association and to the reading and discussion of scientific papers. In this abnormal year, however, it was decided that the annual meeting should be of a purely business character, and it was bereft of the festivities which are its usual accompaniments. Following the lead of other societies, no change was made in the personnel of the officers, council, or special committees. The annual report of the council shows that the membership is 731, and in it sympathetic reference was made to the passing away of Sir Thomas Clouston after a membership of fifty-three years. Satisfaction was expressed at the knighthood conferred on Sir Frederick Needham, a former president and an honorary member. The President was heartily thanked for the manner in which he entertained members and conducted the meeting at Norwich last year. Reference was also made in the report to the fact that many members of the association had joined the forces of the Crown for the duration of the war and to the valuable work done by members in arranging for the reception of wounded soldiers in various asylums. Prizes for papers read at divisional meetings were awarded to Dr. Dunlop Robertson and Dr. Maxwell Ross.

Reviews.

MEDICAL SERVICE IN CATALONIA.

CATALONIA consists of the eastern strip of Spain, from Lérida in the north to Alicante in the south, and includes the Balearic Islands, the old kingdom of Majorca. The Catalan language, an offshoot of the Romance tongue of Southern France, is a Spanish dialect quite distinct from the Castilian and Portuguese dialects spoken in the remaining portions of the Iberian peninsula, and it has had a distinguished literary past in the Middle Ages. After that epoch, Catalan became obsolescent, remaining in eclipse until about a hundred years ago, when it experienced a renaissance; and this renaissance is still vigorously in evidence, as is witnessed by the publication of a scientific yearbook,¹ detailing the work of the Biological Society of Barcelona.

This yearbook consists of thirty-one papers read before the members of the society, with brief notes of the discussions to which they gave rise. The papers are mainly on medical and physiological subjects; six deal with the electro-cardiograph, three with various aspects of Basedow's disease, two with pneumothorax, and others with such subjects as the diagnosis of taeniasis in dogs by fixation of the complement, McDonagh's views on the leucocytozoon of syphilis, anaphylaxis, the morphology of tubercle bacilli in sputum, and the fixation of complement in experimental tuberculosis. A paper on the presence of *Dryopithecus* in the upper miocene of the Catalan Pyrenees, at the end of the volume, will, no doubt, be of interest to palaeontologists.

A new theory of Basedow's disease, advanced by J. Marimón, endeavours to explain the fact that certain patients exhibit signs of myxoedema, or hypothyroidism as it is called, at the same time as they show evidences of Basedow's disease, which is commonly believed to be an example of hyperthyroidism. Marimón argues that

myxoedema is an expression of the organism's failure to elaborate or utilize iodine, while Basedow's disease illustrates the harmful action in the body of iodine-containing compounds that have not been elaborated by the thyroid gland.

As a language Catalan is not difficult to read for anyone with a knowledge of Spanish, helped out with Latin and French. Such Catalan dictionaries as are available in London appear to be old-fashioned, and they are not very helpful for the reason that the spelling of Catalan appears to be in a stage of transition; the result is that many of the words looked up cannot be found in their modern forms.

The Biological Society of Barcelona is to be congratulated upon its varied medical and physiological activities, and we wish it a prosperous career in the future. The world nowadays is thought to look unkindly on the smaller nationalities of Europe, threatening them either with economic absorption on the one hand, or on the other with active suppression, at any rate so far as Central Europe is concerned. The cultivation of a distinct national speech is always taken as evidence in favour of the existence of a distinct nationality; witness the courage with which Irish and Welsh are being pushed in various parts of Great Britain, and the lamentations still raised over the disappearance of the Cornish tongue at the death of Dolly Pentreath. Catalan, to judge by the promise of the year-book now before us, should have a future not unworthy of its past.

AMOEBIASIS AND THE DYSENTERIES.

*Amoebiasis and the Dysenteries*² is the title of an up-to-date and useful little work by Dr. LLEWELLYN POWELL PHILLIPS, Professor of Medicine in the Egyptian Government School of Medicine, Cairo. Various hooks on the subject have appeared from time to time, the most recent being those by the late Dr. Carnegie Brown and by Sir Leonard Rogers. The work done on dysentery has, however, advanced considerably since the date of these works, so that there is plenty of room for another manual on the subject. Dr. Phillips classifies the different forms of the disease as follows: (a) Protozoal dysenteries and those caused by other animal parasites—(1) Amoebic (amoebiasis); (2) ciliate (balantidiasis); (3) flagellate (lamblia, tetramitus, etc.); (4) bilharzial dysentery. (b) Bacillary dysentery. In addition he mentions that dysenteric symptoms are sometimes recorded in connexion with kala-azar and with malaria, and that a spirochaete has been held responsible by some. The book contains twelve chapters, a bibliography, and an index; six of the chapters are devoted to amoebiasis, one to ciliate dysentery, one to flagellate dysentery, one to bilharzial dysentery, and three to the bacillary form of the disease.

The book is well written and the information it contains is accurate. For example, the manner in which the somewhat intricate subject of the protozoal organisms is dealt with is specially good. Dr. Phillips has, of course, had unique opportunities of seeing cases of bilharzial dysentery. Finally, the chapters on bacillary dysentery give an up-to-date account of what is known of this variety. The only real fault of the book is the absence of illustrations, but the author explains in his preface that there would have been considerable difficulty in providing these under the present conditions of the war, and he has therefore reluctantly omitted them. As he states also, his account of the subject is rather condensed, but in some respects this is an advantage, especially as the main points are all given. This will largely conduce to giving to those who have not first-hand knowledge of the disease a clear conception of it. The bibliography is sufficiently full. One rather curious mistake, especially coming from the pen of Dr. Phillips, has occurred in the spelling of Looss's name; at pp. 90 and 134 it appears as "Loos." Looking at the book as a whole, it may be said that it is excellent, and that the author has shown great skill in presenting his points so clearly in such a short compass. It can therefore confidently be recommended to all interested in the subject of dysentery, and even those who know the subject might do worse than study its pages carefully, while to students it should prove invaluable.

¹ *Travaux de la Societè de Biologia. Any Primer, 1913.* Publicats sota la direcció de A. Pi Suñer. Vol. I. Publicacions de l'Institut de Ciències. Barcelona: Institut d'Estudis Catalans. 1914. (Med. 8vo. Pp. 265. Illustrated; 10 plates.)

² *Amoebiasis and the Dysenteries.* By Llewellyn P. Phillips, M.A., M.D., F.R.C. (Camb.), F.R.C.P. (Lond.), F.R.C.S. (Eng.). London: H. K. Lewis, 1915. (Demy 8vo, pp. 158. 6s. 6d. net.)

BUCCO-FACIAL PROSTHESES.

In publishing at this moment their treatise on bucco-facial prosthesis Messrs. MARTINER and LEMERLE have rendered opportune service. No surgeon or dentist can read their book without being inspired with a new and reasonable hope for those distressing cases of deformity following destructive wounds of the face which war makes so frequent. They will find, also, on reading the experiences of Michaels, hope for at least some of the cases of shattered limbs—those in which though the bone is shattered the circulation is still efficient.

Apart from this, the book will be of permanent value. With perhaps the exception of Case's latest form of cleft-palate obturator, which we think the authors do not sufficiently appreciate, every serious contribution to the subject is described and dispassionately criticized. Some of these methods, especially such as refer to artificial noses, ears, etc., have, as the authors allow, become of historical value only since the introduction of Henning's plastic restorative material and special fixing substance. The authors, however, have been right not to exclude the description of these methods. They are associated with the name of Claude Martin, of Lyons, whose every word is for the authors, and indeed for all who have studied surgical prosthesis, an inspiration. Deserved and generous homage is paid to his name, and his works are freely quoted.

The book is well planned and clearly written, but the authors admit a certain amount of repetition, pleading that their great object, which was the delimitation of the different procedures and their proper classification, could not otherwise be attained.

The properties of cicatricial tissue, the prevention and reduction of cicatricial deformity, the materials best tolerated by the tissues, the form most suited to permanent retention, are carefully considered, and it is interesting to note that Martin could find no evidence of recurrence of malignant growth due to the presence of the artificial apparatus. The details given as to the apparatus for replacing upper or lower jaws, noses, the bones of the extremities, for use in cleft palate, for dilating cicatricial naso-pharyngeal obstruction, for artificial larynx for fractured jaws, are short and clear. The differences between immediate and permanent restorative procedures on the one hand, and temporary followed by late permanent restorative apparatus on the other are well set out. The lower jaw is little suited to immediate permanent restoration, and the temporary appliance must be mechanically fixed to the bone remaining till the whole wound is covered with epithelium, a period of perhaps six or eight months, during which suppuration is more or less profuse. A removable permanent apparatus is then made, the usefulness of which depends on the fact that cicatricial contraction has been avoided.

The general remarks on cleft palate are worth the attention of all interested in this subject.

TWO MUSEUM GUIDES.

THE Council of the College of Surgeons, acting on the advice of the Conservator, Professor Keith, has arranged the issue of catalogue guides to the collections which make up the famous museum. A guide to the obstetrical and gynaecological specimens appeared in 1912. Mr. ARTHUR H. CHEATLE is the author of the second publication of this series. It is, as professed by its title, a *Guide to and Catalogue of Specimens Illustrating the Surgical Anatomy of the Temporal Bone in the Museum of the Royal College of Surgeons of England*.¹ It is a complete descriptive catalogue. Most of the bones have been sectioned in a vertical manner behind the meatus through the antrum, mastoid process, and some part of the labyrinth; and where it is of special interest, horizontal section has been made as well. The guide portion of this manual is written after a convenient though somewhat unfamiliar plan. It is an alphabetical list

of names of parts concerned in the surgical anatomy of the temporal bone, and demonstrated by the specimens, the corresponding numbers being indicated. Thus we find "Diploë, apical replaced by dense bone, 629, 1 (R. and L.)," and "Occipital bulla, 634, 1 (L.)." The value of this guide may perhaps best be understood by the reader when we add that, for instance, under "Sulcus jugularis" the heading is carefully subdivided under "left larger than right," "marked discrepancy in size," "relation to facial nerve," "to the posterior semicircular canal," and so on. Such an index guide greatly adds to the value of a catalogue, and reflects high credit on the distinguished authority who has taken so much trouble to prepare it. We understand that other similar guides to the College Museum are in preparation, though until peace returns little can be done to hasten their publication. The public already know the advantages of study at the Natural History Museum, where special analytical guides, compiled by experts, are at hand and on sale. A complete series of similar publications would make the museum of the Royal College of Surgeons even more useful than it is at the present time, thanks to the exertions of Owen, Quekett, Flower, Stewart, and Keith.

The compiler, Dr. MAUDE ABBOTT, of the *Descriptive Catalogue of the Medical Museum of the McGill University*,² states that the volume now issued is the first portion ready for publication, although the fourth in the order of the museum classification, thanks to the activity of Professor Grauer, Sir William Osler took the initiative in raising a fund among the graduates in medicine of the university, ten years ago, pointing out the necessity for a good catalogue in order that the wealth of material in the-museum might be properly utilized. The response to the appeal was immediate, 1,200 dollars being subscribed within a few weeks. The fire of 1907 interrupted the work and led ultimately to the substitution of this volume for that which was originally intended to be published as Part I, illustrating the circulatory system, an instalment already in course of preparation. The system of compilation is that which is already in use in University College, London, and other English museums, with certain modifications. The specimens are very systematically described, with the assistance of various clinical and pathological experts on the teaching staff, and, as in most current catalogues, great pains have been taken about microscopic examinations. Twelve instructive plates adorn the catalogue. Among these are a specimen of lymph nodes in lymphatic anæmia and of milary tuberculosis of the spleen, and microscopic drawings by Dr. Grauer of the bone marrow of a young adult showing erythroblastic and leucoblastic reaction. The photographs of a spleen from a case of Banti's disease are highly successful, and the centimetre scale placed along the side of each illustration greatly aids those who cannot visit the museum itself in gaining a correct idea of the specimen. The series in this fasciculus includes spleen, thymus, bone marrow and lymph nodes, and the collection seems very rich. Not many years ago the most famous museums in Europe were very deficient in specimens such as are included in this series. The general introductory notes at the head of each subsection—rather eccentrically termed "didactic"—have been prepared with great pains by Dr. Grauer. The numbering is, as indicated in the title page, arranged on a modified decimal system.

NOTES ON BOOKS.

THE author of *The Campaign Against Syphilis*³ pleads for the extirpation of the disease by means of both cure and prevention. He indicates, by excerpts from the first volume of the evidence before the Royal Commission, some of its principal directions; and argues the need of better instruction of the young in these matters, and of higher ethical and spiritual enlightenment, in order to avoid the pitfalls which beset them. A useful popular summary is given of the nature and effects of venereal diseases, while

¹ *Traité des restaurations bucco-faciales et traitement des fractures des maxillaires*. Par Professor P. Martinier et Dr. G. Lemerle. Manuel de Chirurgien-Dentiste publié sous la direction de Ch. Godon. Paris: J. B. Baillière et Fils. 1915. (Pout 8vo, pp. 360; 174 figures, Pt. 2.)

² *Descriptive Catalogue of the Medical Museum of McGill University: Arranged on a Decimal System of Museum Classification*. Edited by Maude E. Abbott, B.A., M.D., Curator. Part IV, Section 1. The Haemopoietic Organs. Catalogue and Didactic Introductions. By O. C. Grauer, M.D. Oxford: The Clarendon Press. 1915. (Roy. 8vo, pp. 253; 12 plates, 10s. 6d. net.)

³ *The Campaign Against Syphilis*. By F. W. Giles, M.B. Durham. London: P. S. King and Son, Ltd. 1915. (Demy 8vo, pp. 19, 6d. net.)

³ *Guide to and Catalogue of Specimens Illustrating the Surgical Anatomy of the Temporal Bone in the Museum of the Royal College of Surgeons of England*. By Arthur H. Cheatle. Issued by order of the Council of the College. London: Adlard and Son. 1915. (Demy 8vo, pp. 17.)

the later portion of the pamphlet deals with the questions of responsibility, treatment, and prevention. Mr. Giles is a member of the White Cross League Council, and his pamphlet is well adapted to its purpose.

Muter's Analytical Chemistry, which has now reached its tenth edition, is probably as well known to pharmaceutical students as any textbook of the subject. In inorganic analysis it covers the usual ground of such a book, the arrangement of a great deal of the matter in tables materially increasing its usefulness in the laboratory. Special attention is given throughout the book to pharmaceutical chemicals and tests; but volumetric and gravimetric analysis of metallic salts are included. A short section is devoted to ultimate organic analysis and many of the principal processes of the analysis of water, food and urine are described in a useful manner, though somewhat briefly. The present edition follows the lines laid down by the late Dr. Muter with the necessary alterations and expansions to bring the matter up to date.

It is in times like the present, when the world is full of wars and rumours of wars, and the nations of Europe are fighting for existence, that a book such as *Pot-Pourri Mixed by Two*⁸ fulfils its true purpose by distracting its readers for a little while from the grim realities of everyday life. The pot-pourri so skilfully mixed by Mrs. C. W. EARLE and Miss ETHEL CASE diffuses a refreshing fragrance and should act as a tonic on minds depressed by the misery and suffering of the day. It is a pleasing medley of gossamer hints, antiquarian notes, and recipes for vegetable dishes, with a running commentary on passing events made by a shrewd and kindly observer of the frailties and inconsistencies of human nature. Mrs. Earle is a very gentle critic of the "amiable weaknesses of humanity," and her book breathes an atmosphere of peace and tranquillity which is none the less soothing because it now seems strangely unfamiliar and remote. Her many friends will welcome this further proof of her inexhaustible activity, and their gratitude should be extended to the gifted lady whose clever collaboration has done much to ensure the success of a very pleasant volume.

⁷*Muter's Short Manual of Analytical Chemistry, Qualitative and Quantitative—Inorganic and Organic*, Edited by J. Thomas, B.Sc. London. Tenth edition. London: Baillière, Tindall, and Co. 1915. (Roy. 8vo, pp. 251; 56 figures, 6s. net.)

⁸*Pot-Pourri Mixed by Two*, by Mrs. C. W. Earle and Miss E. Case. London: Smith, Elder and Co. 1914. (Demy 8vo, pp. 468; two illustrations. 7s. 6d. net.)

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee, held July 13th, twenty-six cases were considered, and £261 was granted to twenty-three of the applicants. The following is a summary of some of the cases relieved:

Widow, aged 39, of L.R.C.P. and S. Edin. who practised in Ireland, and died in 1912. Applicant recently been suffering from prolapsed uterus, and operated upon. Prior to operation just managed to make a living in a small sweet shop. Has three children, ages 11 to 14, all at school. Voted £10.

Widow, aged 40, of M.R.C.S. Eng. who practised in the West Indies, and died in 1909. Applicant manages to earn a living by nursing, and requires assistance for the education of her only son, aged 10 years, whom she hopes to get into Epsom next year. Voted £5, and referred to the Guild.

Widow, aged 70, of M.D. St. Andrews who practised in London and died this year, and who has been in receipt of a pension from the Fund. Applicant left entirely unprovided for, and only income a few shillings a week from son. Too old to obtain work. Voted £12 in twelve instalments.

Daughters, aged 57 and 49, of M.D. Aberd. who practised at Luddenden. Joint income £40. The eldest suffering from incurable deafness, and the younger from chronic bad health, and neither able to work. Relieved twice, £20. Voted £18 in twelve instalments jointly.

Daughters, aged 42 and 44, of M.R.C.S. Eng. who practised at Poplar. Endeavour to earn a living by keeping a boarding house in Cornwall, but owing to the war last season was unsuccessful, and they find it difficult to get along. Relieved twice, £20. Voted £10.

Widow, aged 63, of L.R.C.P. Edin. who practised at Burnley as a Conductor. For some years kept house for brother-in-law, who died last year, and was left without any means, and is too old to undertake work. Has recently been appointed to an almshouse and £12 per annum. Relieved once, £10. Voted £12 in twelve instalments.

Widow, aged 68, of M.D. Glasg. who practised at Dennistown. Endeavours to make a living by taking in lodgers, but not successfully. Her son, who is a medical man, pays rent and rates, and applicant has £12 a year from another charity. Relieved seven times, £56. Voted £12 in twelve instalments.

Daughter, aged 59, of L.R.C.P. Edin. who practised at Holloway. Suffering from chronic bad health and quite unable to work. Only income a pension from another charity of £40 per annum. Relieved eleven times, £91. Voted £12 in twelve instalments.

L.R.C.P. and S. Edin., aged 59, who practised at Leith and is suffering from locomotor ataxia. Only income his wife's dividends, £48 per annum. Relieved once, £18. Voted £18 in twelve instalments.

Daughter, aged 58, of M.R.C.S. Eng. who practised at Laycock. Only income £24 per annum from dividends, and applicant makes a little by taking an occasional boarder, but, owing to the war and the high price of food, is unable to manage. Relieved twice some years ago, £20. Voted £10.

Daughters, aged 53 and 50, of M.R.C.S. Eng. who practised at Kingscliffs. Only certain income £20 each from dividends. A little extra made by acting as companions when they can obtain posts, but have not succeeded recently. Relieved once, £5 each. Voted £9 in twelve instalments each.

Daughter, aged 52, of M.R.C.S. Eng. who practised in East London. Health thoroughly undermined as a result of nursing her mother through a long and serious illness. Total income, £46 per annum. Requires a little help towards a short holiday. Relieved once, £5. Voted £5.

Daughter, aged 54, of M.D. Duhr. who practised at Hillingdon and British Guiana. Applicant is suffering from tuberculous glands and quite unable to work. Lives with her stepmother, whose income is only £50 per annum. Relieved ten times, £80. Voted £10.

Daughters, ages 51 and 43, of L.S.A. Lond. who practised at Sydenham. Joint income £45. The younger suffers from epilepsy, and the elder is a confirmed invalid. Relieved seven times, £77. Voted £18 in twelve instalments.

Daughter, aged 44, of M.R.C.S. Eng. who practised at Redcar. Is suffering from tuberculosis, and sleeps in the garden in a shelter kindly provided for her. Has a pension from another charity of £20. Her mother, with whom she lives, has very limited means and suffers from heart trouble. Relieved four times, £42. Voted £10 in four instalments.

Widow, aged 65, of M.D. St. Andrews who practised at Stepney. Since death of her husband in 1903 has endeavoured to earn a living by letting rooms, but never with great success, and now age and indifferent health make it much more difficult. Has four daughters, all married and unable to assist. Relieved twelve times, £144. Voted £12 in twelve instalments.

Widow, aged 47, of L.S.A. Lond. who practised at Leyton, and died in 1911. Applicant left totally unprovided for with five daughters ages 9-17. Requires a little help towards their education. Relieved twice, £15. Voted £10.

M.R.C.S. Eng., aged 81, who practised at Kensington. Is practically blind. Only income a pension from another charity and the old age pension. Lives with son, who is also almost blind. Is already a recipient of help from the Fund, and asks for a little additional assistance in consequence of the high price of food. Relieved twice, £19. Voted £5.

Widow, aged 57, of M.R.C.S. Eng. who practised at Wellingborough. Was left totally unprovided for at husband's death in 1911. Suffers from acute rheumatism, which prevents her taking regular work. Relieved four times, £44. Voted £12 in twelve instalments.

Widow, aged 49, of L.R.C.P. Edin. who practised at Stamford Hill. Applicant suffering from cancer and had breast removed, and too ill to undertake any work. Partly supported by son, who has now joined the army. Relieved three times, £56. Voted £18 in twelve instalments.

The claims of the Fund are steadily increasing, largely in consequence of the war, and, though the ordinary subscriptions remain at much the same level, there is a constantly-increasing adverse balance. At the last meeting the committee was faced with an overdrawn account of £92, which was increased to £292 in July, which, with the amount of £261 spent in grants at that meeting, left a total deficiency of £533 upon the current account. To meet this the Committee has had to draw upon its limited reserves, and, unless increased support be rapidly forthcoming, its work will have to be seriously curtailed.

Subscriptions may be sent to the Honorary Treasurer, Dr. Samuel West, 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild appeals for gifts of secondhand clothing, boots, and shoes in good condition, also household linen. The gifts should be sent to the Secretary, Royal Medical Benevolent Fund Guild, 43, Bolsover Street, W.

The Local Government Board in England has issued a circular (W.R. 7) to Local Refugee Committees dealing with the finding of employment for Belgian refugees, and strongly recommending that refugees should be encouraged to take advantage of the openings for industrial employment available for them in this country, and assisted in adjusting themselves to the conditions of such employment. Copies of the circular can be obtained through the Local Refugee Committee.

British Medical Journal.

SATURDAY, JULY 31st, 1915.

THE ASSOCIATION AND THE WAR EMERGENCY.

MEMBERS of the Association, when reading the report of the two days' session of the Annual Representative Meeting, published in the SUPPLEMENT this week, will probably look first to see what was done with regard to the war emergency. We believe that the action taken will be generally approved. A mixed committee, with a very wide reference, was appointed to take up the matter at the point to which it has been brought by the work of the Council and the Committee of Chairmen of Standing Committees. The war began a few days after the last Annual Meeting ended, and at that time, of course, the Association had not set on foot any organization for dealing with the unforeseen call upon the resources of the profession.

The full magnitude of the call could only be appreciated gradually as the general demands made upon all classes of the community for the new armies grew. The drain upon the resources of the profession due to the immediate mobilization of the Territorial Forces was, however, felt in some districts at once. This was especially the case in Scotland, where are many districts in which even in peace the number of resident doctors is barely sufficient for the needs of the population. The Scottish Committee of the Association, at the instigation of its Chairman (Dr. Hamilton of Hawick), took the matter up at an early date, and eventually a Joint Committee for Scotland was formed comprising representatives of the universities and medical corporations, as well as of the Association, with Dr. Norman Walker as convener. This Scottish Medical Emergency Committee, as our readers are aware, has done most valuable work in organizing the profession in Scotland to meet the demands of the military services of the Crown by setting free fit men from their civil engagements, and by making arrangements to obviate, as far as possible, loss to them and inconvenience to the public.

The considerations which led the profession in Scotland to appoint a joint committee were mainly that the emergency affected all branches of the profession, from the professor to the newly-capped graduate, and that it was necessary therefore that any steps taken should command general approval, including that of the medical teaching institutions and examining bodies. The same considerations have influenced the Representative Body in setting up a joint committee similarly constituted for England and Wales and Ireland. The work of the Scottish Committee will not be disturbed, but what it has done for Scotland the new Committee will seek to do for the other three countries. We say for the countries advisedly, for this organization of the medical profession to meet the great emergency concerns not only members of the profession, but every member of the public and all local administrative bodies.

The new War Emergency Committee for England, Wales, and Ireland will comprise, when complete, twenty-two members. It will consist of the President, Treasurer, Chairman of Council, and Chairman of

Representative Meetings of the British Medical Association; of four members specially elected by the Representative Meeting—namely, Sir Clifford Allbutt, Regius Professor of Medicine in the University of Cambridge and President-elect of the British Medical Association; Sir William Osler, Regius Professor of Physic in the University of Oxford; Dr. A. E. Shipley, the Master of Christ's College, Cambridge, who has done so much to organize the work of that university to meet the strain on its resources both in men and money; and Dr. T. Jenner Verrall, who has just resigned the Chairmanship of the Representative Body after holding office for three years—of four members (Dr. Buttar, Major Russell Coombe, Captain W. J. Greer, and Major Albert Lucas) elected from among itself by the Representative Body; and of the following four members appointed by the Council of the Association (Major James Galloway, Lieutenant-Colonel R. A. Bolam, Mr. N. Bishop Harman, and Lieutenant-Colonel Sir James Barr). The sixteen members of the Committee thus chosen will meet this week, and are empowered to co-opt not more than six other members representing universities, colleges, and other medical bodies.

The reference to the Committee is wide. It will be its duty to organize the medical profession in England, Wales, and Ireland in such a way as will enable the Government to use every medical practitioner fit to serve the country in such a manner as to turn his qualities to the best possible use, and to deal with all matters affecting the medical profession arising in connexion with the war. It would appear that the work of the Committee will fall under two general heads—the organization of the civil profession so that it may yield as many men as possible to the military medical services, and the safeguarding of the interests of those who join the army or navy, both in respect of the practices they leave and of their position and prospects in the service they join. Under the latter head the Association has already made representations to the Army Council, and it has been announced within the last few days that the War Office has decided to promote all lieutenants of the Special Reserve and of the Territorial branch of the Royal Army Medical Corps with six months' mobilized service to be captains. There is reason also to hope that the case of junior medical officers with temporary commissions who have done good service will be favourably considered. It will be remembered that all lieutenants of the regular R.A.M.C. were promoted captains a few months ago; the difference in pay is very small, but in the army rank affects an officer's position and his power of doing efficient work in many ways not obvious to the civilian. A number of other matters of this nature remain over and will, we have no doubt, receive the careful consideration of the new War Emergency Committee at an early date. Under the other head the work will be difficult and complicated. The medical war register now being formed by the Association, which it is expected will, within a few weeks, embrace three-fourths of the profession, will place much valuable information necessary for its task in the hands of the Committee, and will enable it to take a comprehensive view of the situation. In addition to laying down some general principles, it will, perhaps, find occasion to indicate districts where more may be done to set free doctors of military age. The adjustment of details must, of course, be carried out by local action, and already in some districts plans for carrying on the practice of absent colleagues, so that they and the public may suffer as little as possible, have been completed, while in others good

progress has been made; in some others it is believed that much remains to be done, and it will doubtless be one of the first cares of the War Emergency Committee to stimulate activity in such areas.

When all is done that can be done in both these directions there will remain the unfortunate certainty that many of those who have left their civil practices to meet the country's call must suffer financially in the future as well as in the present. The Chairman had to tell the meeting that it must not entertain any idea that pecuniary help for such men was to be expected from the State, because the Government held that it could not discriminate between members of the medical profession and other professions which had been affected by the war. This view, which naturally commends itself to the Treasury, raises arguable points, because, for one thing, the call upon members of the medical profession to give their professional services to the military has been more extensive and insistent than that upon any other profession. There does not seem to be any very sanguine hope that the Treasury will yield to arguments that can be adduced for anything of the nature of a *post-bellum* annuity, or even for a gratuity which would afford any adequate compensation for loss of capital. The meeting asked the Council to consider whether it would be feasible to establish by voluntary subscription a fund which could be used to assist cases of special hardship. The amount required would be large, and it has to be remembered that many of those who were accustomed to respond most generously to appeals to give money to help their brethren who had met with ill fortune, are themselves suffering serious loss of income.

FLIES IN FRANCE AND GALLIOLI.

In temperate climates weather conditions largely decide whether the year is to be "a fly year" or not. In cold, damp summers flies are few and far between, and do not seem to live long, whereas in hot, dry weather they multiply enormously and become a pest. As far as the present summer has gone there has been no excessively hot weather, and as a result there have not been many flies. If these cool conditions persist this will not be a fly year in England, Flanders, and the north of France. In subtropical regions, like the south of Italy, Greece, and the Dardanelles, the necessary conditions of temperature are always present in the summer and early autumn, and as a result flies are now becoming numerous in such places. From many private communications we have received, and from letters of newspaper correspondents, it is clear that flies are the great pest of existence in the Gallipoli peninsula; their numbers are described as amazing; food is black with them the instant it is set on the table; they fill the tents and shelters, settle on the refuse of the camp, on the unburied dead, and by their annoyance multiply the sufferings of the wounded, and spoil the tempers of the hale. There is no exaggeration in this, for similar conditions may be seen in parts of Italy at any time of the summer.

Hordes of flies are an annoyance and constant source of irritation, but worse may follow, for the pests may disseminate disease. Three of the great epidemic diseases—cholera, typhoid, and bacillary dysentery—can be and very often are spread by the agency of flies, and this happens especially when large numbers of people are herded together in masses, and where the disposal of their excreta presents difficulties. In the South African war flies were mainly held responsible for the large number of cases of enteric and bacillary dysentery that occurred there,

and it is quite possible that they will act in a similar way in Gallipoli now; moreover, the danger of the other great epidemic disease—cholera—has to be guarded against. It existed in Turkey, Southern Russia, and Austria last autumn. There appears to have been a serious recrudescence in the Austrian Empire this spring, affecting especially Bosnia-Herzegovina, Croatia, and Hungary, with a considerable number of cases in Austria proper, and last week Vienna was officially declared infected.

The transference of these three diseases by flies forms one of the simplest examples of the part insects play in the spread of disease. The general belief, until quite lately, has been that the fly settled on infected excreta and carried the specific germ of the disease on its legs to the food of man. More recently, however, evidence has been obtained that the contaminated matter is really sucked up by the fly and then regurgitated on to food, or wherever else the insect alights. The essential is, then, that the fly should have access to infective material, and unless the latrine arrangements for the disposal of faeces are perfect, this is easy. However good these arrangements may be on our own side, they are certainly not likely to be very excellent on that of the Turks; and the trenches are not far apart. Whether any of the diseases mentioned will be transmitted will depend upon whether carriers of such are present in the troops on either side to supply the infected faeces.

So far very few cases of typhoid have occurred amongst the British troops in France. This fortunate state of things is attributed in large part to the protective effect of antityphoid inoculation and to the efficiency of the sanitary arrangements in the field. The task of the Army Medical Service in the Dardanelles is more difficult, but it is certain that its magnitude is fully appreciated by the medical officers there. Cholera, as just stated, is certainly to be feared; recent reports state that it has broken out seriously in Galicia, and it is very likely to spread thence to Austria generally. In the last Turkish war the disease was met with both amongst the Bulgarians and the Turks, and was very bad at the Tchataldeba lines, from which troops are said to have been moved to Gallipoli. There is one consoling factor, however—namely, that this disease is more generally water-borne than fly-borne, so that careful attention to all water supplies may prevent its appearance, or at any rate curtail its spread. Bacillary dysentery is a serious disease and may cause as large an amount of invaliding, though it is not so deadly, of course, as cholera, nor does it last so long as typhoid fever. Amongst other maladies attributed to flies are various types of diarrhoea, different forms of conjunctivitis, often purulent, while unprotected wounds may quite easily be contaminated by them.

In considering what can be done to prevent the plague of flies, or diminish their numbers, the first consideration is that their breeding grounds are manure, especially horse manure, and other forms of refuse. The best way to deal with manure and refuse is to incinerate it, or to see that it is properly buried; if this be not possible, then to soak or cover the refuse with chlorinated lime, borax (which is said to be very efficacious), cresol, or other strong disinfectant. The careful removal of all suitable breeding places will quickly cause a great diminution of the flies. Latrines must, of course, be carefully attended to, sanitary buckets or other arrangements with lids being used to prevent the ingress of flies. This has no doubt been already seen to, and is as efficient a state in the Dardanelles as it is in France. If flies irritate the healthy, active man, they must be a still

greater torment to the severely wounded man, often unable to move a limb or in any way to look after himself. The only way in which this trouble can be dealt with is to make all places in which wounded are detained fly-proof. By proper screening and a system of double doors this is quite easy, and mosquitos and all other noxious biting insects are kept out as well. Transports conveying wounded from the Dardanelles to Egypt, Malta, and other places should also have fly-proof accommodation for the wounded. Of minor means of warfare on flies, sprays of different kinds, formalin vapour, and traps of various makes may be used. They all have their uses, but are all subservient to the major method of screening. Wherever a permanent building is established, proper screening, in the manner adopted with such success in the campaigns against flies in the United States, should be employed.

In addition to the non-biting flies—*Musca domestica*, etc.—to which the foregoing remarks apply, there are the biting flies—*Stomoxys calcitrans*, *Haematopota pluvialis*, and other *Tabanidae*. The first of these, very like an ordinary house-fly in appearance, is found in the vicinity of stables and horses. If numerous, this fly is a great nuisance, for it gives a severe bite. So far, though suspected, it has not been, we believe, certainly proved to spread any disease. *Haematopota* are generally found in wet, damp areas, and very likely will be very troublesome in parts of Flanders and Northern France. These flies inflict a severe bite, and if numerous are not easy to avoid. *Tabanidae* are very common in woods, and in some instances occur in such numbers that transit through such places is almost impossible. Another fly, the *Phlebotomus papatasi*, a sandfly, is pretty certain to occur in the Gallipoli peninsula, and if it does, then cases of three-day fever are pretty sure to occur. Fortunately, three-day fever, or sandfly fever, is a minor malady, which only lasts for the period stated, and is attended with no mortality.

In some of the British trenches in France blue-bottles and other flies of a similar nature occur in great numbers. They are attracted by the many decaying corpses, on which they lay their eggs, maggots quickly developing from them when the weather is hot. These flies are unpleasant and must be carefully kept off meat, as otherwise they will lay their eggs upon it and so contaminate it. Apart from this they are not specially dangerous to man.

CHAIRMANSHIP AND DEPUTY CHAIRMANSHIP OF REPRESENTATIVE MEETINGS.

THE decision of Dr. Jenner Verrall not to permit himself to be nominated again for election to the office of Chairman of Representative Meetings was received with universal regret, but was understood to be final. Dr. Verrall has been Chairman during three strenuous years, and discharged the duties of the office with ability and devotion beyond all praise. It would, indeed, be difficult to add anything to the eloquent tribute made to his services by the Chairman of Council, who truly expressed the opinion held by all those who have been associated with Dr. Verrall in the business of the Association, or to those uttered by Dr. Douglas, who has been a member of the Representative Body since its initiation, and Mr. Turner, Dr. Verrall's successor in the chair. We may, however, add this much, namely, that the duties of the Chairman are by no means confined to the actual sessions of the Representative Body. We may, indeed, accept Dr. Verrall's own statement that he has thoroughly enjoyed these meetings; Napoleon once,

when he was starting from Paris for the seat of war, said to Bourrienne, pinching his ear, as was the great man's embarrassing habit when he was pleased, "Now for a holiday," the real work having been done during the many months of preparation. Something of the same is true of the Chairman of Representative Meetings; he is an *ex officio* member of all committees of the Association, and it is important that he should attend most of the meetings of many of them. Dr. Verrall has not only been assiduous in this respect, but has served for various periods as chairman of some of the most important, including the Insurance Act Committee and the Committee of Chairmen of Standing Committees, to which, since the outbreak of the war, the Council committed the study of many military questions by which the medical profession is affected. All those who know Dr. Verrall will be glad to see the terms in which the Representative Body embodied the feelings of respect and affection in which he is held by every one who has worked with him. Mr. E. B. Turner, the Representative of the Kensington Division, who has been Deputy Chairman for the last three years, was elected Chairman without a contest. Mr. T. W. H. Garstang was elected Deputy Chairman. Mr. Garstang, who is a graduate in arts of the University of Oxford, is medical officer of health for several districts in Cheshire, Chairman of the Local Medical and Panel Committees for that county, and has been for some time Chairman of the Medico-Political Committee of the British Medical Association. This committee is one of the most important and hardest worked of the standing committees of the Association, and Mr. Garstang as a member, and afterwards as its Chairman, has shown qualities which ensure his success in the new and distinguished office to which he has been elected.

THE COMMOTIONAL SYNDROME IN WAR.

NUMEROUS cases of cerebral traumatism comparable in many ways to "commotio cerebri" have occurred during the war. In these there is no external injury to the brain, but the cerebral functions are very seriously upset in various manners. Quite recently¹ forty-eight patients exhibiting the "commotional syndrome" have been studied at Montpellier by Mairat, Piéron, and Bouzansky. These authors divide its nervous signs and symptoms into six groups, as follows: First, sensation is most commonly affected, usually in the direction of diminution or abolition of function—blindness, deafness, loss of taste and smell, partial or complete anaesthesia, have all been noted; usually the distribution of the disturbance is asymmetrical. Various degrees of hypoaesthesia, hypoaesthesia, loss of sensitiveness to pressure, heat, or cold, limited to zones or areas of the body, or affecting (as is most common) only one side of the body, perhaps with the loss of the superficial reflexes, are all more frequently seen than the hyperaesthesias, which involve as a rule the existence of areas painful on pressure. Secondly, these authors describe on the motor side increased reflex excitability of the tendons and muscles, oftentimes unilateral, in rare cases going on to the production of hysterical or epileptiform attacks; less often paresis or paralysis of groups of muscles, with or without contracture, has been recorded. Thirdly, vasomotor disturbances have been very general in these patients; chilliness and cyanosis that may be unilateral, dermatography, and cardiac irregularity are mentioned under this heading, and it is added that headache is almost constantly present, perhaps with nausea or vertigo. Fourthly come perturbations of the affective functions; altruism and family affection are lost, egoism comes boldly to the fore in the shape of causeless irritability or rage, causeless fear, or even terror. Fifthly are placed associative troubles or disturbances of the intellectual faculties; retrograde amnesia, or loss of memory for the events preceding

¹ Bull. de l'Acad. de Médecine, Paris, 1915, 3. s. LXVIII, 654.

the shock, is very common—the patient may forget his own name, his home, the faces of his friends—speech may be lost or halting, intellectual inertia to the point of stupor may be found. Alternatively, indeed more usually, the patient's imagination is unduly active, making him the victim of dreams, nightmares, hallucinations, sleep-walking, even delirium, in which bygone battle scenes are re-enacted. Sixthly and lastly, the authors describe disturbances of the perceptive functions: the patient retains no recollection of the shock itself or of the events following it for a shorter or longer period, and is left with a permanent lacuna in his memories. In addition, he is often unable to concentrate his mind on any subject, such as reading, or is very readily fatigued thereby. From this analysis of the possible symptoms it is clear that the phenomena presented by the victims of the commotional syndrome can be very various, so that the patients may readily be classified under the heading of some predominant trouble, such as blindness, aphemia, or the like. But the large number of cases studied by the authors of this paper seems to justify their proposal to group all instances of nervous shock together under a single heading, and their term "the commotional syndrome" appears to be as suitable as another.

MEDICAL FAME.

At the present time, when so much is heard of the work of the medical profession among the sick and wounded, and the praise of the doctor is deservedly in all men's mouths, it may be well for us to remember that the public memory is short, and that the unparalleled part played by medical science in the greatest war the world has ever witnessed will soon be forgotten when the silence of peace has fallen over the battlefields. It is a chastening thought that the healer whose high mission it is to save life and limb has an infinitely lower place in the opinion even of those to whose sufferings he ministers than the professional slayer of men who, with his drums and trappings, as Sir Thomas Browne would say, is regarded as the very symbol of glory. In our American contemporary *Science*, Mr. Edward C. Pickering gives some interesting particulars as to the relative place held by leading men in various spheres of intellectual activity in the opinion of the people of the United States. That opinion is, according to him, most accurately reflected in the elections to the Hall of Fame, the American Valkalla. Three elections have already been held—in 1900, 1905, and 1910. Mr. Pickering tabulates the votes recorded on each of these occasions. Politicians head the list. Next come authors. It is significant of the value of popular judgement that while of eleven writers of fiction nine were elected, of ten authors who dealt with serious subjects, only three gained the *arbitrium popularis auris*. Next come soldiers and sailors. Doctors hold a low position, but this is not surprising, as medicine is not a profession which leads to popular fame among Anglo-Saxon peoples. What is surprising is that in a country like America which swarms with inventors, and where the cult of the "almighty dollar" is generally believed to be so prevalent, engineers and business men are nearly at the bottom of the list. "Philanthropists" stand lowest of all. The list suggests some curious reflections as to the mentality of the American people, but it would be rash to draw any definite conclusion from the figures. The system of voting is probably accountable for the strangeness of the results, for till now the judges have been literary men who may be assumed to have been more familiar with the work of authors than with that of men whose activity was displayed in other fields. Even allowing for this, it is remarkable that among so practical a people fiction should hold the place of honour in literature; and it is hard, as Mr. Pickering says, "to believe that there are . . . twelve authors more famous than any American missionary, physician, engineer, or business man."

DEATH BY LIGHTNING.

On July 23rd a party of men belonging to the 2 2nd London Field Ambulance, R.A.M.C., comprising 77 of all ranks, with four wagons, were practising stretcher drill on Martlesham Heath, when a thunderstorm took place. Some of the men took shelter, but others remained in the open, and one man was killed and eight injured. According to the evidence of Captain Hubert Charles Phillips, R.A.M.C., at the inquest held in Ipswich on July 24th, as recorded in the *East Anglian Daily Times*, the following were the appearances presented by the body of the man who was killed. There was a severe jagged scalp wound on the left side. The chest and right side of the thorax and abdomen were much burnt. There were several incised wounds on the front of the right thigh, leg, and between the big toe and the second toe. The skin was burnt off the left thigh, and adhered to the clothing. On his chest the identity disc had made a red mark, as also had the string by which it was suspended. His glasses were shattered and his belt torn to pieces. None of the metal was fused. The watch on his wrist was not stopped. Death was undoubtedly due to lightning. The corporal in charge of the party said that the men were returning to camp as quickly as possible when a flash of lightning struck him on the right forearm; he was unable to move for a few minutes, and when he recovered himself saw several men lying on the ground. One of these was a lance-corporal, who had been riding a horse which was killed. The witness said that his right arm still gave him great pain when moved. He was about twenty yards from the deceased when he was struck.

INDUSTRIAL AND SCIENTIFIC RESEARCH.

A MEMORANDUM has been issued by the President of the Board of Education stating that in consequence of a strong consensus of opinion among persons engaged both in science and in industry that a special need exists at the present time for new machinery and additional State assistance to promote and organize scientific research with a view especially to its application to trade and industry, the Board had prepared a scheme to establish a permanent organization. It was well known that many industries have since the outbreak of war suffered through inability to produce at home certain articles and materials required in trade processes the manufacture of which had become localized abroad, and particularly in Germany. This had occurred because science had there been more thoroughly and effectively applied to the solution of scientific problems bearing on trade and industry, and to the elaboration of economical and improved processes of manufacture. The scheme now promulgated provides for the establishment of a committee of the Privy Council responsible for the expenditure of any new money provided by Parliament for scientific and industrial research, and of a small Advisory Council composed mainly of scientific men and others actually engaged in industries dependent upon scientific research. The Privy Council Committee will consist of the Lord President, the Chancellor of the Exchequer, the Secretary of State for Scotland, the President of the Board of Trade, the President of the Board of Education, and the Chief Secretary for Ireland, together with other members, the first of such being Lord Haldane, the Right Hon. Arthur H. D. Acland, and the Right Hon. Joseph A. Pease, M.P. The President of the Board of Education, who will be the Vice-President of the Committee of Council, will be responsible to the House of Commons for the expenditure. The Advisory Council will consist of Lord Rayleigh, O.M., Mr. G. T. Beilby, LL.D., Mr. W. Duddell, Professor B. Hopkins, Professor J. A. McClelland, Professor R. Meldola and Mr. R. Threlfall, with Sir William S. McCormick, LL.D., as administrative chairman. All the members of the Advisory Council with the exception of

the administrative chairman are members of the Royal Society, and it is recognized that it is essential that the Council should act in intimate co-operation with that society, and with other scientific or professional associations, as well as with the universities, technical institutions, and other institutions in which research is, or can be, efficiently conducted. The Royal and other scientific societies will be asked to initiate proposals for the consideration of the Advisory Council, and the duties of that Council will be to advise the Privy Council Committee on proposals for instituting specific researches for establishing or developing special institutions, or departments of existing institutions, for the scientific study of problems affecting particular industries and trades, and for the establishment and award of research studentships and fellowships. One of its chief functions will be to prevent overlapping between institutions or individuals engaged in research, and it will be at liberty to initiate proposals and to institute inquiries preliminary to preparing or eliciting proposals for research. In this way it is hoped that the Council will be able to concentrate the interests of all persons concerned in the development of all branches of scientific industry on problems requiring solution.

We are asked to state that as the General Medical Council has to vacate its present building (299, Oxford Street) towards the end of November, 1915, and as the new premises in Hallam Street will not be completely prepared for the occupation of the Council by that date, it has been arranged that the autumn session shall begin on November 2nd in the old building. The Executive Committee will meet on Monday, November 1st. It is expected that the business of the Registration Office will be transferred to 44, 46, and 48, Hallam Street, by November 25th.

Medical Notes in Parliament.

Lieutenants R.A.M.C. (Special Reserve and Territorial).—Sir Clement Kinloch-Cooke asked the Under Secretary for War whether he could now say if the War Office had arrived at any decision regarding the question of pay and promotion of special lieutenants in the Reserve and Territorial Force Royal Army Medical Corps. Mr. Forster said that it had been decided to promote to the rank of captain all lieutenants of the Special Reserve and Territorial Force Royal Army Medical Corps who had given six months' mobilized service, with effect from April 1st last, and steps were now being taken to carry out this decision. Sir C. Kinloch-Cooke asked whether the same privileges would be extended to qualified dentists now holding the rank of lieutenant. Mr. Forster replied that he thought the dentists were serving under a special engagement. He did not think they were included in the officers to whom the question referred.

Total Casualties, Navy and Army.—The following are the figures supplied by the Prime Minister as to the casualties amongst the British Forces in all fields of operations, excluding German South-West Africa, up to the latest available date:

NAVAL (to July 20th).			
	Officers.	Men.	
Killed	499	7,430	
Wounded	87	787	
Missing	29	274	
	615	8,491	
	9,106		
MILITARY. (France).			
	Officers.	Men.	
Killed	3,293	48,402	
Wounded	6,807	156,435	
Missing	1,207	53,375	
	11,307	258,212	

Dardanelles (including Naval Division).			
	Officers.	Men.	
Killed	562	7,537	
Wounded	1,375	28,508	
Missing	154	8,486	
	2,091	44,531	
Other Theatres (excluding German South-West Africa).			
	Officers.	Men.	
Killed	145	1,445	
Wounded	248	3,247	
Missing	22	641	
	415	5,333	
	TOTAL.		
	Officers.	Men.	
Army:			
Killed	4,000	57,384	
Wounded	8,430	188,190	
Missing	1,383	62,503	
	13,813	308,076	
Naval casualties	615	8,491	
	14,428	316,567	
Grand total... ..	330,995		

Casualties at Tanga.—Mr. Tennant, on July 27th, informed Sir J. D. Rees that the total amongst the 2nd Battalion of the Loyal North Lancashire Regiment and the British officers serving with the Indian troops during the fighting at Tanga last November were as follows:

	Officers.		Other Ranks.	
	British.	Indian.	British.	Indian.
Killed	19	11	25	247
Wounded	16	15	58	236
Missing	2	3	27	140
	37	29	110	623

Recoveries from Casualties.—Mr. Asquith stated, in reply to Sir G. Scott Robertson on July 21st, that the percentage of the sick and wounded who returned to duty remained approximately at 60 per cent.

Nerve Strain on Active Service.—In the House of Lords on July 26th Lord Newton, in reply to the Earl of Lytton, said that cases of nerve strain not certifiable under the Lunacy Acts were treated in the neurological sections of the military hospitals. In addition, accommodation was available at two institutions which were formerly responsible to the Lunacy Board of Control. Neurological cases had been divided into four classes: (1) Cases of nerve injuries caused by wounds; (2) cases of men who were quite insane; (3) cases of a minor character; (4) cases of epilepsy. The treatment in each was special. There was no intention to treat the men as ordinary lunatics. There was no foundation for the allegations which had been heard in various quarters against the War Office on this particular question. Viscount Knutsford said that the arrangements made by the War Office for dealing with men and officers suffering from nerve or organic shock were particularly good. The War Office had engaged neurological departments at twenty-three hospitals, and if the men were too bad or needed a change of surroundings, they were sent either to the Military Hospital at Liverpool or to the Springfield Hospital, Wandsworth. It had been made a grievance that at certain hospitals soldiers were treated by men who had made mental disorders their special study, but these doctors bitterly resented the agitation which had been got up against them and the representation that because they were alienists every man who went to them was necessarily insane. The suggestion that a stigma attached to soldiers treated at institutions which were formerly asylums is baseless. The Marquess of Lansdowne said that he was satisfied that it was the policy of the War Office that the treatment of nerve-shaken soldiers should in no sense resemble that of ordinary lunatics. On the same day Mr. Tennant stated in the House of Commons, in reply to Mr. Onthwaite, that every consideration was given by the responsible officers

to the cases of soldiers whose nerves had given way under the strain of active service conditions, and that the Field-Marshal-in-Chief with the Expeditionary Force was sending back men who, in his opinion, were unable to stand the strain of active service.

Health of the Troops in the Dardanelles. Mr. Tennant stated on July 27th, in reply to Mr. Joynson-Hicks, that there was a certain amount of enteric and dysentery among the troops in the Dardanelles.

Health of Troops in Mesopotamia.—Mr. Chamberlain, in reply to Sir G. Scott Robertson on July 26th, said that the health of the troops in Mesopotamia was good. During June, 27 cases and 9 deaths from enteric fever had occurred, but there had been no special prevalence of the disease at any time. Every effort had been made to minimize the effects of the heat, which had been intense. The troops had been supplied with spine protectors and goggles, mosquito nets and veils, ice, mineral waters, and fresh vegetable food from Bombay. Electric lights and fans had been fitted in buildings where possible. It had been found practicable to give some of the men a change in India during the unhealthy season. There was ample hospital accommodation and a good supply of comforts for the sick.

Nurses in Casualty Clearing Stations.—Mr. Tennant informed Mr. Walter Roeh, on July 22nd, that seven nurses were employed in each of the twenty-seven casualty clearing stations in France.

Wounded Soldiers and Hospital Location.—Colonel Yate asked, on July 21st, whether arrangements could be made for wounded soldiers who desired it being transferred to hospitals or convalescent hospitals as near as possible to their homes as soon as they were fit to travel, and if they could not be sent there direct on arrival. Mr. Tennant said that as far as was possible every endeavour had been made to send to hospitals in the neighbourhood of their homes all sick and wounded on arrival in this country. It was, of course, easy to appreciate that in many cases this was quite impossible, and often for the sake of the patients themselves, who might be so severely wounded as to necessitate their admission into the nearest hospital in which accommodation was available. In the case of those men sent to hospitals remote from their homes the War Office endeavoured to arrange for the transfer, to hospitals in the neighbourhood of their homes, of all cases which were likely to be unfit for duty for any period over six weeks, and which were, therefore, unlikely to be able to proceed to their homes on furlough within that period. Cases that were referred to the War Office were dealt with strictly on these lines. Suitable cases which were likely to be fit for duty within six weeks were treated in convalescent hospitals, so far as accommodation in them was available. At present all these hospitals were in the South of England, but as others were opened in other parts of the United Kingdom it would be arranged, as far as possible, to send cases to convalescent hospitals in that part of the country in which their homes were situated. In reply to a subsequent question by Colonel Yate, Mr. Tennant said he thought that medical officers in charge of hospitals already gave transfers to hospitals or convalescent hospitals as near as possible to the patients' own homes without reference to the War Office. Mr. Tennant stated, on July 26th, in reply to Sir Archibald Williamson, that every endeavour was made to send our patients, arriving from overseas, to hospitals in the neighbourhood of their homes, but, owing to the fact that men were sent from the port of disembarkation in ambulance trains, each carrying 100 or more patients, it was not always possible to do so. In many instances it was not to the advantage of the patients themselves that they should be sent on a long railway journey on arrival in this country. There was great difficulty of sorting out all cases and putting the right man in the right place. Much depended upon the nature and condition of the wound.

Badges.—In reply to Mr. Anderson, who on July 22nd asked a question as to badges for dental mechanics, Mr. Forster said that the whole question of the issue of badges

was under consideration between the War Office and the Ministry of Munitions. Mr. Tennant on July 26th stated, in reply to Mr. Bowerman, that the question was under consideration for supplying a distinctive badge to soldiers invalided out of the service, who might have returned to civil employment.

Motor Operating Theatre.—Mr. Tennant stated, in reply to Mr. Lynch on July 26th, that, so far as he was aware, no offer of a motor operating theatre had been made to the War Office, but the question of sending motor operating theatres to the front had been brought to notice, and had been carefully considered in communication with the expert advisers overseas, with the result that it had been decided not to send any motor operating theatres to the front, as the opinion of the expert advisers on the spot was that their provision would not diminish the rate of mortality of abdominal wounds.

Sick Leave and Inoculation.—Mr. Tennant informed Mr. Wing, on July 26th, that preference as regards leave was given to men who had been inoculated, but there were, he understood, about 300 inoculated men who had had no leave.

Rest for the Troops.—Mr. Joynson-Hicks asked the Under Secretary of State for War on July 21st, whether having regard to the number of new troops ready and anxious to go to the front, he would consider the advantage to the army of sending back the remainder of the original Expeditionary Force for a compulsory rest of, say, two or three months. Mr. Tennant said that the Secretary of State for War would consider the proposal.

Schools for use of Troops.—Mr. Tennant, in replying to Mr. King on July 21st, said that no general reports had been furnished upon the sanitation, ventilation, and general conditions of schools placed at the service of the War Office for hospitals, housing of troops, and other purposes, though the suitability of the buildings was considered before they were taken over. The sanitary and other requirements in the case of a building in continuous occupation were not the same as in the case of one occupied for a few hours daily.

Retired Civil Medical Officers.—Sir P. Magnus asked, on July 26th, why a difference was made between the total amount of remuneration granted to retired medical officers and others receiving civil superannuation allowances who had accepted fresh service under the military authorities and the amount of remuneration, including superannuation allowance, granted to retired naval and military officers who had similarly undertaken new duties in either of the two services. The President of the Board of Trade (Mr. Runciman) said that the issue of superannuation allowances to retired civil servants who were reappointed to any civil office was governed by the provisions of Section 20 of the Superannuation Act, 1854. The differences in the regulations applicable to naval or military service, on the one hand, and the civil service, on the other, were due largely to historical reasons, and the conditions of the services were too dissimilar to enable any useful comparison to be drawn in this respect. Colonel Yate asked if the question of giving an officer who was to be employed his full pension without question, and make his pay equal to the difference between that and the amount he was drawing when last employed, had been considered. Mr. McKenna said that he would have to have notice of that question.

Unregistered Dental Surgeons.—In reply to Mr. Hogge, on July 26th, Mr. Tennant said that registered dentists only were employed by the War Office, because to be registered a dentist must have complied with conditions which implied a prolonged, practical, and skilled training, tested as to its results by examination. In the interests of the troops it was essential to know that the dentists who treated them had been properly trained. It was not proposed to alter the present practice. In reply to a subsequent question by Mr. Watt, Mr. Tennant intimated that there was a sufficient supply of registered dentists to meet the War Office demands.

The Naval and Military War Pensions Bill was introduced into the House of Lords on July 23rd, and met with a good deal of opposition, partly on the ground that sufficient time had not been given to consider the changes in its structure made in the House of Commons, and partly because it had not sufficient regard to voluntary effort. The debate was adjourned, and resumed on July 26th, when the Marquess of Crewe said that the Government fully appreciated the value of the work done by the Soldiers' and Sailors' Families Association, and that if it was desired that the representation originally given to that body on the proposed Statutory Committee should be restored, no objection would be raised. The Government was also willing to place two representatives of the Soldiers' and Sailors' Help Society on the Statutory Committee. With regard to local committees, the Government was prepared to insert an amendment in some such terms as these: "That in constituting the local committees regard should be had to the representations of the society or association which has hitherto undertaken the duties prescribed by this Act." He resisted the proposal to postpone the final discussion of the bill until after the recess. Lord Balfour of Burleigh objected that the bill did not distinguish sufficiently between the provisions which were to have a permanent effect and those which were temporary in character. After some further discussion, during which divergent opinions were expressed, the Marquess of Lansdowne asked the House to pass the bill before adjourning; if it did not, there would be a delay of at least six weeks, and during that time there would be no provision for supplementing pensions for widows, orphans, and disabled men, and the flat rate which they would receive, although liberally conceived, would be inadequate in many cases to meet their wants. Unless the bill was passed there would be no means of giving effect to the policy laid down in the report of the Committee presided over by Sir G. Murray on the provision of employment for soldiers and sailors disabled in the war, so that they might be enabled to earn a livelihood. On a division the motion for the adjournment of the debate was carried by 44 to 31.

Scottish Universities Emergency Powers.—A bill was introduced into the House of Lords on July 15th authorizing the University Courts of the four Scottish universities to submit to the King in Council a joint representation to the effect that it is expedient to modify or suspend ordinances in their application to graduates, students, or intending students, who are, or have been, engaged in naval, military, or other public service connected with the present war. The bill, which was read a second time on July 20th, provides that any such application shall be referred to the Scottish Universities Committee of the Privy Council.

Old Age Pensions in Scotland.—Mr. Montagu stated on July 21st, in reply to Colonel Yate, that the number of old age pensions payable in Scotland on the last Friday in March, 1914, and 1915, respectively were 97,294 and 96,895.

Optical Glass.—Dr. Addison, the Parliamentary Secretary to the Munitions Department, stated, on July 26th, in reply to Sir Philip Magnus, that important steps had been, and were being, taken to increase the supply of optical glass and optical munitions generally. As, however, negotiations were now in progress with this end in view, any statement as to the measures which it was proposed to adopt would be premature and inexpedient.

Rhodes Scholarships.—Mr. King asked the Prime Minister, on July 26th, whether he had consulted with the authorities of Oxford University with a view of some arrangement being made whereby funds for the Rhodes scholarships held at Oxford by German subjects nominated by the German Kaiser might be diverted during the war; and whether any action would be taken in this direction. Mr. Asquith said that the scholarships were in abeyance, and nothing had been or could be paid in respect of them during the war. It would require special legislation to divert these scholarships to other purposes, which in present circumstances he was not prepared to initiate.

Deductions from Accounts.—Mr. Hancock asked the Chairman of the Joint Committee of Insurance Commissioners, on July 27th, to state the reasons justifying the deductions insisted upon by the National Health Insurance Commissioners (England), in circular I.C.L. 124, of one-third of the quarterly accounts of panel practitioners, chemists, and institutions, after services had been rendered and an agreement had been entered into by each party. Mr. C. Roberts said that there was no question of any deduction from or abatement of the remuneration payable under the agreements alluded to. The circular in question had reference only to the subject of advances on account of that remuneration, and indicated the extent to which such advances might safely be made without risk of exceeding the sums which would ultimately prove to be due under those agreements. Mr. Hancock also asked why there had been no advance on account nor adjustment of the deductions of 10 per cent. made in the accounts of doctors, chemists, and institutions for the year 1914; and whether the Government would instruct the Commissioners to deal with the deductions owing to enlistments upon a less arbitrary and more generous basis by a temporary increase of the Treasury Grant, if necessary, considering that the medical profession had undertaken the free treatment of soldiers' wives and families and other dependants, and had lost the most healthy portion of their panel. Mr. Roberts said that the final settlement for 1914 had been unavoidably delayed by certain difficulties arising out of the present state of war. The balance due (which was considerably overestimated in the question) would be ascertained and paid as soon as practicable. In the case of the chemists, who might otherwise have suffered hardship, steps were taken in April last to effect an emergency settlement which was now in progress. In reply to the second part of the question, he could not admit the implications of the hon. member's epithets, or his suggestion that a further sum should be provided by the Exchequer.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE WEEK'S SUBSCRIPTIONS. The following subscriptions to the Fund have been received by the Treasurer, Dr. Des Voeux:

Thirty-fourth List.		£ s. d.	£ s. d.
Dr. A. B. Olsen ...	1 1 0	Leeds and West Riding	
C. A. S. ...	50 0 0	Medico-Chirurgical	
Dr. McCrea ...	1 1 0	Society (per Dr.	
Mr. S. Howard Schellar ...	1 1 0	Barril) (second dona-	
Anonymous (R. C. C.) ...	0 2 0	tion, total £76 12s. 6d.)	
North of England Branch		Dr. M. T. Stewart ...	2 2 0
of Fund (per Dr. Jas.		Dr. E. H. Hall ...	2 2 0
Don and Mr. A. S.		Dr. Way ...	1 1 0
Percival, Hon. Secs.)		Dr. Watson ...	3 3 0
(seventeenth dona-		Dr. R. A. Veale ...	2 2 0
tion, total £70 17s. 9d.)		Dr. Green ...	1 1 0
Dr. G. W. Scott ...	6 2 6	Dr. Irving ...	2 2 0
Dr. G. Hickey ...	9 12 6	Dr. H. T. Mackenzie ...	1 1 0
Dr. J. M. Gray ...	12 12 6	Dr. McIver ...	2 2 0
Dr. A. McIntosh ...	2 2 0	Dr. Hazegreaves ...	1 1 0
Dr. A. Rodgers ...	2 0 0	Dr. Holdsworth ...	2 2 0
Dr. T. B. Marlin ...	5 0 0	Dr. Dodd ...	1 1 0
Dr. J. Wells ...	4 4 0	Southern Branch, P.M.A.	
Dr. J. B. Waters ...	1 0 0	(per Dr. James Green,	
Dr. A. E. Morrison ...	0 10 0	Hon. Sec.) (9th dona-	
Dr. Burdon Cox ...	4 5 0	tion, total £25 16s. 6d.)	
Dr. H. K. Wallace ...	11 0 0	Dr. A. A. Macekith ...	1 1 0

In the list published on June 19th an anonymous subscription of £163 was acknowledged from Christchurch, New Zealand, which had been paid through the Bank of New Zealand. A letter has now been received from Dr. L. S. Manning, of Christchurch, saying that the money had been cabled by him as treasurer of the fund instituted by the North Canterbury Division of the British Medical Association.

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE APPEAL FOR SURGICAL INSTRUMENTS. Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C.

THE WAR.

CONFERENCE ON ARTIFICIAL LIMBS FOR DISABLED SERVICE MEN.

AN international exhibition of artificial limbs was held at Roehampton House, near Barnes, from Tuesday to Friday of last week. Roehampton House, through the kindness of Mr. Kenneth Wilson, its owner, is being utilized as one of Queen Mary's Convalescent Auxiliary Hospitals for soldiers and sailors who have lost their limbs in the war. About twenty-four firms, many of them American, and one or two others Scandinavian, exhibited. It was announced that the Directors-General of the Navy and Army Medical Services, together with the President of the Royal College of Surgeons of England, and a committee of English, Scottish, and Irish surgeons, would judge the exhibits with a view to deciding what appliances should be adopted as standard patterns. The actual judging took place in private, but subsequently a conference was held, at which the awards were announced.

Sir W. Watson Cheyne, who presided, pointed out that long delay in fitting artificial limbs after amputation often led to wasting of the muscles and loss of strength. On this account such an institution as Roehampton House was doing an invaluable service by ensuring that a man was fitted with a proper limb as soon as the stump was ready for it, and that in the meantime his muscular tone was maintained. The fitting of artificial limbs was, naturally, more difficult in military than in civil practice, for in the latter the operation could usually be designed so as to preserve the best possible stump. Amputations in war, on the other hand, very often could not be made on set lines if as much of the limb as possible was to be saved, with the result that the scars and flaps which covered the stump were sometimes much more tender and much less fit to bear weight than after the ordinary amputations. The fitting of a limb was thus a more troublesome business, and any uncomfortable pressure quickly wore down a man's spirit and energy.

Sir Arthur May, Medical Director-General, R.N., said that in ordinary peace conditions the number of men who lost their limbs in the navy was much greater than in the army. In war, however, this relation had been reversed, and there were twenty or thirty times as many cases of loss of limbs in the army as in the navy. Still, the cases in the navy were much larger in number than before the war. The number was so large that delay in provision was inevitable, yet the longer a man went without his artificial limb, when once he was ready for it, so much the worse for him.

Surgeon-General M. W. Russell, Deputy Director-General A.M.S., after expressing the regret of Sir Alfred Keogh at his inability to be present, said that the aim of the conference was to focus the present position of the artificial limb industry. The supply of artificial limbs in war time was quite a different matter from the supply in peace; the question for consideration was how the expansion in demand might be met by a corresponding expansion in supply.

A resolution was carried asking the orthopaedic surgeons who had been called into consultation to draw up a report advising as to the most suitable artificial limbs for various amputations.

Mr. T. H. Openshaw made an interim report on the judging, and announced the awards of medals which had been offered by Mrs. Gwynne Holford and Mr. C. H. Kenderdine. The gold medal for the greatest advance in mechanism was given to an exhibit by the Carnes Artificial Limb Company, of Kansas City, U.S.A. This took the form of an arm which, in the case exhibited, was attached to the stump at the middle of the humerus, and enabled the man who wore it to command such movements as are involved in lighting a cigarette or even, it was stated, "pulling out a hair." The silver medal in the same section was given to Messrs. Mayer and Meltzer, of London, for a leg, opening laterally, of simple mechanism, and readily adjustable by the wearer. Another gold medal for exhibits of best general excellence was awarded to the J. F. Rowley Company, of Chicago, the chief feature of their exhibit being a leg which was so adaptable that its wearer could run upstairs and downstairs, and even dance and jump. The

silver medal in the same class was awarded to Mr. W. R. Grossmith of London. It was proposed to award a further gold and a further silver medal for the exhibits of mechanisms which best fulfilled the requirements of the soldier, the question of expense being taken into account. The decision on this point, Mr. Openshaw said, would be deferred for further consultation.

GERMAN EXPERIENCES OF WAR SURGERY.

(Continued from p. 137.)

THE following notes on the proceedings of the Deutsche Gesellschaft für Chirurgie which met in Brussels on April 7th are published in continuation of those which appeared last week:

WOUNDS OF THE SKULL.

Professor Tilmann admitted that recent wars had not taught military surgeons to treat wounds of the skull on any generally accepted principles. In the present war he had learnt to operate on a straight bullet wound of the skull only when aseptic treatment of the wound could be guaranteed. Bullet wounds of the skull inflicted at close range were usually fatal on the field or during transport, and almost all the cases of penetrating bullet wounds of the skull which came under his observation were inflicted by bullets with low velocity. When the wounds of entry and exit were small, it was sufficient to apply a simple aseptic dressing. When the wound of exit was large, it was advisable to remove splinters of bone, to sponge the surface of the brain, and to apply a tampon. He had seen eighteen severe penetrating wounds of the skull heal under this simple treatment. In other cases, terminating fatally, the necropsy showed infection of the track of the wound, where surgical treatment could not be employed. Operative treatment was admissible only for haemorrhage, which was a rare complication. Secondary haematoma was also rare, and the symptoms were usually due to encephalitis. An attempt should be made to remove a bullet only when its position could be located by the x rays. It was, however, necessary at some time or another to remove the bullet or any other foreign body from the brain, as encephalitis otherwise usually ensued. Tangential bullet wounds of the skull were frequently inflicted in close-range fighting, and were the most common of all bullet wounds of the skull requiring treatment. Operative treatment was necessary in all such cases, for splinters of bone were driven inwards and caused suppuration, encephalitis, paralysis, pressure symptoms, etc. The groove made by the bullet must be exposed, and splinters of bone removed from the substance of the brain. Even when the injuries to the brain were extensive it was advisable to dispense with plugging of the wound, and merely to apply gauze to the surface of the wound. In wounds inflicted by ricocheting bullets, the fracture of the skull was uncomplicated, as a rule, by injury to the dura. A furrow was ploughed in the bone or a dent formed in the outer table. But slight as these wounds appeared, they were often associated with alarming general symptoms, and even paralysis. The pressure exerted on the brain by this indentation of the bone actually caused almost a more alarming reaction than a direct wound of the brain substance. It was, therefore, necessary in the case of ricocheting wounds of the skull to expose the bone and the dura as soon as cerebral symptoms developed. Every operation could be performed under local anaesthesia, and no narcotic was necessary when the patient was already unconscious. Sometimes paralysis following penetrating wounds of the skull, from which the bullet had escaped, disappeared of themselves. Hemianopsia had also been found to disappear after fragments of bone had been removed from the occipital lobe. Meningitis, when it occurred, usually developed within the first few days. Lumbar puncture was useful both for diagnosis and treatment, and should be repeated whenever headache became severe. Only in the serous and haemorrhagic forms of meningitis was there any prospect of recovery. Encephalitis played an important part, and was either reactive or purulent. In the purulent form, there was stupor, a slow pulse, and progressive paralysis. In the reactive form, and also in softening of the brain, there was, as a rule, no fever. Abscess of the brain was difficult to diagnose; it was usually accompanied by

prolapse of the brain, which ceased when the abscess was drained. Reactive encephalitis was frequently followed by the formation of cysts and large scars, and the ultimate fate of the patient was often disappointing.

Professor Enderlen had observed 311 bullet wounds of the skull since November. Of these, 149, or 44.7 per cent, had terminated fatally. Many of the patients died in a few days, and encephalitis and meningitis were frequent. Post-traumatic softening was more rare. Every wound of the skull should be examined, and by the help of an early operation it was possible to avoid secondary infection. Bullets should be removed at once only when they were superficial, and could be accurately localized, with or without the *x* rays. Migration of the bullet had to be taken into account when its removal was attempted at a later stage. The operation should be undertaken only when the further transport of the patient could be deferred for three or four weeks. The operation should be thorough but simple; plastic operations of the skull and dura should be discouraged, and when the wound was simple, drainage and suture of the dura were alone sufficient.

Herr Best had found ocular symptoms in more than two-thirds of the 92 cases of skull wounds under his observation. Papillitis was very common, hemianopsia was observed in every sixth case, and mind-blindness in every seventh case. When the bone was not shattered, and the symptoms were due to bruising or a haematoma, papillitis was seldom seen, whereas it was observed in about four-fifths of all the cases of penetrating wounds.

Professor Bier insisted that it was most difficult to remove a bullet from the interior of the brain, but that if the head were placed with the wound of entry lowest, and were then knocked, "the bullet walked out by itself"!

WOUNDS OF THE ABDOMEN.

Professor Körte had found the length of the interval between the infliction of an abdominal wound and an operation the most important factor. If this interval were more than twelve hours the prognosis was bad, particularly if the patient meanwhile had been transported over rough roads. Of 312 wounds of the abdominal cavity, the majority had been inflicted by bullets, and only two by the bayonet. Thirty-eight of these patients died at the first dressing station, and 274 reached hospital alive. Of these, 121, or 46 per cent, recovered; 146, or 53 per cent, died; while the fate of the remainder was unknown. Of the 17 cases in which an operation was performed for prolapse of the intestine or omentum, recovery was effected only in two cases. Expectant treatment was adopted in 257 cases. These patients were, as a rule, admitted to a field hospital from the sixth to the eighth day, and were passed on about a fortnight later. The mortality was 51.4 per cent., while the percentage of recoveries was 47. Of the 10 patients who had subsequently to be submitted to operations for prolapse of the omentum or abscess, including liver abscess, four recovered and six died. Taking the 312 abdominal casualties as a whole, the proportion of recoveries to deaths was 40 to 60. Necropsies often showed that perforations of abdominal organs had been overlooked at the operation. In many cases a bullet wound of the bladder had been sutured, but a wound of the rectum had been overlooked. A recovery had been effected in fifteen out of twenty-three bullet wounds of the liver. Two out of three bullet wounds of the spleen and three out of seven bullet wounds of the bladder had terminated fatally.

Comparative Merits of Operative and Conservative Treatment of Abdominal Wounds.

Professor Körte said that at a recent meeting in Lille, the speakers, with the exception of Enderlen, were opposed to operations for bullet wounds of the abdomen. The same was also the case at a meeting in Lothz. Recently, however, there had been a movement in the opposite direction; and Rottor, whose results had previously been unfavourable, had lately recorded six consecutive abdominal operations, all of which were successful. Under favourable conditions, Professor Körte said, a simple perforation of the intestine might heal of itself, but it was not known how often this occurred. It was difficult to ascertain whether the intestine had been wounded or not; if it were, an operation should be performed within the first twelve hours, provided that the patient had not, in the meantime,

been transported a great distance, and that his general condition was not very bad, and provided also that there was sufficient time, and that it could be done under aseptic conditions.

Professor Schmieden said that his experiences concerned trench warfare almost exclusively. He had expected that 50 per cent. of the penetrating abdominal bullet wounds would heal of themselves, but he had been grievously disappointed; spontaneous recovery was exceedingly rare. The prognosis was far worse than for wounds of the chest and skull. The old teaching that the intestinal mucosa formed a plug which automatically closed a perforation of the intestine was erroneous. Possibly the small Japanese rifle bullet caused less fatal perforations of the intestine than those observed in the present war, and he believed that when abdominal wounds healed under conservative treatment the intestine and stomach had in most cases escaped injury. The principles of conservative treatment could not be carried out, and in no case could the transport of the wounded be avoided. In his opinion laparotomy should be performed when the wound had been inflicted not more than twelve hours earlier, when the general condition was not hopeless, and when there were adequate facilities for operating. Appliances for irrigating the abdominal cavity were essential. Among 198 abdominal casualties, the gastro-intestinal tract had been perforated in 157 cases. An operation was performed in 58 cases, 37 of which terminated fatally; recovery occurred in 16 cases; the fate of the remaining 5 patients is not recorded. Among 94 cases in which no operation was performed, there were only 4 recoveries. In the absence of perforation of the gastro-intestinal tract, the mortality from abdominal wounds was about 50 per cent. Of late he had been able to advance his operating theatre to within about four kilometres of the trenches, and was thus in a position to perform a laparotomy half an hour after the infliction of a wound. Bullet wounds of the liver should not be closed when the wounds of entry and exit were fairly large. The damaged liver substance was thus enabled to escape, and the formation of late retention abscesses was prevented. In one case, in which the thorax and abdomen were simultaneously wounded, the spleen was prolapsed, and it was impossible to replace it on account of the adhesions which had formed. It was cauterized every fortnight, and the patient ultimately recovered.

The Mortality from Abdominal Wounds at Various Distances from the Front.

Herr Friedrich had compared the results of abdominal wounds treated at a first dressing station, a field hospital, and a home hospital. At the first dressing station, among 33 patients, there was a mortality of 44 per cent. within twenty-four hours and of 85 per cent. within two days of the infliction of the wounds. Only 5 patients survived. Among 34 cases treated in a field hospital on absolutely conservative lines, there were 11 deaths, or a mortality of 32 per cent. Among 46 patients treated in a home hospital, many of the wounds being recent, the mortality was 38 per cent. Under conservative treatment the prognosis was worse for wounds of the colon, and it improved the higher the wounds were inflicted. Thus, the prognosis was best when a wound of the gastro-intestinal tract affected the stomach. The prognosis for wounds of the liver was also relatively good.

Operations for Abdominal Wounds.

Herr Enderlen reported 89 cases in which operations had been done for bullet, shrapnel, and shell wounds of the intestine. About 30 per cent. recovered. As many as 12 perforations of the intestine were found in a single case; in some instances it was necessary to resect part of the intestine, and in 3 such cases the patient's life was saved. In 5 cases, in which the wounds of entry and exit clearly indicated perforation of the abdomen, no wound of the intestine could be found, and all 5 patients recovered. Since November the transport of the wounded from the trenches had been accelerated, so that an operation could be performed within the first four to ten hours. Early in the war he had operated eighteen to twenty hours after infliction of a wound, but he had invariably found purulent peritonitis, without adhesion of the abdominal organs, or any sign of a mucous plug in the perforations. All his cases of prolapse of the abdominal organs had terminated

fatally. Experience had taught him to operate, time and other factors permitting. Professor Sauerbruch also endorsed the policy of operation in abdominal wounds, and by this means he had saved 23 out of 54 cases.

WOUNDS OF THE LIMBS.

In dealing with wounds of the limbs complicated by fractures, Professor Payr said the wound healed most satisfactorily when the fracture was properly set, and the fate of the fracture was similarly dependent on the favourable course of the wound. Suppuration was common even in simple penetrating wounds inflicted by bullets; in shell wounds he was inclined to advocate immediate incisions and exposure of the track of the wound as a matter of routine. The treatment of fractures due to bullets by primary dissection and exposure gave more satisfactory results than deferring the operation till severe sepsis had supervened. When subfascial gas-phlegmon had developed, very deep incisions were necessary, and when this treatment failed to give definite relief after twelve hours, amputation was inevitable. He was opposed to the practice of plugging wounds with tampons, and he preferred to keep them open with lightly rolled gauze. It was advisable not to interfere with traumatic osteomyelitis till the necrosis was complete. Permanent irrigation was too elaborate to be satisfactory and, as a rule, there were not adequate facilities for a permanent bath, excellent though this treatment was. When a joint was wounded, and infection or an increase of the effusion into the joint were detected, it was advisable to puncture, to irrigate with a solution of carbolic acid or collargol, and to immobilize the joint. Extension of the limb in such cases was not advisable, and an attempt should be made to extract a bullet only when the functions of the joint were impaired. He had found it necessary to do this only in 8 out of 220 wounds of the knee-joint. The course of infection of a wounded joint was usually insidious; it was often latent for as long as ten days.

The Faults of Plaster of-Paris Splints.

Herr Goldammer most emphatically disapproved of plaster-of-Paris splints for first aid in the field. Their use implied far too much stationary treatment and waste of time. They should be used only when the patient could be kept under observation for at least twenty-four hours. Treatment by extension was, no doubt, the best, as it alone prevented shortening; but owing to the difficulties of transport, the surgeon had to be satisfied with simple immobilization. But as soon as the wounded were admitted to hospitals, whence they were not likely to be further transported, treatment by extension should be instituted.

SURGERY OF THE BLOOD VESSELS.

Professor Bier said that he had operated on 102 cases of aneurysm. Early in the war arterial aneurysms had been most common; recently they had been less frequent than arterio-venous aneurysms, which had been observed in 28 out of 33 cases of aneurysm of the femoral artery. Varicose aneurysms were most rare. The length of time the aneurysms had existed ranged from eight days to five months. In most cases the diagnosis of aneurysm was easy, and they were rarely confused with abscesses. The aneurysms usually developed soon after the infliction of a wound, but in many cases not until the patient had returned to active service. He considered it necessary in every case to dissect out the artery before attempting any suture. If this precaution were neglected and the operator attempted to excise the whole sac of the aneurysm, so much of the artery was removed that it was usually impossible to suture the blood vessels satisfactorily. He much regretted that this procedure was still generally followed, for it was apt to destroy the most important collateral vessels. Among his 102 cases, suture was performed in 74 cases, in 38 of which the more simple, lateral anastomosis was effected. When, however, a considerable portion of the artery had to be removed, a transverse resection was inevitable, and ordinary suture had to be performed. It was more difficult to operate on arterio-venous aneurysms; in these cases also it was necessary always to undertake a preliminary dissection of the vessels before attempting excision and suture. Venous transplantation was always superfluous. The operations on aneurysms were much facilitated by Momburg's method of inducing anaemia of the limb, which never suffered

from this treatment. Sepsis was the only contraindication to suture of the blood vessels; even lateral anastomosis should not be attempted in an infected wound for fear of secondary haemorrhage. Suture was superfluous for aneurysm of minor arteries, which were best treated by simple ligation. Among his 102 cases, ligation was performed in 28 cases, in which small arteries had been wounded. Eight of his patients had died, and 4 of these deaths had been in connexion with aneurysm of the subclavian artery, of which there had been 9 cases.

OPERATIONS IN THE PERSIAN GULF.

DISPATCHES.

The *Gazette of India* of June 26th publishes the official reports of the operations in Mesopotamia up to March 31st in dispatches from Lieutenant-General Sir A. A. Barrett, K.C.B., commanding Indian Expeditionary Force D, dated December 29th and March 31st. The following medical officers are specially mentioned in these dispatches. The dispatch of December 29th contains the following:

Captain D. Arthur, I.M.S., was particularly conspicuous in attending Captains Daunt and Otter when exposed to heavy fire and throughout the action.

Sub-Assistant Surgeon Pundit, I.S.M.D. During the attack on Muzaira'ah on December 7th, 1914, Rifleman Ghos Merhammad was shot by an Arab who was hiding in one of the huts. Sub-Assistant Surgeon Pundit called on a Sepoy of another regiment to enter the hut and clear it. The Sepoy seemed reluctant to do so, and the sub-assistant surgeon took his rifle and bayonet, entered the house, and closed with the Arab. The Sepoy followed, and between them they killed him. He has also shown exceptional bravery in attending wounded under fire.

The field ambulances under Major E. Bennett, R.A.M.C., worked with great devotion on the 7th, and were under shell fire for a short time that night.

The dispatch of March 31st contains the following:

Colonel P. Hehir, M.D. As senior medical officer he has done much to promote the general efficiency of the force by his unceasing care for the physical welfare of the troops and followers and for the treatment of the sick and wounded. He possesses great administrative ability, and is an extremely valuable officer.

The following staff and regimental officers are also worthy of special commendation:

Arthur, Captain D. M. (I.M.S.).
Barber, Captain C. H. (I.M.S.).
Collins, Major D. J. (R.A.M.C.).
Donegan, Lieutenant-Colonel J. F. (R.A.M.C.).
Horton, Major J. H., D.S.O. (I.M.S.).
Irvine, Lieutenant-Colonel G. B. (I.M.S.).
McCreery, Captain A. T. J. (R.A.M.C.).
O'Keefe, Major D. S. A. (I.M.S.).

The following officers are especially brought to notice for gallantry in the field:

Captain H. E. Shortt, I.M.S. In the operations from Muzaira'ah on the left bank of the Tigris, on January 30th, this medical officer displayed great devotion and courage in attending wounded in the open in face of rifle fire at comparatively close quarters.

Doctor Arthur Bennett, of the American Mission Hospital, has helped us greatly by undertaking the treatment of wounded Turkish and Arab officers and men.

MILITARY HONOURS.

The supplement to the *London Gazette* of July 24th records the award of a number of decorations to officers and men serving in Flanders and in the Dardanelles; four V.C.s, twelve D.S.O.s, and thirty-three Military Crosses. Two medical officers are among the recipients of the last.

Lieutenant William Kelsey Fry, R.A.M.C. For conspicuous gallantry and devotion to duty at Festubert, between May 16th and 18th, 1915, while carrying out his work under heavy fire. He was himself wounded while attending to others.

Lieutenant David James Sheires Stephen, M.D., R.A.M.C. For conspicuous gallantry and devotion to duty in attending to the wounded under heavy shell fire on several occasions, notably on the night of April 23rd, and on May 8th, 1915. He has usually performed his gallant work single-handed, and by his cheerfulness and pluck has encouraged all around him.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

Captain Michael Foster Reaney, of the Indian Medical Service, was killed in action at the Dardanelles on July 2nd. He was born on April 15th, 1878, educated at the London Hospital, and took the M.R.C.S. and L.R.C.P. Lond. in 1900, the M.B. Lond. in 1901, and the M.D. in 1914. In 1904 he gained the Carmichael prize for an essay on *The Medical Profession*. After filling the posts of house-physician and of clinical assistant for medical out-patients and in the skin and aural departments at the London Hospital, he entered the I.M.S. as lieutenant on February 1st, 1905, becoming captain on February 1st, 1906. Previous to the war he was serving in civil employment in the Central Provinces, but was recalled to military duty, and on October 16th, 1914, was posted to the 5th Gurkhas, with which regiment he was serving when he was killed. He is deeply lamented by many former students of the London Hospital, where he was clinical assistant to several special departments and also house-physician. Dr. Arthur Keith, then a teacher at the hospital, considered that he was an able anatomist of high promise. Captain Reaney was 38 years of age, and leaves a widow to lament his loss.

Major David Robert Taylor, R.A.M.C. (T.F.), was killed in action in the Dardanelles on July 14th. He was educated at Edinburgh University and at the Royal College of Surgeons school in that city, taking the Scottish triple qualification in 1893. After qualifying, he settled in practice at Ayton, in Berwickshire, where he was medical officer of the post office and visiting physician to the Millerton Hospital for Infectious Diseases since its foundation. He was also a member of the British Medical Association. He was for five years an officer in the 2nd Volunteer Battalion of the King's Own Scottish Borderers, and on August 8th, 1906, became lieutenant and medical officer in the 4th (Territorial) Battalion of the K.O.S.B., becoming captain on April 1st, 1908, and major on December 18th, 1914. Major Taylor was twice married, and leaves a widow and five children.

Captain Andrew Wallace, of the 4th (Border) Battalion of the King's Own Scottish Borderers, was killed in the recent fighting in the Dardanelles on July 12th. He was the eldest son of Mr. James Wallace, head master of Prestonpans school, and was educated in Edinburgh, at George Heriot's school and at the University, where he took the M.B. and C.M. in 1896. After acting as an assistant in Leicestershire he served for some years as a surgeon on the Glen line of steamers, and was surgeon of the *Glen Avon* when she was wrecked off Hong Kong. He settled in practice some fifteen years ago at Coldstream in Berwickshire. He took a combatant commission in the 4th K.O.S.B. about twelve years ago, and attained the rank of captain on April 11th, 1906.

Wounded.

Captain A. J. McC. Morrison, R.A.M.C. (temporary), (Dardanelles).

Captain J. D. Lithgow, R.A.M.C. (temporary), (Dardanelles).

Lieutenant C. S. Black, M.B. Glas., 6th H.L.I. (Dardanelles).

This is the second time that Captain Morrison has been reported as wounded; his name appeared in the casualty list of June 29th, and again in that of July 22nd.

DEATHS AMONG SONS OF MEDICAL MEN.

Five cases of sons of medical men killed in action have been reported in the past week, to which are added three others of an earlier date.

Bull, G. J. G., Lieutenant 2nd Field Company, East Lancashire R.E.T., son of Colonel W. H. Bull, K.H.S., A.D.M.S. (T.F.), of Stony Stratford, killed in the Dardanelles on July 8th. He was educated at Wellington, and at Magdalene College, Cambridge, where he took a degree in the first class. He got a commission as lieutenant on June 10th, 1913, went to Egypt in September, 1914, and to the Dardanelles in May, 1915.

Evatt, G. R. K., Captain Middlesex Regiment, who was killed in France on November 13th, 1914, was the son of Surgeon-General G. J. H. Evatt, C.B.

Henderson, Andrew Hubert Millin, 2nd Lieutenant 14th King's Own Scottish Borderers, eldest son of Dr. Percy J. Henderson, 9, Church Street, Galashiels. He was killed in action at the Dardanelles on July 12th, 1915. He completed the first year of

his medical career at the University of Edinburgh just before the war broke out. He was a lieutenant in the Royal Scots Cadet Corps, and resigned this on getting his commission in the 4th King's Own Scottish Borderers in the spring of 1913.

Morton, Sidney, Major India Army (24th Punjab), only son of the late Surgeon-General G. E. Morton, I.M.S., killed in action in the Persian Gulf on June 14th, aged 39. He entered the army on January 22nd, 1896, joined the Indian army on March 31st, 1897, and became major on January 22nd, 1914. He served on the North-West Frontier of India as Provost-Marshal of the First Brigade in the Malakand and Buner campaigns of 1897, and took part in the defence of Malakand, the relief of Chaldra, the actions at Landakri and at the Tuga pass, and the operations in Bajour and the Mannu country, alval with clasp; also in China in 1900, in the relief of Peking, and the actions of Peitsang and Yangtsun, when he was mentioned in the dispatches in the *London Gazette* of May 14th, 1901, medal with clasp.

Porter, Alwyn, Lieutenant Lancashire Fusiliers, son of Dr. J. E. Porter, of Helmsley, Yorkshire, killed in the landing on Gallipoli beach in the Dardanelles, early in May, 1915. He got his commission as second lieutenant on July 18th, 1911, becoming lieutenant on November 27th, 1914.

Ross, Ronald Forbes, Second Lieutenant 3rd (Reserve) Battalion of the King's Own Royal Lancaster Regiment, son of the late Dr. Forbes Ross, of London, killed at Zillebeke, near Ypres, February 20th. He got his commission on August 15th, 1914.

Sparrow, Eric Walter, Private 7th Battalion Rifle Brigade, second son of Dr. W. B. Sparrow, of Burton-on-Trent, killed in action in France on June 30th, aged 36.

Stewart, J. S., Second Lieutenant 5th Battalion Argyll and Sutherland Highlanders, son of Dr. W. Stewart, of Gourick, killed in the Dardanelles, aged 20. He was a medical student, and got his commission on November 6th, 1914.

NOTES.

THE HEALTH OF THE FLEET.

The Archbishop of York, in an article on his ten days' visit to the Grand Fleet contributed to the *Times*, speaks of the cheerfulness of the men in spite of their monotonous life, and in spite of the strain of being always ready for any emergency. "Thanks," he says, "to excellent food, fresh air, exercise, and the absence of shore temptations the health of the fleet is admirable. When I was with the largest section, the rate of sickness (including accidents) was just under 1 per cent. The men at work on board ship are a vision of smartness and alacrity. They are all splendidly 'fit' in body and spirit."

GERMAN RED CROSS.

In a recent issue of the American Red Cross monthly magazine, Dr. Kimmle, Secretary of the German Red Cross, gives an account of the work of that organization during the present war. From an abstract which appears in the *Boston Medical and Surgical Journal* of July 15th, we learn that it was mobilized at the same time as the army, and has now some 5,000 nurses in the field. The nurses are divided into three classes, the first being the Red Cross sisters, who for years have carried on the profession of nursing. The second class consists of volunteer auxiliary sisters, who undergo one-half year's training, pass an examination, and are called out from time to time for further instruction and practical service in military hospitals. The third class comprises the volunteer helpers of the Red Cross. They are employed only in the home military hospitals under the supervision of experienced nurses. More than 60 per cent. of the Red Cross nurses—about 5,500 in all—are now in the field, war, and base hospitals. The remainder are at home, nursing not only sick and wounded soldiers, but also men, women, and children of the civil population. Besides the female personnel, there is a male staff of stretcher-bearers and sick attendants. They are trained in the First Aid Detachment of the Red Cross, the Red Cross Association of Voluntary Attendants, and the Samaritan Societies of the Red Cross. At the beginning of the war these organizations numbered from 70,000 to 80,000 men, and this number has since been materially increased. They are, says Dr. Kimmle, uniformed and equipped according to regulations, and form an army of "Caritas." About 20,000 men have been sent to the front or base, where they do service in army hospitals and in the depôts, while a still larger number do service in army hospitals and Red Cross trains and the home military hospitals. They have army, Red Cross, and auxiliary hospital trains and ambulances, these last being complete ambulatory field hospitals, with all the comforts afforded

by a stationary field hospital. The War Department hospital trains, classified by numbers, and the Red Cross trains, classified by letters of the alphabet, are about the same. They consist of fourth-class vestibule cars that allow the physicians and nursing corps to get quickly and easily from one end of the moving train to the other. The wounded lie on stretchers, on which, in the Red Cross trains, are mattresses, and are protected from cold by blankets enclosed in washable linen cases. The central committee of the Red Cross had completed ten such hospital trains shortly after mobilization, and there are now several dozen in the entire organization of the Red Cross.

THE CANADIAN HOSPITAL AT LE TOUQUET.

J. P. C. writes that he has grateful memories of the good work of the Canadian Hospital (No. 2 Stationary), Le Touquet, North France. "In January last," he says, "the battalion was encamped at Etaples, outfitting for the firing line. The weather was about the worst that could be imagined, and I, as medical officer of the battalion, had to send batches of men to hospital every day in the week, as many as 40 a day on the sick list, suffering from rheumatism, tonsillitis, influenza, eczema, bronchitis, and some had cuts of some feet. At length my own turn came—cold shivers, pains in back and limbs, relaxed throat, loss of appetite, and general malaise with high temperature were all unmistakable symptoms. I hung around on duty in pain, cold, and misery for three days that seemed as long as ten, unwilling to report sick; but eventually a kind brother medicotook me in hand and saw me safely to 'The Canadian,' as the institution known in that section. I was shown to a real bed in a nice cheerful room, with a blazing coal fire in one corner, which helped materially in restoring the chilled circulation. My temperature was found to be 103°, and I felt so shaky I did not care to venture a warm bath, but had a hot foot-bath instead, hot drinks, plenty of blankets, aspirin (10 grains) and—rest. I saw some poor fellows terribly frost-bitten, principally in the feet and hands, others in a lesser degree, the condition known as 'water-bite,' caused by standing for hours or days in liquid mud. The medical officers, nurses and attendants are all Canadian; Colonel Shillington, the able and popular chief of staff, is well seconded by Captain Young, and kindness and efficiency seems to be their motto. The requirements of religion are not forgotten, there being Church of England and Catholic chaplains on the staff. When I essayed a walk abroad I discovered that this immense building, which before the war was the Golf Hotel, was only ten minutes' walk from the sea, right in front through the golf links; on the right sand-dunes principally; left and at the rear a dense forest of primeval pines; it is an ideal situation, a lovely land, beautiful even in winter."

MEDICAL OFFICERS WANTED.

2/3rd West Riding Field Ambulance.

Five medical officers are required to complete the establishment of this unit at the war station. Applications to the Officer Commanding, Race Course, Beverley.

Ireland.

BELFAST MEDICAL SCHOOL AND A HOSPITAL IN FRANCE.

DR. THOMAS HOUSTON, in charge of the vaccine therapy department in the Royal Victoria Hospital, Belfast; Dr. J. E. MacIlwaine, assistant physician; and Mr. P. T. Crymble, F.R.C.S. Eng., surgical registrar to the same institution; and Dr. McCloy, assistant tuberculosis officer under the Belfast Corporation, have left to take charge, with other doctors, of the St. John Ambulance Brigade Hospital at Etaples, a few miles south-west of Boulogne. The former three will rank as captains and Dr. McCloy as lieutenant. Mr. Crymble's brother, Mr. C. R. Crymble, D.Sc., also a distinguished scholar and graduate of Queen's University, Belfast, was killed in the earlier phases of the war while serving as lieutenant in the 3rd Battalion Royal Irish Fusiliers. The hospital contains 520 beds; the bacteriological laboratory is under the direction of Dr. Houston; Dr. MacIlwaine is taking an electro-cardiograph with him; Mr. Carson, of Messrs. Lizars, who helped to put up one in the Royal Hospital, has gone with Dr. MacIlwaine to aid in its installation in France.

WAR WORK FOR WOMEN STUDENTS IN THE QUEEN'S UNIVERSITY, BELFAST.

At a special meeting of the Senate of the Queen's University of Belfast on July 20th a committee was appointed, on the motion of Dr. Calwell, seconded by Dr. Leslie, to consider whether and in what way provision

should be made for the training of women students in ambulance work, sick nursing, and other similar subjects. By a previous resolution of the Senate the men students are all required to attend a course of physical and military training, and these subjects are to be added to the various faculties that are already in existence. The time to be devoted will not in either case unduly interfere with their ordinary studies.

PROPOSED AMALGAMATION OF NORTH AND SOUTH DUBLIN UNIONS.

Last week a deputation organized by the Dublin Citizens' Association was received by Sir Henry Robinson and the members of the Local Government Board for Ireland. The deputation, which represented practically all the industrial, mercantile, and trading interests in Dublin, stated that all were handicapped by the weight of general taxes and the appalling local rates. To get some relief from the latter was the object of this appeal to the Local Government Board to use its powers in giving practical effect to the proposed amalgamation of the Dublin unions. The administrative fusion of the Dublin unions was a definite matter of practical local reform, which, it was confidently believed, would, without any hindrance to a general reform hereafter, secure better treatment for the destitute and infirm, and at once lighten the Dublin ratepayers' burden. He was glad the Local Government Board had the power to amalgamate the unions without the consent of the guardians concerned, though, of course if the guardians could be brought to see their real duty in the matter, it would be more satisfactory.

The memorial stated that shortly before the operation of the Old Age Pensions Act the cost of the North and South Dublin unions for the entire areas of both institutions was £164,054, whereas the total demands for the current financial year (1915-16) were £167,595, and this notwithstanding (1) a recent statement at a meeting of the North Dublin Union Board that the number of inmates then in the union was the lowest for thirty years; (2) the fact that old age pensions had benefited the poor of Dublin to the extent of £131,000; and (3) that the National Health Insurance Act in sickness, disablement, maternity, and sanatorium benefits had returned to Dublin as a whole practically £55,000 a year for the last two years, and that of the latter amount it was computed that a third, or, say, £20,000 a year, had gone to persons who would otherwise be chargeable on the poor rates. These facts and considerations had convinced the association the deputation represented that the practical reform needed in order to obtain adequate local advantage from the legislative benefits set out was to amalgamate the North and South Dublin unions. Unity of government and management and an efficient classification of inmates would effect a large reduction in the cost of administration, even after due provision had been made for compensation to disemployed officials. The merging of the two unions would also facilitate such treatment of pauper children as would allow of their being removed at the proper time from an environment calculated to mar their status as citizens to surroundings in which they could be fitted mentally, physically, and morally to face the battle of life successfully and avoid a dependent existence. It was mentioned that in Belfast, which has a larger population than Dublin, but only one union, the poor rate had fallen from 1s. 2d. to 11d. in the £ since the coming into operation of the Old Age Pensions and Insurance Acts.

Sir Henry Robinson (Chairman of the Local Government Board), in reply, admitted that his Board had full power without special legislation to amalgamate unions, and that, as a matter of fact, several such amalgamations had been carried out in Ireland. At the same time, it would facilitate the Board's action if both the Dublin unions were consenting parties to the proposal. He asked the deputation to help the Board by indicating in detail the plan outlined in the memorial. He rather favoured the idea of one large establishment for Dublin. The Viceregal Commission of 1906 had suggested one union for Dublin city as it now exists, but he believed that a grouping of the unions of Dunslaughter, Celbridge, and Balrothery, thus broadening the contributory area, would be preferable. He assured the deputation that the Board would give very careful attention to the matter.

THE BELFAST TUBERCULOSIS SCHEME.

We have received the following letter:

Tuberculosis Institute,
91, King Street, Belfast,
26th July, 1915.

Sir,—I should be much obliged if you would give me a few lines of your valuable space to correct some errors into which your Irish correspondent has fallen in your issue of 24th July in his news of the public health of Belfast.

Dealing with the tuberculosis scheme, he says it "does not appear to prosper." That, of course, may be a matter either of opinion or of fact. On the 2nd June the scheme had been in operation for a little over a year, and during that time upwards of 2,000 new patients had been examined, whilst upwards of 7,000 visits of old patients had been paid to the institutes. During the same period the nurses connected with the institutes paid upwards of 13,000 visits to the homes of patients. In addition to the above, 232 patients have been examined in the union infirmary since the 1st October, 1914. Taking all this into consideration, and with the attendant work involved in keeping records and in carrying out the administrative work of a new department, I think your correspondent's criticism is hardly justified.

Again, he states "£10,000 a year has, for the time, been lost, apparently owing to failure to come to an agreement with the Insurance Committee." Does he realize that the work which it would have been necessary to do for this amount would, in all probability, have cost a great deal more than £10,000 a year? If he had regretted the loss to the patients through want of centralization I should have readily agreed with him.

He goes on to say that some "£13,000 a year was to have been obtained from the Government for the enlargement of the Whiteabbey Sanatorium [?] . . . this has been held up, and now it may be taken for granted that no Government will expedite the giving of such a sum." Apart from the slight mistake that the money was for the enlargement of Whiteabbey Sanatorium, it may interest him to know that—so far from the money being "held up," or the Government failing to "expedite the giving of such a sum"—the Government are as prepared as ever to grant the money for building operations in connexion with the tuberculosis scheme, and the corporation will shortly avail themselves of the opportunity of spending it.

He then says: "A large number of medical appointments have been made representing payments of over £2,000 a year." I am not sure whether he intends the emphasis to fall on the number of the appointments or on the size of the aggregate salaries, but considering that the appointments number seven, and the average salary therefore something like £300 a year, I think that in the present state of medical employment he will hardly say that the staff are overpaid; and considering that the dispensary staff numbers three—working in a population of 400,000—he can scarcely say that the staff is too large.

Finally, he makes the comment that "the council cannot get rid of their obligation to the guardians' officers, Dr. Hall and Dr. Rankin." So far as I know, the council have never sought to rid themselves of any obligation under the agreement with the guardians by which they have undertaken, "as far as practicable and convenient to themselves, to take over the services of all officers, attendants, nurses, and servants employed in the Abbey Sanatorium." Nor is he correct in saying that Dr. Hall's relations with Dr. Gilliland have not been set forth, since they have both mutually agreed as to their respective duties.

Should your correspondent at any time visit this corner of the kingdom, or should he desire any information regarding the scheme for the prevention and treatment of tuberculosis in Belfast, I shall at all times be at his service.—I am, yours faithfully,

ANDREW TRIMBLE,
Chief Tuberculosis Officer.

Scotland.

THE PREVENTION OF TUBERCULOSIS.

DR. JOHN GUY, the tuberculosis officer for Edinburgh, has presented a report on the work of the Sanatorium Benefit Committee for 1914; it deals with 309 cases—190 males and 119 females. Sanatorium treatment was granted in 266 cases, domiciliary in 21 and dispensary in 22. Among the questions discussed by Dr. Guy is that of overcrowding

in the home. He has taken the census standard of overcrowding—namely, more than two persons to one room, and had applied this to the houses (299 in number) from which the applicants for sanatorium benefit had come (there were 309 in all, but 10 cases from common lodging houses were excluded). By far the majority of these were of the two-roomed type, and whilst 157 of them had through ventilation, 142 had not. The result, as regarded overcrowding, given in tabular form, is as follows:

Accommodation.	Ample.	Overcrowded.	Total.
1 room... ..	16	22, or 58%	38
2 rooms... ..	64	62, or 49%	126
3 rooms... ..	60	11, or 15%	71
More than 3 rooms... ..	61	3, or 5%	64
	201	98, or 31%	299

The census standard of overcrowding is not the legal standard, so that, whilst many of the houses did not conform to the census standard, they could not be dealt with legally as overcrowded, for they satisfied the requirements (400 cub. ft. per inmate). In the case of the one-roomed houses there was overcrowding in 58 per cent., and in the remainder there were two persons living in each. Dr. Guy expresses the opinion that, though this may satisfy the legal requirements, yet whenever a case of pulmonary tuberculosis occurs in a one-roomed house that house becomes at once overcrowded. The housing question is a vital point in dealing with the problem of tuberculosis, and Dr. Guy agrees that too much has been said about sanatoriums and too little about the houses. He inclines to the belief that if the money which has been poured out on sanatoriums had been spent on improvement in housing conditions the results would not have been less satisfactory. Improper or insufficient feeding also played, he thinks, an important part; in many of the houses from which the patients came it was no uncommon thing for there to be no properly cooked food at any time of the day. Dr. Guy suggests that out of the fund for educational purposes at the disposal of the committee a cook should be engaged to go into the houses of the people and instruct them in the use and preparation of cheap yet nutritious and wholesome dishes. During the year very few cases were granted domiciliary treatment, yet it was a much appreciated benefit. The housing condition had to meet with the approval of the medical officer of health, and so unless a separate bedroom could be given to the patient the benefit could not be received, but it seems a great pity that this inability, through poverty, to provide a separate bedroom should penalize a person in respect of domiciliary treatment. In conclusion, the tuberculosis officer gives a chart showing the decrease in the death-rate from pulmonary tuberculosis in Scotland generally and in Edinburgh from 1875 to 1914; whilst in 1875, out of every 10,000 living persons 25 died of pulmonary tuberculosis, in 1914 only about 11 perished. It is particularly noteworthy that the Edinburgh curve, whilst it has a more irregular course, follows in the main that for the whole country approximately, neither better nor worse. If the fall continues in the future as it had in the past, in forty years the disease will have disappeared.

England and Wales.

TREATMENT OF TUBERCULOSIS IN LONDON.

AMONG the reductions in annual maintenance voted sanctioned by the London County Council at its meeting on July 20th was one of £7,000 in connexion with the treatment of tuberculosis. The Public Health Committee reported that, although difficulty had been experienced in securing residential accommodation for tuberculous persons owing to the number of beds reserved for wounded and sick soldiers, yet, by a fortunate circumstance, the number of adult tuberculous patients requiring treatment in hospitals and sanatoriums had been smaller than was expected, and they recommended that on the

vote of £33,620 for residential and dispensary treatment of tuberculosis there should be a reduction of £7,000. This was agreed to by the Council, as was also a recommendation from the Asylums and Mental Deficiency Committee to the effect that the maintenance vote of £86,320 should be reduced by £12,032, the purpose in respect of which the reduction is to be made being that of asylum buildings for pauper lunatics.

THE NEED FOR WOMEN DOCTORS.

At the annual prize distribution of the Manchester High School for Girls on July 22nd, at which Professor Tout presided, an address was given by Mrs. Scharlieb, M.D., M.S. London, on the field that exists for women doctors. Miss Burstall, the head mistress, in her report described the many ways in which the girls had been working in connexion with the war. Four of the staff were absent on leave for special war work, and many of the girls had entered banks and public offices to fill the places of men on military service. Three of the sixth form science girls were working in laboratories on Government work, and many of the old pupils were serving as nurses and helpers in military hospitals. In introducing Mrs. Scharlieb, the Chairman said that one result of the war had been a wider recognition of the work done by women in the profession of medicine. Mrs. Scharlieb said that it was pleasing to find that many of the prejudices and difficulties that had stood in the way of schoolgirls in taking up their life work, especially if it happened to be the profession of medicine, were now melting away, and that the women medical students were now cordially welcomed and kindly judged. For some time past there had been great need for women doctors in India, and she strongly commended the scheme of the late Lady Hardinge for sending out more medical women, and even for training some in India. She was confident, too, that there was a great field opening out in this country for more medical women. They were wanted everywhere, and she could not hear of a single unemployed woman doctor. She urged girls to choose the medical profession for their life work. Even from a selfish monetary point of view it was a good choice. Within a few years of qualification a young woman doctor could earn four or five hundred a year, and by the time she was a woman of any standing she could earn a thousand a year. Many of them were earning even more than that. Those of them who had a more scientific turn of mind, and despised this world's profits, would find that plenty of research work was languishing for want of workers, while those who were humanitarians would find in the work of the woman doctor unlimited scope for their sympathies. At the close of her address, Mrs. Scharlieb distributed the certificates and prizes to the successful pupils.

India.

THE ST. JOHN AMBULANCE ASSOCIATION.

At the half-yearly meeting of the Indian Council of St. John Ambulance Association at Simla, the Commander-in-Chief presided, and Surgeon-General Sir Pardee Lukis, in presenting a report on Red Cross work, said that the Begum of Bhopal had generously subscribed Rs. 14,000 towards motor boats for the Persian Gulf in response to an urgent appeal from the A.D.M.S. He also alluded to the Indian Council's fleet of motor ambulances, three of which had been supplied from Assam, thanks to the efforts of Lady Earle. Sir Arthur Ker presented the accounts of the St. John Ambulance Red Cross War Fund, which gave details of the financial position. The Indian Council had Rs. 35,000 at fixed deposit, as a reserve, and a substantial working balance; when it was remembered that about five years ago the total assets of the Indian branch were only Rs. 300, this progress could be described as absolutely amazing. On the motion of the Commander-in-Chief, Sir George Roos Keppel, Raja Bahadur Singh of Raghogarh, Sir Sassoon David, Lieutenant-Colonel Jennings, I.M.S., and Rai Bahadur Karam Chand were elected honorary councillors. The Commander-in-Chief presented a preliminary statement with reference to the offer of the St. John Ambulance War Hospital in connexion with the 2-ray institution at Dehra Dun, showing that the hospital will

be organized, maintained, and equipped by the Indian Council. It has been offered to the Government of India for the reception and treatment of special cases of wounded officers and soldiers from overseas. The Council has been fortunate in securing Major Walter, I.M.S., an expert in medical electricity, as commandant of the hospital. The hospital will provide 2 beds for British officers, 2 for Indian officers, and 20 for rank and file. The estimated total cost per bed is Rs. 2,000 per annum. The estimated total cost per annum is half a lakh. At the hospital the following apparatus will be available: (a) Rapid exposure and single-flash radiographic apparatus, (b) special methods of localization of foreign bodies, (c) full-length electric baths and Schnee's four-celled bath for the administration of galvanic, faradic, sinusoidal, and rhythmically interrupted currents, (d) Bergonié's treatment; ionization for the treatment of sinuses, stiff joints, etc., (e) vibratory massage, (f) treatment by radiant heat and light, (g) high frequency and diathermic treatment.

BENGAL AMBULANCE CORPS.

The members of the Bengal Ambulance Corps, who have been in training during a short time only, have made themselves highly efficient, and are to leave Calcutta very shortly. The commandant is Colonel Nott, I.M.S., and the corps, it is believed, will be employed on field service connected with a hospital on the lines of communication in Mesopotamia. The amount originally promised for the scheme of one hospital flat is being satisfactorily realized, and the honorary secretary of the movement, Dr. S. P. Sarbadikbary, frequently receives offers of additional donations if they are found necessary.

Correspondence.

STUDENT DRESSERS IN VOLUNTARY HOSPITALS.

Sir,—I am directed to forward to you the enclosed copies of correspondence, with a request that you will be pleased to publish them in your columns. The first letter is one addressed to the three examining boards in London; the replies to that letter follow.

The request made by the West London Hospital appears to be reasonable and of urgent necessity in these days of war emergency. One examining board recognizes this emergency and grants the request. The other two refuse it, and, perhaps wisely, state no reason for their refusal.

Emergency has cut much red tape of late; even trade union rules have gone. But our examining boards still "bind heavy burdens and grievous to be borne, and lay them on men's shoulders, but they themselves will not move them with one of their fingers."—I am, etc.,

N. BISHOP HARMAN,
Vice-Dean.

The Post-Graduate College,
West London Hospital, Hammersmith,
July 20th.

Dear Sir,—Owing to the necessity for releasing medical men of military age, there is increasing difficulty in obtaining the necessary skilled assistance for the satisfactory working of general hospitals. The difficulty has been acutely felt at the West London Hospital. At the present time we are able in some degree to meet it by obtaining the assistance of senior students who are as yet unqualified, who work under the direction of the resident medical officers as dressers for surgical cases. These men are paid for the work, and found in board and lodging. To make this work really suitable for them without delaying the date at which they would ordinarily be able to proceed to their final examinations, I am authorized to make application to you for the official recognition of this hospital as a place of clinical study for men who have passed their intermediate examination. The hospital is at present recognized as a place of study for post-graduates and for men reading for higher professional qualifications. There is ample clinical material of all kinds, and full facilities for personal teaching by the staff, both resident and visiting. We have at the moment two men acting as dressers in the surgical wards, and I shall be glad if your council will be pleased to grant the request made in this letter, that you will make it retrospective, so as to apply to these two men. The application for this recognition is for the duration of the war only.—I am, yours faithfully,

N. BISHOP HARMAN,
Vice-Dean.

June 19th.

Society of Apothecaries of London.

Blackfriars, London, E.C., 24th June, 1915.
Sir,—I am requested to inform you that the Court of Examiners are willing to recognize work done at the West

London Hospital for clinical teaching during the war "for students who have passed their examination in anatomy and physiology."

Would you be good enough to send me the names of the two students who are acting as dressers?—Yours faithfully,
FRANK HAYDON,

N. Bishop Harman, Esq., M.B., F.R.C.S., Secretary,
West London Hospital, W.

Examination Hall,

8 11, Queen Square, Bloomsbury, London, W.C.,
24th June, 1915.

Sir,—I have submitted your letter of the 19th inst. to the Committee of Management of this Board, and I am desired to inform you that they do not see their way to comply with your request.—I am, dear Sir, yours faithfully,

N. Bishop Harman, Esq., F.R.C.S., Secretary,
F. G. HALLETT,

University of London,
South Kensington, London, S.W.,
15th July, 1915.

Dear Sir,—I regret to inform you that, after consideration of your letter of June 19th last making application for the temporary recognition of the West London Hospital for clinical study for the purposes of the M.B., B.S. Examination, and of reports thereon from the relevant committees of the Senate, it was resolved by the Senate, at their meeting on 14th July, 1915, that the application be not acceded to.—I am, dear Sir, yours faithfully,
P. J. HARTOG, Academic Registrar.

The Vice-Dean, Post-Graduate College,
West London Hospital, Hammersmith, W.

ARE CASES OF CONGENITAL SYPHILIS BECOMING RARER?

SIR,—The annotation in the JOURNAL of July 17th on the exceedingly interesting report to the Local Government Board by Dr. Paul Fildes from the bacteriological laboratory of the London Hospital is worthy of wide attention. This report seems to give striking corroboration to the impression that many experienced clinicians have of the lessened frequency of congenital syphilis in London, as evidenced by observation in the wards and out-patient departments of hospitals set apart for children and babies.

I had occasion some time ago to inquire whether any notable diminution of this disease had been observed by my colleagues on the staff of the East London Hospital for Children where, during the twenty-four years from 1874 to 1898, such cases of unquestionable character may have been said almost to swarm both in the wards and among the out-patients. There was no limit of age for treatment or admission, and there were often many cases among the newborn in both departments. I was, last year, informed by Dr. Gossage, in answer to my inquiry, that the number of cases of congenital syphilis had diminished very remarkably; and that it was by no means easy to find marked cases for the purpose of illustration. Similar replies were given me by other observers elsewhere.

Dr. Paul Fildes suggests, as a general conclusion from his extensive observations, that the ravages caused by this disease among infants are sometimes exaggerated.

It is surely to be hoped, as you, Sir, have remarked, that further investigations on the lines of Dr. Fildes's work, and further clinical inquiries, may throw more light on the question of whether the frequency of congenital syphilis is actually diminishing.

For the purpose of duly comparing the present frequency with the past—for instance, with the period of twenty-four years that I have just mentioned—it must be remembered that neither the Wassermann test nor the specific sprochaete was known at the earlier time; and that the observed diminution of frequency to which I refer concerns especially such cases as are easily detectible without any test. It seems that the solution of this question will not be materially affected by any change or modification of treatment that may possibly have prevailed during the last seventeen years.—I am, etc.,
H. BRYAN DONKIN.

London, W., July 24th.

TARTAR EMETIC IN KALA-AZAR.

SIR,—The translation of the article of Dr. G. Di Cristana and G. Caronia in the May 15th number of the *Journal of Tropical Medicine*, reporting the successful treatment of the Mediterranean form of kala-azar by means of tartar

emetic intravenously, has just reached India. I therefore write to place on record the fact that I had previously commenced precisely similar treatment of the India form of kala-azar with most promising results. As a matter of fact, I had arranged to try this plan of treatment as far back as October last (1914), quite independently of any other worker, and even before I was aware of the success of Gaspar Vianna in the case of cutaneous leishmaniasis in Brazil, basing my hopes that it would very possibly prove to be a cure for kala-azar on the success of antimony treatment in some cases of the closely-allied sleeping sickness. Unfortunately at that time I was unable to obtain any suitable opportunity of trying it, and for over six months I actually carried about sterile solutions of tartar emetic put up in glass capsules ready for intravenous injection before I was able to use it.

I have, however, already treated ten cases, verified by spleen puncture, and have noted in several of them very marked and rapid decline of the temperature, together with some gain in weight, diminution in the size of the spleen, increase in the number of the leucocytes, and decrease in the number of the parasites found on spleen puncture—all most promising signs, although it is still too early to speak of any cure having been effected.

I may therefore claim to have originated the intravenous use of tartar emetic in kala-azar quite independently of any other worker, and to have obtained a considerable degree of success with it before any others' results came to my knowledge.—I am, etc.,

LEONARD ROGERS,
Lieutenant-Colonel, I.M.S.

Calcutta, June 28th.

THE SULPHUR MINES OF SICILY AND THE PHARMACOLOGY OF SULPHUR.

SIR,—I was much interested in your reviewer's excellent notice of Dr. Alfonso Giordano's work on the physio-pathology and hygiene of (sulphur) miners in Sicily, particularly as your reviewer has himself visited the mines in Sicily.

I had heard a good deal about the mines from an aged military patient who visited them in the old brigandage days, and for a considerable time I have wished further information with respect to what has been alleged about the multifarious properties of sulphur in therapeutics and which might be cleared up by studying the case of the sulphur miners.

Recently the discussion as to the effects of sulphur in rheumatism, etc., has cropped up again, and Sir Lauder Brunton¹ cited the case of a lady patient with rheumatism who achieved a "cure" by wearing sulphur in her stockings in bed.

Your reviewer might kindly say if Sicilian sulphur miners suffer from "rheumatism" in any or all of its forms.

It will be noticed that he states that the mine water frequently contains SH₂—Harrogate and Strathpeffer on a large scale—and that the air inhaled contains discrete sulphur particles, while, further, there must be abundance of SO₂ from oxidation. Another noticeable point is the presence of malaria, tubercle, and ankylostomiasis, in spite of the powerful parasiticide in the shape of the sulphur fumes and solution of sulphides present in the mines.

Such a method of studying therapeutics on the big scale may be fallacious from the possibility of a given disease being developed from or in spite of more than one cause or condition present, but may at times be useful. Thus, a number of years ago, Dr. Murrell of the Westminster Hospital, if I am not mistaken, pointed out that the creosote workers at Silvertown were wonderfully free or immune in respect of bronchial affections; while a couple of years ago, when lime water for rheumatoid arthritis was under discussion, I asked if it were possible for persons habitually using hard water to contract the malady, or whether, if so contracted under that or other conditions, they would not be cured if lime were a "cure"! Last year I saw a case of an elderly lady wheeled in a chair from effects of rheumatoid arthritis, living in a low damp neighbourhood, but where the water was extremely "hard." I merely cite this to show that one must take a number of factors into account in such questions. Still I think your reviewer and Dr. Giordano may be able to

enlighten us on the much discussed question of rheumatism and sulphur on the vast scale.—I am, etc.,

JAMES CAMERON, M.D. Lond. and Edin., etc.

Edinburgh, July 10th.

We have referred this letter to our reviewer, who writes: "During my stay in Sicily I did not observe any case of rheumatism among the sulphur miners. Giordano gives in his monograph a long list of diseases from which miners died; rheumatism, in any of its forms, is not mentioned. It is an interesting fact that notwithstanding the bactericidal and other properties of sulphur, ankylostomiasis a few years ago was extremely prevalent among the sulphur miners of Sicily. Although rheumatism is seldom met with, such physical defects as stunted growth and spinal curvatures are common owing to the boys carrying heavy loads of ore on one shoulder. I wrote to the Italian lady who translated Dr. Giordano's book for me. She is a sulphur mine owner, and her reply, which is as follows, confirms my opinion.

No, it has never come to my notice that sulphur miners, whether men or boys, suffer from rheumatism; you never hear about it nor see any one suffering from it. And yet, they often work with their feet in damp soil.

HEMERALOPIA OR NYCTALOPIA?

SIR,—In the annotation in the JOURNAL of July 10th headed "Hemeralopia amongst soldiers" I notice that the term is employed as a synonym for "night-blindness," which I venture to think is inaccurate. Hemeralopia is, of course, a coined word invented in contrast to nyctalopia, which, if the accepted derivation be correct, namely, *νυκτός-ἀλασιός* (*álasiós*, blind; *ἄσις*, the eye) can only mean "night-blindness," and therefore hemeralopia (*ἡμερίας-ἀλασιός*) must signify "day-blindness." Yet by some confusion of ideas hemeralopia has come to be used in the sense of "day-vision" instead of "day-blindness," and the "night-blind" is called "hemeralope" because he can only see by day, which, were he really "hemeralopic" he could not possibly do. Apparently the force of the root "*ἀλασιός*," which occurs in each word, is no longer observed. Such confusion has become so prevalent that certain distinguished ophthalmologists have suggested that both "nyctalopia" and "hemeralopia" should be left out of the *Nomenclature of Diseases* in order to avoid ambiguity. Although I am not prepared to agree to this proposal, at least so far as "nyctalopia" is concerned, it must be admitted that there is ample excuse for an ambiguity which dates from the days of Hippocrates and Galen. It was partly Galen's fault, and partly that of a careless transcriber of Hippocrates.

Hippocrates originally defined *νυκτάλασις* as *ὁ τῆς νυκτὸς ἀσὶς ὄρασις*, but the copyist left out the "*ἀσὶς*." Now, Galen must have been acquainted with the correct version, for in his "Glossary" of Hippocratic terms he defines *νυκτάλασις* as *ὁ τῆς νυκτὸς ἀλασιός*. Nevertheless, in his own works, Galen describes two precisely opposite conditions under the heading "*νυκτάλασις*."

In Book XIV, p. 776 (Kühn), he says: "They call them nyctalopes when they see dimly by day, more clearly when the sun goes down, and still better by night. Or, conversely, when they see little by day, but not at all in the evening or by night." Obviously he is describing hemeralopes in the first and nyctalopes in his second definition. In Book XIV, p. 435, he says: "*νυκτάλασις* is a complaint or condition of the eyes, the cause of which is not plain. It happens to those so constituted, that they cannot see by day, but can do so by night." Here again, he describes hemeralopes as nyctalopes, and practically contradicts the Hippocratic definition of *νυκτάλασις*, which he himself gives in the Glossary. One can only conclude that owing to the discrepancy in the MSS. he was divided in mind as to what Hippocrates really meant by *νυκτάλασις*. As a Greek, he must have known that it could not possibly imply "night-vision," yet out of respect for Hippocrates (almost the only authority for whom he had any respect), he endorsed the spurious version (*ὁ τῆς νυκτὸς ὄρασις*) until he came upon the genuine text.

Aristotle gave rise to further complication in the question. In his *De Animalium Generatione*, Lib. V, p. 1137 B, he does not use the term *νυκτάλασις* at all, but *νυκτάλασις* (*νυκτάλασις* (pl. *νυκτάλασιες*)). This literally means "night-fox," but is rendered *Luscitiosus* by the translator of the 1629

edition. *Luscitiosus*, according to Lewis and Short (Latin Dictionary, 1886), is "one that cannot see in the dusk, or by lamp-light," and according to Isidorus Hispalensis, "*Qui vesperi nihil videt*" (*Etymologicæ*, Book X, p. 52). Hence it appears that *νυκτάλασις* and *νυκτάλασις* were regarded as synonymous, each meaning "night-blindness." Yet Aristotle does not define *νυκτάλασις*.

He only says that it occurs in "black-eyed persons, and is caused by excess of moisture, and therefore chiefly affects the young." Now it is difficult to see how words of such different derivation as *νυκτάλασις* and *νυκτάλασις* could be regarded as synonyms. May it be that Aristotle gave the name of "night-fox" to those who, like foxes and other beasts of prey, see best at night? If so, it is possible that Galen's ambiguity was partly due to his including the "night-sighted" of Aristotle (*νυκτάλασις*) with the "night-blind" (*νυκτάλασις*). The confusion thus created still exists, but the preponderance of opinion amongst early writers such as Palladius and Aetius is in favour of the view that nyctalopia means "night-blindness," which is totally different from hemeralopia or "day-blindness." Indeed, there does not seem to be any necessity for retaining the term "hemeralopia." Such a condition as "day blindness" does not exist, as far as I know, except in cases of photophobia induced by some kind of inflammatory affection, and these were probably the cases which Galen described as "seeing more clearly after the sun goes down," and Aristotle as *νυκτάλασις* or "night-foxes." If it is necessary to provide a word which implies vision by day but blindness by night, it should be "hemeralopia," but certainly not "hemeralopia."—I am, etc.,

LEONARD GUTHRIE,

Honorary Secretary, Nomenclature of Diseases Committee, R.C.P.

London, July 11th.

THE SUPPLY OF MEDICAL OFFICERS.

Temporary Rank in the R.A.M.C.

SIR,—I desire to enter an earnest protest against the letters appearing under this heading in your issue of July 17th. Whilst multitudes of men over 40 would gladly give up great prospects to serve in any humble way in the forces of the Crown, but find the door closed to them in ordinary cases, we of the medical profession have the inestimable privilege of serving our country under what I consider to be generous conditions. Let us consider separately the two questions of pay and rank.

As regards pay, we receive an allowance which is much higher than that which, under normal circumstances, would be granted to a lieutenant; and, though it will mean financial loss to some, yet that is not worthy to be compared with the loss of professional men in other callings, whose only avenue to service for their country may be through the ranks, or by becoming a second lieutenant at a comparatively small salary.

But the main question before us is that of rank. I consider it a high honour to sign myself "Lieutenant, R.A.M.C.," and, although I am 50 years of age and have only had three months' service, I have not found that my rank has hindered me from using any powers which I possess in the best way. I am on the staff of one of the home hospitals, which, with two exceptions, is worked by lieutenants, each of whom has a large measure of responsibility, and, so far as I have seen, we have better professional work than those of higher rank who are largely concerned with administration.

The idea that age should be the test for advance in rank in spite of want of experience is most unreasonable. It would hold in no walk of life. The man who wishes to attach himself to any new undertaking when over 40 will inevitably find that he must play second fiddle to juniors. It is so even in our own profession.

Your correspondents write as if to serve in the army as a medical officer was quite on all fours with general or any other kind of civilian practice. Obviously it is not, and if there is any cause for complaint it would with much more justice come from the regular officers of the R.A.M.C. or of the Territorial Force, who have seen us new recruits admitted to the service on a specially favoured footing.

I hope we may soon see an end of these grumbles. I do not think they are worthy of our great profession, which is certainly not wanting in patriotism. No one is bound

to serve his country in this special way if the conditions seem too difficult, but if we do so, let us do it cheerfully.—

I am, etc.,

July 22nd.

A TEMPORARY LIEUTENANT OF FIFTY.

P.S.—Although this letter is only posted to-day, and I have since read the letters in your issue of July 24th, I do not see reason to modify my comments. I will only add that I see in the orders published yesterday that temporary lieutenants, on receiving their agreement, will become temporary captains if their record is satisfactory.

July 27th.

“In consequence of the appointment by the Representative Meeting of a War Emergency Committee to deal with all matters affecting the medical profession arising in connexion with the war, letters addressed to the Editor on this subject will for the present be referred to that Committee.

INDEMNITY DEFENCE POLICIES.

SIR,—Attention has been called to the following statement that was made in our annual report, to which statement the Medical Defence Union have taken objection:

In comparing the indemnity provided by this society against costs of the other side and damages awarded against members, with the indemnity provided by other societies or insurance companies, it is important to remember that this society indemnifies against costs of the other side when actions are brought by the society on behalf of members (as, for instance, when an action for libel is brought on behalf of a member), whereas other societies or companies limit their indemnity to cases in which actions are brought against members as defendants, no indemnity being provided for costs of the other side where the member is the plaintiff.

The statement, so far as it refers to the Medical Defence Union, was made upon a statement contained in their annual report of 1914, p. 41, and was as follows:

The liability of the “Yorkshire Co.” shall be confined to damages which may be awarded and taxed costs of the other side in losing defensive actions only, or to the agreed damages and costs where the actions have been compromised.

We now for the first time understand from the Secretary of the Medical Defence Union that the words “defensive actions” “include cases where a member has been libelled and slandered and he is a plaintiff, and in respect of which we take action for his defence against unfounded allegations.”

We therefore accept the explanation of the construction of the words “defensive action” as now given by the Medical Defence Union, and will, of course, give this explanation in our next report.—I am, etc.,

HUGH WOODS,

General Secretary of the London and Counties Medical Protection Society, Limited.

London, W.C., July 21st.

WOMEN NURSES FOR MALE ASYLUMS.

SIR,—The male attendants of military age employed in asylums have as a class not been backward in their duty to their country. Many of them enlisted at the beginning of the war, being encouraged to do so by the loyal attitude of asylum boards and committees as regards pay, etc., and the vacancies created by these absentees have since been largely filled by men who are ineligible for military service. There are still, however, at the present time very many able-bodied young men employed as attendants on the insane. The presence of some of these is necessary, but the number required can be considerably reduced by the substitution of female nurses, especially in place of those attendants engaged in nursing the sick in the male hospitals and male infirm wards of asylums.

Fifteen years have now elapsed since the experiment of employing women on a large scale to nurse male patients in an asylum was tried in Scotland. All that was then said as to the advantages of female nursing for insane men under certain limitations has since been proved true by many observers, and the fears of the early opponents of this system have been found to be negligible, for the dangers that they prophesied have by forethought and care been avoided. The system is now, from the practical experience they have gained of its benefits, very strongly advocated by the Scottish Board of Control, and

their judgement can be accepted without reserve. It has been all but universally adopted by the Scottish asylums.

As there is every indication that all eligible males who can be spared will soon be wanted for our military forces, I take this opportunity of directing the attention of the medical superintendents and the members of boards and committees of asylums in England to this system, as it has up till now scarcely been introduced into English asylums. Not only will they be doing a patriotic duty by introducing these female nurses to enable more of their male attendants to enlist, but they can be assured that they will at the same time be adding to the comfort and well-being of the sick and infirm male patients under their charge.—I am, etc.,

The Royal Asylum,

Morningside, Edinburgh,

July 21st.

GEORGE M. ROBERTSON, M.D.,

Physician-Superintendent.

THE ACTION OF DIGITALIS ON THE BLOOD VESSELS.

SIR,—Will you permit me to state that by a *lapsus calami* in the report of the Cameron Prize Committee, the date of Sir Lauder Brunton's thesis on digitalis was stated to be 1868 whereas it should have been 1866? As a question of priority in the discovery of the action of digitalis on the blood vessels is involved, you will oblige me by publishing this note in the JOURNAL.—I am, etc.,

THOMAS R. FRASER,

Chairman of the Cameron Prize Committee.

Edinburgh, July 26th.

Public Health

AND

POOR LAW MEDICAL SERVICES.

THE NOTIFICATION OF BIRTHS EXTENSION BILL.

DR. R. R. RENTOU (Liverpool) writes: The above bill proposes to make the Notification of Births Act, 1907, apply to all areas in the United Kingdom. Some of its points require careful attention. Unfortunately, it neglects to provide for the payment of any fee to the person notifying. When we consider that all vital statistics, insurance of life calculations, and many other national questions are placed upon doctors, and that no fee is paid to them for notifying and certifying, we can see that the limit of medical charity has been passed. A fee of 3s. 6d. should be paid out of the public funds. A most important point is that the bill is most defective in regard to a practical definition of “stillbirth.” Section 1(5) of the 1907 Act states that only stillbirths of and over the age of 7 months' intrauterine life shall be notified. The defect is further emphasized, when we see that the definition given by the Central Midwives Board is, “a child is deemed to be stillborn after being completely born if it has not breathed or shown any sign of life.” Here no intrauterine age is mentioned, and so the midwife may notify only fully developed infants. I would suggest the following clause be added:

Every stillborn child in which the external sex organs—that is, from the fourth and a half month and upwards—of intrauterine life shall be notified by the medical practitioner, or midwife, or person present at the birth. The age and sex of the child shall be notified, and whether the child is dead or not at the time of the notification. The fact shall also be notified as to whether the child was alive during its birth, or showed symptoms of death in the womb for some hours or days before birth. Only one form of official notification form shall be used, such being supplied free by the Registrar-General's offices. Each year a return showing the number of stillbirths notified, with their age, sex, legitimacy, and appearance of life or death, shall be laid before the three Registrar-Generals of the United Kingdom before Parliament.

The present war compels us to afford more protection to the intrauterine child. It is quite easy to criminally prevent an infant during its birth from breathing, and both criminal abortion, feticide, and infanticide are on the increase. I would almost prefer to have it made compulsory that every conception must be notified for this would give us insight into the real loss to England through children being stillborn.

In 1890 I found that at 71 burial board cemeteries in England 6,321 stillbirths had been interred in one year alone. The late Dr. Cameron, M.P., called attention in the Commons to these statistics and then moved for a full return. It was granted during 1899 the following figures were returned in England and Wales: 17,335, and that 4,562 had been interred without a doctor's certificate. It will be noted this return did not include any cemeteries other than those belonging to public burial boards, probably about 10,000. In 1895 a further return, “Stillbirths in England and other Countries,” was issued. It is most unfortunate that the larger the child and the later the marriage of parents the more likely is the child to be stillborn, and further that more male than female children are stillborn. This imposes a great loss to the country in future husbands and men.

Obituary.

EDMUND OWEN, LL.D.(HON.) ABERDEEN, D.Sc.(HON.) SHEFF.,
M.B.LOND., F.R.C.S., CHEVALIER DE LA LÉGIION
D'HONNEUR.

CONSULTING SURGEON TO ST. MARY'S HOSPITAL AND TO THE HOSPITAL
FOR SICK CHILDREN; SURGEON TO THE FRENCH HOSPITAL;
SURGEON-IN-CHIEF ST. JOHN AMBULANCE BRIGADE.

(With Portrait on Special Plate.)

We regret to have to record the death of this distinguished surgeon, for many years so well known to the profession in London for his handsome presence, his brilliant social qualities, and his zeal for his profession. On July 13th, when walking down St. James's Street, he had a sudden attack of right hemiplegia, and was taken to Charing Cross Hospital. He never regained consciousness, and died on Friday afternoon, July 23rd.

About one hundred and thirty years ago Daniel Owen, on leaving school in London, obtained an appointment with a mercantile house at Halifax, Nova Scotia. He married there, and had a large family, mostly sons. One of these was William Bay Owen, who was sent to Edinburgh as a young man to qualify as a surgeon. After serving the apprenticeship then customary and passing the examinations, he set up in practice at the exceedingly picturesque village of Finchingfield, about ten miles from Braintree. About 1840 he married in London Mary Blackett, by whom he had eight children. The third of these, born April 7th, 1847, was christened Edmund Blackett. His father, W. B. Owen, remained at Finchingfield till 1860, building up, thanks to his skill, integrity, and great personal popularity, a very large country practice. Finchingfield was, however, in the wilds of Essex, and in the interests of his young family, then consisting of five sons and two daughters, he decided to go to London, and in the year mentioned he bought a practice and took up his residence at Cleveland Square, Hyde Park, where he continued to practise for many years.

Edmund Owen, on leaving school in 1862, entered as a student at St. Mary's Hospital in 1863, the intention being that he should eventually assist in his father's practice. From the beginning, however, anatomy and surgery appealed strongly to him, and he decided to abandon the idea of general practice in favour of pure surgery. He was resident medical officer to St. Mary's Hospital in 1868 and studied for a time in Paris. He took the diplomas of M.R.C.S. in 1868 and of F.R.C.S. in 1872. At the end of the year 1868, as he had shown himself to be a good anatomist and an able teacher, he was elected demonstrator of anatomy, holding that office until 1875. He was appointed lecturer on anatomy in 1876 and retained that position until 1888, when he was made lecturer on surgery. In June, 1871, he was elected surgeon to out-patients, becoming full surgeon in 1882. Twenty years later, in 1902, he retired and was made consulting surgeon; he had resigned the lectureship in surgery in 1896.

Edmund Owen was on the staff of the Hospital for Sick Children, Great Ormond Street, for many years, as assistant surgeon in 1877, and full surgeon in 1885. On his retirement in 1898 he was made consulting surgeon.

Edmund Owen was elected a member of the Council of the College of Surgeons in 1897, holding his seat after a re-election, until 1913, and was twice Vice-President (1905-6 and 1906-7). As Bradshaw Lecturer in 1905, he named his discourse "Cancer: Its Treatment by Modern Methods." He expressed regret that it was out of his power to call attention to any modern method of treatment of cancer which could honestly and confidently promise a cure, but he believed that the results of experimentation held out hopes for the future. The Hunterian Oration, delivered by him in 1911, was the last in the first centennial of these famed biennial discourses, for as the lecturer announced, the century then lacked but two years of completion since Dr. Matthew Baillie and Sir Everard Home, John Hunter's executors, in their desire to show a lasting respect to his memory, provided for the delivery of an Oration on February 14th, his birthday. His audience agreed that Edmund Owen really succeeded in making his lecture a discourse worth listening to, for it was an analytical sketch of Hunter's life and labours.

Owing to his reputation as a teacher, Edmund Owen

held many examinerships in the course of his professional career. In 1883 he was placed on the Board of Examiners in Anatomy and Physiology at the Royal College of Surgeons, in 1884 on the Fellowship Board, and in 1899 on the Court of Examiners. In 1884 Edmund Owen was elected examiner in anatomy for the second examination of the Conjoint Board. He was also at various times examiner in surgery to the Universities of Durham, London, and Cambridge.

Owen was the author of several books on medical subjects. He published *A Manual of Anatomy for Senior Students* in 1890. In writing it, he was actuated by a desire to leave some permanent record of his labours during the twelve years that he held the chair of anatomy in the medical school of St. Mary's Hospital, such as might be of interest and assistance to senior students. The manual was carefully prepared, and included not merely that which is universally understood to be "surgical anatomy," such as the course of big vessels and the influence of muscles in displacing the ends of fractured bones, but also much relating to malformations, like talipes, and to visceral anatomy and other subjects previously studied in the medical, rather than in the surgical, wards of hospitals.

Edmund Owen's textbook on *The Surgical Diseases of Children* appeared in 1885. It was a model of condensation. At the date of its publication intestinal surgery was beginning to develop, and the bold procedures now so often undertaken were opposed on the principle that expectant treatment was safer than resection. We noted at the time how Owen made a very pertinent observation in reference to spontaneous recovery. "The report of one instance would attract much attention, whilst very possibly fifty children might have died of unrelieved strangulation without special record being made. Thus, Nature became accredited with a power of working a cure in internal strangulation, which, if misapprehended, is likely to involve great disappointment." This textbook went through three editions, and Dr. Laurent translated it into French, under the title, *Traité pratique de chirurgie infantile*.

In *Cleft Palate and Hare-lip: The Earlier Operation on the Palate*, published in 1904, Edmund Owen expressed his opinion that the most favourable time for operating on a cleft palate was between the age of 2 weeks and 3 months. He commended and followed Brophy's principle—that cleft palate should be operated on by the bold thrusting of the maxillary and palate bones together in the middle line. Owen urged that however wide a cleft of the hard and soft palate might be, it was advisable to operate on the entire cleft at once rather than to divide the operation into two parts, one for the hard palate and the other for the soft.

Edmund Owen's last work was *Appendicitis: A Plea for Immediate Operation*, issued in 1914. It was based on a paper which he had read a year previously at a meeting of the Medical Society, a memoir which led to much discussion and correspondence. A leader on that paper appeared in our columns on February 22nd, 1913, followed by no less than twelve letters in succeeding numbers of the JOURNAL. Owen, and most of the surgeons who discussed his memoir, were in favour of immediate operation, and by "immediate" they meant operation as soon as the diagnosis was made, and within the first twelve hours of illness if possible.

The article "Surgery" in the eleventh and current edition of the *Encyclopaedia Britannica* was written by Edmund Owen. It included a good summary of the history of surgical art and science, and the author was careful to award impartial credit to the ancients. He showed how among the Hindus surgery underwent important developments, though the relation of Indian to Greek and Chinese surgery was hard to determine since the antiquity of Sanskrit works on the subject was much disputed. The Arabs, on the other hand, did little more than preserve the bequest of the ancient world in medical lore, as in the arts and letters. It was not only the Arab fear of blood and the dread of prying into the secrets of anatomy that hindered the advance of surgery amongst the Spanish Moors: the main factor in the stagnation of surgical art and practice was the fact that the patients, acting on the principles of their creed, whilst accepting with equanimity the suffering that fell to them, declined the means of alleviation.



Edmund Owen

In November, 1898, Edmund Owen read a paper on "A Distinct Variety of Hip-joint Disease in Children and Young Persons" before the Royal Medical and Chirurgical Society; it is to be found in the eighty-second volume of the *Medico-Chirurgical Transactions*. He related his experience of a certain type of acute suppurative disease to be distinguished from the well-known tuberculous affection so common in the hip joint. It arose through the invasion by the micro-organisms not of tuberculosis, but of septic osteomyelitis, seated in the very active tissue at the upper extremity of the diaphysis of the femur. The paper gave rise to free discussion, especially as to treatment.

Besides the monographs that have been mentioned, Edmund Owen was active in delivering addresses and in reading papers before societies and joining in discussions.

In 1884 an International Health Exhibition was held in London, and the lectures delivered there were published in book form. Among them was a discourse on the rearing of hand-fed children, by Edmund Owen, which led to a friendly passage of arms with the chairman of the meeting, Dr. Charles West, characteristic of both men. Owen said that he felt uncertain as to the alleged increase or diminution of wasting diseases, such as rickets, in the present day, and referred the question to the experience of the chairman, who retorted that he was not Methuselah, and that the desired evidence would require an experience of hundreds of years, one long life being quite insufficient. Both Owen and West dwelt on the really serious question of feeding-bottles, agreeing that the "improved" modern patterns then in vogue were faulty, and should be rejected.

In the autumn of 1892, Edmund Owen read at a meeting of the Royal Medical and Chirurgical Society a memoir on the radical treatment of severe talipes equino-varus in children, published in the seventy-sixth volume of the society's *Transactions*. He denounced subcutaneous tenotomy as an anachronism, and insisted that the tendo Achillis should first be divided before the plantar fascia and the tendons of the tibials. He approved of Phelps's operation in these severe cases; after the tendo Achillis had been divided every resisting structure which was encountered was severed by a free vertical incision passing from the dorsum of the foot into the depths of the sole over the head of the astragals. An improved position of the foot was thus obtained by the lengthening of its inner, rather than its outer, border. Some surgeons of the older school, in discussing Owen's paper, strongly opposed the setting aside of subcutaneous tenotomy. It is instructive for the surgeon of to-day to bear in mind how much active discussion on this subject was current at the date to which we refer. In the same year, 1892, Mr. Walsham read at the annual meeting of the Association at Nottingham another important paper on the treatment of severe club-foot. It was published in the *JOURNAL* (vol. i, 1893, p. 339), and gave rise to much discussion in our pages. Walsham opposed operations such as Phelps and Owen practised, and declared that division of the tibial tendons was rarely necessary as, in his opinion, they had little influence in the production of the deformity.

In 1904 Edmund Owen delivered at the Leeds Medical School, at the beginning of the winter session, an address on William Hey and medical education. He dwelt on Hey's remarks on internal derangements of the knee-joint, and rightly gave the great Leeds surgeon the credit of having first described it. The lecturer, of course, referred to Hey's "well-known saws," but did not dwell on them specially, for he merely turned attention to the drawings in Hey's *Practical Observations in Surgery*, and those who care to look up that classic work will find that Hey himself admits that the saw was designed by another surgeon, named Cockell, and on reference to Scultetus and Parc, it will be seen that this well-known instrument was modified from an older type of skull saw.

Owen's Lettsomian Lectures, delivered before the Medical Society of London in 1890, were published in a volume entitled, *The Surgery of Infancy and Childhood*. Among the subjects dealt with in these lectures were heredity in hare-lip, congenital cystic hygroma, coloboma of the eyelid, and sterno-mastoid tumour.

Edmund Owen became a member of the British Medical Association at an early stage of his career, and, from the time when, in 1883, he was secretary of the Section of Surgery at the annual meeting in Liverpool, he took a

part in its affairs which grew steadily in importance. He was vice-president of the Section of Surgery in 1885 at the annual meeting in Cardiff, and president of the Section at the annual meeting in Swansea in 1903. In 1899 he was president of the Section of Diseases of Children at the annual meeting in Portsmouth, and delivered an address on "Ununited Fractures in Childhood." At the annual meeting held in Sheffield in 1908 he delivered the Popular Lecture on "Dust and Disease," in which he dwelt on the value of Pasteur's and Lister's researches, trade diseases, and the close relation of smoke to dust. It was a brilliant address, very well received. But undoubtedly his greatest service to the Association was rendered during the controversies which attended its reorganization in 1900 and the following years. As was inevitable, the proposals excited a good deal of feeling, and it was with great satisfaction that all friends of the Association heard that Edmund Owen had accepted the office of Chairman of the Constitution Committee. It was felt that he was a man whose impartial judgement and genial temperament made him well suited to compose differences, and in accepting the office he was doubtless influenced by the strong patriotic principles with which he was imbued, and his deep belief in the unity of the British Empire. He completed this part of his work for the Association by presenting the report of the Constitution Committee at the annual meeting at Cheltenham in 1901, in a speech full of wit and good humour, which many of those who heard it declared to be a masterpiece of persuasive eloquence. There is no doubt that his work on the Committee, and his presentation of its report, went far to convince many members of the Association that the new constitution should have a trial. The interest he was known to take in the Overseas Branches led to Mr. Owen's election to be Chairman of the Colonial Committee appointed by the Association in 1902, and in 1907 his popularity and the high opinion held of his business capacity and devotion to the interests of the Association led to his election to be Chairman of Council, an office which he held until 1910.

Edmund Owen was Honorary Associate and Knight of Grace of the Order of St. John of Jerusalem; President of the North-West London Boy Scouts' Association; member at one time of the Medical Board, University of Wales; member of Council of Queen Victoria's Jubilee Nurses' Institute; and member of the Committee of the Cancer Research Fund. He was Orator of the Medical Society in 1897 and its President in 1899, and also President of the Harveian Society, corresponding member of the Imperial Medical Military Academy (Petrograd), of the Canadian Medical Association, and the Association of American Orthopaedic Surgeons, consulting surgeon to the Paddington Green Children's Hospital, the Royal Masonic Institute for Girls, and honorary surgeon to the Royal Society of Musicians.

Edmund Owen, as has been said, was imbued with a high spirit of patriotism, and shortly after the outbreak of war he found thoroughly congenial duties as surgeon-in-chief to the St. John Ambulance Brigade. Here again he had an opportunity of exercising his powers of conciliation, for the relations between the St. John Ambulance Association and the Red Cross Society had for some years been strained. But difficulties were smoothed away, and last autumn a joint committee was formed and joint offices opened in Pall Mall, where Sir Frederick Treves on behalf of the British Red Cross Society and Edmund Owen on behalf of the St. John Ambulance Association worked amicably together in the selection of medical personnel and the organization and training of orderlies. Edmund Owen threw himself with all his old energy into this congenial work, and in a letter published in the *JOURNAL* of November 28th, he expressed the principle by which he was guided "that nothing is too good for our sick and wounded soldiers and sailors." This principle was illustrated by the fact which was the occasion of his letter, namely, that it had been made "as impossible for an untrained nurse to obtain work under the British Red Cross Society as it would be for an unqualified practitioner to get his name upon the *Medical Register*." He added that a certain number of women from the Voluntary Aid Detachments of the two societies were being employed to help in the work of the ward, the kitchen and storeroom, and that they had been given the title not of nurse, nor even of

probationer, but of woman orderly. It was while leaving his work at the joint office of the British Red Cross and the St. John Ambulance Brigade that Edmund Owen suffered the seizure which was so quickly to bring his useful and distinguished career to an end.

Edmund Owen married in 1882 Annie Laura Clayton, of Brynmallo, near Wrexham. She died a decade ago. A few years before her death he purchased a quaint old house at Malham Tarn, a lovely spot near Settle, in the Craven district, Yorkshire, which it was his delight to visit whenever his busy life afforded him the opportunity. Owen, as a student, took keen interest in cricket and football, being captain of the hospital football team. At Malham he devoted himself to his garden, but he was also an enthusiastic fisherman. He was a member of the Marylebone Cricket Club (Lords), at which he loved to spend a leisure hour watching his favourite game. He leaves four daughters. For the home of his boyhood, Finchingham, he always preserved a great affection.

The funeral service was held at the Golden's Green Crematorium at 10 a.m. on Thursday, July 29th.

Mr. HERBERT PAGE has favoured us with the following appreciation of Mr. Edmund Owen:

It came as a severe blow to hear of the sudden, mortal illness of Edmund Owen. If there ever were a man who seemed to be alive both mentally and bodily it was surely he, and it is hard to think of him save in the full possession of all his faculties. I met him for the first time in 1875, at a garden party at Mr. T. B. Curling's place near Stoke Poges, and even in our young days was attracted by his striking personality. Shortly afterwards I became his colleague, and from that time to this, at St. Mary's, at the College of Surgeons, and, as a fellow examiner, have been in constant touch with him and his work, and admiration for his strength, manliness, and high character has grown into real affection for him. I mourn the loss of a very dear friend. And what of his surgery? His works on the surgical diseases of children, on cleft palate and hare-lip, and on club-foot are of course known to every one, and in these departments he was a recognized authority. Here, as an operator, he was doubtless seen at his best, while in general surgery there was marked distinction in his work. There was nothing which he feared to undertake; and whatever arose was overcome by his courage and resourcefulness, and by his knowledge of anatomy, in which he had been a teacher for many years. If onlookers might criticize, they would perhaps have said that he gave too little thought to loss of blood, and he of all men, honest to the backbone, would have least liked that this should not be said if it were genuinely believed. At first he took up an attitude of opposition to Listerian antiseptic methods, and poured contempt, both oral and written, on the ritual of the spray. He even went further than this, and at one of the societies—I think the Medical—when Lister brought forward his open operation for fractured patella, Owen, with characteristic temerity, remarked, in parody of a famous saying, that it might be magnificent but was not surgery. His papers and addresses on innumerable subjects were always pointed and suggestive, while his little book on *Appendicitis: a Plea for Immediate Operation*, published only last year, was one of the best things he did. A lucid writer, gifted with a singularly charming and effective style, his work has, I do not doubt, had much influence for good, and is of lasting value. In the copy which he sent me this was written—"With kindest possible greetings of a former colleague and perpetual friend." Beautiful words, and just like Owen to write them.

The record of his long service to St. Mary's, both as surgeon and teacher, it is not easy to condense in words. An incisive speaker, having a marvellous store of apt illustration, he was a born teacher, as hundreds of students would amply testify. There was nothing anywhere quite like Owen's class in the theatre at the close of operations. By informed questions, by encouragement and sympathy, by veiled irony and gentle ridicule, by humorous invective, by instructive anecdotes of professional experiences, he seemed to draw all the boys unto him, and not even the most stupid of "chronics" was afraid to go to the class again. Then the transparent honesty of the man, shown not least in an impulsiveness which led him to hasty conclusions, soon to be put aside, so that he would vote

to-morrow against that which he had advocated to-day. You forgave, you laughed, and loved him the more. And now his life here is run, and we lay this garland on his hearse. His memory will long abide, as that of a fine Englishman, fearless, independent, straight, free from self-seeking, held in respectful veneration by countless students, trusted by his colleagues, and withal a most lovable man.

Dr. WARD COUSINS (Southsea), who was President of the Association in 1899-1900, writes: I am greatly grieved to hear of the sudden death of our very distinguished colleague, Mr. Edmund Owen, and the sad news will cause great regret through the length and breadth of the British Medical Association and the profession everywhere. His kindness of heart and very genial manner made him a great favourite with every one. As for myself I feel that I have lost one of my best and oldest friends.

Mr. J. H. MORGAN, C.V.O., writes:

Following closely on the decease of his predecessor, Howard Marsh, the death of Edmund Owen makes a marked blank in the ranks of British surgeons. The day before his fatal seizure he lunched with the writer at the Athenaeum, and spoke cheerfully and enthusiastically of his work in connexion with St. John Ambulance and the Red Cross, of which, with Sir Frederick Treves, he was the active and energetic organizer. Few would have guessed who saw him stride out of the club with his fine tall figure and handsome face that he would never enter it again. He had been talking of his work and a prospective holiday at his place in Yorkshire, where he spent many happy hours with his daughters, and where he revelled in the delights of his garden and an occasional day on the neighbouring stream, where he loved to stroll with his rod and reel.

Of his earlier career the writer is unable to speak from personal knowledge, but he rose rapidly through all the grades to the position of senior surgeon at St. Mary's Hospital, where he was deeply beloved by students and respected by his colleagues. At the Hospital for Sick Children he was always energetic, attending punctually in the wards and at the meetings of the committee. Kindly and enthusiastic, he was ever ready to reconsider his opinion, and would often after proposing a motion abandon it and vote for an amendment which was the direct antithesis of his own proposal. As a colleague he was always sympathetic and kindly, warmly supporting any scheme or suggestion which appealed to him. As an operator he was bold and forcible, but he was particularly interested in such delicate operations as those for hare-lip and cleft palate, on both of which he published articles. His handbook on *Surgical Diseases of Children* had a large circulation and was well received. As an examiner he was always kindly and sympathetic. He served two periods on the Council of the College of Surgeons, and became Senior Vice-President, and felt keenly disappointed when he was not elected to the office of President.

As a young man he sang in the choir of his church, and throughout life was enthusiastic on the subject of church music, attending the service at St. Paul's on Sunday afternoons. He was a prominent Mason, and held office in more than one Lodge. Although he professed to dislike it, he was a pungent and witty after-dinner speaker, and his appearance in that capacity at the annual dinner of the Medical Society was always warmly greeted. Besides his published works, he was a frequent contributor to the medical papers as well as to *Notes and Queries* and other periodicals. Both within and outside his profession he had many friends, who will mourn the loss of one who was always sincere and constant in his goodwill to others.

Mr. F. RICHARDSON CROSS, of Bristol, writes:

In the passing of Edmund Owen the profession of surgery has lost one of its leaders, respected for his uprightness and high sense of duty, and honoured for the active part he has taken in medical ethics, and in the progress and improvement of surgical practice and in its teaching. He was endowed with good health and a fine physique. His personality and ability as a student soon attracted the attention of his seniors, and he made an unusually early entry into important positions in the profession, for almost before he had taken his F.R.C.S. he

was elected on the honorary staff of St. Mary's Hospital and an examiner in anatomy at the College of Surgeons. This early recognition was not misplaced, for he rapidly became one of the most popular teachers both in anatomy and surgery. He was a well known figure in his earlier days at several meetings of the British Medical Association. I went with him to America on the occasion of the Congress at Washington in 1887, and ten years later to St. Petersburg, when we represented the Royal College of Surgeons of England at the celebration of the centenary of the foundation of the Russian Army Medical Service, and at which an enormous number of delegates from all parts of the world were present. We had the especial honour of being in a small party of European surgeons who were one by one received in conversation by H.I.M. the Czar and afterwards took lunch with General Kuropatkin. Owen was always in good spirits, courteous, and amusing, but not at the expense of others. I never remember him saying an unkind word of any colleague, and he showed no unfair bias against opinions he did not agree with. If he could not speak well or kindly of men or matters he did not discuss them. He was a hard worker. He wrote and spoke forcibly and well. Perhaps by nature somewhat impulsive, he carefully considered his subject with ability, shrewdness, and common sense, and, having formed his opinion, he was fearless and honest in expressing his views, which were usually sound and accurate. His work for the Royal College of Surgeons as an examiner and on the council was whole-hearted and of the highest value. He had been an active member of all the subcommittees, and the personal knowledge and long experience that he had of its affairs made him one of its most trusted leaders. He has been spared from old age, and has gone down at his post and in his work.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following degree has been conferred:

M.Ch.—A. H. Southam, Christ Church College.*

The following candidates have satisfied the examiners:

DIPLOMA IN PUBLIC HEALTH (Part D).—E. B. Argles, E. Clarke-Cohen, R. V. Shivashwarkar, A. K. Soutar. (Part LD).—A. E. A. Carver.

* Mr. Southam was, we regret, reported in last week's issue as taking the degree of B.M., B.Ch.; these were conferred on him in 1913.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examinations indicated:

M.D.—BRANCH I (Medicine).—D. E. Morley, P. T. Patel, J. H. Suddow, Catherine V. Turner (University Medal). BRANCH II (Pathology).—A. Beesha. BRANCH IV (Midwifery and Diseases of Women).—Katie A. Platt. BRANCH V (State Medicine).—W. A. Broad (University Medal).

* Obtained the number of marks qualifying for the University Medal.

M.S.—BRANCH I (Surgery).—C. E. Shattock.
 SECOND M.B., PART II.—A. L. Abel, S. E. Barraza, E. V. Beaumont, Ursula P. Blackwell, J. C. Blake, A. O. Bolton, J. A. Boncaud, G. Bourne, J. N. Brash, R. B. Britton, Eleanor M. Burnett, F. Caldecott, D. Cameron, H. Carpenter, J. E. Carpenter, O. C. Carter, B. R. Chaudhri, H. J. C. Churchill, D. C. Clark, E. V. Corry, H. Das, F. de Robillard, Phyllis D. Dixon, E. F. Fernando, Harold Gazdar, Jehan G. G. A. Gier, T. N. Glover, L. B. Goldschmidt, R. C. Guenbert, B. R. Green, J. F. Howells, O. H. Hyman, N. R. Jenkins, N. Kanchara, G. E. Kidman, C. A. Kirtou, E. A. Levison, K. McFadyen, T. H. McLeod, H. J. Martin, Cecily M. E. Maude, Annie S. Miles, Edith M. Newman, M. J. Panthaky, Sigrid Letitia S. Pearson, I. A. W. Peiris, S. H. de G. Pritchard, J. S. L. Roberts, H. Rowan, J. F. Ryan, B. Sacks, C. E. Seales, Charlotte A. Shields, K. L. Singer, E. C. Sizer, H. Theron, A. R. Tohill, J. A. Van Heerden, Gladys M. R. Webster, Kathleen S. Vine, K. T. K. Wallington, K. M. C. Woodruff, E. B. Woolf, Irene Yates, W. Yeoman.

* Distinguished in Anatomy.

† Distinguished in Surgery.

‡ Distinguished in Physiology.

LONDON SCHOOL OF TROPICAL MEDICINE.

THE following candidates have been approved at the examinations held at the end of the fourth-eight session:

Miss G. J. Campbell, N. Wilson, Miss M. E. E. Smith, A. C. d'Ariafat, S. K. Valdy, V. L. Sathe, Miss J. A. Vaughan.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following candidates have been admitted to the Fellowship:

C. Burnham, C. Gibson, P. Greene, C. H. Hayton, Satya Sakha Maitra, A. Z. Phillips, J. C. Potter, V. L. Sathe, and W. D. Yuille.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examinations indicated:

FIRST COLLEGE.—J. Lees, J. M. Speirs, B. McLaughlin, T. W. Stewart, T. T. Read, W. Grant, A. W. Buchan, D. C. Scotland, S. S. Barton, G. P. Walker.

SECOND COLLEGE.—A. B. Macdonnell, R. Smith, C. G. Magee, W. H. Duff, R. Austin, W. B. Lawson, A. P. Keith.

THIRD COLLEGE.—J. W. Morris, P. Hayes, W. A. Mein, W. Templeton, J. F. M. O'Flaherty, R. S. Watt, J. G. M. R. Macanlay, R. Woodside, H. G. Anderson, N. S. Bruce, A. Morrison, F. J. Jack, J. J. Mulvey, J. B. Misford, F. A. Rankin, A. D. Gorman, C. J. Middleton.

FINAL.—J. M. Farlane, C. Read, J. MacRae, D. A. Imrie, J. Crawford, W. M. Alpine, J. W. Irvine, Marion C. Fruit, Chenail V. Appandi, G. B. Hanna, J. P. Deary, H. V. Fitzcald, G. T. Makhijani, P. M. Saptarshi, N. B. Morris, P. Milnes, C. M. Bradley.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subject indicated:

SECRETARY.—F. W. Chamberlain, *H. A. Cottin, †H. N. Cozier, †K. M. Dyott, *N. Hoffmeister, †H. L. Hughes, †H. S. Jeffries, H. Morrison, †J. E. Rusby, †M. C. Stark.

MEDICINE.—J. A. A. Boddy, †K. M. Dyott, †J. E. Rusby, †M. C. Stark.

FORENSIC MEDICINE.—W. E. P. Briggs, W. Fox, H. S. Jeffries, J. G. T. Thomas.

MIDWIFERY.—G. T. Baker, J. Y. Dent, H. S. Jeffries, W. J. May, A. Trull, G. N. Younger.

* Section I.

† Section II.

The diploma of the Society has been granted to Messrs.

J. A. A. Boddy, F. W. Chamberlain, H. A. Cottin, R. N. Cozier, K. M. Dyott, N. Hoffmeister, H. Morrison, J. E. Rusby, and M. C. Stark.

Medical News.

THE medical publishing business founded in 1844 by Mr. Henry King Lewis has been converted into a private limited company under the name of H. K. Lewis and Co., Ltd. Mr. E. J. Sowerby, Mr. J. L. Jackson, Mr. J. E. Simpson, and Mr. R. H. Smith, who have been responsible for the conduct of the business in the past, have been appointed governing directors. There will thus be no alteration in the proprietorship or management.

THE premises of the Royal Society of Medicine will be closed during the month of August. Owing to the war the number of meetings of Sections had been reduced to nine or two, with an average attendance of about thirty-one. Sir William Church, the senior honorary treasurer, announced that Mr. Lord, the accountant, estimated that the society would be £1,100 within its income this year; this, considering that subscriptions had diminished on account of the war, was regarded as very satisfactory.

A SPECIAL meeting of the Central Midwives Board was held on July 20th for hearing penal charges. Sir Francis Champneys presided. Fourteen women had been cited, and there were also six cases adjourned for reports from local supervising authorities. Of the former, ten were struck off the roll, of the latter four. In two cases no action was taken, and the other women were cautioned, and judgement postponed for reports from the local supervising authorities. The most frequent charges were, as usual, inability to take temperatures and pulses, want of scrupulous cleanliness, and failure to send for medical aid at times when according to the rules they should have done so. Unfortunately, in addition to these charges there were a large number of puerperal cases, some of which ended fatally and several cases of neglected ophthalmia neonatorum. The Board held another meeting to hear penal cases on July 21st. Sir Francis Champneys again presided. Eight cases were heard. Four women were struck off, judgement was adjourned in three of the other cases for reports in three to six months. One midwife was cautioned to obey the rules. At the monthly meeting, on July 22nd, the Standing Committee reported correspondence which included a letter from Dr. A. Stookes, one of the Board's examiners at the Manchester Centre, commenting on the propriety of allowing a midwife to undertake intrauterine manipulations as suggested by one of the questions set at the examination of June 15th. A reply was sent pointing out that such manipulations were only permissible in great emergencies, when there was dangerous haemorrhage and all other means had failed. The names of seven women were removed from the roll on their own application on account of old age, ill health, and inability to obey the rules.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Atitology, Westminster, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY and BUSINESS MANAGER (Advertisement, etc.), *Articulates, Westminster, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medicines, Westminster, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects in which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

VACCINE TREATMENT.

G. P. asks whether the vaccine treatment of chronic gonorrhoea and subacute rheumatism is satisfactory. A chronic gonorrhoea was latent in a man, aged 50. He now has epididymitis. (2) A girl, aged 14, has just recovered from a second attack of rheumatic fever and now has subacute recurrences.

HARE-LIP.

R. writes: Two cases of hare-lip. Two years ago Mrs. K. was attended by me in her fish labour. The child—a lusty, healthy male—was born with a single hare-lip involving the lip almost to the nasal septum. This month I attended her again, when she was again confined of a fine strong boy; this time a bad hare-lip was complicated with cleft palate. The mother's four previous children (three boys and a girl) are quite normal. The woman, a Jewess, is of a very nervous, hysterical temperament although strong and healthy. As she was to be expected, she was greatly upset by the birth of the first malformed child, and was in a state of nervous excitement during the period of subsequent operation and convalescence, and has looked forward with apprehension to the birth of the last child. The questions which naturally arise out of these cases are: (1) Has the neurotic temperament of the mother anything to do with these developmental irregularities? (2) In the event of subsequent births, is this condition likely to be perpetuated or increased by other abnormalities in development? (3) Can anything be done or suggested regarding future pregnancies?

WORK OF SCHOOL OCULIST.

S. O. asks for suggestions on an advanced textbook on the diseases of the eye, including errors of refraction, which would be useful as a reference book to a school oculist. He would also be grateful for a suggestion for a convenient portable lamp for retinoscopy.

The most widely read advanced textbook of ophthalmology is that of Fuchs, the professor at Vienna, but formerly of Liège; the translation by Duane of New York is now in the fourth edition. Next to that, Swanzy's well-known book may be recommended. There is no textbook that deals specially with eye work from the point of view of the school doctor, but Bishop Harman's little book *Aids to Ophthalmology* has a chapter on the subject, and the several chapters on errors of refraction and their correction are written with particular reference to such work as this, and after a long experience in training post-graduates at the West London Post-graduate College.

The most satisfactory portable lamp for retinoscopy is an ordinary acetylene lamp, a bicycle lamp minus the glass and reflector acts perfectly; the minute brilliant flame gives a most perfect reflex, and with it the results can be worked with a delicacy not to be equalled by the best focus electric lamp. A plain retinoscopy mirror must be used.

ANSWERS.

DEATHS FROM HEDONAL AS AN ANAESTHETIC.

D. J. will find much useful information on this subject in the thirty-sixth volume of the *Transactions of the Medical Society of London* (1912-15), beginning with Mr. C. M. Page's paper on "Hedonal Anaesthesia, its Uses in General Surgery," p. 30. Mr. J. F. Dobson's "Objections to the Use of Hedonal," p. 46, will be of particular interest to our correspondent. An abstract of these papers appeared in the JOURNAL, vol. II,

1912, p. 1310, and the same volume contains an article by Dr. Rawdon Veale on "Complications following the Administration of Hedonal," p. 347.

COLD FRET.

DR. ALASTAIR MACGREGOR writes in reply to "D.": The application of the diathermy current by what may be termed the "sole-to-sole" method seems to be strongly indicated in the case of "D.'s" patient. It produces, if the appropriate strength of current be used, an agreeable sensation of warmth, which gradually creeps up the limbs; this sensation lasts for a length of time, which increases after each successive application. The treatment may be given for fifteen or twenty minutes and repeated daily or thrice a week, according to the nature and progress of the case.

LETTERS, NOTES, ETC.

BERI-BERI.

DR. G. PRICE (Kington, Warwick) writes: At Christmas, 1908, the directors of the Saigon (Cochin China) branch of the Pasteur Institute very kindly demonstrated to me the results of their investigations into beri-beri. Their idea was that a micro-organism allied to a yeast found its way into the husk of growing rice, especially when the plant touched the earth as a result of heavy wind or rain. This germ multiplied in husk, but was prevented from reaching the grain itself by the lowermost layer of pericarp (the thin pellicle immediately surrounding the grain), which acts in a manner partly mechanical, partly chemical.

When the rice is polished these germs find their way into the grain and flourish, decomposing the starch and evolving poisonous products. Boiling the rice may kill the germs, but it does not neutralize the poisons produced by them.

The obvious prophylaxis against beri-beri is care in cultivation. The reaper should reject plants beaten to earth, and those whose fruit is obviously diseased. The grain should be stored dry, and preferably husked only as required. When infected grain is husked and stored in a damp place there is every chance for the beri-beri germ. The directors distilled this protective pellicle in alcohol, and administered it to their patients with good results.

They also showed me two fowls—one fed on beri-beri grain and the other on the same grain with the addition of the distillate of the protecting pellicle. The former was paralysed in both legs and one eye; the latter was healthy.

EARLY USE OF TINCTURE OF IODINE IN GUNSHOT WOUNDS.

DR. GEORGE FOY (Dublin) writes: As the value of iodine in the treatment of gunshot wounds is still on trial, I send the history of a case which is of more than historical interest. On September 16th, 1862, General John R. Gordon held the centre of General Lee's army at Sharpsburg. The first volley from the Northern lines sent a ball through the calf of Gordon's right leg, another soon after went through the muscles of his thigh, a third pierced his left arm, tearing asunder the tendons and mangling the flesh; a fourth went through his shoulder, leaving its base and a wad of clothing in the wound. Still no bones were broken, but whilst he lingered in the fighting line, a fifth ball struck him square in the face and passed through his neck, narrowly missing the carotid and jugular veins. Dr. Weatherly of the 6th Alabama Regiment had the colonel, as he then was, removed to a base hospital, and prescribed tincture of iodine to be painted on the wounds three or four times a day. The case was unpromising, for Gordon's eyelids were greatly swollen, one eye completely closed, the other almost so; his jaw was immovably clenched, and, to make matters worse, erysipelas set in on the left arm. Mrs. Gordon, his wife, as his nurse, putting a liberal interpretation on her instructions, painted the wounds very many times a day. Her care, her diligence, her love were rewarded. The patient survived. He outlived the war, became Senator for the Commonwealth of Georgia, represented the C.S.A. veterans at Grant's funeral, wrote his *Reminiscences of the Civil War*, 1903, and died in 1905. Mrs. Gordon still lives; she spends her declining years in visiting her children and grandchildren, who, in the words of Sir W. Osler, recall "the noble deeds she did amid the desolation, rescuing those who were ready to perish," and they love her.

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Presidential Addresses

TO THE BRANCHES OF THE BRITISH MEDICAL ASSOCIATION.

METROPOLITAN COUNTIES BRANCH.

SIDELIGHTS ON THE PRACTICE OF MEDICINE IN THE PAST FROM EARLY ENGLISH LITERATURE.

By MAJOR GREENWOOD, M.D.Brux.,
D.P.H., LL.B.

The origin of the medical profession in this country is a disputed point. No literature throws much light on the subject, and the earliest evidence of the practice of the healing art in England and Wales is the existence of remains of medical instruments and appliances of the Roman period that have been dug up in various places. For at least three centuries England and Wales was a settled Roman province, containing many large and prosperous cities, and enjoying a civilization equal to that of their sister cities on the Continent. We know from Roman sources that this civilization included all that was then known of medical and surgical science. We learn, too, from the Civil Law, that there was a well recognized class or profession of *Medici*. The gleanings from old Roman remains in this country give ample evidence that these *Medici* came over here and carried on their profession. But in the fifth century came the deluge of barbarous tribes from the north of Europe, sweeping away the whole of Roman civilization, and with it no doubt most of the medical knowledge that up to that time had been enjoyed by the old population.

After the Saxon invasion, then, it would seem that medical and surgical science had to begin again, and it might be that our profession was slowly evolved *de novo*, possibly owing little or nothing to the Roman civilization that had preceded it. Whether any of the Roman *Medici* survived the invasion and were enabled to carry on their art through the troublous times that followed and develop a school at a more peaceful period is purely conjectural. But I cannot help thinking that we, like our sister profession the law, may owe much to that great people, whose influence in the civilization of the world has been so profound.

Sir Lawrence Gomme has shown that in the case of London customs there are many old survivals from Roman sources, and he suggests that the origin of our earliest lawyers must be looked for there.

In *The Village Community* he says:

Now the Order of the Coif (Serjeants-at-law) is the oldest association of lawyers in this country. There is no law for its first institution, no charter from a sovereign, nothing to show from whence it springs, except its remarkable parallel to Roman custom. If this custom could be regarded as evidence, then our present K.C.'s can show an unbroken descent from the *Jurisperiti* of ancient Rome.

These *Jurisperiti* flourished, together with the *Medici*, in the Roman cities of Britain, and if one class could survive the Saxon conquest it is difficult to see why the other could not. If custom can be made to evidence the descent of one from Roman sources, an analogous custom might also prove our Roman ancestry. It is a well-known rule of the Royal College of Physicians of London that Fellows of the College cannot sue for their fees—a rule recognized by law, and customary in the case of all members and licentiates before *Gibbon v. Budd*—and there is a similar custom in the case of barristers. It was a particular rule in the case of the *Jurisperiti* of ancient Rome that they should give aid to the poorest citizens without pecuniary reward. The old serjeant-at-law also was bound "truly to serve the King's people without fee or charge."

The commonly received view is that general practitioners of the present day are descendants of the old barber-surgeons and apothecaries. In a sense, no doubt, this is true, and the members of these guilds chiefly

administered to the medical and surgical needs of the poor for a long period.

But this fact must not be overlooked. There is abundance of evidence to show that there were always recognized medical and surgical practitioners, altogether distinct from barber-surgeons and apothecaries. So that it may be our profession owes not a little to these other practitioners, who were neither barbers nor apothecaries. Who were these others?

I think they can be distinctly traced down from the Norman Conquest. Shortly after the Conquest William I organized a sort of national *Who's Who* known as the Domesday Book. In it we find the following entry:

Nigel—Medicus—5 Hydes of land in demenes in the hundred of Scipe.

"Medicus" could only mean a medical practitioner, and in the great national register of the landowners of the eleventh century a class known as *Medici* is shown to have existed. He was certainly not a "barber," "apothecary," or university graduate; neither was he a religious person. The writer of the Domesday Book would not have styled either of these "medicus."

The entry at least proves this, that at the end of the eleventh century there were recognized medical practitioners in this country distinct from barbers, apothecaries, or religious persons, and at a time anterior to medical faculties in universities.

Mr. Sidney Young thinks that as early as the reign of Edward II barbers were practitioners in the art of surgery; that at all events they performed the minor operations of the craft, such as bleeding, tooth drawing, and cauterization. But he admits there were other practitioners, for he records the admission of a surgeon, not a barber-surgeon, to the freedom of the city under the date 1312. Again, he recognizes that coeval with the Company of Barbers there existed in the City of London another fraternity or guild—that of the "Surgeons," in no way connected with the barbers, but like them existing by prescription, and unincorporated.

Mr. D'Arcy Power thinks these surgeons were military surgeons and formed the aristocracy of surgery. No doubt, in those days, when wars were so common and the habits of our ancestors so little peaceful, the work of all surgical practitioners largely consisted of attending to wounds and injuries the result of breaches of the peace. But whence came these surgeons, who were not barbers, and existed by prescription?

I can see nothing that forbids the hypothesis that they may have been lineal descendants of the old Roman *Medici*, neither do I think they confined their work to surgery pure and simple. In 1423 we learn of an attempt being made in London to form a united guild of surgeons and physicians, to be governed by a rector of medicine, two surveyors of the Faculty of Physik, and two masters of the craft of surgery; in short, a combined college of physicians and surgeons in the fifteenth century.

The members of this guild do not seem to have been numerous, but they were neither barbers nor apothecaries; and if the members who practised medicine did not also practise surgery, they would appear to have been physicians by prescription. In any case, I regard them as derived from the same source as their colleagues of the guild of surgeons. Some may have been doctors of physik and university graduates; but we learn from Chaucer that the Doctor of Physik practised both medicine and surgery, so that he must have been a general practitioner. Speaking of the latter in his prologue to the *Canterbury Tales*, he says:

In all the world ne was there non him lyk
To speke of Physik, or of Surgerye—

It seems probable that in early times there was little distinction between the practice of medicine and surgery. It was left to a much later representative of surgery to say, "That he thanked God he knew nothing of Medicine." Our predecessors, like the old *Medicus*, probably practised both.

If, as Mr. Sidney Young thinks, that up till the twelfth century the practice of medicine and surgery was entirely confined to the clergy, there is no evidence that among religious persons any distinction was made. The mediæval monk was essentially a general practitioner; but when the practice of the two sister crafts became the appanage

of rival trading guilds it was not unnatural that distinctions should arise and that the barber-surgeon should be jealous of the encroachment of the apothecary on his field of practice, or vice versa.

From our early literature it would seem that the old medical practitioners were both surgeons and physicians.

In Langland's *Vision of Piers Plowman*, an allegory in which, as in the *Canterbury Tales*, all classes of the community are reviewed, there is reference to "physicians," but none to "surgeons" as a special class. This can only be because the writer included them under the generic term "physician." It is the same with Chaucer. Both law and medicine are represented among the pilgrims to Canterbury, the former by the "Serjeant-at-law" and the latter by the "Doctour of Physik."

Considering the importance of surgery at this period, it can only be explained by supposing that Chaucer regarded his "Doctour of Physik" as representative of both branches of the profession; and we shall not be far wrong if we assume that where early writers refer to physicians, they include all practisers of the healing art.

It is from our early literature alone that we get any idea of the social position of our predecessors in bygone ages. The London of Langland and Chaucer was not the same as the present metropolis, but as both of them were Londoners, the sidelights they throw on our profession in the fourteenth century are mostly drawn from observations in the metropolitan area of that time.

If Chaucer's "Doctour of Physik" may be taken as the type of the Plantagenet general practitioner, the character of his dress would suggest that his income compared favourably with that of his twentieth century successor:

In sangwin and in perse he clad was al,
Lined with taffata and with sendal.

This was a costly dress, and, at a time when dress was regulated by station, shows that the wearer held an elevated social position. Langland, also, in *Piers Plowman*, draws attention to the rich dress of the practitioners of medicine of his time, for he makes his allegorical personation of "Hunger" say, in his condemnation of gluttonous living to Piers, that if mankind would be satisfied with a simple diet,

Physic shall sell his furred robe to get his food withal,
And shall pawn for his dinner his Italian cloak.

Langland was anterior to Chaucer, and the picture he draws of society in the early years of Edward III is very mournful and depressing. He was no friend to the doctors, although he admits by inference that there might be good physicians, for in the *Vision of Lady Meed* he says:

Harlots and whores, and false physicians,
They ask their hire money ere they have deserved it.

By implication it would almost seem to be suggested here that *true* physicians only took their fees after they had cured their patients. If that were so, they must have been gifted with rare integrity, and showed scruples not conspicuous in their modern representatives. But there could not have been many of these bright stars, for Langland on the whole severely condemns the whole faculty. He is specially satirical on the examination of the urine of patients; for when the allegorical impersonation "Liar" is being sought for by the king's officers for immediate execution, he is offered shelter by the doctors:

Then the doctors heard of this, and wrote Liar letters
To come and stay with them, and study men's water—

There is no doubt he had rather a poor opinion of our brethren of those days, for he goes out of his way to make the following general charge:

For many doctors be murderers, (God mend them),
And men die through their drinks, ere destiny would
have it—

When we consider the nostrums of those days, some of us may think that there may have been a grain of truth in the latter accusation.

It is some consolation, however, that if we come under Langland's lash, the sister professions—the Law and the Church—fare no better. What he says against us pales into insignificance compared with his charges against the lawyers and clergy.

William Langland on the whole is not a lovable

personage. He was a keen observer, and devoted sympathizer with the poor and oppressed. Moreover, he was a cleric, and when speaking of his own cloth, he may have been nearer the truth than in his criticism of the lawyers and doctors. But I cannot help feeling regret that the great Chaucer, the father of English poetry, shared in Langland's disrespect for us. It is true he mostly poked fun; but none the less his satire was unmerciful, and clever enough to give the reader the impression of truth.

His picture of the mediæval physician is a masterly portrait, in spite of his sneers. We have an epitome of the medical practice of the day. We learn that the doctor practised both surgery and medicine. The horoscope and natural magic are depicted as part of his armamentarium, and the old doctrine of "humours" shown to be in full force. Medical practice, then as now, consisted largely in drugging, and the "Doctour of Physik" had his coterie of apothecaries to supply the drugs and electuaries. So it would seem he did not supply his own drugs, and Chaucer suggests there was a good understanding between the doctor and the apothecaries to make as much profit out of the public as they could.

He says:

For each of hem made other for to wyne:
Their freundschipe was not newe to begynne—

It has been asserted that such collaboration between doctor and chemist at the present day is not unknown. If so, it indicates that abuses in practice we are all acquainted with have a respectable antiquity. Constantly Chaucer accuses our profession of being too grasping over fees and of greed generally.

He says of the "Doctour of Physik":

For gold in phisic is a cordial,
Therefore he lovele gold in special—

This is only a touch of irony, but elsewhere in his works Chaucer is almost as outspoken as Langland against us.

In the *Romaunt of the Rose* he says of physicians:

They sell their science but for gain,
And ply their craft but to obtain:
Their gains such sweetness have withal,
That if a man in sickness fall,
They are full glad their purse to fill:
For truly, if they had their will,
Then all to sickness would be brought;
And if folk die they think it nought:
And when their golden fees they take,
The patient's care they soon forsake:
For in their work they take no pains,
Except for covetousness and gain—

The poet then seems to think it is incumbent on him to give some reason for this diatribe, and he has the bad taste to put it in the form of a pun:

For phisic ginneth first with "fy,"
Physician also equally:
And since from "fy" to "ay" it goes,
To trust in them great folly shews:
For unto this they ne'er agree,
To practise but for charity.

If this is the only explanation to be given for the rapacity of our predecessors, it would almost seem as though the poet were trifling, and could not be in earnest. As an admirer of Chaucer, I have always felt a little sore about his strictures on the medical profession. It is true that he lashes the clergy even more severely than the doctors. But they can forgive him after his beautiful description of the "Poor Parish Parson," who stood out as a shining example in the midst of the corruption of the mediæval Church. But he makes no mention of the poor parish doctor. Possibly, the "parson" was the only representative of a Poor Law service in his time.

There are one or two other points of interest to be noted in Chaucer's allusions to our profession.

He calls his type of the medical practitioner of the day, a "Doctour of Physik." Was this doctor a university graduate? According to Clenn the degree of M.D. cannot be traced earlier than the year 1384. But John of Gaddesden was a medical graduate of Merton College, Oxford, before then; so it would appear, Oxford gave a medical degree before Chaucer's time. It is also worthy of note that the title "doctor of physik," not doctor of medicine, was peculiar to this country.

The readers of Boswell's *Life of Johnson* will remember Dr. Johnson's inquiries of Dr. Lawrence, President of the

Royal College of Physicians of London, as to the right of a medical graduate to style himself "physician," and the answer given:

That Dr. of Physic (not Doctor of Medicine) was the highest title a practitioner of Physic could have.

It may be, then, that Chaucer implied that his "Doctour of Physik" was a university graduate; although it is difficult to imagine that the typical practitioner in those days would have been a university man. If not a graduate, Chaucer's appellation of "Doctour" may throw light on the origin of the courtesy title of "doctour" given by the public to all medical practitioners.

Another question of interest is, What part did religious persons take in the practice of medicine in the fourteenth century?

It is generally believed that most of the practice of medicine in early times was in the hands of the Church; that monks were the usual medical practitioners, and surgeons also, up to the date of the Council of Tours.

Such practice may have largely ceased in this country by the fourteenth century, for neither in Langland nor in Chaucer is any reference to medical practice by the clergy. All the doctors referred to appear to have been lay persons. Chaucer, speaking of the Doctour of Physik, says,

His studie was but litel on the Bible.

It is true that after the Doctor had told his tale, "oure host" compliments him, and says:

So mote I thee, thou art a propre man,
And y-like a prelat by St. Ruman!

This has been thought by some to imply that the Doctor was in "Orders," and gave more point to the charge of unbiblical studies. It seems to me, however, that it by no means proves that Chaucer's "Doctour" was in "Orders." Both doctors and lawyers who rose to any eminence were often sought after by the Church, and "oure host" may have meant only that the doctor was such a good fellow that the Church would possibly make a bishop of him.

Mr. D'Arcy Power, in his Harveian Lecture of last year, says the physician of this period was usually, but not necessarily, a Churchman, and gives contemporary examples. But all of them were attached to the households of great personages, and were hardly types of practitioners among the people.

It is interesting to note that Chaucer, like Langland, ridicules the examination of the urine.

In applauding the doctor, our host also says,

I pray to God to save thi gentil corps,
And eke thy nrmals.

No doubt there was much quackery mixed up with mediæval urinary pathology, and at a later age the term "water doctors" was one of opprobrium. In spite of popular contempt the practice had much vitality. It was evidently thriving in Shakespeare's day, for in *Henry IV*, Part 2, Sc. 2, Falstaff says to his page:

Sirrah, you giant, what says the doctor to my water?

To which the page replies:

He said, Sir, that the water itself was good healthy water, but for the party that owed it, he might have more diseases than he knew for.

It is curious to note that in pillorying a quack a urinal was sometimes hung about his neck as a mark of contumely.

In the Records of the City of London at the Guildhall, under the date 1382, appears the case of Roger Clerk of Wandsworth, who was condemned for quackery, and punished as follows:

It was adjudged that the same Roger Clerk should be led through the middle of the City, with trumpets and pipes, he riding on a horse without a saddle, a urinal being hung before him, and another urinal upon his back.

None the less these mediæval water doctors were not always quacks. There was a germ of science in their practice. As the old alchemists, in spite of their frauds and pretensions, laid the foundation of modern chemistry, so the water doctors may have assisted in paving the way for our later triumphs in renal pathology.

Before concluding, there is one other point of interest, especially to our sisters in the profession, which the records of the past cast some light upon. What do they tell us of the practice of medicine by women in early times?

There can be no doubt that in the past there have been women practitioners of repute, and even surgeons of eminence.

Miss Bateson tells us that there was an Ordinance in 1390 which mentions the practice of surgery by women, and it is there on record that Queen Philippa, wife of Edward III, had in her service a female surgeon, Cecilia of Oxford, a practitioner who derived her origin from no less a place than the academic centre of the kingdom. How did this lady obtain her professional training? Was it under the auspices of the Church?

Women were never greatly favoured by the hierarchy, but possibly, when by the Council of Tours the practice of surgery was forbidden to monks, the prohibition was not so stringently enforced in the case of nuns, and these women practitioners may have been the last surviving instances of the practice of medicine by religious persons in this country.

It is not difficult to understand the exclusion of women from medical and surgical practice, when these professions became vested in guilds and livery companies, such as the Barbers and the Apothecaries. We have plenty of liverymen with us still, but I do not think history records any instance of a liverywoman. After Plantagenet times we hear of no more female practitioners in high places. It is probable that medical practice by women was more or less suppressed, although there is reason to think that it continued to exist long after. There is extant the draft of an Act of Parliament, 9 Henry V., in 1422 (Pety's MSS., v, 33), in which occurs the following:

The sheriff shall inquire whether any one practises in his county contrary to the regulations; and if any one so practise he shall forfeit £40, and be imprisoned. And any woman, who shall practise physik shall suffer the same penalty.

This Act never had the force of law, but it shows that women endeavoured to practise medicine in the fifteenth century and came under the ban of the law-makers.

Again, in the next century, in the preamble 14-15 Henry VIII, cap. 5, in 1521, we read:

Forasmuch as the science and cunning of Physic and Surgery is exercised by a great multitude of ignorant persons, of whom the greater part have no manner of insight in the same, nor any other kind of learning, so that common artificers, such as smiths, and weavers, and women, boldly take upon them great cures, and things of great difficulty.

These statutes cast a sidelight on the practice of our profession in the fifteenth and sixteenth centuries, and make it probable that Cecilia of Oxford had other successors, but that they steadily declined in social rank, till they were more or less suppressed by man-made legislation.

STAFFORDSHIRE BRANCH.

THE PRINCIPLE OF ANOCI-ASSOCIATION APPLIED TO MEDICAL PRACTICE.

BY

F. M. ROWLAND, M.D., B.A.CANTAB.

AFTER a few introductory remarks the President proceeded:

Although the mental factor in medicine has long been recognized as a valued asset to the successful treatment of disease, it is only of late years that there has been any serious attempt scientifically to marshal its forces and to examine its possibilities as a legitimate adjunct to therapeutics, the field having been left open in the past—as it now, indeed, largely is, and will probably remain for some time yet to come—to the illegitimate blandishments of quackery and the quasi-spiritual enchantments of Christian Science and similar allied systems of unreasoning thought.

It is not my intention to-day to discuss this subject from the point of view of practical hypnotic suggestion as it may be legitimately utilized in the treatment of ailments. Rather do I want to call attention to a point of view in dealing with our patients which hinges on their mental outlook, and to which I believe I am right in saying that but little attention has been paid, at any rate in any scientifically defined way, or other than as that which is recognized as individual personality often exercised almost unconsciously by individual men.

I may, perhaps, the better explain my outlook if I take a lesson from surgery, and draw an analogy from Professor

Crile's principle of anoci-association, whereby is meant the exclusion of all noxious or harmful associations or stimuli from the field of operation, one of the primary factors of which involves a careful preparation and education for general anaesthesia in order to familiarize the patient with the procedure, and so, by minimizing the dread and apprehension, lessen the predisposition to shock. Furthermore, by cutting off the field of operation, and protecting the brain from impulses therefrom, by means of local anaesthesia an ideal combination is formed for excluding from the brain the stimuli of the special senses and the stimuli of common sensation. By thus avoiding the influences of emotion from the sight of the theatre, the spoken word of danger, the fear of the anaesthetic, and the influences of trauma at the site of the operation, the energy of the brain cells is conserved and shock reduced to its minimum.

While scarcely wishing to sketch out so practical an application of the principle involved as Crile intended for the surgeon, I think we may glean for our everyday dealing with the treatment of illness some very useful truths from the theory of anoci-association as understood to mean the exclusion of all noxious and harmful associations; and to this end I am desirous of pleading for the more systematic study and consideration of our patients' individual outlook upon life, not so much when in their normal health as when they are lying on a bed of sickness. At such times, I take it, the subconscious mind is more in the ascendant, altered in its sensitiveness, and likely the more easily to become the recipient of suggestions than in health, the mental attitude of a patient being so affected by an illness as to be altogether different from the mental attitude of the same person when in normal health. Those of us who have ever had the misfortune to lay aside the cloak of the physician for the bedgown of the patient, especially if our sufferings have resulted from some general toxæmia, will, I am sure, be in agreement as to the altogether disproportionate degree in which infinitesimal trivialities which would pass unnoticed in normal health become enormously exaggerated, and slight annoyances magnified into states of considerable mental anguish.

It seems to me, therefore, that it is all-important for us, when treating a patient, to make ourselves acquainted as nearly as we possibly can with that patient's view upon life at such a time—not so much the view which he may express in words as that view which I can perhaps best indicate as the resultant of forces operating in his subconscious mind, and it is only by a thorough knowledge and study of our patients, both in health and sickness, that we can hope to attain this end. In this connexion I cannot refrain from a veil of lamentation that our profession shows signs of drifting into new ideas of ethics in relation to our patients which are onsting the old-fashioned, but in this respect I believe really helpful, relationship between doctor and patient which is understood by the mention of the "family physician."

It is only by an experience, not otherwise obtainable than by years of intimate observation of the varying temperaments and idiosyncrasies of our patients, that we can judge even in the smallest degree of the lines of thought they will adopt at any given juncture, and by our knowledge so gained that we shall be enabled to some extent possibly to assist in influencing the course of their disease by the exclusion of all adverse subconscious tendencies, and by the furtherance of beneficial influences operating towards a cure. Although this aspect of the subject has been to a certain extent realized, as evidenced by the free choice of doctor principle in the profession's policy, the rapidly growing opinion among politicians in favour of a State medical service totally ignores the importance with which I consider it should be vested, and one has only to read the Fabian Tract No. 160 to see to what extent even a member of our own profession has lost sight thereof.

Were so infinitely personal a relation as that which, for the patient's psycho-therapeutical welfare, should exist between him and his doctor to become reduced to a system of service by whole-time officials with definitely fixed hours of work it would not conduce to the best results in treatment of acute illness, whatever may be said for its merits on the *preventive* side of medicine, which latter, I think, few would deny is essentially a matter for State

control under a properly constituted department guided by a Minister of Public Health.

It always seems to me foolish in the extreme to attempt to deal with complex human nature as if each individual were a standardized part of some huge machine, a point of view which a State medical service would tend to evolve, thereby entirely losing sight of the personal equation and infinite human diversity in temperament, and consequently I deplore very greatly this increasing tendency of the present day to ignore the operations of the subconscious mind in the treatment of disease.

Picture to yourselves the logical outcome of such a system of State service, if universally adopted as its advocates intend, in the case of a bad pneumonia requiring to be visited morning and night, with an eight-hours day in operation, when it is obvious that it is in the best interests of the patient that the same physician who saw him in the morning should see him again at night, since no written or verbal report—always supposing there would be one, which would be doubtful—could convey to the evening-visitant the all-essential though indefinable mental picture which the morning visit gave. It is here that it seems to me that this present tendency towards State interference, which must eventually culminate, if unchecked, in a State medical service, is objectionable and inimical to the best interests of the patient as far as promoting rapidity of cure is concerned, there being much to be said for the former status of the family physician who had attended the whole family for years and knew all the little peculiarities and idiosyncrasies of each member, a knowledge which often rendered him capable of foreseeing the various kinds of response to remedies, and the probable sequence of events, which might be expected to accrue under given conditions in each individual.

I am fully alive to the fact that in promulgating this suggestion that we should cultivate, even more than some of us may already be in the habit of doing, this principle of anoci-association by the avoidance and exclusion of all harmful associations in the everyday treatment of illness, it is difficult if not well-nigh impossible from the very nature of the conditions to lay down any definite line upon which treatment should be conducted. I must content myself, therefore, with merely pointing to some of the more generalized indications upon which we can, each one for himself, formulate a general process of action suited to each case.

If we are careful in our endeavours to obtain some understanding of the patient's mental outlook, trying to get a glimpse of his naturally warped perspective and general view of things, we shall then be able better to appreciate the many little ways in which we may be instrumental in warding off those harmful associations which might otherwise act detrimentally through the operations of his subconscious mind. Be it clearly understood in this connexion that many of the associations may be quite harmless in themselves, only becoming noxious when presented to a patient whose mental outlook is altered by the very fact that he is ill. How often has it not occurred to all of us to have wished that in some given case we had altered our phraseology or left unsaid some spoken word which has been seized upon in quite a different meaning from that which either we intended or in which a condition of health would have received it. It is just this study of the mentality during an illness which makes our experience of previous illnesses in the same patient a valuable asset, and although an intimate association during health may materially assist us in knowing what attitude to adopt, it is during the illnesses themselves that we must elucidate a plan of campaign which will be most on the defensive for our patient against harmful influences and associations.

In our daily visits I feel confident that the cultivation of punctuality will be fraught with a greater outcome of good to the course of an illness than we are apt to credit, and especially in acute and subacute cases do I consider it important, whenever possible, to mention a probable time for the next visit, and, when this is not possible, to let the fact that it is not possible be clearly understood, rather than leave without giving some idea to the patient when he may expect us again. Of course, I am quite aware that in certain circumstances surprise visits are of value, but with that class of case I am not now dealing. It may seem to some of you that this is advocating a counsel

of perfection rendered impossible of attainment by the very nature of our work, with its urgent calls and uncertainty of detention over any given case, but I think it will be found easier of application in the vast majority of instances, if given a fair trial, than many would imagine. Exceptions, I am aware, must of necessity be frequent, but these should not militate against the aim, and though possibly a little more exacting to ourselves, I feel certain that the resulting advantage to the patient will prove a real value in the treatment and course of the illness. Rightly or wrongly, we as a profession have acquired a reputation for unpunctuality, and I well remember the chaffing astonishment with which I was once received by the patient's friends at a night visit because I arrived at the time I had said I should, it being remarked: "Oh, yes, we know you said nine, but then, whoever expected a doctor to be punctual!"

Now it is the common experience of everyone that there is little else more irritating or depressing than to be kept waiting, and again I appeal to the memory of those who have ever been ill how much more irritating it is to be wondering when the doctor is coming than it would be in ordinary health. This cultivation of punctuality is a very potent means of influencing our patients' subconscious mind for good, at the same time avoiding those noxious associations which would inevitably result from unpunctuality.

Again, how frequently do we meet with cases in which we have to weigh in our minds the advisability of an evening visit for the sake of the physical needs, when we are aware that the mere fact of a second visit may act harmfully by making a nervous patient think that we regard his case as more serious than it is. In such cases it is all-important that we should as far as possible be in a position, by understanding the patients' mental outlook, to judge the probable subconscious effect, and so guard against any noxious influence by either eliminating the visit, or else affording some plausible reason calculated to counteract any harmful effect. In this connexion the reverse may obtain in a case where a second visit is not needed merely on account of the physical complaint, but in which our experience tells us that a second visit will be a comfort and not in the least an alarm, and consequently advisable as an assistance by auto-suggestion to the progress of the illness.

Individual cases will afford individual conditions, which only a study of the patient's mental outlook in the present and previous illnesses can anticipate and provide for, and innumerable opportunities for treatment by suggestion, unconscious to the patient, will present themselves which it would be impossible to enumerate or legislate for in any treatise or textbook. The much-derided "good bedside manner" is an undoubted therapeutic asset, for a greater success in the progress of his cases often attends the path of the cheerful optimist than accompanies the ministrations of the dour pessimist.

Hinging on this subject is the difficult decision we are often called upon to make as to how much in diagnosis and prognosis we are justified in telling to any given patient and how much to withhold, and even the very phraseology in which we clothe our statement will be affected by the intimate estimate we have been able to form of his mental outlook.

Consequently all this goes to show, in my opinion, that the attributes of the family physician should be fostered rather than discouraged, as is the tendency to day, since it is for the patient's good that his doctor should know him intimately both mentally and physically, and over as long a period of his life as circumstances will permit. How often cannot we each one of us recall instances where the fact that we have known patients for many years and attended them through several illnesses has been the greatest possible help in their later conditions; and I contend that in such instances we the better understand our patient's outlook upon his state, and consequently unconsciously to him and ourselves do we affect his subconscious mind for his own good in battling with his trouble.

Of equal therapeutical importance in this direction is the proper selection of suitable attendants, and when possible the choice of friends, and all of us can recall instances where the patient's litany may well have been "Deliver me from my friends," while in certain grades of

life the one idea of condolence and sympathy appears to take the form of an enumeration of gruesome experiences akin to the patient's ailment, or the cheerful greeting, "How ill you are looking!" More than once have I known the mental balance of a borderland case finally and directly upset by some such remark from a well-meaning acquaintance.

Each one of us must realize and be intensely grateful for the sense of relief and assurance afforded by the ministrations of a good nurse in attendance upon our patients—a nurse in whom we know that the patient has as much confidence as we have ourselves; equally, too, we must occasionally have experienced the sense of hopelessness for effective treatment afforded by the presence of a nurse to whom the patient has taken a dislike, or who we know does not possess his confidence. I consider that this aspect of the relation of nurse to patient as it affects the subconscious mental therapeutics is too much neglected by those responsible for the training of nurses, and I would urge upon matrons of nursing institutions the necessity for inculcating as part of the curriculum a definite ethical atmosphere and the need for careful consideration and study of the patient's mental outlook.

When in a serious case we telephone for the services of a nurse we are always anxious to secure one of whom we have had some previous knowledge, and failing this it must be within the experience of all of us how much we regard it as a lottery whether the stranger that may be sent us shall turn out a success.

So throughout the whole process of treatment and care of our patients I think we cannot overestimate the great importance, as a means to successful issue, of studying the mental outlook of those under our care.

Before closing this address, I should like for a few moments to detain your attention upon an entirely different subject, and to ask your consideration of an aspect of eugenics which, while always an absorbing subject of vital interest to the race, has become the more evident of late owing to the serious depletion of our best manhood at the front.

Recent legislation has shown signs that the State is awakening to the necessity of taking some practical steps to prevent a continuance of the altogether disproportionate increase in the number of the unfit as compared with the fit, a fact which cannot but give rise to anxiety when we realize that the only section of the population which prevents the birth-rate going lower, and which increases in proportion to the decline in other parts of the community, is that of the feeble-minded, so that, when to an already declining birth-rate there is superadded a proportional increase in the number of the unfit, the lasting powers of our race become largely a matter for mathematical calculation on a basis of geometrical retrogression.

While I intend just in passing merely to touch upon the question of how to deal with the existing unfit, the feeble-minded, and mentally deficient, my main object is to place before you some views for the betterment of the race by the exploitation of the existing fit, a point which has as yet received but scant notice as a powerful means of counteracting the declining birth-rate and a further continuance of the unfit. I shall not burden you with figures in statistical proof of the accuracy of unquestionable facts, but the problem must be faced, in order, if possible, to find a remedy, without violation of the Christian and utilitarian principles which underlie our whole social being.

It would appear that in such measures as the Mental Deficiency Act, etc., the State is fully alive to the need for the proper care of those unfortunates, but it does not seem to me that it is yet sufficiently alive to the need for adequate measures which will entirely prevent the possibility of procreation and the continuance of their stigmata among such members of the community as happen to be their offspring.

For those whose future is hopeless, in so far as they are ever likely to be able to take care of themselves, or to enter into ordinary relations with the world, complete segregation under care and supervision is obviously necessary; but for those whose disability is partial, and who in a limited sense might be allowed to control their own affairs and take up the duties of life in mixing with their fellow-beings, it appears to me that the costly process of segregation is unnecessary, nor is curtailment of their liberty

justifiable, as in many instances of this kind it would be cruel to curtail their liberty or to deny them the happiness and companionship of home life; but it is of paramount importance that some provision be insisted upon whereby the procreation of their kind is rendered impossible. Obviously any system of domiciliary inspection, boarding out, etc., would be totally inadequate for such a purpose; but the end in view could be best and fully accomplished by the production of sterility, either by operative procedure or the influence of *r*-rays, and a moment's consideration will emphasize the humanity of such a procedure for such individuals when compared with the alternative necessity of compulsory segregation or of permitting the birth of children whose only heritage is degeneracy, and who in turn would continue the series.

Coming now to my main theme—the exploitation of the existing fit—I have an indictment against our great departments of State, in that they do not appear to realize that before they should be concerned with their own individual specialities in naval, military, colonial, and home affairs, their departmental importance is an entirely secondary consideration to the primary importance of the State, and that their first solicitude should be for the welfare of the State as a whole, and not, as at present, for their individual departments.

It will be generally conceded that these departments of State are officered and manned by Englishmen who have been selected for their superlative mental and physical efficiency, and yet so far from any attempt being made by these departments to facilitate such men—the pick of the race—procreating their kind, matrimony is officially only half-heartedly recognized, and inwardly regarded as a nuisance, with a consequence that the families in this class are notoriously small.

Without interfering in the least with their efficiency as fighting units, without militating in the slightest against discipline, I contend that more consideration could be shown by the Admiralty and War Office to married officers and men in times of peace, whereby more shore leave could be granted, and whereby they would not be so liable as at present to be arbitrarily moved from station to station without any adequate compensation, and on all too short notice.

Had such departments the good of the State primarily at heart, there would be less grumbling in the services, less shortage of officers, and the birth-rate would have at least a better chance than at present of being augmented by the fit, while, putting the matter on its lowest footing, an increased expenditure in grants to married officers and men, to assist them in meeting the expenses of their families, would pay the country in the long run. The renting of houses where quarters are not provided being a serious drain on private resources, one would expect some sympathetic departmental solicitude, instead of the studied official indifference meted out to those who are anxious to obtain some idea upon which to base length of tenancies, etc.

Among soldiers a proportion of only 5 per cent. obtain leave to marry "on the strength," and the frequency with which, under the Local Government Board, boards of guardians, town councils, etc., notices of vacancies for joint married appointments openly state that preference will be given to those "without children," not only shows how utterly such departments fail to recognize their greatest responsibilities as being primarily in the interests of the community and for the amelioration of the State in the future, but also reveals the immorality of an attitude which places, as it inevitably must, a premium upon practices deserving the severest condemnation. I could quote you instance upon instance of this short-sighted attitude emanating from the Admiralty, War Office, Colonial Office, etc., but I will only mention one example typical of the whole position which occurred to my own knowledge in the case of a Local Government Board official, a man of splendid physique and moral character, and eminently desirable as a racial asset, who was informed when his third child was born that he would be dismissed if a fourth arrived, the threat being eventually carried out solely for that reason. Here, then, is an instance of a policy which, alas! permeates our great departments, and which, in my opinion, cannot be too forcibly condemned, no words being too strong for so criminal an attitude—criminal, because operating towards racial death.

I am fully alive to the fact that we cannot ensure perfect stock as long as no health restrictions are enforced upon two persons who get married, but as such restrictions are for the present, at least, out of the question, and can only come from a right sense of duty being developed in each individual, we can at least utilize the best material we possess to its best advantage, instead of, as we now do, discouraging the best, while permitting the degenerates unrestrictedly to do their worst.

The rebate on certain incomes allowed for children is a sign that the State is beginning to have a glimmering of its responsibilities in this direction, but there are hosts of other ways in which assistance could be given to those who are doing their best to improve the race, and I will instance only one of many directions in which the principle could be still further advantageously fostered. Surely it is a strange anomaly that the State does not in any way recognize the very different responsibilities of individuals, and claims from the man with a large family to bring up the same tax upon income as is exacted from the bachelor or married man without children, and here is a direction in which the financial burden could be eased for the former, thus directly affecting efficiency in the upbringing of offspring. Obviously a man, whose income is, say, £1,000 a year, with a wife and several children dependent upon him has greater responsibilities and is not so well off financially as a bachelor with the same income, so that the children should be taken into account far more than is done by the present rebate, which, by its very meagreness, is as much an insult as a benefit. It has been suggested, and it appears to me a sound proposition, that families should be classified for taxation purposes so that the man and his wife should count as one, and any two children should count as one adult for purposes of assessment. By this means a man with a wife and six children and an income of £800 a year, instead of paying as now full tax on the £800, would be assessed as four incomes of £200 apiece, which would entitle him to the very substantial rebate on the four smaller incomes.

I am fully aware that the whole of this suggestion is open to the objection that there is no guarantee that the fittest and best of the race will be the people having the large families, but that probably it will be the reverse; but here comes in my original plea that more encouragement should be given to those who are believed to be the fittest, as far as mental and physical examinations can determine, to procreate their kind, and I have but enumerated one or two of the hosts of ways by which such encouragement could come about and the future of the State as a State be benefited.

An interesting report on the work done at the Coolgardie Sanatorium in Western Australia by Dr. Henry A. Ellis, now acting as Tuberculosis Officer at Middlesbrough, contains some suggestive points which, if not altogether new, have, at any rate, been very fully investigated. The use of nitrites for the lowering of blood pressure, especially in hæmorrhagic cases, the very free administration of calcium chloride, and the local application of iodine spray, have all been advocated in their turn, but few observers have pushed them to the same extent or claimed to have obtained such good results. A great believer in the value of von Pirquet's method, he believes that he has been able to gauge with some degree of accuracy the extent of lesions from the relative dilution needed to produce reaction, and suggests that the test should be applied to all persons aspiring to enter the public services. He points out, with truth, that a tuberculous person may not suffer from his tubercle if his general health be maintained. Any accession of disease may start the activity of the tubercle and the foreknowledge of its presence should enable the individual to guard against risks of infection by any other ailment which might rouse the tubercle to action. The von Pirquet reaction, except in the case of children, has gradually fallen into disregard in this country, owing to the large proportion of contradictory results obtained by various observers. The diagnostic importance of injections of tuberculin has proportionally gained in general estimation. It is to be feared that reaction to diagnostic injection would be too freely interpreted as indicating consumption in the present state of public knowledge or ignorance, and however useful it might be to the future health of the individual, it would not be likely to improve his present prospects.

THE TREATMENT OF PULMONARY TUBERCULOSIS BY NITROGEN COMPRESSION.

[WITH SKIAGRAMS ON SPECIAL PLATE.]

BY

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So much has been written in this and other journals on the technique of the operation of nitrogen compression for pulmonary tuberculosis that I propose only to touch upon a few practical points of importance before proceeding to a recitation of the illustrative cases.

With regard to the preparation of the patient for operation, when possible I prefer the patient to be at absolute rest in bed for two days previously. On the second evening an aperient is given, and if the bowels have not acted satisfactorily, a simple enema is given early the following morning. The chest is then carefully examined, and three likely sites for puncture are chosen and painted with tincture of iodine to the size of half a crown. Three-quarters of an hour before the time appointed for operation 0.5 c.cm. of omopon-scopolamine is given hypodermically. Half an hour later, if the patient is not well under the influence of the drug, a further dose of 0.25 to 0.5 c.cm. is given. This procedure is found most beneficial in diminishing reflex sensibility, whilst the rate and depth of respiration is not materially affected. The proposed site of operation is again painted with tincture of iodine and a hypodermic syringe containing 15 minims of a solution of novocaine and adrenalin is taken, and the needle plunged through the skin at right angles into the intercostal space. It is pushed onwards gently until it is judged to have reached the parietal pleura (this can often be felt by a sudden feeling of resistance to the needle). Two or three minims of the anaesthetic are next injected, and the needle is gradually withdrawn, injecting slowly the while. In this way a track is anaesthetized along which the Saugmann's pneumothorax needle is subsequently passed. It is a practical point of some importance that no excess of anaesthetic fluid should be left immediately under the skin, as if it is there is a probability that the Saugmann's needle may be blocked and the manometric oscillations consequently interfered with. For the same reason it is of great importance that the Saugmann's needle should be absolutely dry, and for this purpose it is my practice to keep the needle in absolute alcohol until required for use. When taken out of the alcohol it is thoroughly dried over the flame of a spirit lamp, and hot air is blown through the needle by means of a small air bellows attached to the proximal end. At the first operation I prefer to use a needle with an opening at the end, but when a potential space has been established between the parietal and visceral layers of pleura I use a needle with a solid point and a lateral aperture at the end of the shaft immediately above the point.

With reference to the amount of nitrogen to be introduced and the alteration of intrapleural pressure to be brought about at the first sitting, some diversity of opinion exists. The two principal factors governing this question are—firstly, the presence or absence of pleural adhesions, and, secondly, the size of the chest. A point to remember is that one can proceed more rapidly with safety on the right than on the left side of the chest, as the normal position of the heart is less interfered with by introducing gas into the right than the left pleural sac. The use of x rays is of inestimable value in affording information as to the relative position of the intrathoracic organs, as percussio of the cardiac area becomes increasingly difficult and unreliable as the introduction of nitrogen proceeds. It has been my practice, in cases free from adhesions, to aim at producing a slight positive pressure (2 to 3 cm. of water) at the third of three successive sittings, which have taken place at intervals of a day between each. I have found that in chests of average capacity three separate injections of about 500 c.cm. of nitrogen each will bring about this result.

SELECTION OF CASES.

As regards the selection of cases for treatment, it is desirable, though not essential, that one lung should be sound. In the event of both lungs being affected, there must, of course, be sufficient healthy substance in the "sound" lung to carry on the functions of respiration. It is quite astonishing how little apparently healthy lung is necessary for this purpose. Fig. 1 well illustrates this point; it will be seen from this skiagram that an artificial pneumothorax has been produced on the right side. The left lung is largely involved by fibroid phthisis. Yet this patient has been able to walk from ten to twelve miles a day, and has just indulged in a winter's hunting.

It was formerly thought that by producing a pneumothorax in a bilateral case with quiescent limited disease on the "sound" side one ran a great risk of lighting up the disease afresh by throwing additional work on the "sound" side. This has not proved to be the case in practice. Indeed, if the pathological state of affairs is considered, it is seen that rather than exciting the disease to fresh activity one is in reality bringing about a condition of affairs which is conducive to arrest. When one lung is extensively involved and the other slightly so, a considerable amount of compensatory emphysema takes place in the "sound" lung. The alveoli are enlarged and the capillaries dilated; subsequently the capillaries become thrombosed and atrophied and *post mortem* the lung presents a swollen and anaemic appearance. Now when an artificial pneumothorax is produced the emphysematous lung is subjected to pressure, and consequently compression is brought to bear on the vessels and some obstruction to the circulation in that lung is produced. This in turn produces venous stasis, a condition which obtains, but to a much more marked degree, in a case of mitral stenosis. Thus there is produced in the "sound" lung the essentials aimed at in Bier's treatment of tuberculosis by passive hyperaemia, a condition of the lung which tends to bring about arrest rather than excitation of the disease. The radiographic appearance of an emphysematous lung is well illustrated in Fig. 2, while Fig. 3, from the same case, taken after the production of an artificial pneumothorax on the left side, shows the compression to which the right lung has been subjected.

The position taken up by the collapsed lung is naturally dependent on the presence or absence of adhesions to the pleura. Figs. 5 and 6 well illustrate two common positions taken up by the lung in the absence of adhesions. Fig. 5 shows the lung collapsed in the shape of a ball round the pulmonary root, whilst in Fig. 6 it is seen lying along the bodies of the vertebrae.

The sudden drop of temperature claimed to be brought about by the production of an artificial pneumothorax in pyrexial cases has only occurred once in my practice (Chart A). I have found in my cases that the temperature usually for two or three weeks after the operation remains on much the same level as before, with frequently a tendency to a lowering of the morning temperature. After this period it gradually subsides, with an occasional temporary exacerbation, and by the end of six weeks or so the temperature has once more assumed a normal curve. In nearly all my cases there has been an immediate and permanent drop in the daily amount of expectoration, after an initial rise of three or four days' duration due to the squeezing out of secretion from the compressed lung.

There is one other point, but by no means the least in practical importance. It is never possible to predict before making the attempt whether or not one will be able to produce an artificial pneumothorax. Whilst I have failed after repeated attempts in cases which to the ordinary methods of investigation seemed to be entirely free from adhesions, I have likewise failed in cases in which I regarded such a possibility as remote. The moral of this is not to be too encouraging to the patient as to the results to be attained by this method of treatment, as if one is too optimistic and fails in the performance of the operation on account of adhesions, the disappointment and sense of depression produced by failure will require all the tact and ingenuity at one's command to counteract the ill effects produced and prevent a detrimental influence being brought to bear on the progress of the disease.

I will now relate a few selected cases, each of which presents some points of interest.

CASE I.

A young lady, aged 22, who developed phthisis in the summer of 1911. Lassitude and loss of weight were the initial symptoms. She was admitted to this sanatorium on October 11th, 1911. The condition then present was induration, with crepitations, over the whole of the right upper lobe and apex of the right lower lobe. Left lung healthy, tubercle bacilli abundant in sputum. Improvement took place during the winter of 1911-12, and in June, 1912, the patient returned to her home to continue treatment under home conditions for the summer months. She returned in October with a recrudescence in the right lung. There was also evidence of the disease having com-

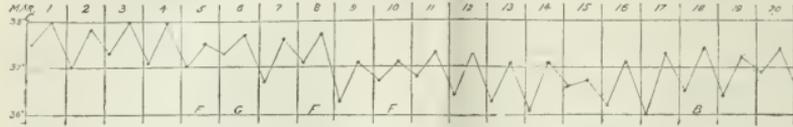


CHART A.—Case I. B = 500 c.cm. N; G = 750 c.cm. N.

menced in the left lower lobe. She remained under treatment during the summer of 1912-13. The disease on the left side became arrested, and improvement took place in the right lung. During the summer of 1913 the patient was able to take exercise to the extent of walking four miles daily, but in December an exacerbation of the disease occurred in the right lung, accompanied by pyrexia, sweating, and loss of weight. Matters did not improve. Accordingly, at the beginning of March, 1914, it was decided to attempt collapse of the right lung by means of artificial pneumothorax. On March 5th the intrapleural space was found showing a pressure of -16-10 cm. of water; 600 c.cm. of nitrogen were introduced, raising the pressure to -4-0. Refills were given on subsequent days (vide Chart A), until on March 10th the intrapleural pressure had been raised to +12-7. Physical examination of the chest revealed the absence of breath sounds on the right side and a skiagram taken the following day (Fig. 5) shows the lung well collapsed. During this period the temperature and pulse-rate had both fallen to within normal limits.

On March 16th the patient was allowed to sit up in bed for an hour. On March 18th a further refill was given, and the following day the patient was allowed to sit up in a chair for two hours. All seemed to be going on well, and a successful result from the treatment was anticipated. During the night of March 21st-22nd the patient complained of restlessness and

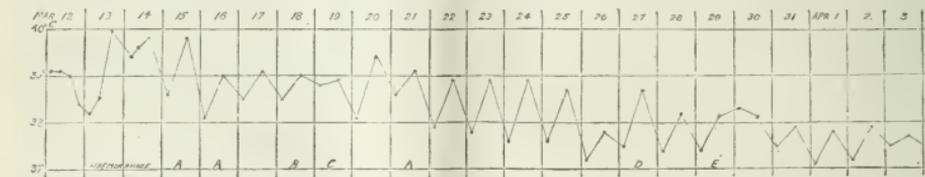


CHART B.—Case II. A = 1,000 c.cm. N; B = 500 c.cm. N; C = 950 c.cm. N; D = 1,000 c.cm. N; E = 900 c.cm. N.

increasing shortness of breath. Some cyanosis was present, and the pulse-rate had increased to 120. Examination of the chest revealed a diffuse commencing pneumonia of the left lung, fine crepitations being audible from apex to base. The dyspnoea rapidly increased, and as the patient's condition was rapidly becoming critical I decided to release the right lung in an attempt to give the patient more aerating surface with which to carry on respiration and also to relieve any mechanical embarrassment of the heart. Accordingly a Saugmann's needle was introduced, one limb of which was connected by rubber tubing to a Potain's aspirator pump, the other to the manometer. The clip was released, and the tap shut. The nitrogen was in this way extracted from the right side of the chest. Readings were taken on the manometer between every two or three strokes of the pump by clipping and opening the tap. The intrapleural pressure was reduced until a negative pressure of -4-2 was produced. During these operations the pulse was not materially affected, and no additional distress was manifest. The Saugmann needle was withdrawn and the chest auscultated. The breath sounds were immediately audible over the whole of the right lung, and in character were much the same as before the initial collapse sixteen days previously. Unfortunately the hope of improvement entertained was not realized, and the patient died from heart failure twenty-four hours later in spite of the free use of oxygen.

The points of interest in this case are: First, the almost immediate improvement in the temperature and pulse-rate subsequent to the collapse of the diseased right lung (Chart A). Secondly, the performance of the operation for decompression under conditions of emergency; and, lastly, the rapidity with which the collapsed lung expanded under the release of the pressure.

CASE II.

A man, aged 34, weighing 13½ st. and standing 6 ft. 2 in., was admitted on February 13th, 1914, with a history of hæmoptysis six weeks previously. Examination of the chest showed a limited lesion in the right upper lobe with evidence of induration. The left lung was normal. As the temperature was slightly raised, the patient was kept at rest in bed. Cough was a prominent symptom, accompanied by mucopurulent sputum, to the extent of 150 c.cm., daily. Ten days after admission the temperature began to rise steadily (Chart B), sweating at night commenced, and the patient soon became acutely ill. Auscultation of the chest revealed evidence of increased activity in the right upper lobe.

This state of affairs continued without much change for a fortnight, when, on March 13th, a severe hæmorrhage occurred, which continued at intervals for the next two days, in spite of treatment on the usual lines. A particularly severe hæmorrhage occurred on March 15th, and as the patient's condition was rapidly deteriorating and the hæmorrhage showed no signs of abating, it was decided to attempt the production of an artificial pneumothorax as a means of checking the hæmorrhage by pressure; 1,000 c.cm. of nitrogen were introduced at the first sitting, raising the intrapleural pressure from -10 to -2 cm. of water. This had the effect of controlling the hæmorrhage to a great extent, but as bright red expectoration persisted the following morning a further 1,000 c.cm. of nitrogen were introduced, raising the intrapleural pressure to +4. This had the desired effect of stopping the bleeding. The patient showed no signs of distress as the result of these two large injections of nitrogen, and, as the disease appeared to be running such an acute course, it was decided to continue the treatment and produce a complete pneumothorax. Accordingly refills of 500, 950, and 1,000 c.cm. were given within the next five days (vide Chart B), and the intrapleural pressure was eventually raised to +18 cm. of water, at which it has been kept by periodical refills for upwards of a year. The progress of this case has been most satisfactory. The temperature and pulse-rate quickly dropped, and the patient was soon able to lie up and about, and has been taking daily walking exercise to the extent of six miles without fatigue, whilst the physical signs and symptoms indicate quiescence of the disease, and it

is hoped that ultimate permanent adhesion will be obtained. In this case there are evidently some adhesions on the posterior surface of the upper lobe, as, although breath sounds were inaudible in front, there was evidence of feeble tubular breathing over a small area behind. This is borne out by the appearance in the skiagram taken but not shown in this paper. The case is interesting as showing the value of this form of treatment in cases of alarming and uncontrollable hæmorrhage.

CASE III.

A young man developed phthisis in the left lung in January, 1910, at the age of 26. He received sanatorium treatment for a period of six months, during which time considerable improvement took place, and in the autumn of the same year he was recommended to take up residence in Anstrath. He spent four years abroad, during which time he had many ups and downs, and towards the end of that period had several severe hæmoptyses. He returned to England in 1914, and on the voyage home he was sent to this sanatorium by a London physician with the request that an attempt should be made to produce an artificial pneumothorax, though the physician did not hold out much hope of a successful issue on account of the duration of the disease and the undoubted presence of pleural adhesions. On examination it was found that the left lung was involved throughout by tuberculous disease, with evidence of cavitation in the upper lobe. The right lung showed evidence of a quiescent lesion at the apex of the upper lobe. Fig. 2 shows the radiographic appearance on admission—extensive left-sided disease with much compensatory emphysema in the right lower lobe. On November 10th three attempts were made, at different sites, to find a free pleural space, but without success. On November 12th a further trial was made, and at the second

GEOFFREY LUCAS: TREATMENT OF PHTHISIS BY NITROGEN COMPRESSION.



FIG. 1.—Showing a complete pneumothorax on the right side with extensive disease on the left.



FIG. 2.—Shows Case III immediately before operation. Note the emphysematous condition of the right lung.



FIG. 3.—Shows Case III during the process of the production of complete pneumothorax. Note the altered appearance of the right lung owing to the compression of the left lung.



FIG. 4.—Shows Case III with the lung finally collapsed. Note the shadows of the two lines of attachment of the pleura to the chest wall—*a*, to the anterior wall; *b*, to the posterior wall.



FIG. 5.



FIG. 6.

Figs. 5 and 6 show two common positions assumed by a collapsed lung free from adhesions.

attempt the needle encountered a free space in the sixth intercostal space in the posterior axillary line. The manometer oscillations were small but definitely negative 4, - 2, accordingly 500 c.cm. of nitrogen were introduced, which had the effect of producing positive pressure of 4.3 + 1. It was therefore obvious that one had entered a pleural sac. However, hope was entertained that one might be able to gradually break down pleural adhesions and eventually produce an effective pneumothorax. Frequent refills of small amounts were subsequently given until eventually a very satisfactory pneumothorax was produced without any pain or untoward symptoms. A pressure of + 18 was reached and has been maintained. Figs. 2, 3, and 4 show three stages in the course of treatment. Fig. 3 shows extremely well the effects of compression of the left lung on the emphysematous right lung. A careful scrutiny of Fig. 4 shows that the left lung is partly bound down by adhesions to both the anterior and posterior chest wall. The faint line of shadow indicated by the arrow (a) marks the line of attachment to the anterior wall, while; the arrow (b) shows the line of attachment to the posterior wall. The lung is evidently compressed inwards towards the mediastinum in the shape of a gutter between the two lines of adhesion. This case is at present doing well. The general condition is excellent, and the patient is living an ordinary life under home conditions, the compression being kept up by means of refills at varying intervals of approximately a month. The case is interesting as illustrating how even adhesions of long standing may be harmlessly broken down by the exercise of caution and perseverance in the treatment.

In conclusion I should like to express my indebtedness to Mr. T. R. Watson, radiographer to this sanatorium, for the production of the skiagrams illustrating this paper.

THE PATHOLOGY AND TREATMENT OF GUNSHOT WOUNDS OF THE SMALL INTESTINE.

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FOUR months' work in a casualty clearing station have given me the opportunity of observing a number of these cases, and though my experience is not wide enough to warrant any final conclusions, yet some points have struck me which may be of interest to others who have to deal with cases of this class.

PATHOLOGY.

Whereas in wounds of the colon and duodenum the chief feature is the progressive escape of contents followed by a more or less localized peritonitis, in the small intestine such an escape usually does not occur at all, and if it does so slight as not to be an essential feature in the case. The cause of death in wounds of the small intestine is more frequently intestinal obstruction due to paralysis and distension spreading upwards from the injured coil. To make this contrast clear, I have appended notes of examples of cases of both classes.

In Case 1 there was a wound of the colon; the chief symptoms were general distension and localized pain. On opening the abdomen a large collection of faeces was found localized under pressure in a cavity formed by adherent intestines. Faeces continued to be discharged from this wound for five days.

Similarly, when the colon is wounded extraperitoneally, faeces are expelled under pressure into the surrounding connective tissue spaces to an almost unlimited extent. I have seen a wound of the colon on the left side (verified *post mortem*) cause faecal infiltration extending into the right loin and discolouring the skin on the right side of the abdomen before death.

In Cases II and III similar localized collections of intestinal contents under pressure followed wounds of the second and third portions of the duodenum respectively.

In wounds of the jejunum and ileum this progressive escape of contents has not occurred in those cases which I have seen.

Of course, if a full coil of intestine is widely opened, it stands to reason that the contents in it at the time must escape. Some undoubtedly escaped in Case IX. But where the coil is empty or the perforations small there is no escape even at the time; in any case, there is no progressive escape later, such as is seen in wounds of the duodenum or colon. The neighbouring coils and the omentum

rapidly become adherent, the injured portion becomes inflamed, immobilized, and shut off, and, although it becomes full, it is only when it is lifted from its bed at operation that the contents are discharged.

Case IV illustrates this point. The injured coil had retracted from the wound area, and was missed at the time of operation. At the autopsy, although it presented four fairly large wounds, it was so securely wrapped in omentum that no general coiling or inflammation of the peritoneum had occurred, although the coil itself was then quite full.

In Case V, where there were three wounds due to a fragment of shell, the condition was the same. In Case VI there was no escape till the coil was lifted from its bed, when the fluid contents spouted out freely.

In Case VII the injured coil was full of liquid faeces which had not escaped, and the same is true of Case VIII.

In Case IX, where the intestine was nearly divided, there was a limited escape, but no general fouling such as would be present after the rupture of an ulcer. A week later there was found a fairly widespread adhesive peritonitis with no suppuration.

So that it seems that the usual course of gunshot wounds of the small intestine, even when multiple and fairly large, is that they are sealed off at once in such a way that there is only a very small escape of contents, not enough to produce a general peritonitis or even a localized collection of faeces. All that is produced at the time is a very limited local peritonitis.

After this has occurred the intestine at and between the wounds becomes inflamed, immobilized, and paralysed; it slowly fills up and constitutes a functional block. The bowel above it becomes progressively distended, paralysed, and poisoned, just as it does in any other form of intestinal obstruction. The patient after a time develops distension and bilious vomiting, and ultimately dies.

This point is illustrated by Case VII, where the bowel was resected two and a half days after the injury, when bilious vomiting had already set in. The dilated intestine above the injury was emptied at the time of operation, and this gave temporary relief, but the symptoms recurred, and the patient died. *Post mortem* the bowel above the junction was found very much distended, that below it empty and contracted, and this although there was no physical obstruction whatever.

In Case IV, where the injured coil was not dealt with, the same condition was found at the autopsy.

The clinical course of these cases is in agreement with this view. Many of them—by no means all, but a large proportion—remain free from symptoms and apparently well for two or three days on starvation and morphine. At the end of this time, which often coincides with their transfer to a clearing hospital, they rapidly develop distension and vomiting, and ultimately die.

If these symptoms were due to an immediate escape of contents, one would expect immediate pain, rigidity, rising pulse, and vomiting. But the course they actually follow and the symptoms they present are rather those of an obstruction of gradual onset than those of a prompt general peritonitis.

The explanation of these differences in the behaviour of wounds of the duodenum and colon on the one hand, and of those of the mobile part of the small intestine on the other, is probably twofold. In the first place, the small intestine is so situated that it is very readily sealed off by omentum and adjacent coils. In the second place, it seems to be the case that the movements of the small intestine are more readily paralysed by injury and inflammation than those of either the colon or the stomach. So that although a passive dilatation occurs, there is no driving force behind it which could lead to escape of contents under pressure. If such a force were present recent adhesions would not prevent leakage, though they might limit its extent.

TREATMENT.

If the course of events is usually such as is suggested above, the bearing of it on treatment is obvious. For it is clear that simple suture of wounds of the duodenum and colon is both necessary and sufficient. If this is efficiently done the contents will be driven along their proper course; if it is not done, they will be continually forced either into the peritoneum or into the extraperitoneal tissue. In

neither case will there be stasis. The essential thing is to close the leak—there is no danger of obstruction.

In the jejunum and ileum, on the other hand, simple closure of the wound would be both unnecessary and inefficient. As regards the escape of contents, it would merely effect, with a certain amount of shock, disturbance, and fouling of the peritoneum, what Nature had already done. As regards paralytic obstruction, it would do much to increase it.

The proper course in such a case would be to resect not only the injured portion, but also as much bowel above it as is likely to remain out of action and constitute a functional obstruction. The point is not a new one; it was emphasized by Barker in relation to strangulated hernia, and is equally sound whether the obstruction is physical or functional. The longer the obstruction has existed the more important it becomes.

The amount to be removed depends, first, on the number and relative position of the wounds; apart from this it increases with delay, since the condition which makes resection necessary is one which progresses gradually and regularly upwards. In Case vii the resection of 12 in. after two and a half days was not enough to prevent stasis in the bowel above, as was evident *post mortem*. The patient probably died for that reason.

In Case ix, operated on ten hours after injury, the removal of 7 in. was sufficient to restore the function of the intestine. In Case v, where 2½ ft. were removed after thirty-six hours, the patient made a good recovery.

In Case vi, where 4½ ft. were resected after eighteen hours, the amount may have been unnecessarily great, but it was a fault on the right side, and did not interfere with the patient's recovery.

A sound principle can, of course, be made absurd easily enough by carrying it to extremes, and the earlier the operation the less the need for wide resection. But it is doubtful if the difference in shock is very great; and whereas the risk of an insufficient resection is death, that of an excessive resection is more likely to be indigestion.

TECHNIQUE AND AFTER-TREATMENT.

In view of the fact that injured intestine may move away from the wound and so be missed (as in Case iv), and that the course of the bullet is often unknown, it is wise to place the incision near the mid-line and inspect the whole of the small intestine. It is a disadvantage to include the wound in the incision.

After operation the sooner the bowels move the better. Enemas and divided doses of calomel are useful, and pepsin sometimes acts like a charm. Apart from these points, the technique and after-treatment are those of a similar operation in civil practice.

The recovery of one case (vi) was interrupted by an acute dilatation of the stomach, and all three surviving cases had a varying degree of diarrhoea, which in one (v) amounted to a serious dysentery.

SELECTION OF CASES.

The majority of cases reach us after a varying period of rest in a field ambulance. The condition of some is so bad that operation is out of the question; in others the presumed intestinal injury is accompanied by others which render interference inadvisable.

In the rest the presence or occurrence of definite symptoms of injury in the intestinal area is a sound indication for operating at once. Some patients recover without any such symptoms, and to open all wounded abdomens as a routine measure would probably do more harm than good. But once symptoms become manifest there is not much margin for delay. If these cases are placed under observation in a clearing hospital soon enough after the injury, it should be possible to seize the opportunity when it occurs, provided always that the surgeon has the necessary equipment and experience for dealing with any condition he may find.

The common practice of withholding water from such patients causes much suffering. In cases of internal haemorrhage and during transport it is probably necessary. Once in hospital, if a man is definitely dying, no good purpose is served by adding thirst to his other sufferings, while if he has an injury which requires operation, the worst that water in reasonable quantities is likely to do is

to hasten the time at which he develops symptoms and is radically dealt with. The sufferings these patients endure from thirst cannot be doubted by any one who has ever seen them. The only consideration which could weigh against them is proof that men who would ultimately have lived have actually died because they were given water in hospital some time after the injury. As far as I know this proof is lacking.

Water does not produce flatus; it probably never reaches the wounded area, and if it does it is unlikely, for reasons already given, to cause any escape of contents.

RESULTS.

Makins (*Surgical Experiences in South Africa*, p. 460) concludes as follows: "Perforating wounds of the small intestine are very fatal injuries. Every patient in whom this condition was *certainly* diagnosed died." In dealing with such an injury it is not so much a question of how many cases will be lost, but rather whether any can be saved.

I have appended notes of the only cases, 5 in number, in which I have opened the abdomen and resected intestine in this hospital (Cases v, vi, vii, viii, and ix).

Of these cases viii died almost at once from recurrent bleeding, and vii after thirty-six hours with intestinal stasis, due, I believe, to an insufficiently free resection.

Case ix recovered and lived for a week, during which time he improved in condition and had his bowels open freely and often. He died at the end of this period from secondary haemorrhage from an artery outside the abdomen.

Case v recovered and was transferred to the base three weeks after operation.

Case vi recovered, was transferred to another hospital, and seventeen days after operation was reported well and on ordinary diet, on his way to the base in a barge.

The results thus are that out of 5 cases, 2 died outright, 2 recovered completely, and 1 recovered from the operation but died a week later from another cause.

The two who recovered completely happen to be those in which the largest amounts of bowel were removed (2½ ft. and 4½ ft. respectively).

CONCLUSIONS.

1. Death in uncomplicated cases of gunshot wounds of the small intestine is not usually due to escape of faeces and general peritonitis, but to a progressive intestinal paralysis and distension spreading upwards from the injured coil.

2. Operation in such a case should include the resection of the injured portion together with as much bowel above it as would otherwise remain in a condition of paralysis.

3. If this be done sufficiently early there is a prospect of saving a fair proportion of cases.

I wish to repeat that these conclusions are based on a small number of cases, those of which notes are given. Wider experience or the experience of other surgeons may perhaps modify or contradict them; meanwhile their practical importance at this time seems to me to justify their publication.

In conclusion I wish to express my great obligation to Captain H. T. M. Wilson, R.A.M.C., for his help with nearly all these cases, and for many valuable practical suggestions.

CASE I.—Wound of Colon: Localized Escape of Faeces: Drainage: Death from Secondary Haemorrhage Six Days later.

Private D., 2nd Scots Fusiliers. Shrapnel wound three days ago. Entry near navel; no exit. Distension, poor pulse, retention of urine, acute localized uncontrollable pain. No vomiting. March 15th, operation undertaken chiefly to relieve the pain. Incision near wound, splitting rectus. On opening the peritoneum semi-solid faeces came out under great pressure, issuing from a blackened cavity formed by adherent intestine, into which faeces were discharged from a wound of the colon. Faeces came away through the wound for the next five days. The pain was less, the general condition poor. On March 20th an enema was given and solid faeces were passed per rectum. Secondary haemorrhage then began, increased, and proved fatal on the 21st. As fighting was then going on no autopsy was made.

CASE II.—Wound of the Duodenum: Localized Escape of Contents: Drainage: Death.

Private H., East Lancs. Wound in the right flank three days ago. Bilious vomiting, very acute local pain, no signs of general peritonitis. Operation March 7th; Incision vertical in

upper part of right rectus, viscera adherent round a collection of dirty grey fluid and gas, which issued from a hole deep down in the inflamed lining of the cavity. This hole could not be closed. Drainage through the wound of entry; closure of the operation wound. Vomiting and pain ceased at once; the next morning the patient was reading the paper. Discharge free, reddening the surrounding skin; no faecal smell. The patient was transferred to the base six days later. While there the discharge diminished and ceased to be irritating, but he gradually sank and died.

CASE III.—Wound of Duodenum or Beginning of Jejunum: Localized Collection of Fluid; Drainage; Death in Five Days.
 Lieutenant C. J. 2nd Leicesters. Sharpnel wound left loin between the half and one inch. No symptoms till the night before admission, then vomiting, pulse 120, hicough, and pain referred to testes. Operation May 24th: Incision splitting left rectus. On opening the peritoneum a dirty fluid, fetid though the odour was not faecal, issued under pressure from a cavity formed by adherent viscera. The hole in the intestine could not be demonstrated but lay apparently in the duodeno-jejunal flexure. A sharpnel bullet was found lying in the mesentery of the jejunum close to the bowel which was here intact. Closure in layers with a lumbar drain.

May 25th. The discharge is practically pure bile. This fluid, later on, reddened and excoriated the surrounding skin; the patient vomited a good deal, grew weaker, and died May 29th.

CASE IV.—Injury to a Coil of Intestine which Retracted from the Wound and was Missed at Operation; Death from Haemorrhage.

Private M., 2nd Leicesters. Wound in left iliac fossa; pulse 120. Operation May 17th: Vertical incision over the wound, large collections of clot inside and outside the peritoneum, that inside smells slightly faecal. Colon intact, two small punctures in the mesentery and intestine closed. No sutures. A coil of ricochet bullet found loose. The patient died on May 19th.

Post mortem: Abdomen full of blood, wound of omentum. In the umbilical region, at some distance from the wound, lay a coil of jejunum completely wrapped in omentum, with four biggish holes. No escape of contents, no general peritonitis. The injured coil and the bowel above it much distended, the intestine below empty and shrunken.

CASE V.—Resection of 2½ ft. of Small Intestine; Dysentery; Recovery.

Corporal M., R.Y.R. Shell wound through right ilium thirty-six hours before in direction of pelvis. Slight abdominal distension; no pain on vomiting. Urine normal. Operation March 18th: Incision in the middle line. Three wounds found in the coil of the coil at the right angle. No escape of contents. The missile, a square piece of shell about 1 in. across, lay in the lumen of the gut. Two and a half feet of intestine resected, end-to-end suture, suprapubic drain. Two days later the bowels were moved with calomel, enemata, and pituitrin. A week after operation he developed diarrhoea, which later became a definite dysentery, with passage of blood and mucus. Treated with morphine, sulph. hour, recovery. Transferred to base April 9th, three weeks after operation.

CASE VI.—Wounds of Small Intestine; Resection of 4½ ft.; Acute Dilatation of Stomach; Recovery.

Lieutenant C. F. P., 6th Duke of Wellington's. Entry wound—ricochet bullet—right iliac fossa. After eighteen hours, onset of local pain, rigidity. Bullet thought to be in wall. Operation May 24th: Incision vertical, crossing the wound. A coil of ileum found wrapped in the omentum, perforated near the mesenteric border in two places about 5 in. apart. There had been no escape of faeces, but the coil was full, and as soon as it was lifted from its bed the liquid contents spouted out. Intestine above much dilated with gas and liquid faeces, that below practically empty. A piece of bullet casing lying loose. Rest of contents of the rectum normally in situ. No general peritonitis. 53 in. of bowel resected from just below the injury upwards; it was all dilated and inflamed. Bowel above emptied. End-to-end suture in healthy bowel. Inflamed omentum tied off. Suprapubic drain.

May 25th. Poor pulse. No vomiting.
 May 26th. Enema—solid faeces. While this was acting half a pint of clear, negligible serum was discharged from the drain, and three measured pints of watery green fluid vomited. No further vomiting.

May 27th. Epigastric pain and distension, stomach felt swollen and tense, rest of abdomen lax. Stomach tube drew off 3 pints green fluid. In the evening same condition, about 1½ pints brownish sour-smelling fluid drawn off. Bowels moved naturally in the night; no further distension. Later there was a troublesome diarrhoea.

Our hospital moved away a few days later, and the patient was left in the care of Captain Frankau, R.A.M.C.T., who tells me that he sent him to the base in a barge on June 10th (seventeen days after operation). He was then on ordinary diet and doing well.

CASE VII.—Excision of 12 in. of Intestine; Death Thirty-six Hours later.

Private H., 4th Liverpools. Shot from roof of penis to right lower ribs two and a half days ago. Bullet (sharpnel) felt under the skin. Bilious vomiting, rigidity, pain. Operation March 15th: Incision in right rectus. Small intestine wounded in two places, full of liquid faeces of which none had escaped.

Resected a foot and emptied the bowel above. The next morning the patient was better, later bilious vomiting came on again and he sank and died.

Post mortem: No other injury was found. No general peritonitis; no haemorrhage. The bowel above the union very much distended, that below it empty and contracted.

CASE VIII.—Resection of 9 in. of Small Intestine; Death a Few Hours later from Recurrent Haemorrhage.

Private D. B., 2nd Yorks. Bullet wound crossing abdomen from a point 2 in. left of the navel to the right loin. Operation January 28th: Median incision. The wound of exit lay just outside the ascending colon. The peritoneal surface of this was apparently intact, but the discharge from the exit wound smelt slightly faecal. The whole of the small intestine was inspected. In one place there was a complete perforation, mucous membrane protruded and blocked both entry and exit. There was no escape of contents. About 2 in. of the injured portion was excised and the intestine joined by end-to-end suture. Death took place some hours later.

Post mortem: The peritoneum was full of free blood, derived either from the omentum, which was slightly injured, or from the region of the exit wound.

CASE IX.—Resection of 7 in. of Bowel; Recovery; Death a Week later from Secondary Haemorrhage from the Gluteal Artery.

Private C., 2nd Gordons. Shell wound in right buttock ten hours before; vomiting, rigidity. A wide track leads directly through the ilium into the pelvis. Operation February 7th: Median incision. Bladder and rectum intact; a good deal of free blood and some peritonitis. The small intestine had four wounds, two of which neatly divided it. Missile not found. Seven inches resected. Closure with drain in entry wound. The patient nearly died after the operation, but rallied, grew stronger, and lived for a week, the bowels opening frequently. On February 15th he began to bleed from the drain, the bleeding recurred and increased, and proved fatal on the 14th.

Post mortem: Intestinal tract all sound, but generally adherent. Scarcely any blood in the abdomen. Bleeding had evidently come from the wound in the buttock, presumably from the gluteal artery.

"TRENCH BACK" TREATED BY SODIUM SALICYLATE IONIZATION.

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"TRENCH BACK" is the term applied to a variety of conditions arising from injury to the back in the lumbar or sacral regions. The injury is usually caused by the impact of large and heavy masses of matter, such as a quantity of earth or sandbags.

As the condition is of great importance on account of its frequency and the prolonged disability it usually entails, I venture to bring forward the following method of treatment, although the number of cases so far treated does not justify any dogmatic statement as to its utility or allow any final conclusion to be drawn.

The cases almost invariably come from the trenches. They complain of pain and rigidity in the dorsal-lumbar region. Various degrees of disability are represented—some can get about, others have to be carried on stretchers. Those who can walk do so with a pronounced stoop, and use a stick. Tenderness is generally present. Some cases show anaesthesia, and in these there is probably spinal injury. In the milder cases the clinical picture is that of marked lumbago, and would be indistinguishable except for the history. All cases of this condition should be examined by x rays before being treated in the manner suggested, and all cases of injury to the spine and pelvis excluded. Cases with anaesthesia of the lumbar and sacral regions are unsuitable for ionization, as they are very liable to be badly blistered during treatment. The majority have no spinal lesion, the symptoms being due to contusion or sprain of the muscles and fasciae alone. It is for cases of this class that I advocate ionization. In a certain proportion a pronounced psychical factor can be traced, and these cases present features similar in many respects to the condition known as "railway spine," and are always difficult to treat.

The cases that have come under my notice in the Electro-Therapeutic Institute of the Kitchener Indian Hospital, Brighton, have, as a rule, been medically treated in the wards for some time. I selected a number and treated them by ionization with sodium salicylate, and obtained good results in a short time.

I now apply the treatment to all cases of trench back

coming to the department, and the results so far have been satisfactory. It is applied as follows: A 1 per cent. solution of sodium salicylate is prepared. (This can be conveniently done with Burroughs and Wellcome's solids for ionic medication.) A large pad sufficient to stretch right across the back, and 8 or 10 in. broad, is saturated with the solution. The pad must be composed of at least six layers of lint. The patient is placed face downwards on a couch, and the pad is laid over the painful area. A mail chain electrode is placed on top of the pad, and the whole firmly bound on with a bandage. The mail chain electrode is connected with the negative pole of a battery or electric machine. The "multostat," if available, is very convenient, as the current can be regulated to a nicety and all fear of severe shocks obviated. An indifferent electrode is then placed upon some other region, say the upper dorsal, moistened with sodium chloride solution, and connected with the positive pole. The current is gradually turned on and treatment continued for about fifteen minutes. Applications are carried out twice weekly, and improvement often occurs after the first. Some cases are cured in two or three applications.

Certain points in the practical application of the treatment deserve notice. The indifferent electrode (the positive) should be at least as large as the active (the negative). There should be at least half a dozen layers of lint between the mail electrode and the skin; this will allow higher doses to be given without blistering. A 1 per cent. solution of sodium salicylate is quite sufficient, as the concentration of the solution has little or no effect on the amount of the drug absorbed. The dosage is regulated almost entirely by the amount of the current traversing the circuit, hence a milliampere-meter is necessary; 30 milliampères is the usual amount to be given at the initial treatment. At subsequent applications this can be increased until the patient is taking 100 milliampères, or even more. Some cases tend to blister readily even with low dosages, and allowances must be made for individual differences. As a general rule the higher the milliampère that can be borne, the better and quicker will be the results, always remembering that the size of the electrodes must be proportionately increased. The current should be introduced very gradually and also turned off very gradually, as a rapid increment or rapid diminution causes severe shock. Pure distilled water should always be used for making the solutions, as, if other salts are present in the water they also will be ionized, and will interfere with the treatment.

CASE I.—Sepoy F. G., admitted to hospital with trench back on May 14th. Came to electrical department on May 25th. He had severe pain and stiffness in his back muscles and pain down back of left thigh, and was unable to stand upright or walk without a stick. After five applications of salicylate ionization he was walking easily, and had no pain whatever.

CASE II.—H., admitted May 14th with trench back, came to electrical department on May 25th. Very severe pain in lumbar and sacral region. Patient quite unable to walk and brought on a stretcher. Slight movement caused severe pain. After seven applications patient is getting freely about, pain is almost gone, and he complains only of slight stiffness in back muscles.

CASE III.—Sepoy M. B. K., came with severe pain in lumbar region, and inability to straighten back or walk without a stick. After four applications of sodium salicylate ionization the patient was quite cured.

CASE IV.—Lance Naik F. D. came with much pain and stiffness in his back. Had to use a stick to get along. After three applications he was cured.

CASE V.—Sepoy N., came to the department using a stick. He was unable to stand straight, and complained of great pain in the lumbar region. After three applications of sodium salicylate ionization he was quite well.

On July 30th a silver tray and Chippendale clock were presented by the present and past members of the staff of the Leeds Public Health Department to Dr. J. S. Cameron, who recently retired from the position of medical officer of health owing to ill health. Dr. Dennison, chairman of the Sanitary Committee, referred to the great sanitary improvements that had taken place in Leeds, most of which, he said, owed their inception and completion to the medical officer of health. They had helped to decrease the death-rate of the city from a previous average of 22 per 1,000 to the low rate of 15 per 1,000. Dr. Cameron, in acknowledging the presentation, spoke of the loyalty and co-operation of his staff, without which, he said, it would have been impossible for these larger measures of sanitary reform to be carried out.

STOMOXYS, THE STABLE-FLY.

BY

A. E. SHIPLEY, Sc.D., F.R.S.,
MASTER OF CHRIST'S COLLEGE, CAMBRIDGE.

Fly! Thy brisk unmeaning buzz
Would have roused the man of Uz;
And, besides thy buzzing, I
Fancy thou'rt a stinging fly.
Fly—whoe'rt peering, I am certain,
At me now from yonder curtain:
Eezy, curious, thirsty fly
(As thou'rt clept, I well know why)—
Cease, if only for a nicety
Hour, to make my being tingle!
Flee to some loved haunt of thine;
To the valleys where the kine,
Udder-deep in grasses cool,
Or the rusby-margined pool,
Strive to lash thy murrinus kin
(Vainly) from their dappled skin!
Calverley: "The Poet and the Fly."

The common names for common insects in English are confusing. Not only are the same insects frequently known by different names on different sides of the Atlantic, but in many cases quite different insects, insects even belonging to different genera, are connoted by the



Fig. 1.—The insect that is believed to transmit infantile paralysis. Original drawing of the biting stable-fly (*Stomoxys calcitrans*, Linn.), by Ignaz Matasch. (From the *American Museum Journal*.)

same common name. In this respect matters are different in Germany, partly perhaps because the Germans on the whole are more scientifically inclined than we are, but partly, I suspect, because the German language lends itself more easily to express in one word—however long—the characteristics of any given insect.



Fig. 2.—Stable-fly, *Stomoxys calcitrans* (× 5). Antenna. Natural size, resting position. (From *Flies in Relation to Disease: Non-blood-sucking Flies*. By G. S. Graham Smith, M.D. Cambridge University Press, 1914.)

The genus *Stomoxys* is generally called in Great Britain the "stable-fly," but there are other "stable-flies." One of the commonest species, *Stomoxys calcitrans*, is a two-winged muscid fly, not at all unlike the common domestic fly, *Musca domestica*, but there

are one or two points which readily distinguish it from the commoner insect. To begin with—it has a hard, firm, chitinous, piercing proboscis, which when at rest stretches forward in front of the head, and when in action is pressed down at right angles to the longitudinal axis of the body; then, again, when resting its wings diverge, those of the house-fly approximate. Like other flies, the *Stomoxys* varies somewhat in length, between 5.5-7 mm. The thorax has on its back four longitudinal, dark stripes, broken by a transverse suture; and, as the accompanying figure shows, the third of the great, long veins which traverse the wing is much more slightly bent than is the case in *Musca domestica*. Further, whereas the hinder edge of the eye in the house-fly is straight that of the stable-fly is concave, and the antennae bear hairs on the upper side only and not above and below as they do in the domestic fly.

As a biting fly and a blood-sucking fly, the habits of

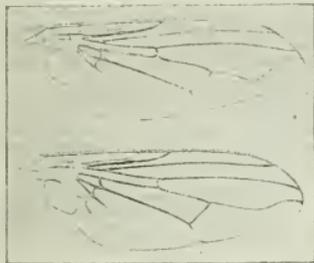


Fig. 3.—Wing of the house-fly (*Musca domestica*) above, and of the stable-fly (*Stomoxys calcitrans*) below. Note the sharp elbow in the third long wing vein of *Musca* and the less bent vein of *Stomoxys*. Drawing by Ignaz Matusch. (From the *American Museum Journal*.)

Stomoxys naturally differ from those of *Musca domestica*, but, like the latter, its distribution is almost world-wide. It is found in all temperate and tropical countries, and extends as far north as Lapland. But it is perhaps most abundant, or shall we say it has been most observed, in temperate climates and during the summer months?

In any farm or country house large numbers of *Stomoxys*

calcitrans are found in and about the cowsheds and stables, and in warm weather the same is true wherever cattle are grazing in the field. Later in the year, at the beginning of autumn, they are frequently found indoors, and in some "fly counts" they have furnished quite 50 per cent. of the flies of a country house, the remaining 50 per cent. being made up of many other species and genera. When resting on a vertical surface *Stomoxys* generally has its head pointing upwards, whereas, as a rule, the house-fly rests upside down. The adult fly feeds upon any decaying matter, but whenever it can it sucks the blood of vertebrates, and at times is a real nuisance to animals as well as human beings. So voracious are they that should a well-fed one be injured, the others immediately attack it and suck up every drop of blood which it had secured for its own food.

It has often been disputed whether a meal of blood is essential to the female mosquito before oviposition, but it seems perfectly clear that the female *Stomoxys* can produce fertilized eggs without having had a meal of blood.

The female lays a number of white, banana-shaped eggs a few inches below the surface of any decaying organic matter; fermenting grass from the lawn, decaying garden

stuff, stable manure—each forms a favourable nidus. The eggs are laid in a heap like those of the house-fly, each heap containing from fifty to seventy. The egg is



Fig. 5.—*Stomoxys calcitrans*. Eggs (after Newstead). (From *Flies in Relation to Disease: Blood-sucking Flies*. By Edward Hindle.)

1 mm. in length and has a grooved side, through the thicker end of which the larva escapes when the egg-shell splits.

The issuing larva is almost transparent. It not only has no head but the anterior end dwindles almost to a point. When fully grown it attains a length of 11 mm., and the larval stage usually lasts from two to three weeks, but development may be retarded by adverse circumstances up to eleven or twelve weeks, and in such cases the full-grown larvae are often stunted in size. In these circumstances the pupae they produce are markedly smaller than those which have followed a more normal course of development. As is true of the egg and of the larva, the pupa resembles the pupa of the house-fly, being barrel-shaped and of a chestnut brown colour; it is 5 to 5.5 mm. in length. The pupa stage lasts from nine to thirteen days, but this period is prolonged by cold.

On emerging from the pupa case the insect has to push its way to the surface of the rotting vegetation in which it has been produced. This it does partly by the alternate inflation and deflation of the so-called "frontal sac," and by actively pushing forward the body by means of its legs. Once on the surface the



Fig. 6.—Acephalous larva of *Stomoxys calcitrans* (x 7) (after Newstead). (From *Flies in Relation to Disease: Blood-sucking Flies*. By Edward Hindle.)

insect begins to clean itself, pumps air into its body, forces it along the tracheae in the wings, which expand and ultimately harden; in the processes of unfolding they are aided by the hind legs. For a time the insect is immobile, gradually stiffening, but when the integument has hardened it flies off to explore the outer world. Under normal conditions the whole life-cycle varies from twenty-seven to thirty-seven days.

The chief interest of *Stomoxys* to the public rests upon the fact that it is a very potent carrier of disease. There are certain forms of *Trypanosoma* which, under experimental conditions, are undoubtedly transferred by this species. But opinion is still unsettled

as to whether the transference of these protozoa occur in nature. The *Serra* diseases of horses and camels is, according to some authorities, transferred by *Stomoxys*,



Fig. 4.—Side view of head of stable-fly. A, Proboscis in resting position; B, proboscis extended. (From *Flies in Relation to Disease: Non-blood-sucking Flies*. By G. S. Graham-Smith. M.D. Cambridge University Press.)



Fig. 7.—Coarctate pupa of *Stomoxys calcitrans* (after Newstead). (From *Flies in Relation to Disease: Blood-sucking Flies*. By Edward Hindle.)

and so is the *Sorra* disease of cattle; and there are others, all fully set forth in Mr. Hindle's work on *Flies and Disease*.

Certain threadworms—for instance, *Filaria labiata-papillosa*—which occur in the peritoneal cavity and sometimes in the eyes of cattle and deer in India are undoubtedly conveyed by *Stomoxys calcitrans*. The superficial vessels of the cattle swarm with the larvae of these threadworms, which readily pass through the proboscis of the insect into its stomach. They then wriggle through the walls of the stomach and make their way into the thoracic muscles: here they undergo a "rest-cure," and after a time they are readily transferred to a new and uninfected host.

But by far the worst infection which is attributed to this fly is acute epidemic poliomyelitis, or infantile paralysis. That this disease occurs in epidemics has been known, especially in Scandinavia, for some time, and eight years ago it attracted serious attention in North America and in our country. In 1907 there were many local outbreaks in the United States and Canada, and it is thought that the infection was first introduced from Scandinavia along the Atlantic coast, and later inland as far as the State of Minnesota, by the numerous Scandinavian immigrants that settle there.

The disease is one of those which are apparently due to a protozoan too small to be visible under the highest power of the microscope, and so small as to be able to pass through a Berkefeld filter. It can readily be artificially transmitted to monkeys. It is thought that the disease is by no means transmitted only by means of the biting *Stomoxys*, and that it may be directly transmitted from one person to another without the aid of any intermediate host. But there seems little doubt that it can be, and is, transmitted by *Stomoxys*, and therefore it is of the highest importance to reduce the number of these insects.

The most efficient way of controlling this pest is to destroy or put out of action its breeding places. All decaying vegetable matter should be either removed or burnt or buried, or covered with some agent which will prevent the larvae living. In fact, the methods that have been advocated for the common house-fly are applicable to *Stomoxys*. If stable manure were carefully removed, from May to October, at least every seven days, the number of flies would be materially reduced. Where this is impracticable, manure heaps should be covered with some insecticide, so as to destroy the eggs and larvae. Experiments are still being made with the view of finding a substance capable of killing the eggs, larvae, and pupae, which will be at once cheap and unharmed to the fertilizing value of the manure. The American experts recommend borax or colemanite (crude calcium borate), calcined, powdered, and applied by a flour-dregger. The proportions which seem most effective are 0.62 lb. of borax and 0.75 lb. of colemanite to 10 cubic ft. or 8 bushels of manure. Two or three gallons of water should then be sprinkled over the manure heap.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF MYELOMA OF THE STERNUM TREATED BY RADIUM.

A MALE, aged 32, suffering from a large myeloma of the sternum, was recommended to me with a view to radium treatment in the Royal Infirmary, Edinburgh, by Professor Gulland, on March 9th, 1915. The tumour had first been noticed two years before after an attack of pleurisy; it had since steadily increased in size, and now consisted of a firm adherent growth about the size of a large coconut in front of the sternum. The circumference of the chest over the growth measured $37\frac{1}{2}$ in. An x-ray examination suggested involvement of the mediastinum. The patient suffered from increasing weakness, from constriction of the chest, and shortness of breath. A consultation was held with Mr. Miles, who considered the case inoperable. In view of the size of the growth, and of the limited amount of radium at the disposal of the Royal

Infirmary, I did not think that much benefit would result from radium applications, but I said that if he were admitted to the wards, a vigorous course of treatment would be tried.

This consisted in the introduction by Mr. Miles of four aluminium tubes containing 10 to 20 mg. each of pure radium bromide into the right hemisphere of the growth, while at the same time external applications through silver shields, 0.5 mm. in thickness, were made. Thus the right hemisphere of the tumour was subjected to an energetic crossfire of rays. The plan of treatment was to transfer at the end of a few days the internal tubes to the left hemisphere, but owing to the rapid diminution in the size of the growth it was not found practicable to introduce more than two of the tubes. The total dose amounted to 13,200 mg. hours.

A month after the treatment the growth had entirely disappeared. Professor Gulland remarked, in regard to this case, "that he had watched the tumour growing during the past eighteen months, that it was of very large size—quite as big as two fists—that he had been rather a sceptic as regards the value of radium in malignant disease, but that he was now quite converted. The growth was a myeloid sarcoma."

The patient has regained his health and strength, and is back at his work.

No tumour, in my experience, is so amenable to radium as a myeloid sarcoma. When energetically treated they melt away in an extraordinary fashion.

DAWSON TURNER,

Officer in Charge of the Radium Treatment at
the Royal Infirmary, Edinburgh.

COMPLETE INVERSION OF UTERUS WITHOUT COLLAPSE OR SHOCK: CONCEALED DELIVERY.

I HAVE read two articles on cases of inversion, in the JOURNAL of April 17th, pp. 676, 677, in both of which there was severe collapse. In the following instance collapse was entirely absent.

I was asked one morning to attend a village woman in labour. On arrival I found a young, healthy-looking woman of about 25 years of age who would not allow anybody else to remain with me in her room. She was lying on a couch, but there was no sign of recent or impending delivery about her. She informed me, on promise of secrecy, that she had given birth to a dead immature fetus during the early part of the previous night and thrown it away, and that all I could do for her was to keep my promise. But as soon as I came out of the room I was shown the body with placenta attached and entire. The household were very anxious to impress upon me that there were no marks of violence on it. I asked them to send for a midwife and left. Three hours later I was called again to attend the same woman. The midwife had arrived, and found something unusual outside the vagina. I thought I should have told the household that the patient had refused any medical aid from me at my first visit. The swelling was the uterus, which had undergone complete inversion. I reduced the organ quite easily and put in a plug to keep it up. Recovery was uneventful.

The outstanding feature in this case was the absence of collapse or shock. There was no collapse, in part, no doubt, because there had been no haemorrhage. Shock, according to Crile, may be produced by exposure of abdominal viscera. In Dr. Oag's case exposure for two hours caused shock and death. In my case more than twelve hours' exposure of the interior of the uterus did not produce the slightest constitutional disturbance. I think that the difference in my patient's case can be explained by the state of her mind. Soldiers in the heat of a struggle and consequent mental excitement are said to receive very severe wounds which off the battlefield would have produced instant collapse and shock. My patient was greatly worried by the prospect of possible loss of reputation. The extreme state of excitement of thought centres may have had a reflex influence, and prevented inhibition of vasomotor centres and consequent shock.

Dumbulla.

C. G. KRIEN, M.B. Edin.

Reports of Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF DERMATOLOGY.

At a meeting on July 15th. Dr. J. J. PRINGLE, President, who was in the chair, showed a Turkish bath shampooer, aged 40, who presented an *Erythematous, circinate, and gyrate eruption of very large pattern on the trunk and limbs of more than six weeks' duration.* The case was discussed by Dr. H. G. ADAMSON, Dr. GRAHAM LITTLE, Mr. J. E. R. McDONAGH, Dr. J. M. H. MACLEOD, and Dr. J. H. STOWERS, and considerable differences of opinion were expressed as to the diagnosis, but the general feeling seemed to be in favour of its being an instance of the rare disease described by Darier as *psoriasis rosca gigantea.* Dr. GRAHAM LITTLE exhibited: (1) A female patient, aged 66, with extremely numerous small tumours over the arms, neck, trunk, and thighs, of two and a half years' duration, accompanied by irritation and urticarial attacks. Their contents consisted of sebaceous-like matter, and the exhibitor regarded them as *Traumatic implantation or inclusion cysts.* The PRESIDENT thought the case was probably identical with a disease described by Dubreuilh of Bordeaux in 1896 as "fat-containing cysts of the sweat glands" or of the condition described by Bosellini of Bologna and by himself in 1899 under the name of "steatoma multiplex." The case was discussed by Mr. WILLMOTT EVANS, Dr. ADAMSON, Dr. MACLEOD, and Mr. McDONAGH, who supported Dr. Little's views and confirmed his microscopic observations. (2) A case of *Pigmentation around the mouth* of a boy, aged 12, from Trinidad, apparently resulting from the application of tincture of iodine used for the treatment of a streptococcal infection of the lips. Dr. MACLEOD and Dr. PARKES WEBER discussed the case. (3) A middle-aged woman presenting very extensive *Angioma serpiginosum* with haemorrhagic pigmentation on the legs, thighs, and abdomen associated with joint pains. The relationship to or identity with the condition known as "Schauberg's disease" were discussed by Dr. DUDLEY CORBETT, the PRESIDENT, and Dr. PARKES WEBER, while Dr. G. PENNET suggested the possibility of a syphilitic origin. Dr. G. F. STEBBING brought forward (1) a case of *Atrophic sclerodermia and sclerodactylia* in a woman, aged 70, with enormous masses of calcification almost completely surrounding the left shoulder-joint, as demonstrated by skiagrams. Dr. PARKES WEBER remarked upon the comparative immunity of the feet from sclerodermia. (2) A middle-aged woman with *Congenital multiple tumours on the extensor surface of the right arm.* The PRESIDENT, Mr. McDONAGH, and Dr. PARKES WEBER commented upon the resemblance of the tumours to leiomyoma, and advocated biopsy to settle the point. Dr. GRAHAM LITTLE suggested a possible diagnosis of *urticaria pigmentosa.* Dr. H. W. BARBER brought forward a middle-aged woman suffering from severe *Lupus erythematosus* of the face and arms, apparently of about sixteen years' duration. She also had myxoedema, and had been treated with thyroids. Mr. H. C. SAMUEL showed two sisters, both suffering simultaneously from severe *Lichen planus of circinate type* of the legs and trunk. Dr. GRAHAM LITTLE and Dr. STOWERS reported similar incidents of *lichen planus* in sisters. Dr. S. E. DORE exhibited a young woman, aged 23, suffering from *Graves's disease* of two years' duration, the most marked symptoms of which were enlarged thyroid, tachycardia, and fine tremors. During the same period she had had dystrophies of the nails with intermittent cheilopompholyx. The feet were not affected. He commented on the admitted occasional occurrence of nail changes in Graves's disease, and thought cheilopompholyx played no part in their production. Dr. PARKES WEBER did not associate the nail conditions with Graves's disease, but Dr. PENNET and the PRESIDENT shared the exhibitor's views. Dr. DUDLEY CORBETT exhibited a case of *Sclerodermia* in an old woman with much telangiectatic change over the clavicular regions somewhat resembling an x ray burn.

SECTION OF ELECTRO-THERAPEUTICS.

A STENOGRAPHER of this Section, appointed to recommend a *Standard opaque meal for radiographic examination of the alimentary canal,* has presented the following report:

1. The standard meal should consist of either bread and milk, or porridge (Note 1).
2. The total bulk of the meal should be about half a pint.
3. The meal should be mixed with 2oz. of barium sulphate or 2oz. of bismuth oxychloride.
4. The meal should be taken as nearly as possible on an empty stomach.
5. No aperient or other medicine should be taken within thirty-six hours of the first examination, and if the bowels are not opened naturally, an enema should be given on the morning of the examination.

Note 1.—(A) Preparation of bread and milk: 2 oz. of white bread, without crust, cut into small cubes, are placed in the bowl from which the meal is to be taken. 8 oz. of ordinary or malted milk are boiled in a separate vessel with 2 oz. of bismuth oxychloride or 2 oz. of barium sulphate; this mixture is stirred and poured over the bread. Sugar is added to taste.

(B) Preparation of porridge: 1 oz. of rice, ground from the finest oatmeal are mixed with 2 oz. of bismuth oxychloride or 2 oz. of barium sulphate, and sufficient milk to make the total bulk up to 10oz. The patient adds as much brown sugar as he likes.

Note 2.—(A) Bismuth carbonate neutralizes about 22 per cent. of the free nature of the stomach, but there is no evolution of gas, as the carbon dioxide is dissolved as rapidly as it is produced (H. Finneborn and A. E. Barclay). The reduction in the acidity of the gastric contents tends to reduce the motor activity of the stomach and to interfere with the normal action of the pylorus.

(B) Bismuth oxychloride is slightly more opaque to the x-rays than bismuth carbonate (R. Morton).

(C) Bismuth oxychloride is about one and a half times as opaque to x-rays as an equal weight, and twice as opaque as an equal bulk of barium sulphate (R. Morton).

Note 3.—Barium sulphate is preferable, at any rate for hospital use, as it is very much cheaper than bismuth oxychloride and equally good for radiographic examinations. By using barium sulphate, Guy's Hospital has saved about £50 per annum.

(Signed) A. E. BARCLAY,
A. F. HERTZ,
REGINALD MORTON,
S. GILBERT SCOTT.

ASSOCIATION OF REGISTERED MEDICAL WOMEN.

At a meeting on July 13th, Dr. JANE WALKER in the chair, Dr. MARY SCHARLEB read notes of the following cases: (1) An unmarried woman, aged 58, had complained of backache and slight loss five years after the menopause. Diagnostic curettement was performed, the generative organs appearing normal on examination. In the scanty curettage a mass, the size of a very small pea, was found, which on microscopic examination proved to be an *Adenocarcinoma.* Panlysterectomy with removal of appendages was performed, and the only abnormality proved to be a small cancerous patch at the uterine opening of the left Fallopian tube, where the nodule had been scraped off. The diagnosis was thus made solely on the pathological findings. (2) A woman, aged 66, twice married, but never pregnant, complained of steady increase in the size of the abdomen for four years. The abdomen was the size of a twin pregnancy at full term. On operation a large *Multilocular cyst of each ovary* was found, both cysts burrowing deeply into the broad ligament. They proved to be benign papillomata. (3) This case showed the stimulation of maternity on dermoid cysts. The woman was recently married and very anxious to have a child. She complained of uncomfortable coitus. Examination showed a mass, the size of a small orange, in Douglas's pouch, behind a normal uterus. Operation was postponed to give her a chance of becoming pregnant, but six weeks later the tumour filled the abdomen up to the umbilicus, and *Bilateral multilocular dermoid cysts* were removed, a fragment of ovary being left. Dr. JANE WALKER had seen an identical case operated on by Mrs. Boyd; in this case also a fragment of ovary was left, and the woman subsequently gave birth to premature twins. Dr. LUCIA ALDRICH BLAKE read notes of the following cases: (1) A girl, aged 20, had for three consecutive winters suffered from a catching pain in the back, and now complained of a swelling there. This had the characters of a chronic abscess; there was no curvature and little pain, and x-ray examination showed an indefinite fusiform shadow. The abscess was widely opened, emptied, and sewn up three times at short intervals, and after the third operation a skiagram showed *Disease of the ninth intervertebral disc and the head of the tenth rib.* The latter was removed, and much tuberculous pus

extended from the posterior mediastinum; a further operation was necessary, after which the wound healed up, and after a year the patient had a straight back, and there had been no recurrence. (2) An unmarried woman, aged 46, complained of loss of flesh, abdominal pain, swelling, and nausea for two weeks. Examination showed fullness on the left side of the abdomen, and a *Hard lump in the sigmoid region*, which did not disappear on evacuation of the bowels; there were no symptoms of constriction. Operation showed the sigmoid to be adherent to the anterior abdominal wall, to the loop of the small bowel, and to a mass of glands in the meso-sigmoid. The whole adherent mass was excised, and the patient made a good recovery. A fistula was present between the mass of glands and the sigmoid, through which brownish pus exuded. There was no evidence of malignant disease, nor of tuberculosis, nor of a foreign body. The cause of the condition remained obscure. (3) A married woman, aged 49, complained of enlargement of the abdomen and a profuse offensive discharge; menstruation was regular and profuse. The abdomen measured 35 in. round the umbilicus, and a firm, rounded swelling could be felt a handbreadth below the xiphi-sternum. The pelvis was blocked by the mass, and the uterus seemed flattened out over it. The discharge was exceedingly profuse, and increased by pressure on the abdomen. Operation showed the mass to be a large *Degenerated cervical fibroid* situated below the peritoneum and opening into the uterus. After its removal the patient made a rapid recovery. (4) A married woman, aged 53, complained of continuous loss for twelve weeks preceded by amenorrhoea for nine months. A mass was felt in the right iliac fossa and was diagnosed as a cervical fibroid. Hysterectomy was performed and the patient made a good recovery. Pathological examination showed a polypoid mass in the body of the uterus giving the appearance of a *Fibromyoma undergoing hyaline degeneration*; the surrounding nuclei stained intensely and suggested sarcoma. Six months later the patient returned having a mass larger than the original, fixed and inoperable. Dr. ELIZABETH BOLTON read notes of the following cases: (1) A married woman, aged 57, who complained of a dull aching pain in the hepatic area, constant for eighteen months. There was occasional vomiting and nausea, no jaundice. The liver extended nearly to the umbilicus, was smooth, with a prominence on the surface connected with the left lobe. Laparotomy showed *Hyalid disease*, the cavity partly in the liver and tracking thence in three directions upwards under the diaphragm. The cysts were dissected out and the patient made a good recovery. (2) A single woman, aged 48, who had always been well. While on holiday she bathed and dived much, and during one dive was seized with acute abdominal pain and vomiting, and for twelve hours could not pass water. The temperature was 100° and pulse 80, and the abdomen very tender. She became worse and laparotomy revealed *Torsion of a fibroid*. Supravaginal hysterectomy was performed and a good recovery was made. Dr. KATE PLATT showed plans of the *New Lady Harbinger Women's College and Hospital at Delhi*. Accommodation was arranged for 100 students—Indians, Anglo-Indians and Europeans—and for 160 patients. The students would take the M.B., B.S. degree of Lahore University. About 20 had entered for the first year. The PRESIDENT read a communication from Dr. ROSA BALE on a case of *Heart-block* in a woman aged 57. In an alarming and almost fatal attack, in which the pulse rate was 20, and there were violent spasms of Cheyne-Stokes breathing, the patient responded to 4-hourly doses of strychnine given hypodermically and recovered completely after six injections.

MR. JOHN MURRAY has published a booklet by Helen Donald-Smith entitled, *War Distress and War Help*. It is a short catalogue of the leading war help societies, showing their scope and objects and the addresses of their offices. The purpose of the address is to enable any one to ascertain quickly the particular war help society or association which deals with a particular class of distress. To ensure the trustworthiness of the information supplied a proof has been submitted to all the chief societies mentioned in it, and the compiler has received valuable assistance from foreign embassies and consulates. Such a list is invaluable at the present time. Any profits from its sale will be given to the Officers' Families Fund.

Reviews.

DENTAL ANATOMY AND SURGERY.

IN *An Introduction to Dental Anatomy and Physiology* Mr. HOWELL SMITH has allowed his enthusiasm to loose a rein, and has sometimes obscured his subject and even his meaning by argument round about it. He has tried to make dental anatomy a "live" subject, and to a large extent he has succeeded, especially in his chapter on the teeth and their functions, in which the food habits of various peoples, phonation, and the "ornamental" uses of teeth are described, together with what he groups as the minor functions of teeth, though it may be doubted whether "prehension" be a minor function. He fails, however, to infuse life into the discussion on the evolution of the mammalian crown, and leaves the tribituberculous theory as difficult reading as ever. The description of the human teeth is not altogether satisfactory, perhaps from a desire on the part of the author to vary his language. He wonders at the loss of the three tubercles on the cutting edges of the incisors after a few years' use! There is no account of the common variations; thus the second upper permanent molar is described as four-cusped, though a later figure of the base of the human skull shows the common three cusped variation; there is no comment on this. The remarks on the sensitiveness of teeth are of considerable interest, both in themselves and in view of Mr. Howard Mumme's recent demonstration of non-medullated nerve fibrils in the dentine; it is difficult, however, to agree with the author that the cementum of the root is sensitive. The whole book suffers from the author's delight in foreign words and from his tendency to overstate his points. Yet it is one that will find a ready welcome. As with his other works, with but one or two exceptions (radiographs) the illustrations are excellent.

Mr. UNDERWOOD'S *Aids to Dental Anatomy and Physiology*² is an excellent summary, lacking little except illustrations. It will assist the student of dental surgery in acquiring a scientific knowledge of his speciality, and, as the author is a recognized authority on the subject, we may add that the physician and surgeon may read it with profit. It is far better in composition than most compilations entitled "Aids," which are too often assistants to cramming rather than to knowledge. The chapter on the teeth of man is excellent, and comparative anatomy is introduced with judicious limitations. The author devotes a few paragraphs to the missing teeth in *Homo* and to the dentition of ancient man, about which so much has been discovered and described, even since the death of Barnard Davis, Flower, and the great French and German anthropologists of the nineteenth century. Mr. Underwood states that only one instance of a mandible with any truly simian character has been discovered so far, and that is the fragment lately found at Piltdown. It is well that a dentist of some authority should remind us that it is a great error to believe that Darwin discovered the "missing link" and that others have unearthed quite a chain of such links between man and the anthropoid ape. We have not even turned up a set of human teeth with a distinct diastema, constant in the quadrumanus. Mr. Underwood adds Mr. J. Howard Mumme's important monograph on the process of calcification in enamel and dentine. It appears in its original form, complete, as it was only published last year in the *Philosophical Transactions*, too late to be incorporated in the text.

HEALTH VISITORS IN MUNICIPAL SERVICE.

The employment of lay visitors in the service of the municipal tuberculosis dispensaries that are springing up throughout the country is not an unmixed blessing. Fact and sympathy in dealing with erring fellow-creatures are not granted to every one, and if knowledge also is

¹ *An Introduction to Dental Anatomy and Physiology*. By A. Howell-Smith, L.R.C.P. Lond., M.R.C.S. Eng., L.D.S. Eng., Lecturer on Dental Anatomy and Dental Surgery, Royal Dental Hospital, London. London: J. and A. Churchill, 1913. (Slop. rope, 8vo., pp. 372; 340 illustrations, 18s. net.)

² *Aids to Dental Anatomy and Physiology*. By A. S. Underwood, M.R.C.S., L.D.S., Third edition. London: Baillière, Tindall, and Cox, 1914. (Fcap. 8vo., pp. 136. Cloth, 2s. 6d. net; paper, 2s. net.)

lacking, the visit may cause more irritation than assistance in the tuberculous home. To provide them with a little knowledge of the subject, Dr. Brunon, tuberculosis officer for the borough of Deptford, has written a small *Tuberculosis Handbook*² for health visitors and nurses, and for lay workers in general, who may be called upon to deal with sufferers from tuberculosis in any of its forms. Tuberculosis of other organs than the lungs, however, is but little recognized by the average layman, and hence consumption and its treatment are chiefly considered. The etiological and pathological aspects of the disease are only lightly touched upon. Infectivity is described by the transcript in full of the manifesto issued by the Royal College of Physicians in April, 1914. The use of tuberculin for diagnostic purposes is shortly explained, but no stress is laid upon it as a therapeutic agent. The pneumothorax treatment of the advanced disease is briefly mentioned and the apparatus used for it is figured, presumably for the benefit of nurses who might possibly be called upon to assist in the operation.

Sanatorium treatment and the working of the tuberculosis dispensary are considered at greater length, many useful details being insisted upon, especially with regard to home visiting. A final chapter deals with legislation as applied to tuberculosis. The small work, well printed and illustrated, is worthy of the attention of the class of readers for whom it has been prepared, as enabling them to take a more intelligent interest in their work and to avoid the common errors arising from simple ignorance.

LOUPING-ILL OR TREMBLING IN SHEEP.

The Edinburgh and East of Scotland College of Agriculture is doing no small service to comparative pathology and public health by its encouragement of such investigations as that into the mysterious malady in sheep known as "louping-ill," or "trembles," which has been conducted by J. P. MCGOWAN, M.A., M.D., B.Sc., Assistant Superintendent of the Royal College of Physicians' Laboratory, Edinburgh. Dr. McGowan's researches upon "braxy" in sheep were recently noticed in this JOURNAL (June 12th, 1915, p. 1017), and from them the conclusion was drawn that braxy was due primarily to the *Bacillus bipolaris septicus orium*, and he has now reached the opinion, expressed in the pamphlet entitled *Investigation into "Louping-ill" or "Trembling,"*³ that the same microorganism is the cause of "louping-ill." He thus runs counter to the view held by the late Professor Hamilton of Aberdeen, who ascribed it to the *Bacillus choreae paralytica ovis*, a microbe which McGowan groups with the *post-mortem* putrefactive agents which appear in sheep, no matter what be the cause of their death. The difference in severity between braxy and louping-ill—the former is always fatal, whilst recoveries from the latter are not uncommon—is to be explained on the hypothesis that louping-ill is the less fulminant and less fatal form of the same malady.

"Louping-ill" simply means "leaping-ill," and, indeed, it was at one time known under the latter name in Scotland. It got its name from the characteristic symptom, the leaping of the animal into the air when startled, as by the sudden appearance of a dog. After jumping up it falls down, kicks a little while, and then dies, or it may lie kicking and then rise up and walk away staggering; or, finally, it may continue to lie and exhibit a more or less paralysed state, and may then ultimately recover the use of its limbs in part or die. Other diseases, however, have been confused with louping-ill, and so Dr. McGowan distinguishes a "true" from a "pseudo" form. Under the latter he places the diseases of lambs (lameness, abscesses, paralysis, and deformities) due to ticks, navel-ill, joint-ill, and woolball in the stomach; each of these must be prevented or treated according to its cause, as by the extermination of the tick, the doing away with fixed lambing pens, the application of tincture of iodine and tar to the navel immediately after birth, and perhaps the opening of abscesses. True louping-ill, or true "trembling" (to give it another name often applied to it),

includes "stagers," and may be subdivided into several varieties; of these braxy is one, and grass sickness of lambs is another, and both of these are very acute forms. The primary cause, both in braxy and in true louping-ill, is the same, namely, the *Bacillus bipolaris septicus orium*, but the secondary one differs, being the eating of frosted succulent food in braxy and extreme variations of outside temperature in true louping-ill. Other differences are that braxy attacks the most thriving sheep in the flock, but true louping-ill does not necessarily do so; that braxy is most common in autumn, but louping-ill in spring; and that while braxy is the result of a sudden violent chill, louping-ill is due to a less violent one. Louping-ill has for a long time and by many authorities been regarded as associated with the presence of ticks, but there is much evidence against this conclusion, whilst, as has been stated above, pseudo-louping-ill is most probably connected with them, the grass ticks, by the irritation they cause at the points bitten, setting up swelling of lymphatic glands and consequent lameness, pyæmia and abscesses, and joint affections.

Dr. McGowan makes certain suggestions for the prevention of true louping-ill; indeed, he is not hopeless about the possibility of getting a vaccine for purposes of cure as well. So far as prevention is concerned he would recommend the provision on all hills of shelter-belts; the avoidance of over-stocking; the separation of the leaner and ill thriving ewes from the others in the early spring; the wide burning of both heather and white land; the draining of the land and the application of lime to it; the careful and gentle performance of wether-locking, and the avoidance of hounding with dogs. The actual treatment is largely symptomatic; the administration of a purgative, keeping the animal quiet in a sheltered place on young grass, stimulants (whisky, digitalis, strophanthus) in cases of heart failure, and potassium bromide and chloral in cases of actual fits and violent nervous symptoms.

It is to be understood that Dr. McGowan's investigation deals with louping-ill as it exists in Scotland; it may be identical with the diseases known in England as twitch, trembles, moss-illness, dizzy, and "turn in the head," with the cheluna of Patagonia, and with certain maladies described in French and German textbooks, but he has not extended his inquiries to these matters. The whole subject invites further research in various directions, and it may yet turn out that these maladies come into touch with human maladies at one point or another; meanwhile Dr. McGowan and the East of Scotland College of Agriculture are to be thanked for breaking comparatively new ground.

PUBLIC HEALTH TEXTBOOKS.

The appearance of a sixth edition of Dr. KENWOOD'S *Public Health Laboratory Work*⁴ is good evidence that it continues to fulfil what is required of a practical handbook of the subject. Not many changes have been made from the fifth edition, the principal being the omission of the section of bacteriology by Dr. Savage; a few pages on the bacteriological examination of water are introduced into the chapter on "the opinion on water samples," but apart from this bacteriological matters generally are omitted, in view of the existence of several practical books suitable for the public health student's needs in that subject. The examination of water, sewage and sewage effluent, soil and air occupy about half the book, the remainder being devoted to the examination of the principal kinds of food, the detection and estimation of arsenic in various articles, and the testing of disinfectants. Medical men taking up public health work will find Dr. Kenwood's manual an excellent one for guiding and assisting their practical work.

A second edition of the *Treatise on Hygiene and Public Health*,⁵ by Drs. B. N. GROSS and J. L. DAS, has reached

² *Public Health Laboratory Work*. By Henry R. Kenwood, M.B., F.R.S. Edin., D.P.H., F.C.S. Sixth edition. London: H. K. Lewis, 1914. (Demy 8vo, pp. 430; 4 plates, 87 figures. 10s. net.)

³ *A Treatise on Hygiene and Public Health with Special Reference to the Tropics*. By Bichandra Nath Ghosh, L.M.S. (Cal. Univ.) and Jobair Lal Das, L.M.S. (Cal. Univ.), with an introduction by Colonel K. Macleod, M.D., LL.D., F.R.C.S., L.M.S. (ret.). Second edition. Calcutta: Hilton and Co., London: Sunplein, Marshall, Hamilton, Kent, and Co., Limited, 1914. (Cr. 8vo., pp. 415; 48 figures. 6s. net.)

⁴ *The Tuberculosis Handbook*. By A. H. G. Burton, M.D., etc. London: The Scientific Press, Ltd., 1914. (Cr. 8vo., pp. 67; illustrated. 2s. 6d. net.)

⁵ *Investigation into "Louping-ill" or "Trembling."* By J. P. McGowan, M.A., M.D., M.R.C.P.E. Edinburgh: William Blackwood and Sons, July, 1915. (Pp. 51.)

us. The first edition was received so recently (JOURNAL, October 4th, 1913, p. 870) that there is little to add to the commendation then bestowed on the book. It makes no claim to originality, but, as the authors state, is founded on the standard works on the subject, keeping in view its special object, to adapt the principles of these works to the conditions which prevail in India. The new edition has been carefully revised, and in some places extended, to bring it up to date, and with the same view the number of illustrations has been somewhat increased. We may say that the book fulfils its object satisfactorily. But the fact that a second edition has been called for less than two years after the publication of the first is the best evidence that the book has met a want.

SURFACE TENSION.

ALTHOUGH many of the phenomena included under the term "capillarity," or "capillary action," such as the rise of a liquid in a narrow tube when one end of it is introduced below the surface, or the absorption of a liquid by a porous substance of which a small portion only is dipped into the liquid, are familiar to most persons, probably very few, except those who have made a special study of the subject, would be able to explain such phenomena or to give any account of the theoretical considerations deducible from them. In a little book entitled *Surface Tension and Surface Energy*, Messrs. R. S. WILLOWS and E. HATSCHKE give a succinct account of the general subject of surface energy of which capillary action is one manifestation. The five chapters of the book represent a series of articles which appeared originally in the *Chemical World*, and are based on a course of lectures delivered at the Sir John Cass Technical Institute by one of the authors. Mr. Hatschek is the author of a work on colloids which has been previously noticed in our columns, and the present subject is very closely connected with what may be termed colloidal chemistry. In a so-called colloidal solution solid matter exists in a state of extreme subdivision, and, therefore, with a great development of surface for a given mass; the particular properties of surfaces due to their being the boundaries between dissimilar substances therefore play a very large part in determining the peculiar properties of such quasi-solutions. The phenomenon known as adsorption is also a particular case of the results of surface energy, and a general summary of the whole subject is, therefore, to be welcomed. The book under notice, being originally designed for the use of chemists, assumes a fair general knowledge of chemistry and physics, and to a reader possessing such knowledge it is an excellent presentation of the subject, but more general readers would probably find the treatment too condensed to be easily followed. The use of mathematical formulæ and calculations is, of course, inevitable, but the mathematical treatment is confined to what is essential, and very few details are given of the experimental work which is described. The book will be found a useful summary, suitable for those who desire to obtain correct general ideas on the subject, either for the sake of its bearing on other subjects or as a preliminary to a more detailed study of it.

Surface Tension and Surface Energy and their Influence on Chemical Phenomena. By R. S. WILLOWS, M.A., D.Sc., and E. HATSCHKE. London: J. and A. Churchill, 1915. (Cr. 8vo, pp. 88; 17 figures. 2s. 6d. net.)

MEDICAL AND SURGICAL APPLIANCES.

A Tourniquet.

MR. J. M. CARVELL, M.R.C.S. (West Kensington, W.), writes: For some time past in connexion with ambulance work the need has been felt for a more efficient form of tourniquet than those in general use, that is, the india-rubber or the pad and strap varieties; the drawbacks being, in the case of the former, that when applied the circulation of the limb is completely restricted, and that the rubber soon perishes. In the case of the latter there are three distinct weaknesses: (1) When the strap is tightened the pad is pulled out of place, owing to pressure being exerted on one side of the pad or block only; (2) owing to the means to secure the appliance being a spiked buckle, some relaxation of the band takes place, and it is difficult to remove or adjust; and (3) the strap being pierced by the buckle spikes, is weakened, and soon wears

out. Messrs. Hatrick and Co., of 70, St. John Street, Clerkenwell, have made for me a tourniquet which overcomes these drawbacks, and possesses other advantages which are absent in other tourniquets. It consists of a pad or block of vulcanite (or other suitable material) which is affixed to a metal plate, one end of which forms an eye and the other an open hook. To the eye is permanently attached a special form of spiked buckle, and a similar detachable buckle engages over the hook of the metal plate when the instrument is in use. Through the two runs the strap of the tourniquet, which consists of two lengths of webbing placed one over the other, and stitched across at frequent intervals, the ends of the webbing being thickened so that it cannot be detached from the buckles. To apply the tourniquet the loose clip is removed from the hook, the block is placed in position, the strap is passed round the limb, the loose clip replaced over the hook. Pressure is then exerted on both ends of the strap, and the block is forced directly downwards, the strap automatically holding at the point of greatest pressure. To remove the tourniquet the release tongues (marked) are pulled with an upward motion, when pressure is instantaneously relaxed. An additional lock is provided for use only in cases in which a patient may have to be transported a considerable distance and possibly loaded and unloaded *en route*. This is secured by inserting pencils, or anything similar, through the loops formed by the two lengths of webbing composing the strap immediately outside the clips, when the tourniquet is in position. When this is done, the appliance is secured even if the release tongues should be inadvertently pulled.



MOTOR CARS FOR MEDICAL MEN.

LIGHT CAR DEVELOPMENTS.

By H. MASSAC BUIST.

THE situation in regard to the supplies of British-built motor cars that I outlined in the JOURNAL of May 29th is emphasized by the appointment of Mr. Lloyd George to the ministry of munitions and Dr. Addison as parliamentary secretary. Further investigations at first hand of the position in the Midlands reveals that in effect all our best makers of cars of all powers, sizes, and prices are now busy on Government work; therefore there is no time to be lost by the medical man who contemplates placing an order for a new car. These remarks must be taken as applying not only to medium size, but also to the smaller sorts of vehicles, including light cars, with certain developments in connexion with which I propose to deal in these notes.

I cannot, perhaps, make a better beginning than by drawing attention to a new craze, whereby a large section of light car users are not content with the extraordinarily rapid manner in which the manufacturers are developing these machines, but fancy that perchance they can also improve their qualities by experimenting on them. Take, for example, the practice not infrequently advocated for owners of light machines to drill holes in the connecting rods for lightness, or to lighten the pistons by drilling and turning on the inside of them, or cutting the cans to increase the valve lift, or taking metal off the bottoms of the cylinder castings to increase the compression pressure. Some amateurs with a turn for mechanics take a delight in this sort of thing, with the result that for a space their vehicles become very showy in the matter of speed, and envy is created in the bosoms of owners of non-mechanical mind of similar light cars, who are tempted to engage some local mechanic to fittivate their machines on similar lines for a few pounds.

PRACTICES TO BE AVOIDED.

The medical man, to whom reliability is essential and the total cost of whose motoring is a material item, will be well advised to have nothing to do with any such practices. Those who advise or suggest them are false

educators of the robbing public, because they would inculcate quite wrong principles. It should be had in mind that the average light car of to-day is, proportionately to its weight, a powerfully engined vehicle. The transmission and other mechanical details are worked out by the manufacturer in strict relation to the power the motor develops as furnished by him. Increase that power by ever so little and you upset all the careful calculations on which the machine as a whole was designed. Apart from this the product is a machine which has never been tested by the maker as a unit because his experiments, which usually extend over at least a season before he presents a model, are all conducted with that vehicle in the form in which it is ultimately evolved and standardized. In these days of keen competition, when the majority of buyers are too much influenced in their choice by the quality they call liveliness, the medical man may rest assured that no maker markets a car with more material in it and with a less powerful engine than his exhaustive tests have shown him to be necessary.

THE ALTERNATIVES.

It will be observed as a rule, moreover, that all these seductive receipts for faking light cars are concerned with paring away the material furnished by the maker in the standard products. Thus, the engine itself is made to produce more power with less material to stand the strains of the greater impulses.

As many a medical man lives in hilly districts the temptation to succumb to what is almost becoming a vogue may be considerable. If, however, in spite of the extra cost in tyres involved, he wants to negotiate the rises more speedily there are open to him two alternatives: He may either spend his money in acquiring in the original instance a larger and more powerful vehicle which he will run on strictly standardized conditions, or ferret about and discover which maker or agent can give him one or other of the light cars that have been produced for speed and other competitions, and the more vital parts of which are fashioned of special steels, tested to stand the additional stresses. The latter alternative, however, is not to be recommended unless the medical man chances to make a hobby of the mechanism of his car, in that the more these vehicles depart from the strictly standard product the more liable are the details of them to get out of adjustment; and the results sought can be attained only when every detail is perfectly in tune with the rest.

A POCKET-SAVING LESSON FROM ABROAD.

Nearly every private advocate of the practice of "putting more ginger" into his light car innocently believes himself to have discovered things of which the industry is in complete ignorance, whereas the very practices he exploits have been indulged in since motors were. Far better, because more profitable in every way, is it to take thought as to the manner in which you drive your light car. There is a great contrast between motor drivers of all classes of vehicles in this country and the French, Italians, and Americans, for example. In these islands we have made a fetish of the idea of doing as much of our journeying as possible on the top speed. If the average owner had the least realization of the manner in which he strains his vehicle by doing this and the slower speed he really makes by hanging on to the top gear to the last gasp of the engine, he would cease the practice. Every foreign driver, whether professional or amateur, is taught that engine revolutions represent horse-power; consequently he always changes down to a lower speed when his engine begins to slow and before it has lost any appreciable number of revolutions.

Moreover, any one who had time and opportunity to study the car testers round about Coventry and Birmingham would observe that, though the average of those concerned with light cars certainly seem bent on destroying the chassis before they have any chance of being placed on the market, nevertheless, they are never guilty of attempting to make an engine of 1,000 or 1,500 c.m. travel at 5 miles an hour on top gear, or pick up on top at practically no miles an hour after rounding a corner. On the contrary, whenever they want the car to accelerate after it has been

slowed, they drop into a lower speed and open the throttle fully for a few yards. That way the engine, transmission, and all the rest of the mechanism is saved, and also the speed at which it is desired to travel is attained much more quickly than by hanging on to the top gear.

THE EVERYTHING-AT ONCE POLICY.

One of the troubles of the light car proposition to-day is the impatience not only of a large number of would-be owners, but also of a number of manufacturers. They want everything at once. Thus, before we have had reasonable time in which to complete to its full possibilities the development of the two-seater with an occasional third seat, four-seater light cars with tonneau bodies are already being standardized and coach-making departments blamed for not producing luxuriously-equipped limousine bodies for these chassis, with miniature engines. There would seem to be a mad race to put on the market a showy-looking vehicle for two hundred odd pounds, embodying all the features of a six-cylinder Rolls-Royce. Already the light car owner has electric lighting and generating sets standardized complete, and there have been introduced this year electric mechanical engine-starting sets for light cars.

Though all those developments admittedly add to the weight and absorb horse-power, one has to admit a case for the dependable mechanical starter for the light car, especially when employed for doctors' service. The reason is that the little magnets fitted are designed so that at present they only give an efficient spark when the engine is turning very much faster than is possible by any hand cranking. This present difficulty is common to the majority of light cars. It could, of course, be obviated by employing dual ignition, taking the accumulator current from the batteries of the lighting set. Speaking of my own experience, however, I do not advise this under the heading of reliability.

MECHANICAL ENGINE STARTERS FOR LIGHT CARS.

The average medical man has occasion to stop his car very frequently, consequently if anybody should get value out of a mechanical starter, he is the one. I would therefore take as an illustration of the latest developments the electrical light car starter now standardized by the firm of C. A. Vandervell that made its mark in connexion with electric lighting sets for cars. Connected with the battery and the starter motor is a plunger switch. When the switch is in its normal position, the circuit is open and the starter is electrically disconnected from the battery. When the plunger switch is depressed or pushed down, the starting circuit is closed and current passes from the battery to the electric starter. The firm itself has facilities for fitting cars at short notice at its London, Birmingham, and Manchester premises, so that there need be no uncertainty of the thing being bungled by inexperienced installation.

In winter especially, and for night work, the mechanical engine starter is an accessory much to be recommended to the medical man, since few things are more fatiguing than the strains of winding an engine rapidly.

THE FOUR-SPEED LIGHT CAR.

But with motors thus taxed to carry extra loads and to generate the electrical energy necessary for starting and lighting purposes, and with increases of weight also in coach work, so that some light cars scale 1½ cwt. ready for the road, either larger motors or more gears must be employed.

About the finest scheme of a light car that shall be well up to its work is the Coventry Premier 10.4-h.p. 4-cylinder model, wherein we see a recognition of these points, for, on the one hand, the engine is 65 mm. by 120, giving a volume of 1,592 c.c.m., and, on the other, the gear-box provides four forward speeds, so that there is nothing undue in the chassis weighing 12 cwt. War is unfortunately interfering with the output, and the car will not be ready for the market just yet, but the product must be noted as representing a notable line of development, because, in addition, the rear suspension is on the free cantilever principle, as distinct from quarter elliptic springs, which, by some mysterious process, are generally catalogued as cantilever ones when they are applied to

light cars. This design also reveals the possibility of making a light car wherein the seats are well between the axles, the wheelbase being proportionately as long and the centre of gravity as low as in a six-cylinder large car.

LONGER WHEELBASES THIS YEAR.

This brings us to another point in light car development this year. In the beginning the centre of gravity of most light cars was high and the track narrow—as instance the earlier Morris-Oxford models. By most makers this tendency has been remedied by widening the axles with a gain in lateral stability. But the average light car will probably have the seating line an inch or two lower in a season or so.

What is more important in the meantime is the observed tendency to lengthen the wheelbase in the 1915 models. In some this measure as much as 8 ft. 3 in. These longer wheelbases make for easier riding, and undoubtedly enable the machines to hold the road better. The standard wheelbase last year averaged 7 ft. 6 in., though many vehicles were made shorter, one well-known type being not more than 6 ft. 9 in. Thus the increase to an average wheelbase measurement of 8 ft. 3 in. represents an appreciable advance this year, though that extra 9 to 18 in. of course entails considerable addition of weight by reason of the frame, propeller-shaft, and kindred details having to be elongated. Undoubtedly the increased comfort and stability of the 1915 cars thoroughly justifies the departure.

A NEW MAKE OF LIGHT CAR.

A newcomer to the light car industry this year is one long familiar by name to road users in the Raleigh Cycle Company of Lenton, Nottingham, which made a tentative effort at motor manufacturing in the early days of the industry in this country, but whose present 11 h.p. four-cylinder vehicle really represents its start in the motor industry. This machine scales 13 cwt. complete, and has a block cast four-cylinder engine with a bore of 67 mm. and a piston travel of 95 mm., giving a volume of 1,340 c.c.m., so that again we have an example of providing something not so highly stressed as an 1,100 c.c.m. engine must be when used on vehicles so completely equipped as the best sorts of light cars. The Raleigh is standardized with Rotax dynamo and electric lighting set, the generating plant being protected from dust and wet by a shield. A Thomson-Bennett British-made magneto with fixed firing point is used, and the cooling is by the natural circulation of the water, but the engine oiling is by the big ends dipping into pump-fed troughs, the pistons and cylinders being supplied by splash. The gate-controlled gearbox gives three speeds forward, and the drive is by an overhead worm above the back axle, which is equipped with three-quarter elliptic springs.

THE BABY PEUGEOT LIMOUSINE.

A somewhat quaint light-car novelty is the Baby Peugeot miniature limousine-compé, which has been designed and built by one of the agents of the famous firm of Peugeot (England) Limited, 10, Brompton Road, London, S.W., and is sold complete with accumulator lighting set and lamps for £250. The problem presented to the coachbuilder, of course, has consisted in how to give plenty of room to the passengers on so small a chassis; it has certainly been tackled with considerable ingenuity. All the windows, including three oval ones, are of plate glass, and the door is hinged in two halves, the window portion opening independent of the lower part. The interior can be lit up at night, the main colour scheme of its decoration being light brown, while the exterior of this limousine-in-little is painted mustard colour, with black wings and details.

Other light car developments will form the subject of a future article.

ACCORDING to the *Medical Record*, a recently issued bulletin of the Census Bureau states that blindness is less common in America than in most other countries, and is apparently decreasing among the young. Indians suffer much more than other races from the affliction, and blindness is much more prevalent among negroes than among whites, and among men than women. The blind population of the United States in 1910 numbered 57,272, or £2.3 to each 100,000 of population. Trades taught in schools or workshops have prepared 1,500 blind persons for total or partial self-support.

BRITISH DENTAL ASSOCIATION.

ANNUAL MEETING.

The thirty-fifth annual meeting was held on July 24th, in the hall of the Medical Society of London.

Retiring President's Address.

In delivering his valedictory address, the retiring President (Mr. W. GUY, F.R.C.S., L.D.S. Edin.) said the war had given the dental profession the chance of rendering splendid service to the country in the treatment of recruits and soldiers, and an enormous amount of work was done in that way. In the matter of army dental treatment, however, the war found them unprovided with a definite scheme, and emergency measures became necessary. Commissions as temporary lieutenants were conferred on about seventy dentists, who were now doing duty either with the Expeditionary Forces or at home stations. The War Office circular of January 22nd authorised a scale of payment for civilian dentists in providing treatment necessary to render a non-commissioned officer or man fit for service in the field. He believed the work of the army dentists was of the most arduous character, and the authorities were fully aware of its value. But what were seventy amongst so many? The present system might be improved by instituting effective control and supervision by dental staff officers, but the only logical and efficient method of coping with the great problem of dental treatment for the men of our armies would be found in the establishment of an army dental corps. In conclusion, Mr. Guy paid a tribute to the memory of five dentists and two dental students who had already fallen at the front. He also mentioned that he had personally operated on more than 1,000 patients at the 1st Scottish General Hospital, Craigleith, and considerably more than double that number had passed through his hands at the Edinburgh Dental Hospital.

A hearty vote of thanks was passed to the retiring president, on the motion of Mr. REES PRICE (formerly of Glasgow), seconded by Mr. W. G. CAMPBELL (of Dundee).

Installation of New President.

Mr. W. H. DOLAMORE, M.R.C.S., L.R.C.P., L.D.S. Eng., was then inducted as president, and delivered an address, in which he said that never, perhaps, had the disasters which may follow the neglect of teeth been more apparent than now. It needed but an inspection of the teeth of many soldiers invalided home to prove what an important factor neglected teeth were in producing or predisposing to the development of general disease. It was no secret that the army authorities first refused men with bad teeth. When the need of men and more men was felt, these were admitted irrespective of the condition of their teeth. But, having been admitted, it was found that either their teeth must be treated or these men would not be available for foreign service. It was the recognition of the lamentable condition of the teeth which led dentists in the early days of last August to offer voluntarily to do what they could for our gallant men, both in our hospitals and in their own consulting rooms. But the task was too great for efficiency unless properly co-ordinated, and with greater financial backing than they could give or procure. Tardily the War Office undertook the work. But the delay, some four or five months, caused, he was told, this serious position: Troops, passed as fit some months earlier, were paraded and inspected previous to foreign service. Then, and not till then, it was discovered that many men needed dental treatment. Now arose this difficulty: Either the work had to be done in a hurry, and frequently dentures inserted long before the mouth had healed sufficiently for them to be serviceable even for a year, or the men had to be kept back at home for some three or four months. Further, the War Office having recognized the obligation to provide dental treatment in the interest of efficiency, it was a matter of regret that it did not appoint a committee, on which dentists conversant with the matter had a seat, to advise, and to supervise the carrying out of the arrangements.

He believed that if there were such a committee, two points especially would have come early under discussion. First, the need of effective supervision over the dental

work which was being done. Secondly, the need of dental aid in the treatment of injuries of the jaws. The principle of supervision was admitted, for all this work was signed for and approved by members of the R.A.M.C. But there was no real supervision.

With regard to the second suggestion, the treatment of fractures of the jaw, and especially the designing and fixing of splints after extensive injury, was a very special work, and experience was only gained after many years with special opportunities. The men who had been appointed dental lieutenants were most excellent men, but they were young, and, with perhaps some few exceptions, had not had this experience. From what they heard many of these fractures and injuries were not treated by means of splints at all, and dental aid was sought only when some permanent deformity, beyond treatment, had resulted. That surely was wrong. Deformity, by immediate and correct treatment, could be avoided, and although many of these wounds were horribly septic, he would urge that a properly made splint would not increase but diminish septicity. The splint, by holding the parts immovably fixed, allowed the mouth to be opened freely and painlessly, so that an antiseptic treatment could be thoroughly carried out. Further, the parts were kept in a state of rest, saving pain and hastening the healing of the wounds. He thought a certain number of more senior men qualified to supervise, and, in the case of injuries of the jaws, qualified to treat, should be appointed. He believed it would be possible to find such men. A few were already serving in the R.A.M.C., but not utilized for dental work. But even if higher rank were given, men could only accept such posts at much self-sacrifice. Many had responsibilities at home which would preclude their volunteering, but there were others who could do so. The example of those medical men, including many who practised dentistry, who had sacrificed their positions at home to carry on work for the R.A.M.C. in various ways, justified the belief that they not only could, but would.

Business Meeting.

In the afternoon the annual meeting of the Benevolent Fund was held, followed by the annual business meeting of members. At the latter the report and accounts were adopted, and Mr. Frank J. Pearce was cordially re-elected honorary secretary.

SHORTAGE OF MEDICAL OFFICERS IN VOLUNTARY HOSPITALS.

AN informal conversation on the shortage of medical officers in the voluntary hospitals took place at Charing Cross Hospital on July 30th. The gathering was convened by the British Hospitals Association, and Mr. H. WADE DEACON, Chairman of the Liverpool Royal Infirmary, presided. Mr. J. COURTNEY BUCHANAN, Secretary and House Governor of the Metropolitan Hospital, who opened the proceedings with a short paper, said that the present "race for residents" was common to nearly all the hospitals. Inquiries addressed to fifty institutions revealed the fact that the expenditure on residents was very greatly in excess of that which was incurred in normal times. For hospitals with medical schools a scheme (see *infra*) had been arranged with the War Office for granting early commissions to resident medical officers, and so far as these institutions were concerned, the difficulty was practically at an end. Hospitals without medical schools, however, were in difficulties, which would be more serious were it not for the loyalty of the visiting staff. It was not strange if a young man did not desire to go on working at a hospital in civilian obscurity at a salary of £150 or £200 a year when his professional brethren in khaki uniform were in receipt of a salary of approximately £500 a year. What sort of attraction could a hospital hold out to prospective residents which would be anything like so effective as the honor of military service, accompanied as it was by considerable material advantage? Then, again, what substitutes were available? General practitioners in the neighbourhood of hospitals might be induced to extend their generosity still further, but as a rule they were very closely engaged in their own practices. Graduates of foreign universities might be engaged, subject to registra-

tion by the General Medical Council, but an imperfect knowledge of English was frequently a fatal drawback. So far as doctors from the United States were concerned, the difficulty was one of registration, and there was no reciprocity between England and America in this matter of qualification. Civil hospitals had given up a great deal of their in-patient accommodation for sick and wounded soldiers, and in this and other ways had established some sort of right to special consideration in the matter of residents. It would be a thousand pities if anything militated against their permanent interests.

Sir WILLIAM COLLINS formulated two considerations which ought to be kept before them—first, anything that they did or said with regard to the War Office was not intended to embarrass the Army medical department; secondly, the voluntary hospitals of London had ground for asking for just consideration in this matter of the shortage of resident officers. Was it possible to increase the supply? It was easier to turn the civilian into a soldier than to turn the layman into a doctor. There could be no such thing as honorary war degrees in the medical faculty. Something might be done in the way of reducing fees and speeding up examinations, but no great increase in supply could be looked for. The lady graduate, again, had come into her own, and he hoped would be increasingly utilized. Then there were our Indian fellow-subjects. Only a few days previously he had met a Parsee who had come to this country anxious to obtain a house-surgery, and had found the colour bar against his services being utilized. He hoped that the ancient prejudice against the "black doctor" would disappear. There remained the general practitioner. He had had in his hands a list of medical men in the neighbourhood of Hampstead who had offered to serve the Hampstead General Hospital a certain number of mornings or afternoons a week. Perhaps such arrangements might be the means of breaking down the lines of caste between the consulting officer and the general practitioner. When all these possible sources of supply had been considered, however, they had to face the fact that it was the War Office which had "spoilt the market" for resident officers. In twenty-six London hospitals which in July, 1914, had 104 resident officers, there were now only 81. In one hospital with which he was connected there was no resident medical officer at all, and another had to depend upon a gentleman of foreign birth who was not quite familiar with the English language. It would be well to discover, first, whether all the available supply was being used, and then to endeavour to bring about co-operation between the military authorities and the voluntary hospitals so as to ensure the most effective distribution.

Mr. E. W. MORRIS, Secretary of the London Hospital, sent a letter in which he gave particulars of the arrangements which had been made at that institution to cope with the difficulty:

1. The War Office has agreed that all men newly qualified shall apply direct to the War Office for a commission if suitable, but they shall be referred back to the hospital, if they have qualified from the hospital, to do three months' practical work in house appointments before being called up.
2. All present holders of house appointments shall be given a commission at once, but shall be liable to be called up at forty-eight hours' notice when required for training, but not more than five shall be called up at any one time.
3. When they so call up the residents they shall replace them by lending R.A.M.C. qualified men to fill the vacancy.

Mr. Morris added that at the London Hospital for the last five weeks they had been served by seven Canadian doctors, who had done splendid work, and when these were suddenly called up the Bethnal Green military hospital at once offered the services of four or five of their doctors to tide over the difficulty until the arrival of the reinforcements.

Mr. G. ACTON DAVIS, Treasurer of St. Bartholomew's Hospital, said that the arrangement which his hospital had come to with the War Office was similar to the one obtaining at the London, with the exception of the last condition (that of the lent R.A.M.C. men), which in their case did not apply.

Sir GABRIEL THOMAS said that at the Royal Gwent Hospital at Newport they had got the advanced medical students to help them, and the experiment had proved very successful. In addition, two of the consulting staff—he was one of them—were doing casualty work.

Dr. T. JENNER VERRALL said that although the policy of

the War Office in tapping the sources of newly qualified graduates, who were the very men the hospitals wanted, was quite justifiable from their point of view, it was incumbent upon the military authorities to see that as little damage as possible was done to the hospitals. The plan of temporary commissions was an excellent one. He could speak for his Committee of the British Medical Association when he said that, in their negotiations with the War Office, while necessarily the needs of the army came first, they would do their best to see that the needs of the civilian hospitals were a good second.

Dr. ALFRED Cox, Medical Secretary of the British Medical Association, was of opinion that the source of supply represented by the local practitioners had not been used as it might have been, either for the needs of the War Office or for the civilian population. This fact had been brought home to them in the Association while compiling the war register. One speaker had suggested that many of the medical men in the army were wasting their time. This was a matter upon which strong and divergent views were current. There were those who maintained that there was no real wastage, and others also pointed out the importance of the men being at hand, even if they were not fully employed, so that the authorities could reach them. At the same time, he thought it quite possible for the War Office to allow some of these men whose time was not fully occupied to do hospital work until actually wanted.

Major JAMES GALLOWAY thought that the principle of "seconding" might very well be extended to a greater degree. He had come across numbers of medical officers from the Dominions, some of whom jumped at the idea of taking up work in connexion with the London hospitals.

Mr. BUCHANAN, after replying on the discussion, moved:

That it be referred to the Executive Committee (of the British Hospitals Association) to collect information with a view to securing that all possible means of supply of resident medical officers are made available, and also to endeavour to bring about co-operation between the War Office and Admiralty and the voluntary hospitals in effecting such redistribution of medical officers as may be mutually advantageous.

Sir WILLIAM COLLINS seconded, and this was agreed to.

REPORT OF THE MURRAY COMMITTEE ON DISABLEMENT.

In a leading article in this issue we deal with the question of providing for the disabled soldier, both in its general aspects and in its relation to the Naval and Military War Pensions Bill, which has been hung up by the House of Lords. As opposition was offered to the bill on account of the machinery which it proposes to set up, it may be useful to summarize the arguments and findings of the Committee¹ appointed by the Local Government Board in February last to report upon the provision of employment for sailors and soldiers disabled in the war; the bill placed before Parliament was framed to a greater or smaller degree upon their recommendations. The Committee, of which Sir George Murray was chairman, proceeded with their inquiry from the premise that the care of the men who had been disabled was an obligation which should fall primarily upon the State, and that the award of a pension did not extinguish the liability. At the same time, it was agreed that the best results of State action could only be secured with the co-operation of voluntary associations and individuals who take an interest in the welfare of the men.

The first of the Committee's suggestions was that the State should take a more liberal view of its duties on discharging men from the navy or army. The discharge is governed generally by the evidence of unfitness for any future return to active service, and with it ceases the responsibility of the naval and military authorities so far as further medical or surgical treatment is concerned. In the opinion of the Committee, the State should assume the responsibility for further treatment when this is likely to improve the condition of the case. Some of the men

are discharged from the hospital still suffering from such conditions as heart disease or rheumatism, and these should have the prolonged or special after-treatment which may be necessary when there is a reasonable prospect of their restoration to health and resumption of a civil occupation. Sufferers from tuberculous disease, if not eligible for sanatorium benefit under the National Insurance Act, should be dealt with in a residential institution. With regard to those who are mentally affected, the extreme measure of confinement in a lunatic asylum should be taken only when it is clear that treatment in some other institution less prejudicial to the man's industrial future is unavailing or attended by circumstances of danger. There remains that large class of cases in which, owing to loss of limbs or other cause, surgical appliances are required before civil employment can be entered upon. In a list of 3,000 discharges for all forms of disablement covering the first eight months of war, the proportion of cases in which amputation of leg, arm, or hand was necessary was 13.6 per cent. The present practice by which the disabled are supplied with surgical appliances is, in the opinion of the committee, sufficiently liberal, although they think that greater advantage might be taken of recent advances in orthopaedic surgery. Their recommendation is that instead of the appliance being prescribed by the doctor in attendance on the patient, any man requiring an artificial limb should be seen by an orthopaedic surgeon, who would prescribe the appliance best suited to the requirements of the individual and his prospective occupation.

A proportion of the disabled will be permanently and completely incapacitated, a further proportion will find employment without assistance. The number to be dealt with from the point of view of employment, therefore, is not so great as the casualty lists might lead one to suppose. In many cases, however, the disabled man, from the nature of his disability or other cause, will be unable to resume the occupation he was following before the war. In that event he should be given the opportunity of learning a new trade, his training to take place, if possible, in the neighbourhood of his home. In the larger towns the training might be undertaken through the existing polytechnics and trade schools. Before being discharged all disabled men should be registered at the labour exchange of the district into which they are going. The work of dealing with these men along the threefold line of restoration to health, provision of training facilities, and finding of employment, should be undertaken through a committee system. The report suggests the setting up of a central committee, which would include representatives of various Government departments, employers of labour, trade unions, and voluntary agencies; with branch committees for Scotland and Ireland, and subsidiary local committees in areas where, owing to the numbers of disabled, these appear to be desirable. The committee would refer tuberculous and other cases needing medical treatment to the National Health Insurance Joint Committee, and the mentally affected to the Home Office or Local Government Board; in orthopaedic cases the proposed committee would act in conjunction with the Admiralty and War Office, as it is held to be desirable that these cases should remain under the charge of the naval and military departments. Such a machinery might even be used more widely, and deal generally with the resettlement of the soldier in civilian life, but the application to other than cases of disablement does not come within the terms of reference. At the time of the report (May) it was estimated that the discharges for disablement by the present date at the end of twelve months of war would be 7,000, and this makes it evident that some organization should be set up with the least possible delay.

DR. H. LEGRAND, of Alexandria, formerly *in tunc* of the Paris hospitals, has been appointed physician to the Sultan of Egypt.

THE death of Count de Siniéy, Doctor of Medicine and Member of the Paris Jockey Club, is announced in *Le Journal*.

THE French Ministry of Commerce has established in the Paris Ecole Supérieure de Pharmacie a department for the study of questions of chemical manufacture, with special reference to the war. The director is Professor Béhal, of the Academy of Medicine.

¹ Report of the Committee appointed by the Local Government Board upon the Provision of Employment for Sailors and Soldiers Disabled in the War. (Cd. 1125) 114.

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SATURDAY, AUGUST 7th, 1915.

THE CARE OF DISABLED SOLDIERS.

It is, of course, impossible to say what proportion of the wounded in the present war will be more or less permanently disabled—40 per cent. has been mentioned in the House of Commons—but in any case it is certain that the halt and maimed will be numerous. The number of wounded in the South African war has already been exceeded in the Dardanelles alone. Every feeling of gratitude and humanity will prompt a generous provision in such cases, but even if these sentiments could be ruled out, there would still remain good economic reasons why the men should be cared for and industrially habilitated as far as possible. We cannot have the broken soldier of "The Deserted Village" again dependent on the casual bounty of the parson or of anybody else; and, save when he is completely disabled, the man had far better be in receipt of a wholly or partially self-supporting wage than of a pension, if only because the effort to earn his living will in many cases be the means of saving him from moral collapse.

Under existing arrangements, the rate of State pension in the case of men discharged partially disabled is from 3s. 6d. to 17s. 6d. a week, according to the degree of disability and the domestic responsibilities of the claimant, together with half a crown (discretionary) for each child. In the case of a lost limb the minimum is 10s. 6d. We understand that by agreement between the National Relief Fund, the Soldiers' and Sailors' Families Association, and the Incorporated Soldiers' and Sailors' Help Society, it has been arranged for the last-named body to take over the case immediately on discharge, and to make up the income to 15s. in the case of single men and 25s. in the case of a married man, with 2s. extra for each child, until the recipient is fit for work. These allowances are subject to a medical certificate at any time, and cease at the end of three months unless a very definite medical certificate is forthcoming as to continued unfitness.

The care and employment of the discharged soldier hitherto has been the object of a good deal of voluntary effort, willingly assisted by Government departments, such as the Post Office, and by large employers of labour. There are seven or eight societies whose purpose it is to find work for him, whether he be able-bodied or disabled. Some of them promote emigration, and one other encourages land settlement in this country. In addition to these, the British Red Cross Society has recently announced that the care of the totally incapacitated soldier is work properly to be undertaken by the society so far as its funds allow. Only one body, however, so far as we can gather, provides actual industrial training on any extensive scale for partially disabled service men, and this body, the Soldiers' and Sailors' Help Society, is now opening up large workshops in different districts

for teaching the men a trade, the scheme being a memorial to Lord Roberts. At the present time the society is looking after the needs of some 30,000 men who are on sick furlough or have been discharged disabled.

The critical period for the ex-soldier's industrial future is that of convalescence, particularly its later stage, when, if he has lost a limb, he is getting accustomed to his artificial appliance. It should be said that artificial limbs are supplied free, either through Chelsea Hospital or the Admiralty, up to a certain cost (we believe up to about £15). There are cases, however, in which it may be desirable to equip a man with an artificial limb at a cost exceeding the Government allowance, and in these voluntary assistance is being given, and it is hoped to obtain the State grant in part payment. Two or three months may elapse after the operation before the stump will permit of the limb being fitted, and even when the case is ready there may still be a further delay owing to the large number of waiting cases with which the instrument maker has to deal. Sir Arthur May recently stated that 1,000 men at the present time are waiting for their limbs; from inquiries we have made, we gather that the medical Director-General of the navy was including both the services. In many cases the man is discharged from the naval or military hospital and sent home, the limb perhaps arriving some weeks later; in other cases he is discharged already fitted with the limb, but is faced with the task of getting accustomed to it without skilled aid. In addition to this, it frequently happens that he is the subject of neurasthenia. We have been informed that a large proportion of the men who have been taken in hand by the Soldiers' and Sailors' Help Society show symptoms of this trouble, which gradually disappears as confidence in the future returns.

It is hoped to deal with all cases of amputation and special orthopaedic cases ultimately through Queen Mary's Convalescent Auxiliary Hospitals. As a beginning two houses, together capable of accommodating 300 cases, have been acquired at Roehampton, near London, and a movement is on foot to establish similar hospitals in Scotland and Ireland, where a number of cases are already under supervision. The necessary condition is that the hospitals shall be established near to such cities as Edinburgh or Dublin, so that the orthopaedic surgeons on the consulting staff may be frequently in attendance. Their advice is to be placed at the service of the men, so that they may not have to depend solely upon the advice, no doubt highly skilled, of the instrument makers. It is the purpose of these hospitals, working in conjunction with the societies, to find employment for the men when they have sufficiently regained their strength.

What is known as the educative convalescence which has been instituted in the Princess Louisa Military Wards at Chailey deserves a special notice on account of certain features which, through lack of opportunity, can hardly have been adopted elsewhere. Here, in the heart of Sussex, there was established some years ago the Heritage Schools of Arts and Crafts for Crippled Children as a development of the Guild of Brave Poor Things and the Guild of Play. The association of a colony of handicrafts with an orthopaedic hospital in miniature seemed to make this centre a peculiarly suitable one for the reception of wounded soldiers, and accordingly the military authorities fixed upon this place for convalescent quarters to which men from the London Hospital could be sent down. The

experience has meant much more to the men than a mere stay in a pleasant guest chamber, with dispensary and massage rooms attached, and it has meant even more than instruction in experimental craft classes—rug making, by the way, has proved to be of great recuperative value for shattered nerves. The main point is that the soldiers have been helped on their way to independence by association with the child cripples, whose motto is "Happy in my lot." To each limbless man an orderly has been assigned in the shape of a boy similarly handicapped, and thus the sheer force of example has assisted the soldier to wrestle successfully with crutches, to rise above the swinging, empty sleeve, and "to walk serene in the shadows cast by his depression."

The ideal to be aimed at in all this work for the soldier is that these men should not remain in special workshops after they have become skilled, but should take their individual places in the industrial life of the country. To neutralize their physical handicap so far as it affects their industrial ability is not impossible in a very large proportion of cases, but it is, nevertheless, a great task which will require all the skill that State and voluntary organization can bring to bear upon it. The combination of State and voluntary assistance is likely to be affected considerably by the Naval and Military War Pensions Bill, which was founded, more or less, on the report of the committee appointed by the Local Government Board last February to consider and report upon the methods to be adopted for providing employment for soldiers and sailors disabled in the war. This committee advised that the care of soldiers and sailors disabled in the war was a duty which should be assumed by the State. This care would include the restoration of the man's health where practicable, the provision of training facilities if he desired to learn a new trade, and the finding of employment for him when he stood in need of such assistance. The committee advised that a central committee and local committees should be appointed, and the bill proposes to set up a Statutory Committee of the Royal Patriotic Fund containing representatives of the Crown, the Treasury, the Admiralty, the Army, the Insurance Joint Committee, and the Local Government Boards in England and Wales, Scotland and Ireland, as well as the Fund itself. The bill as originally drafted proposed to include also representatives of the governing body of the National Relief Fund (commonly called the Prince of Wales's Fund) and the Soldiers' and Sailors' Families Association, but as some members of the National Relief Fund did not think they were justified in handing over the funds entrusted to them by the public to be administered by any other body the representatives of the Fund and of the Association were omitted from the bill as it was passing through the House of Commons. The bill proposes that the local committees shall inquire into cases referred to them, distribute grants made by the statutory committee, and collect and distribute funds locally.

This arrangement has been strongly criticized, and, indeed, the measure is regarded unfavourably by many, if not all, of the voluntary organizations which are concerned for the welfare of the soldier. The fact that some such measure is advisable, even inevitable, is admitted, but the misgiving on the part of the voluntary organizations is due to the possibility that, without a greater leavening of voluntary representation, a system may be set up having all the unyielding officialism of labour bureaux, whereas a more personal interest and sympathetic treatment

may rightfully be claimed on behalf of those who have suffered so grievously for their country. The bill has now been hung up by the House of Lords, partly on the ground that there had not been sufficient time for its consideration, partly because it excluded the representatives of voluntary associations from the central statutory committee.

PLAGUE, CHOLERA, AND YELLOW FEVER IN 1913.

The large number of readers who studied Dr. Bruce Low's valuable reports on the dissemination of plague and cholera throughout the world, which have been published by the Local Government Board during the last sixteen years, will be glad to learn that Dr. Low's retirement has not led to the discontinuance of the practice of issuing such a return.

The report now issued, which is the work of Dr. R. W. Johnstone,¹ differs from its predecessors in being a separate publication, instead of an appendix to the annual report of the Board's medical officer, but the manner in which the information is presented follows the general lines of previous reports.

So far as plague is concerned, the state of affairs in 1913 did not differ markedly from that recorded in 1912. In India, which has borne the brunt of the attacks which commenced in 1894 and have spared so few parts of the globe, there was a considerable decline in the number of recorded deaths—217,145 in 1913 as against 306,088 in 1912. Unfortunately 1914 has been less favourable, 227,149 deaths having been returned for the first nine months of that year. The work carried out under the auspices of the Advisory Committee for Plague Investigations in India has considerably increased our knowledge of the disease both in its epidemiological and bacteriological aspects, but the practical difficulties of sanitary administration in such a country as India are enormous, and should be borne in mind by armchair critics.

No case of plague in man occurred in England and Wales during 1913. Seven plague-infected rats out of 4,359 examined in the Port of London, and 1 out of 4,218 in the Port of Liverpool, were the only manifestations of the disease in the great shipping centres. On the other hand, the restricted area of East Suffolk, which has been of so much interest to epidemiologists since 1911, had not reverted to its normal condition. Two plague-infected rats were found on a farm in the Samford rural district, while 3 out of 5 ferrets, which had died after feeding on a rat in the Woodbridge rural district, were shown to be infected.

In some places there was an unusual mortality among rats, while elsewhere there were complaints of much illness and many deaths among ferrets. Some keepers lost all their ferrets in this way. It appears probable that the original source of the infection was the landing of infected rats from grain ships in the port of Ipswich, although strict proof is lacking. The sequence of events illustrates the well known epidemiological truth that a concurrence of several favouring events is necessary for the development of an epidemic. A still more striking illustration is the failure of a widespread prevalence of plague among the ground squirrels (*Citellus beecheyi*) of California to generate an epidemic.

Passing to the subject of cholera, there has again to be recorded an absolutely heavy mortality in India,

¹ Reports to the Local Government Board on Public Health and Medical Subjects. New series, No. 104. Dr. R. W. Johnstone's Report to the Local Government Board on *The Progress and Diffusion of I. Plague, II. Cholera, III. Yellow Fever, throughout the World during the year 1913*. London, 1915. (34.)

296,000 deaths in the eleven provinces for which the returns were complete when Dr. Johnstone's report was being prepared. The rate is, however, below that of 1912 (1.71 per mille in 1912, 1.21 in 1913). Bengal, Bihar and Orissa, and the United Provinces of Agra and Oudh, with 52 per cent. of the population under notice, contributed 71 per cent. of the deaths from cholera.

As Dr. Johnstone points out, all the circumstances likely to favour the development of cholera are to be found in India. Thus the congregation of multitudes of pilgrims in places affording inadequate sanitary accommodation, shelter and water supply must be a fruitful source of danger, while the ordinary level of hygienic knowledge is still, notwithstanding the efforts of the Central and Provincial Governments, deplorably low.

Japan had little cholera in 1913—78 cases with 22 deaths, as compared with 2,728 cases, 1,678 fatal, in 1912. This is a repetition of the experience of 1910 and 1911, the latter being a year of slight and the former of relatively heavy cholera mortality. In Europe, apart from the Balkan war zone, there was a widespread epidemic in Roumania, 5,680 attacks with 2,926 deaths coming under official observation. This may have been, to some extent, an aftermath of the Balkan war, a remark which also applies to the recrudescence of the disease in Austria-Hungary, since the earliest cases in that empire were reported from frontier districts abutting on Serbia and Roumania. The cases in Austria proper were scattered. About 1,200 seem to have occurred in Hungary. In European Russia 469 cases with 228 deaths were notified, fewer than in any of the six preceding years, except 1912. No cases of cholera were reported in England during 1913, although some occurred in ships bound for this country.

The most interesting section of the report relative to yellow fever is that which touches on Nigeria. During 1913 some 29 cases were notified in Lagos, the first person attacked being a European who had arrived two days before from Abeokuta, a town fifty miles to the north. At least two cases at Lagos occurred on ships, and the exact total for the colony cannot be stated. Dr. H. Seidelin was sent to assist in the investigation of the disease, and he confirmed the results of Drs. J. W. Scott Macfie and J. E. L. Johnston as to the presence in the blood of patients of certain bodies with which the name of Dr. Seidelin is associated, and which he regards as the specific parasites of yellow fever. The workers at Lagos found these bodies in practically every case; they experimentally infected dogs, white rats, and guinea-pigs, and found very similar bodies in the blood of two stray native dogs. If these results are confirmed, Sir Patrick Manson's suggestion that possibly dogs or other animals might act as reservoirs of the yellow fever virus will be verified. That human carriers may be of importance is also suggested by Dr. Seidelin, who has found the "yellow fever bodies" in the blood of apparently healthy persons. The whole subject is engaging the attention of a Colonial Office Commission, and the time has not yet come for a final judgement. As usual, the incidence of yellow fever in 1913 was practically confined to certain areas of Central and South America and to that portion of the West Coast of Africa which is between Senegal and French Congo.

Among the minor calamities of the great war must be reckoned the fact that the report for 1914 will hardly be comparable with Dr. Johnstone's survey for 1913.

HERBALISTS AND DEATH CERTIFICATES.

The action of the registrar of births and deaths at Westleigh in refusing to accept a "death certificate" signed by an unqualified practitioner named Charles C. Abbott, styling himself a medical botanist, is much to be commended. Upon this refusal the death was reported as "uncertified" to the coroner, who very properly issued his order for an inquest. From the report of the inquest in the *Livings Chronicle* of July 30th it appears that the deceased was a child, aged 11 months, the daughter of a collier. The child had been attended at various times by the herbalist, and on July 6th last, being ill, was seen by Abbott, who diagnosed inflammation of the lungs and brain. He continued attending until July 21st, when the child died, and a certificate was given and signed by him stating that death was due to bronchial pneumonia and meningitis, and giving the duration of the illness as fifteen days. At the inquest Dr. Pickup gave evidence that he had made a *post-mortem* examination and that death was the result of bronchial pneumonia and heart failure; he expressed the opinion that had the child been attended by a qualified practitioner it would have had a better chance of life. The coroner pointed out to the jury that "a herbalist had a smattering of knowledge which might be dangerous and might do no end of harm and lessen a child's chances of life. Medical men had special knowledge. . . . He wished some one would take the case up." The jury returned a verdict of "Death from natural causes." It is quite clear that in this case an offence under the Apothecaries Act, 1815, has been committed; and if other cases could be brought forward in which it could be proved that Abbott had prescribed and dispensed for patients suffering from medical, as opposed to surgical, diseases a prosecution by the Master and Wardens of the Society of Apothecaries should be instituted. We note that the coroner stated in his summing up that the mother "might be morally liable for not calling in a doctor, but she was not legally nor criminally liable." We venture to differ from the learned coroner on this point; under the Children Act, "failure to provide adequate food, clothing, medical aid, or lodging, is deemed to be neglect in a manner likely to cause injury to health." In this case it is clear that, according to the medical evidence, the child's chance of recovery was imperilled by the failure to provide adequate medical aid; and a prosecution under the Act would follow this neglect. In 1909 Dr. Niven, the Medical Officer of Health of Manchester, in a report upon the Act prepared for the Infant Life Protection Committee of that city, pointed out the importance of this section, and took legal opinion as to its bearing upon the question of unqualified attendance and the carrying out of the advice given. Failure to secure medical aid (and by this is meant qualified medical attendance) is therefore a penal offence under the Act, and its provisions should be enforced against parents where such aid is procurable and not afforded to the child whose condition requires it. It may also be noted that the unqualified practitioner who attends children can himself be prosecuted for aiding and abetting in the neglect. In the BRITISH MEDICAL JOURNAL of July 3rd, 1909, we commented upon the prosecution of a woman named Hannah Forrest, who treated a child who had been seriously burnt. The magistrate fined her 20s. and costs. The prosecution was carried out under the Accessories and Abettors Act, 1861, section 8, which enacts that any one who shall aid, abet, counsel, or procure the commission of any misdemeanour either at common law or by virtue of any Act passed or to be passed is liable to be tried, indicted, and punished as a principal. This Act might with advantage to the public well be put in operation more often against quacks and unqualified practitioners, who, by their attendance, lull parents to a false sense of security and thus prevent qualified advice being sought in time to save life.

ANTITYPHOID INOCULATION IN FRANCE AND ELSEWHERE.

COMMENTING on the fact that it is only quite recently that the inhabitants of Paris have ceased to entertain unnecessary fears about the alleged dangers of antityphoid inoculation, Landonzy¹ describes a series of 600 antityphoid injections administered to a hundred and fifty men, women, and children (mostly adolescents) at the Léon Bourgeois dispensary of the Laënnec Hospital. Each patient received four hypodermic injections at intervals of a week, generally in the subcutaneous tissue between the border of the left scapula and the spine, at 9 a.m. Two cachets of aspirin were handed to the patient, to be taken at noon and 6 p.m. if necessary; they were, however, only exceptionally required. Sometimes the effect of the inoculation was to make the shoulders feel bruised or the arms heavy, but it rarely prevented the patient from working; on one occasion a patient fainted for a short time immediately after the injection, and in four instances there was fever over 102° F. lasting from six to forty-eight hours. In no case was there evidence of local inflammation; the occurrence of menstruation is no contraindication to the inoculation. Chantemesse,² discussing Landonzy's paper, added that at the hospital of the Polytechnic School he had inoculated 3,722 persons between the ages of 2 and 55 against typhoid fever since August, 1914. There had been no abscesses, no septicaemias, no fainting fits, and no deaths as a result of the inoculations. In most cases he had vaccinated or revaccinated the patients to protect them from small-pox, at the same time, inoculating one arm and vaccinating the other. He warmly recommends the practice, because the inconveniences of the inoculation, if there are any inconveniences, manifest themselves within a period of three to five hours, whereas the vaccination gives rise to no discomfort before the fourth day. He continues to employ the heated cultures for antityphoid inoculation, similar to those first employed by himself and Widal in 1888. These cultures contain the typhoid bacilli intact, and as they are intact the absorption by the patient of the toxic substances they contain is necessarily a slow process, and thus the danger of anaphylactic symptoms is minimized. If the typhoid cultures are sterilized, not by heat but by chloroform or some analogous substance, the bodies of the bacteria may be broken up and their toxins set free in the fluid used for injection, increasing to an undesirable extent the rapidity with which they are absorbed by the patient and the danger of unpleasant reactions. On this point Chantemesse differs from Castellani,³ who employs for immunizing inoculations phenolized emulsions of bacteria grown on agar, rather than broth cultures sterilized by heat, arguing that his emulsions give rise to less painful local reactions than do the broth cultures. For the last ten years Castellani has employed combined bacterial vaccines for immunizing human beings against infectious disorders. Chantemesse, as has been stated above, has vaccinated many patients against both typhoid fever and small-pox at the same time. Castellani goes very much further in the same direction. His mixed typhoid + paratyphoid A + paratyphoid B vaccine, introduced in 1905, and his typhoid + paratyphoid A + paratyphoid B + cholera vaccine, are now being employed, he says, in both Switzerland and Italy, and give excellent practical results. The second of these vaccines contains per cubic centimetre 500 million typhoid bacilli, 250 million each of paratyphoid A and B, and 1,000 or 2,000 million cholera vibrios; the first dose is 0.5 to 0.6 c.c.m.; the second and third injections, given subsequently at intervals of a week, are twice as large. Another of his compound vaccines contains the bacteria of cholera + plague + typhoid + paratyphoid A and B + Malta fever;

a fourth, even more complex, immunizes simultaneously against infection with typhoid + paratyphoid A and B + Shiga Kruse dysentery + Flexner dysentery + Hys Y dysentery + Flexner-simile No. 1 dysentery + Flexner-simile No. 2 dysentery. His animal experiments show that rabbits, at any rate, cannot as a rule be satisfactorily vaccinated with more than three varieties of bacteria at once. In man, however, the above vaccine prescriptions, and others like them, do give satisfactory results. Castellani adds that the presence of 0.5 per cent. of phenol in his vaccines suffices to sterilize them, usually in twenty-four hours. Other writers, however, refer to his antityphoid vaccine, prepared as is described above, as a vaccine of living bacteria. Thus Carlo Fulle,⁴ in a synthetic review of antityphoid inoculation in armies, describes all Castellani's vaccines as containing living bacteria. Fulle gives the official statistics of the antityphoid inoculations carried out in the armies of Europe, Japan, and the United States of America, during the last few years.

ECONOMY IN FOOD.

We have received from the Board of Education a pamphlet entitled *Economy in Food*,⁵ which gives information very similar to that furnished in the Board's circular relating to meals for school children, but is adapted to the needs of families. Examples of one and two course dinners are given, the quantities being those deemed sufficient, with $\frac{1}{4}$ lb. bread, for a family consisting of father, mother, and four or five children, and notes on cooking are added. The information provided should be of value, but we are bound to say that in some respects the pamphlet bears marks of hasty preparation. Thus, as we have said, the quantities are stated to be sufficient for "one meal for a family consisting of father, mother, and four or five children." This is surely a very loose statement. Again, in the preface, signed by the Minister for Education, it is said that the whole matter can be summed up in the precepts: (1) Buy economically; (2) prepare carefully; (3) avoid all waste. To some extent information is furnished which will be useful in enabling the reader to conform to the two latter precepts, but no suggestions of value are made as to economical marketing, although it is notorious that one of the great difficulties of the poor is that their ordinary methods of purchasing food are extremely costly. The Board has also issued a circular to local authorities on the same subject, advocating, among other things, the organization of further instruction, and, in addition, special regulations for grants in aid of such instruction for housewives in economical cookery are promulgated. The Board is undoubtedly taking a step in the right direction; whether much progress will be made so long as the poor have before their eyes the spectacle of waste on an enormous scale to which we recently directed attention in the case of the troops, is a question to which we are not prepared to give a dogmatic answer.

QUACKERY IN THE EIGHTEENTH CENTURY.

QUACKERY is as old as human credulity, and that is as old as mankind itself. The methods of the pretenders who profess to cure all diseases remain essentially the same, because the mind of this foolish compounded clay man accepts their promises with all the greater readiness the more loudly and confidently they are made. Steele, in the *Spectator* of July 30th, 1712, says: "There is hardly a man in the world, one would think, so ignorant as not to know that the ordinary quack-doctors who publish their great abilities in little brown billets distributed to all that pass by are to a man impostors and murderers; yet such is the credulity of the vulgar and the impudence of these professors that the affair still goes on and new promises of

¹ *Bull. de l'Acad. de Méd., Paris*, 1915, 3 s., lxxiv, 79.

² *Ibid.*, p. 81.

³ *Lo Sperimentale*, Florence, 1915, lxxix, 399.

⁴ *Lo Sperimentale*, Florence, 1915, lxxix, p. 537.

⁵ *Economy in Food*. Some suggestions for simple and nourishing meals for the Home. (Circular 917.) Price 1d.

what was never done before are made every day. What aggravates the jest is that even this promise has been made as long as the memory of man can trace it, yet nothing performed, and yet still prevails." He proceeds to give examples which read very like the quack advertisements of the present day, though the style is coarser and there is a less subtle display of pseudo-scientific knowledge. The eighteenth century quack states, without any flourishes of language, that he "cureth all diseases incident to men, women or children"; he specially mentions "the yellow jaundice, green sickness, scurvy, dropsy, long sea voyages, campaigns, and women's miscarriages, lying in, etc." Surely an odd enough medley of afflictions without the strange appeal that follows: "as some people that has (sic) been lame (!) these thirty years can testify." Another grounds his pretensions to cure cataract on the fact that he has lost an eye in the emperor's service; while another claims the possession of special skill in the cure of "bursten" children by declaring that his father and grandfather were both "bursten." Had he said that he had cured himself of rupture such a statement might have seemed to have some show of reason, on the principle that "who drives fat oxen should himself be fat." A correspondent has sent us a copy of *The Daily Advertiser* of September 7th, 1753, containing advertisements which show the impudence of the eighteenth century quack, and also the prevalence of venereal diseases. Mingled with announcements of the publication of a *Life of Joseph Addison, Esq.*, and a *Defence of the Most Essential Articles of Christian Belief against the Caricols of Modern Atheists*, we find a proclamation by one Dr. Cam "a graduate physician" who announces himself as the author and vendor of several treatises on venereal diseases, of the efficacy of his "short and easy method of curing the Grand Pox, without salivating, vomiting, or any other irksome operation by a true specific lately discover'd, which performs the cure without any disorder, sickness, confinement, or alteration of diet; and is so wonderfully easy in its operation that persons emaciated and weaken'd by the distemper or other tedious or unsuccessful courses are hereby miraculously relieved." The difficulty about salvarsan and the substitutes suggested for it under the stress of war might have been avoided if Dr. Cam's specific had not been allowed to die out of human memory. In another advertisement the pensive public is solemnly warned against "the woman that imposes at the Royal Exchange her counterfeits of the remedies belonging to Dr. Chamberlen's only right and true famous anodyne necklace for children's teeth, fits, fevers, convulsions, etc." "The cheat," it is stated, "is easily discover'd if you have not got the *Family Almanack*, the treatises on the gout and rheumatism and venereal distemper and a gleet and all the author's other books given you gratis along with your medicines." What, one cannot help wondering, was the *Family Almanack*? Was it given away to sell the treatises on gleet, as it was the fashion a short time ago to tempt purchasers of a pound of tea? The advertiser, Mr. Bradshaw, who describes himself as Dr. Chamberlen's servant, insists that his customers must get the genuine article. "When," he asks with withering satire, "shops will take in and sell what the owners of such shops positively know to be downright counterfeits and take them into their shops to catch mistaking customers, how are they to be depended on for the Duffy's and Stoughton's Elixirs, Heart Burn Lozenges, Hungary Water and other things they sell?" How indeed? Probably the people who doctored themselves with Duffy's elixir and Hungary water did not suffer much from taking "counterfeits." Where are these things now? *Où sont les neiges d'antan?* But however completely even the memory of such specifics may perish, others will take their place. Laws and learning may die, but quackery will thrive till it fades into nothingness before the spread of the light of scientific truth.

PUBLIC HEALTH IN AUSTRALIA.

The evolution of hygiene and public health in Australia was the subject of a lecture delivered a short time ago at the Royal Sanitary Institute by Dr. W. Perrin Norris, chief medical officer of the Medical Bureau of the Commonwealth. Hygiene, he said, had uses both for scavenger and statesman, and in its name not only might the food adulterator be indicted, but also the pedagogue who injured the people by inculcating a lie; while health, he insisted, was a positive quality, consisting largely in a capacity of adjustment to circumstances, and was incomplete without that joy of life which he claimed as an Australian characteristic. So joyous was the Australian temperament, indeed, that one observer had pronounced it Gallic; doubtless it was partly the result of the most pacific and equable climate of all the continents. Dr. Norris then surveyed the political and social history of Australia from the first British settlement, previous to which, he said, Australia was entirely free from the communicable diseases of the Old World. The early settlers brought with them certain results of their distinctly unhygienic environment, and also, for both better and worse, their national and local traditions. British they were, however, and British Australia still was—97 per cent. of her. The first definite evidence of any movement in the direction of preventive medicine was in 1803, when the Governor of New South Wales asked the Colonial Office for a supply of vaccine. In 1828 the first ship known to be infected was placed in quarantine. Since that time small-pox had obtained a temporary foothold on twelve occasions, and each time the disease had been stamped out by preventive measures. Up to the present it could not be said that small-pox was endemic in Australia. Coming to the legislation more particularly of the last twenty years, Dr. Norris said that the public health policy in Australia differed from that in Great Britain by reason of the definite power and activity of the centralized authorities in the daughterland. They had realized that municipal boundaries might not coincide with public health needs, and the tendency had been to take action irrespective of such boundaries. The practice of amending and tinkering old Acts had been superseded by the system of making new laws to meet special circumstances. The object had been formation rather than reformation, as became a country which was in the course of rapid self-construction. Dr. Norris instanced the regulations as to food purity, which, he said, were enforced not by inspectors, who might earn distinction by the number of scalps they carried in their belt, but by supervisors, whose care it was to reduce adulteration by educational measures among others. Australia had the highest natural increase of population of all countries in the world except one, and the proportion of males to females—male preponderance being at one time enormous—was being satisfactorily adjusted; it was now 107:100. The death-rate for 1911-12 was 10.35, the lowest in the world except that of the sister dominion of New Zealand, and the infant mortality was now below 70, and in one State only 60. There were still lions in the path to the kingdom of hygiene, even in Australia, and of these he instanced an insufficient quickness of the social conscience, and the danger of an unmoralized commercialism. As furnishing the key to still more important hygienic advances he looked to the science of eugenics, now in the course of development.

THE RATION OF THE FRENCH SOLDIER.

In recent sessions of the Academy of Medicine the service rations of the French army have been subjected to criticism by several distinguished authorities. At the meeting of July 6th, M. Armand Gautier presented a paper entitled "Dans la ration actuelle du soldat en campagne, il faut diminuer la viande et augmenter les légumes et le vin."¹

¹ *Bulletin de l'Académie de Médecine*, 1915, No. 27.

M. Gautier began by pointing out that while analysis of the dietaries of labourers in France and Belgium had established the fact that an energy equivalent of 3,900 calories in summer and 4,300 in winter should be furnished, the official active service ration provided but 3,200. He held that the official diet was already somewhat too rich in animal protein and advocated the provision of mixtures of cooked and preserved vegetables and meat on the lines proposed by MM. Basset, Pietre, and Goulut. One suitable formula gives for each tin 300 grams chopped beef, 20 grams fat, 100 grams carrots, 12.5 grams onions, 40 grams concentrated bouillon, 3 grams pepper and spices. The calculation refers to the ingredients in the uncooked state. In this way a daily addition of 400 to 500 calories could be made. Of the remaining 500 to 600 calories required, a certain quantity, some 200, could be provided by the addition of sugar, preferably in the form of chocolate, but this would be the maximum permissible addition without violating the rule that the daily consumption of sugar ought not to exceed 80 grams. The remaining calories needed should, in M. Gautier's opinion, be furnished by the addition of 50 centilitres of wine at 10° C., making the total daily issue of wine 75 centilitres. M. Gautier is a strong advocate of the use of natural wine in this way; he emphasizes the advantage of rapidity of absorption and the beneficially stimulating effects upon the nervous system which he claims for it, and points out that such advantages are not possessed by an equivalent quantity of alcohol given in the form of strong spirit. At the following session of the Academy² MM. Vidal and Landouzy energetically supported M. Gautier's proposition, and argued that the most efficient weapon in the campaign against alcoholism was to be found in the judicious use of the natural wine of the country. It was pointed out that, in general, the districts in which alcoholism was rampant were not the vine-raising areas, and the enormous evils of spirit drinking were emphasized. M. Vidal and other members desired to have these conclusions expressed in a formal resolution of the Academy, but the perpetual secretary having pointed out that to do so would infringe a rule of the Academy, the proposals were remitted to a commission charged with the preparation of a report. The two arguments in favour of the use of wine—(1) the dietetic argument, (2) the argument for its use as a prophylactic against alcoholism—are logically quite distinct, and it will probably be thought that, simply on the evidence presented in these communications, the case in favour of the second is the more cogent. On the dietetic side, the ordinary physiological objections, namely, increased heat loss due to cutaneous vaso-dilatation and the hypnotic effect following the transitory stimulation, are not dealt with, not to speak of the practical point raised by Major Lclean in the valuable lectures reported in our columns and since published in book form,³ namely, the danger that men will purchase the alcohol rations of tectotal comrades, and consequently that some individuals may obtain a grossly unhygienic amount. The question of wine rations is not, perhaps, one which has much direct importance for our own service, but its indirect importance is great and the findings of the commission will be awaited with interest.

WAR EMERGENCY COMMITTEE.

THE new special War Emergency Committee has already met twice, and has appointed Dr. T. Jenner Verrall as its Chairman, Dr. A. E. Shipley, F.R.S. (Master of Christ's College, Cambridge), and Mr. E. B. Turner as Vice-Chairmen, and Mr. Bishop Harman and the Medical Secretary as Secretaries of the Committee. Professor Harvey Littlejohn, Dean of the Faculty of Medicine, Edinburgh University, has been co-opted as a member, and other prominent members of the profession have been

invited to accept membership. A conference has been held with Sir Alfred Keogh, who has cordially welcomed the proffered services of the new Committee, and has promised it his active support and co-operation. The Committee proposes at the earliest possible moment to place the immediate necessities of the War Office for a large supply of medical officers before all members of the profession not at present giving whole-time military service.

Medical Notes in Parliament.

Territorial Medical Officers.—Lord Newton, in replying to a question by Lord Harris in the House of Lords on July 27th, explained that the position as between the Territorial Force medical officer and the civilian practitioner who had been granted a temporary commission since mobilization was as follows: The Territorial Force officer was paid at the same rate as the Regular R.A.M.C. officer, except that unembodied service did not count for increase of pay in the same rank. Both Territorial and Regular officers of junior rank were paid less than civilian surgeons commissioned as lieutenants and serving on a special war contract. The inequality had existed since the date of mobilization, and he was afraid it was inevitable in war. It was very difficult to see how the inequality or injustice could be rectified, but he would remind his noble friend that a concession of some value had been made to the Medical Corps in view of the admirable service performed, lieutenants of six months' service having been promoted to the rank of captain. He believed the question was still under the consideration of the Treasury and the War Office.

Dental Surgeons.—Mr. Tennant, in replying to Sir Henry Norman on July 28th, said that there were no consultants in dentistry to the forces abroad. There were forty-eight qualified dental surgeons serving abroad and forty-eight at home with the rank of lieutenant. There were also ninety-three honorary consulting dental surgeons at home. These numbers did not include the dental surgeons employed by local military authorities at home nor those doing duty with Colonial troops. Sir Henry Norman subsequently asked if it was intended to add to the somewhat meagre number of dentists with the forces abroad, and Mr. Tennant said that he had heard no complaint that there was any requirement to that effect.

Royal Assent.—The following were among the measures which received the Royal Assent prior to the adjournment of the House of Commons on July 29th till September 14th: Notification of Births (Extension) Act, 1915, Milk and Dairies (Consolidation) Act, 1915, and the Scottish Universities (Emergency Powers) Act, 1915.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE WEEK'S SUBSCRIPTIONS.

THE following subscriptions to the Fund have been received by the Treasurer, Dr. Des Voeux:

Thirty-fifth List.

	£ s. d.	£ s. d.
North of England Branch of Fund (per Dr. Jas. Don and Mr. A. S. Percival, Hon. Secs.) (eighteenth donation, total 2771 18s. 9d.)	1 1 0	7 12 6
Dr. S. Robson	1 1 0	
Northumberland Pharmacists' Society (per Mr. G. R. Patterson)	1 1 0	100 0 0
Warrington Pharmacists, collected by Mr. H. M. S. Hill (per Dr. Murray, Hon. Sec., Warrington Division, B.M.A.)		
Pharmaceutical Society of New Zealand (per Mr. C. M. Nielsen, Registrar)		

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE APPEAL FOR SURGICAL INSTRUMENTS.

Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C.

² *Bulletin de l'Académie de Médecine*, 1915, No. 28.

³ *Sanitation in War*. By Major P. S. Lclean, R.A.M.C. (Churchill.)

THE WAR.

MEDICAL ARRANGEMENTS OF THE BRITISH EXPEDITIONARY FORCE.

[From a Special Correspondent in Northern France.]

TREATMENT OF FRACTURES.

KIPLING says there are many different ways of constructing tribal lays, and each and every one of them is right. A like statement would apply with almost equal force to methods of dealing with fractures, and consequently references to this subject in these notes have been rare. Only when a newly-devised method meets a desideratum not included in the aims of already approved methods or not secured by them, can one be justified in drawing attention to it. Methods that come within the limits of this stipulation are of necessity rare, but there is one now in use at a stationary hospital for dealing with fractures of the thigh and upper arm, including the elbow.

In the case of the thigh the effect of applying the method—apart from securing absolute immobility of the fractured ends—is as follows: (1) The patient can move himself about in bed quite freely, that is to say, he can let himself down towards the bottom of the bed or pull himself up towards the top; he can move his pelvis right off the bed to a height of 5 or 6 inches; or he can leave his pelvis on the bed and assume a sitting posture. (2) If the fracture is compound the wound can be efficiently dressed without interfering with the splint, and the latter need not be changed even if the patient has to be sent on a journey. The mobility of the patient is secured by attaching the splint by several weighted pulleys to a trolley which runs to and fro, as the patient pleases, on a frame above the bed. This part of the appliance is in fact a reproduction in miniature of the very simple but effective machinery by which heavy weights, such as girders, are moved about in engineering workshops.

On the other hand, the immobility of the fractured ends of the bone is secured by a splint whose general character will perhaps best be suggested by a series of comparisons. It resembles a Thomas's knee-splint because it causes the same force to operate in two opposite directions—*vis a fronte* in the case of the fractured bone, *vis a tergo* in the case of two rigid bars, which are thus driven firmly against an immovable part of the patient's body. It resembles a Wallace because the upward driven bars are parallel and the force is applied by means of a screw-pin cross-bar. Finally, it resembles a Max Page because the portion of the splint which impinges on the tuber ischii is not a loop but a segment of a circle. But while it presents all these resemblances to the splints named, there are so many differences that it is not to be regarded either as a modification of any of them, or even as a combination of all three.

For instance, unlike any of them, the side bars are placed at the level not of the middle but of the upper third of the circumference of the limb. The screw-pin cross-piece, through which the extending and driving force is applied, is operated, not as in the Wallace, by a one-sided lever handle—every movement of which almost inevitably tilts the limb one way or the other—but by a double-grip lever which distributes the screwing force equally on both sides. Unlike the Max Page, the splint is suspended by a counterweight, and this counterweight acts not as in the Thomas and Wallace, from a single point, but is distributed so as to form four independent overhead counterpoises, each of which is self-adjusting. Finally, the bed of the splint is not a series of strips of flannel bandage, but a continuous layer of perforated zinc. This is sufficiently thin to be moulded by the hand, and, thanks to the high level of the side bars to which it is attached, its general form is that of a deep gutter, not a groove. The amount of additional support that it affords is therefore very considerable, while, of course, zinc never sags.

Should it be necessary to evacuate the patient, the suspension apparatus is detached and the splint fixed for the journey to a wooden support.

The general idea of the upper arm and elbow appliance is of much the same order, but the principle of the suspension apparatus is that of a quay-side crane instead of an overhead trolley. The splint itself, moreover, more

closely resembles an ordinary elbow-joint Thomas, except that a zinc bed is substituted for flannel strips.

But the net effect is not less valuable. The injured part is kept steady, the wound is accessible, and the patient is not confined to one position—he can sit up, lie back, or turn on his side.

The use of perforated zinc is not, it should be noted, peculiar to the splints here described. A good many surgeons are now replacing it by the flannel strips otherwise employed with splints of the Hodgett and Thomas types. It has the advantage of never sagging, and, practically speaking, it does not seem to soil. If desired an opening can readily be cut in it for the passage of a drainage tube, but in any case a metal surface is not congenial to microbes.

The only splint of the general order in question to which I have not yet seen it applied is the Max Page. Here, too, a zinc instead of flannel strip bed would probably be a useful modification when this splint is being used, not only at the beginning but throughout the treatment of the case. This is another splint which seems certain to outlive the war. It meets the desiderata of prolonged treatment less completely than the one just described, but is excellently suited to country practice and the purposes to which it is at present mainly being turned. It "caught on" very rapidly at the casualty clearing stations, where it is indeed a blessing to have a means of converting a broken thigh into a painlessly movable limb within the space of a very few minutes. The upper and lower halves can be kept ready and clipped together quickly as soon as the length of the limb to be treated has been ascertained, and the material of which it is built is so light and easily carried that it is never likely to lose its place in the splint boxes of military formations.

I have heard it said that the Max Page tends to slip down the thigh during transport, but this can be the case only when the extension has been carelessly adjusted in the first instance and when the surgeon has failed to take advantage of the fact that the side "irons" can be squeezed in laterally, so as to take the shape of the limb. Another mistake sometimes made is placing the foot support close to the heel, instead of at about the level of the junction of the middle and lower thirds of the leg. In such case there is just a possibility of the side irons bending slightly after long use.

RIDING CLASSES.

The equivalent of a riding school was established a little time ago at one of the remount camps. It is at some little distance from Boulogne, but a motor omnibus has been told off to take out those authorized to attend the classes. The latter are for the most part temporary officers in the Royal Army Medical Corps. All these are liable to be detailed for duty at the front, and their efficiency when thus employed is enhanced by ability to ride. Equestration is one of the subjects in which the regular officers of the Royal Army Medical Corps have to qualify while still in the probationary period of their career, but not until they reach the rank of major do they become entitled to the usual allowance for the upkeep of a horse. Meantime, however, they may have to ride if attached to a field ambulance unit which has been mobilized for the purpose of taking part in training manoeuvres, or if they are placed during such training in medical charge of a cavalry or infantry unit. During actual war operations it is only when employed in like positions that riding is required of medical officers of the rank of captain or lieutenant, but the number of posts which then have to be filled is relatively much greater. Apart from the greater size of a fighting army every large unit, including cavalry regiments, infantry battalions, artillery brigades and analogous bodies of troops, has allotted to it a medical officer. In fact, in war time there is a partial return to the old regimental system. At the present time the phase through which warfare is passing and the circumstances of the moment are combining to reduce—almost to abolish—any immediate necessity for riding on the part of officers of almost every branch of the army, but it is very important not to overlook the fact that at any moment there may be a return to the normal. In that case the mobility of medical officers in charge of fighting troops will automatically again become a matter vital to the general organization for the

prevention of disease in the army as also to the welfare and rapid succour of the wounded during actual battle operations.

Besides this it is of personal advantage to a medical officer to be able to ride even though when at the base he may be able to do the whole of his work without ever mounting a horse. Flanders is not an ideal country for horse exercise—it is too closely cultivated—but in slack times, as for instance, when the unit to which a medical officer is attached is resting in billets, an afternoon ride makes a pleasant break.

CASES FROM THE DARDANELLES TREATED ON A HOSPITAL SHIP.

MAJOR W. A. CHAPPEL, M.D., R.A.M.C., sends us the following notes of 71 out of 635 cases. All the cases, with one exception of possible gastric ulcer, were due to wounds or injuries inflicted during the operations at the Dardanelles. The voyage took ten days. (1) There was one case of tetanus; the first symptoms showed on the fourth day. Treatment consisted in opening up pockets in the wound and cutting away all granulations and sloughing material, applying packs of hydrogen peroxide at first every four, then every eight hours, the injection intrathecally of 6,000 units of antitetanic serum within the first twenty-four hours and intramuscular injections every four hours, then every six, and latterly every eight, of 10 minims of a 1 in 40 solution of carbolic acid. Relapse occurred on the fourth day of treatment, when spasm of the jaw and neck returned, and 2,000 units were again injected intrathecally. The man was quite out of danger on landing, and the temperature had been normal for four days. (2) A violent secondary haemorrhage of the femoral artery at 1 a.m. was met by ligation of this vessel in Hunter's canal. (3) An aneurysm of the femoral had developed five weeks after a bullet wound in the lowest one-third of the thigh. The artery had been tied in Hunter's canal and gangrene had supervened, owing, apparently, to injury done by the bullet to the anastomotic and other vessels upon which collateral circulation would depend. The gangrene extended nearly to the knee, leaving no area of healthy tissue sufficient to cover a stump at the site of election. A Lister's amputation was done at the lowest third, and an uninterrupted recovery followed.

In all, fifteen operations under a general anaesthetic were necessary in the 71 cases; four were for the extraction of bullets revealed by a very excellent x-ray apparatus; four were for cellulitis; three for the removal of necrosed bone; two for abscesses; one for secondary haemorrhage; and one for resetting a simple fracture of the femur.

All the cases improved very markedly on the voyage, which was made in smooth seas. All were cut cases to begin with, but fully half were able to be on deck during the latter half of the journey. The surgical equipment was complete and as satisfactory as in any small modern hospital.

Only two cases will require further surgical treatment immediately—bullets lodged in the spinal column, producing grave peripheral symptoms. If smooth seas could be ensured, the conditions of surgical treatment would be as good as those of most base hospitals. Not more than one third will be fit for further war service, and these only after periods of convalescence ranging from six weeks to six months. In loyalty to the high example of the King and Lord Kitchener, no alcoholic beverage was given during the voyage, and no case arose suggesting its use to which the resources of the dispensary were not equal.

FRENCH WOUNDED IN THE DARDANELLES.

In the *Gazette hebdomadaire des sciences médicales de Bordeaux* of August 1st, Dr. René Celles gives an account of his surgical experiences as principal medical officer of the French hospital ship *Burligata* in the Dardanelles. From what he has seen in a nine months' experience the wounds in the Dardanelles fighting differ from those seen at the Western front. Whilst in France the majority of wounds are inflicted by shells, in the Dardanelles the injuries are mostly caused by bullets. This he attributes to the fact that the Turks are not well supplied with artillery. The wounded men, 500 in number, were all

French or French-Colonial troops, and were hurt in the fighting at Sedd-al-Bahr on May 8th. As a rule, they were seen from four to twelve hours after the infliction of the wounds. The average duration of their stay in the ship was five days. Owing to the shorthandedness of the surgical staff it was possible to make notes of only 170. In 26 per cent. of that number the first dressing was applied by a comrade on the field of battle, in 2.6 by an army medical officer, while the rest were dressed at the ambulances behind the firing line. All reached the ship with wounds relatively clean and in good condition. Almost all had received an injection of antitetanus serum. It has been said that the majority of the wounds were caused by bullets, the proportions being approximately as follows: Bullet wounds, 77.8 per cent.; shell, 11.1; fragment of stone, 1; wounds caused by agents impossible to recognize, 11.1. Many of these wounds were very serious and were much lacerated, especially at the aperture of exit. Dr. Celles says that nearly all the soldiers insisted that the wounds had been caused by explosive bullets. He is convinced, however, that this was seldom the case, although it was impossible to deny that dum-dums were not sometimes used. He instances particularly a case of wound of the testicle, where no hard body could have been struck in the passage of the projectile into the body. The gravity of the wounds he attributes to the excellent shooting of the Turks and to the nearness of the combatants to each other. A rough classification of the seats of injury is given as follows:—Wounds of limbs: (a) Not affecting the joints, 48 per cent. Among these was a considerable number of compound fractures; most frequently both bones of a limb were broken, sometimes all three. Beside the fractured bones there were often large gaping wounds at the bottom of which a large artery could be seen pulsating or bleeding. (b) Penetrating wounds of joints, 14.7 per cent.; most of these were of the knee. Wounds of thorax: (a) Non-penetrating, 4.5 per cent.; (b) penetrating, 11.5 per cent. The organ most frequently injured was the lung. In two cases the heart was wounded; one patient died two hours after receiving the wound; the other survived till the following day. In that case the bullet entered at the level of the right seventh intercostal space slightly outside the nipple line; after passing horizontally through the thorax it came out at the level of the left intercostal space, also slightly outside the nipple line. Through the latter orifice projected a considerable quantity of pre-pericardial fatty tissue. In 4 of 18 penetrating wounds of the chest death occurred within twenty-four hours. Wounds of the abdomen were less frequent (9.6 per cent.), but almost all were penetrating. Among 15 patients four deaths occurred in twenty-four hours. In 3 cases both the thorax and the abdomen were wounded by the same projectile; one died. Wounds of the skull were less frequent. Of these 2.1 per cent. were superficial; they were always accompanied by haematoma and oedema when the face was struck. Of penetrating wounds the percentage was 2.1; in these exposed the underlying brain, which could be seen beating and bleeding. Sometimes there was a cerebral hernia. One man amused himself, till he was restrained, by fingering about in his skull and extracting a foul mixture of blood and brain substance. Three secondary complications are particularly to be dreaded in war surgery—haemorrhage, gangrene and tetanus. Although haemorrhage is frequent, the prognosis is not bad, provided proper treatment can be applied; the best procedure is ligation of the main artery of the limb. Gangrene is very rare. Among the 500 cases there were only two cases. In one there was gas gangrene of the hand and the forearm, coming on three days after a bullet wound; its course was very rapid, and amputation had to be performed at once. Dr. Celles says the only instruments he had at his disposal were a bad bistoury, a dissecting forceps, and a ligature needle; a saw had to be borrowed from the ship's carpenter. Nevertheless, the patient recovered without any complication.

As regards tetanus, of which he saw a great deal in the early months of the war in Europe, there was not a single case in the batch of 500. This he attributes largely to the general use of antitetanus serum.

Speaking of the arrangements for dealing with the wounded, Dr. Celles says the French had two regular hospital ships, the *Canada* and the *Duguay-Trouin*,

specially and comfortably fitted up. These received the wounded in front of the Gallipoli peninsula and took them to Europe, Algeria, and Egypt. During the passage the surgeons could apply all necessary treatment and perform such operations as were urgent. In addition to these, there were several accessory ships—the *Burdigala*, the *Lorraine*, the *Ceylon*, and others—transports or trading vessels requisitioned or mobilized, which took wounded on board if none of the regular hospital ships were available. These accessory ships had no proper equipment and no adequate staff. When the 500 wounded had to be taken on board on the night of May 8th, Dr. Celles had to deal with them single-handed, without even a nurse to help him. The difficulties under which he had to work, owing to the lack of instruments, may be gathered from his account of the amputation for which he had to use a carpenter's saw.

He suggests that a base hospital should be established at some place within a comparatively short distance of the fighting line—for instance, at Lennos—which can be reached in three hours. This should be properly equipped and staffed, and the wounded would be more quickly attended to, and would be saved long sea passages and transshipments, which are very fatiguing and dangerous for those wounded in the abdomen or the chest. The hospital ships would act as transports, and would not lose five or six days in voyages to Europe.

CASUALTIES IN THE MEDICAL SERVICES.

NAVY.

Wounded.

Staff Surgeon E. B. Kenny, R.N., Dardanelles.

ARMY.

Wounded.

Captain P. B. Bharucha, I.M.S. (Persian Gulf),
Lieutenant (temporary) J. Cattanach, R.A.M.C. (Dardanelles).

Lieutenant (temporary) C. D. Roberts, R.A.M.C. (Flanders).

Lieutenant (temporary) J. S. Stewart, R.A.M.C. (Flanders).

There are two temporary Lieutenants of the name of J. S. Stewart in the R.A.M.C., with commissions dated August 10th and October 5th, 1914, respectively.

DEATHS AMONG SONS OF MEDICAL MEN.

Five such cases have been reported recently, to which are added three older cases.

Concanon, G. L. B., Captain, 2nd Battalion Australian Infantry, killed in the Dardanelles on March 25th, was the only son of Dr. William A. Concanon of Toowoomba, Queensland. He was educated at the Leys School and King's College, Cambridge.

Harley, John, Lieutenant 13th Battalion Worcester Regiment, only son of John Harley, M.D., of Beedings, Fulbrough, killed at the Dardanelles on June 4th. He was born in 1880, educated at Charterhouse and at Trinity College, Oxford, where he took the degree of M.A. He was called to the Bar in 1906, but never practised, devoting himself to research work in the Record Office, and became a Fellow of the Society of Antiquaries. He enlisted in the Artists' Rifles at the beginning of the war, got a commission in the Worcester Regiment on February 8th, 1915, and went to the Dardanelles on May 10th, attached to the King's Own Scottish Borderers.

Irvine, Christopher Theodore Corrie, Lieutenant Indian army, youngest son of the late Surgeon-General G. J. Irvine, R.N., killed in the Dardanelles on June 28th, aged 26. He was born on January 27th, 1889, got his first commission in the Comaught Rangers on December 11th, 1909, became Lieutenant on March 11th, 1912, and joined the Indian army on August 15th, 1914. He was in the 25th Punjab, but when killed was attached to the 69th Pinnabis.

Macpherson, Duncan Stuart Ross, Lieutenant Indian army, only son of Surgeon-General W. G. Macpherson, C.B. He entered the army on April 20th, 1911, and was in the 7th Gurkhas, but was attached to the Black Watch from August 25th, 1914.

Mactier, Henry Mackinnon, Major Indian army, son of the late Surgeon-Major W. F. Mactier, I.M.S. (retired), killed at Nevee Chapelle on March 16th. He was born on July 21st, 1856, joined the Royal Sussex Regiment on December 21st, 1889, and the Indian army on July 2nd, 1891, becoming Captain in 1898, and Major on December 21st, 1907. He served on the North-Eastern Frontier of India, in the Burma and Lushai campaigns of 1892, medal with clasp; in the Chin Hills in 1892-3, clasp; and on the North-West Frontier in the Tirah campaign of 1897-8, medal with two clasps. He was second in command of the 23rd Gurkhas.

Oldham, Leslie William Series, Major Royal Engineers, only son of the late Brigade Surgeon C. F. Oldham, I.M.S., killed in

action July 28th. Major Oldham attained that rank on July 27th, 1909. He commanded the 63rd Field Company of Royal Engineers. He served in the Chitral campaign of 1895 as commanding Royal Engineers of the relief force from Gilgit, was present in the action of Chakalwat and Nisa Gol, was mentioned in dispatches, and received the medal.

Pollard, Edward Branch, Lieutenant King's Own Scottish Borderers, attached to Royal Engineers, son of Dr. Pollard of Moffat, wounded in the head near La Bassée on July 7th, and died in hospital in France on July 26th. His commission was dated December 3rd, 1914.

Thomson, Duncan Turner, Private 9th Battalion Highland Light Infantry (Glasgow Highlanders), second son of Dr. Thomson of 8, Hamilton Park Terrace, Hillhead, Glasgow, died on July 30th at the General Hospital, Northampton, of wounds received in France on June 19th, aged 26.

MEDICAL STUDENTS.

Boyd, R. M. Stewart, Lieutenant 6th Battalion Highland Light Infantry, fifth son of Mr. James Boyd of Athole Gardens, Glasgow, killed in the Dardanelles, was a final-year student of medicine at Glasgow. He got his first commission on May 4th, 1914, and was at first reported as wounded and missing.

Erskine, Thomas Baillie, Second Lieutenant 4th Battalion Argyll and Sutherland Highlanders, attached to the Gordon Highlanders, killed in Flanders, was a medical student at Glasgow. His first commission was dated August 15th, 1914.

NOTES.

SERBIA.

Proposed Establishment of a Baby Hospital.

According to the *Journal of the American Medical Association* the American Red Cross has made arrangements for the establishment of a baby hospital in Serbia, which will be known as the Mabel Grouitch Baby Hospital, in recognition of the Red Cross activities of Mme. Slavko Grouitch, wife of the Under Secretary for Foreign Affairs of Serbia. The hospital will be in charge of Dr. Louise Taylor Jones, Washington, and Dr. Catherine H. Travis, New Britain, Conn., who sailed on the Greek steamer *Constantine* from New York for the Piræus, July 19th. Dr. Jones will act as medical director of the hospital, and expects to return to Washington in October, leaving the hospital in charge of Dr. Travis.

MEDICAL OFFICERS WANTED.

2nd Line Welsh Border Mounted Brigade.

Four medical officers are required immediately for service with the Shropshire Royal Horse Artillery, Cheshire Yeomanry, Denbighshire Yeomanry and Field Ambulance, respectively, of the above brigade. Pay and allowances as in the regular army. Further particulars can be obtained on application to Lieutenant-Colonel D. C. Leyland Orton, Senior Medical Officer, 2nd Line Welsh Border Mounted Brigade, Lambton Park Camp, Chester-le-Street, co. Durham.

1st Wessex (S) Casualty Clearing Station, R.A.M.C.(T.).

Medical officers are required to complete the establishment of this unit. Two should be operating surgeons, preferably holding F.R.C.S. All must be prepared for both home and foreign service. Those recently qualified acceptable. Ambulance workers specially welcome. Applications to the Officer Commanding, 1st Wessex (S) Casualty Clearing Station, R.A.M.C.(T.), Evelyn House, Salisbury.

England and Wales.

THE TUBERCULOSIS CAMPAIGN IN WALES.

The Welsh National Memorial Association.

The annual meeting of the Governors of the King Edward VII Welsh National Memorial Association for the prevention and abolition of tuberculosis was held at Llandudno on July 31st.

Mr. D. S. Davies, High Sheriff of Denbighshire and one of the treasurers of the association, who presided, referred with regret to the fact that the Pembrokeshire County Council had maintained its refusal to come into the scheme, which embraced all the rest of Wales. Notwithstanding this, the association had hitherto treated dependants of insured persons in that county as well as other non-insured members of the community, and, by agreement with the Insurance Committee, the treatment of insured persons had been provided for. Mr. D. W. Evans (General Director) said that the failure of the county council to make its contribution involved the loss to the association of an equivalent amount from the Treasury.

It was announced that the honorary casualty surgeons, Mr. J. Lynn Thomas, C.B. (Cardiff), and Mr. Robert Jones (Liverpool), had carefully considered the suggestion to establish one large central hospital in Wales for the treatment of surgical tuberculosis, but, finding it to be, for geographical reasons, impracticable, had recommended

two hospitals—one for South Wales, at Glan Ely, near Cardiff, and the other to form part of the North Wales Sanatorium, which is being erected on an admirable site, given by Mr. D. S. Davies, on rising ground at Llangwyfan, on the east side of the Vale of Clwyd, a few miles from Denbigh. It was mentioned that during the year the association had received two valuable gifts, which would greatly facilitate its work in Monmouthshire. Sir Garrad Thomas (Chairman of the Medical Committee) and his family had given a house in Newport, and Mr. J. C. Hanbury seven acres of land near Pontypool Junction, on which a tuberculosis hospital with 100 beds would be erected.

President's Address.

In the absence of the President, Lieut.-Colonel David Davies, M.P., on military duty, his annual address was read to the meeting. After discussing the attitude of the County Council of Pembrokeshire, and explaining the general financial situation of the association, he said that the number of persons who had received treatment through it in an institution, either a sanatorium or a hospital, had risen from 2,073 in 1913-14 to 3,003 in 1914-15. The capital expenditure down to March, 1915, had amounted to £100,452. The Charity Commissioners had recently approved the scheme for the administration of the association, and in consequence the Treasury was about to sanction the payment, through the Welsh Insurance Commission, of the contribution authorized by Section 64 of the Insurance Act, 1911.

The Sanatoriums.

The work the association had set out to do had progressed during the year in all departments quite satisfactorily, except that there had been unavoidable delay in completing the building contracts now in force. In March, 1914, there were 87 beds in hospitals owned by the association. On March 31st, 1915, the number was 185. The total hospital beds at the disposal of the association this time last year were 332; on March 31st, 1915, there were 418. Since March 31st the new hospital at Llangefni had been opened, the alterations to the structure at Tregarren were proceeding apace, and the permanent annex at Glan Ely was approaching completion.

In March, 1914, the association had 299 sanatorium beds. Of that number 228 were in buildings owned or leased by the association, and 71 in institutions over which the association had no control. On March 31st, 1915, it had 257 beds in buildings owned or leased by it, and 128 beds in other institutions, making a total of 385, or an increase of 86 beds. Having regard to the extraordinary circumstances, the buildings of the North Wales sanatorium at Llangwyfan, near Brecon, and of the South Wales sanatorium at Pontywal, near Brecon, were progressing satisfactorily.

Number of Patients and Results.

The association had started with the intention of raising a capital sum of £300,000, and up to date it had received, in money and in kind, £220,000. At the institutes or visiting stations, now numbering 101 in various districts, 8,868 persons had been examined by the tuberculosis physicians during the war; these persons included 3,121 men and 2,460 women, the remainder being children. The number of women applying had shown a slight increase, which was satisfactory, as the death-rate from tuberculosis among men and women was practically the same. The percentage of women applicants found to be tuberculous had fallen from 72 to 52. The number of children examined had increased, and might be expected to increase still further when the scheme of the association became still more closely connected with the medical inspection of school children. The number of contacts examined had risen from 1,484 in 1913-14 to 1,808 in 1914-15, and the number found tuberculous from 360 to 416. Of the number discharged from sanatoriums no less than 69 per cent. of pulmonary cases and 80 per cent. of non-pulmonary cases were discharged as fit for work. These were most gratifying figures, and the President hoped these cases would be followed up from time to time to ascertain whether the improvement manifest upon their being discharged from a sanatorium had been maintained. No fewer than 250 patients were discharged during the year from hospitals as being fit for work. More satisfactory still was the fact that 836 patients

attending from time to time at the tuberculosis institutes and visiting stations had been discharged from treatment as being fit for work. This was a valuable phase of treatment of tuberculosis, and the results went to show that residence in an institution was not absolutely necessary in every case of tuberculosis. With reference to the educational campaign, no fewer, he said, than 76,538 scholars and teachers attended lectures delivered in elementary and secondary schools during the year.

Surgical Tuberculosis.

At the invitation of the Chairman, Mr. Robert Jones made some observations on the importance of providing adequate treatment for adults suffering from surgical tuberculosis. Tubercle of bones and joints in children, he said, might almost be called benign, but in adults it was malignant, and many pitiable cases occurred which it was quite impossible to treat adequately in their own homes. Nor were such cases suitable for treatment in general hospitals, in fact he had refused to treat tuberculous cases in such hospitals. Continuous open-air treatment, the patient sleeping out of doors, was essential, and the greatest benefit occurred during the winter months. With adequate treatment deformity after tuberculosis could be avoided. The scheme for treating surgical tuberculosis in Wales should not be parochial but national. Treatment should be begun at central hospitals, and the patients retained in them until they could safely be sent to convalescent annexes.

After transacting some further business, including a resolution to pay the expenses of representative members in attending meetings of the Board of Governors, the Council, and the Committees, a hearty vote of thanks to the chairman was adopted, and the meeting came to an end.

TUBERCULOSIS DISPENSARIES FOR LONDON.

At its last meeting before the recess, the London County Council, through its Public Health Committee, approved as part of the comprehensive scheme for the treatment of tuberculosis in London, dispensary schemes prepared by three of the metropolitan borough councils. The three boroughs concerned are Bermondsey, Hackney, and Stoke Newington, the total annual cost in the case of Bermondsey being £200 (in respect of uninsured persons only), and in the other two cases estimated at £1,840 and £420 respectively. The maximum amount of the Council's contribution cannot be fixed until the date on which the scheme comes into operation is known.

It has also been decided to continue, as far as possible, the arrangements for reserving beds in residential institutions for the reception of uninsured tuberculous persons under the Council's scheme. It is not possible in all cases to reserve a definite amount of accommodation owing to the abnormal conditions prevailing, but the arrangements for adults include 20 beds at the Royal Chest Hospital, City-road, and 20 at Maltings Farm Sanatorium, as well as 50 to be allotted, if available, by the authorities of the Brompton Hospital, either in the hospital itself or in Frimley Sanatorium. Some 170 beds are also to be kept open for children at various institutions, including 38 beds at Queen Mary's Hospital at Carshalton, which have been placed at the Council's disposal by the Metropolitan Asylums Board.

RIGHT OF OLD AGE PENSIONERS TO MEDICAL ASSISTANCE.

The Local Pension Committee of the London County Council has had its attention drawn to the fact that many old age pensioners who become ill do not seem to appreciate that "medical or surgical assistance (including food or comforts)" supplied by or on the recommendation of a Poor Law medical officer does not disqualify them for a pension. The consequence is that pensioners frequently refrain quite unnecessarily from applying to the Poor Law authorities for medical and surgical assistance. The Board of Customs and Excise has not seen its way to agree to the committee's suggestion that a short statement of the law on the subject should be printed on each pension order book, and the committee is now suggesting to the Local Government Board (the central pension authority under the Acts) that it might with advantage draw the attention of the various boards of guardians to the law on the subject.

Ireland.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION FOR
IRELAND.

The twenty-third annual general meeting of the Royal National Hospital for Consumption for Ireland was held in Dublin on July 29th, Major E. H. C. Wellesley, J.P., Chairman of the Board of Governors, in the chair.

The Chairman, in moving the adoption of the report, said that while they regretted that they must still wait for a detailed statement of the medical work of the hospital during the year—which, however, he believed was of an entirely satisfactory and encouraging condition—he thought they would all sympathize with, and be proud of, the circumstances which occasioned the delay. Their two resident medical officers, Dr. Hanan and Dr. Crosbie, had obeyed their country's call and placed their services at the disposal of, one the naval, and the other the military, medical authorities, and were now serving in these branches of the national service. Their places were efficiently filled at present by Dr. Kennedy and Dr. Gordon, but these gentlemen, further embarrassed as they had been by the absence of one laboratory assistant with the Reserves and the illness of his successor, had not had time to deal with and compile the statistics with sufficient detail to admit of the results being tabulated in time for the board's report adopted on July 8th. The effects of the war had also been felt in falling income and increased cost of food. On the other hand, when they looked at the work carried on at the hospital, there was every reason for thankfulness and satisfaction. They had during the period since the last annual meeting increased the number of beds to 125. He had offered to place at the disposal of the Insurance Commissioners in connexion with the military authorities twenty-five beds for soldiers discharged from the army suffering from tuberculosis. They were still receiving insured patients for treatment from Insurance Committees throughout Ireland, of whom several had acquired a definite number of contract beds, and other county authorities—these, of course, in addition to patients recommended by subscribers and donors—and the board had good reason to know that the high standard of efficiency existing at the hospital, both medical, nursing, and administrative, was well appreciated by those who had been brought into contact with it. The board desired to express its thanks to Dr. Crofton, visiting physician, Dr. Hanan and Dr. Crosbie, the late—and Dr. Kennedy and Dr. Gordon, the present—resident medical officers, and to Miss Taylor, lady superintendent, and the nursing staff generally. Mr. Wellington Darley, J.P., seconded, and the report was adopted.

Dr. Crofton, in returning thanks, said that although they had not been able to have ready a detailed medical report on the results of the treatment of patients at the Royal National Hospital for Consumption for Ireland during the year 1914, he had, with the help of the assistant resident medical officer, Dr. Crosbie, at present serving in the Royal Army Medical Corps in Dublin, been able to draw up a preliminary report giving the broad results. Of the total number of patients discharged during 1914, exclusive of those in whom no diagnosis of consumption could be made, 15.5 per cent. were "very much improved" or "apparently cured," 20.7 per cent. were "much improved," 21.2 per cent. "improved," 37.3 per cent. "*in statu quo*," 3.1 per cent. were worse, and 2.2 per cent. died. In 1913 the figures were 12.8, 15.9, 23.4, 31.8, 12.5, 3.4; while in 1912 the figures were 6.6, 21.3, 24.9, 27.3, 19.2, and 0.60—a favourable comparison, he thought, in spite of having only 10.8 per cent. of Group I (early) cases to deal with in 1914 as compared with 43.1 per cent. in 1912. Owing to the breaking up of the staff in consequence of the war, for all practical purposes the method of treatment for which he was responsible—namely, the chemotherapy of the disease by iodoform dissolved in ether given intravenously, accompanied by immunization against the catarrhal microbes and then immunization against the tubercle bacilli—had to be abandoned early in August. In order, therefore, to get some idea of the results obtained while the treatment was in full swing he had estimated the results for the first six months of 1914. The figures were: 17.6, 23.7, 22.3, 32.4, 3.4, and 0.6. It would be

noted that those patients who entered the hospital in June could have had very little treatment, so that the figures were not so good as they might have been. Of Group I, 10.9 per cent. were apparently cured in 1912, 22.4 per cent. in 1913, 35.7 per cent. in 1914. In Group II the figures were 6.6 per cent. in 1912, 4.2 per cent. in 1913, 21.6 per cent. in 1914; in Group III, 0 per cent. in 1912, 3.1 per cent. in 1913, 5.6 per cent. in 1914. There could be no doubt whatever that the cases they had apparently cured had been cases of consumption, and they did not consider cases "very much improved" or "apparently cured" unless they had lost all their physical signs, and had been proved to have no tubercle bacilli in their sputum after several examinations. He called attention to the third-stage cases, in which the whole of one lung or a large area of both lungs was infected; these, of course, were most unfavourable cases, many of them absolutely untreatable. Of Group III cases, 40 per cent. of the whole that entered in 1914, about 30 per cent. were absolutely untreatable, so that they were very proud of having "apparently cured" 5.6 per cent. of this group. He did not consider a sanatorium a suitable place for the treatment of these third-stage cases, especially during the winter, since they ought to be protected from extremes of temperature, etc., until they were sufficiently convalescent to stand them. Special hospitals near cities and large towns were urgently needed for the treatment of such cases; these hospitals would also provide accommodation for the incurable cases.

He had been advocating for many years the use of preventive inoculation against tuberculosis. That measure not only had the advantage of increasing individual resistance to the disease, but reaction after an injection would show the nature of the disease and enable treatment to be instituted while the case was comparatively easily curable. The disease as a whole would not be properly combated until every dispensary doctor held a tuberculosis dispensary once or twice a week, until each province had a laboratory for clinical research attached to a larger central hospital, and, lastly, until a properly equipped tuberculosis research institute was established in the country.

Professor McWeeney said that in view of the large number of advanced cases that had been sent in the results achieved by Dr. Crofton and the resident medical staff were in the highest degree satisfactory. His view was that every effort should be made to diagnose consumption before the bacilli appeared. This could be accomplished by refined clinical methods, including the injection of tuberculin. These were the cases that responded really well to sanatorium treatment, and it was a great pity to see so many patients in the incurable stage sent in by the Insurance Committees. Dr. Crofton had been entrusted by the Research Committee of the National Insurance with important research work on the chemotherapy of tubercle, and Dr. McWeeney ventured to express the hope that the trials which were being made on animals of new antiseptic compounds would soon yield results that might be applied to the treatment of the disease as it occurred in human beings.

NEW RESERVE OF R.A.M.C.

Last week a public meeting, under the auspices of the St. John Ambulance Association (Territorial Branch) was held in the Royal Dublin Society's lecture theatre, to obtain volunteers for service in the Military Home Hospitals Reserve, of whom there is at present urgent need. Mr. Justice Ross, P.C., presided over a large attendance, principally composed of members of local units of the association. Dr. Lumsden made a statement of the work accomplished by the St. John Ambulance Association. He said that when the war broke out they were able to place 4,000 men at the disposal of the R.A.M.C., and since then 14,000 had been supplied. From Dublin they had sent 250, most of whom were serving with the Expeditionary Forces. Their St. John Ambulance Brigade had been progressing most satisfactorily during the last few months. They now had units all over the county and city of Dublin, and several large industrial firms in the city had their own unit. He read a letter he had received from Sir Richard Temple asking for volunteers for the Military Home Hospitals Reserve. He pointed out that there was no age limit provided a man was over 19 years

and fit for home service. For service abroad the age limits were 19 to 40. One of the most remarkable features of the war so far, he said, had been the splendid services of the R.A.M.C. He hoped within the next few weeks they would be able to send forward a long list of names of men who were prepared to come forward when required. Sir John William Moore, M.D., moved a resolution:

"That the Military Home Hospitals Reserve was deserving of the support of all 'first-aiders,' who were now given an opportunity of serving their King and country in the military hospitals, either at home or abroad, thus setting free the existing men in the R.A.M.C. for the Expeditionary Force.

DISPENSARY MEDICAL OFFICERS AT THE FRONT.

At the last meeting of the Edenderry Board of Guardians the question of the terms of leave to medical officers volunteering for service at the front came up for discussion. At present three of the union medical officers are with His Majesty's Forces on six months' leave, their salaries and substitutes being paid in full for that term. One of the guardians pointed out that in Mullingar not a single doctor had gone, whereas in Edenderry they were paying at the rate of £655 a year for substitutes for their doctors, and that it was not fair that the ratepayers in one area should get off scot free, while in another area they should be so severely taxed. A resolution was unanimously adopted that in future leave be given on the condition that the doctors pay their own substitutes, their positions being kept open, and the substitutes to reside in the respective districts. This order to apply to the three doctors who have already gone to the front when their term of six months has expired. This question, which is undoubtedly a difficult one, will have to be faced by many of the boards of guardians in Ireland, though it is not likely that there are many unions who have lost as many as three of their medical officers. If it is fair to continue the payment of full salary in addition to the payment of a substitute—and this is authorized by the Local Government Board—it might be suggested that the additional burden should be pooled and met out of a demand on all the unions in Ireland according to valuation. These men, of course, are being paid by the Government for their services, and fairly well paid, too; in most instances this pay should at least make up for the temporary loss of their private practice. In some cases, especially if the doctor has no family, he may even be better off by the substitution of army or navy pay for his private practice. Though it may seem hard, therefore, on the union to have to pay the salaries of both the absent doctor and his substitute, still the boards of guardians in Ireland have not been so generous in the matter of salaries to their medical officers as to make the medical profession sympathize with their present trouble.

ROYAL HOSPITAL FOR INCURABLES.

The annual meeting of the supporters of the Royal Hospital for Incurables was held recently and the 171st annual report of the governors (for the year ended March 31st, 1915) was read. The governors stated that the new wings were now rapidly nearing completion. The expenditure to date amounted to £18,147 18s. 9d., and the receipts to meet this outlay during the past year totalled £975 11s. Already investments to the amount of £12,050 had had to be sold (much below their original cost), in order to reduce the heavy debt due to the bank, and the income of the hospital was permanently diminished by this reduction of capital. On April 1st, 1914, there were 213 patients in the hospital: 123 candidates applied for admission during the year, and of these 35 were elected—6 afflicted with consumption, 10 with cancer, 9 with paralysis and nervous diseases, 4 with cardiac and vascular diseases, 2 with rheumatism and arthritis, and 4 with other forms of disease. The ordinary income showed a decrease of £334 16s. 6d. as compared with the previous year, mainly due to a decreased revenue from invested funds and a reduced subscription list, while the ordinary expenditure had increased by over £200. The cost of maintaining a bed for the year was £38 1s. 5½d., which was 17s. 2d. in excess of the cost in the previous year. It was to be feared, however, that owing to the increased cost of living, as the result of the war, there would be a substantial increase under this head during the present year.

Scotland.

ADDITIONAL COURSE IN CLINICAL MEDICINE IN EDINBURGH INFIRMARY.

Since there is no post-graduate teaching going on in the wards of the Edinburgh Royal Infirmary this autumn on account of the war, a great deal of clinical material is available. This is being utilized in providing instruction in clinical medicine to senior students to enable them to graduate a little earlier and also to give opportunities for work to undergraduates who have returned from the front. The course is being given at the request and under the auspices of the University and the Royal Colleges, and will qualify both for the university degree and for the triple qualification. The teachers who are actively engaged are Dr. F. D. Boyd, Dr. R. A. Fleming, and Dr. Harry Rainy (physicians), and Dr. Edwin Bramwell (assistant physician). The course will count as a regular one in every respect.

India.

ANNUAL MEETING OF THE ST. JOHN AMBULANCE ASSOCIATION.

The annual general meeting of the St. John Ambulance Association in India was held at the Viceregal Lodge, Simla, on June 24th, His Excellency the Viceroy presiding. The Commander-in-Chief, chairman of the Indian Council of the association, said the Indian Ambulance Department of the association had ably maintained the best traditions of the ancient Order of St. John, the oldest military medical organization in the world, and the army in India was fortunate in having this great society ready to come to the assistance of its wounded on the outbreak of this terrible war.

General Sir Percy Lanks, in presenting the report to the meeting, said he had much pleasure in announcing that His Highness the Maharaja of Scindia had intimated his intention of presenting them with a further gift of five hundred units for the use of British troops, thus bringing the total amount of the generous donation up to one thousand ten-bed units, of an estimated value of over two lakhs. Three motor boats had now been sent to the Persian Gulf, and, in addition to these three, they hoped to be able to supply ten more of light draft and suitable for river work, and they had already received from Her Highness the Begum Sahiba of Bhopal a sum of Rs. 14,000 for the purchase of two such boats. Thanks to Lady Earle, they had now received an offer of two more motor ambulances from the ladies of Assam, thus bringing the total for that province up to four, three of which had been given by the ladies of Assam and one by Her Highness the Rani of Bijnor. The military authorities had accepted the association's offer to equip and staff for a period of at least one year a special war hospital to be worked in connexion with the *o-ray* institute at Dehra Dun. The estimated total cost of the upkeep of the hospital for one year was half a lakh of rupees, and the cost per bed was Rs. 2,000.

Sir Arthur Ker, honorary treasurer of the association, in presenting the statement of accounts of the general fund of the Indian Head Quarters and of the St. John Ambulance Red Cross War Fund for India, said that the Indian Council had kept its general and war funds separate, and that it aimed at an endowment reserve fund, which would ensure its permanency. This reserve fund was now Rs. 45,000, which showed steady progress when they recalled that some five years ago the total assets of the Indian branch were only Rs. 300. The annual Government grant was Rs. 5,000, which, though helpful, was only a fraction of their annual expenditure, which was roughly about a quarter of a lakh. A much larger endowment reserve fund was required if the future of the association was to be definitely assured.

Colonel Blackburn, general secretary, speaking of the reorganization of the three provincial centres, said that in order to make units of manageable size and to encourage the development of local interest in the work it was sought to form centres of the association in the various geographical subdivisions of India. These provincial centres were

designated to be administrative rather than executive bodies, and it was their duty to subdivide territory into district centres, which, under local administration, carried out the executive work, educational, and Red Cross of the association. More than 200 centres on these lines had been formed in every corner of India and also in Burma.

Certain members having been elected councillors, the Viceroy decorated Colonel H. Hendley, I.M.S., with the badge of honorary associate.

His Excellency then delivered an address in which he said he had now had the honour of presiding at three annual meetings of the St. John Ambulance Association, and this was probably the last occasion on which he would have the pleasure of being present at a meeting of the Indian branch. Few people in India realized that on the outbreak of the war this association, whose growth in India had just been dealt with by Sir Pardee Lukis, would promptly take up the rôle of a Red Cross Society and discharge its functions with such resource and ability. After briefly recapitulating the achievements of the association, he referred to the great liberalities of the ruling chiefs of India. They had heard from Sir Pardee Lukis the latest example of the unparalleled generosity of His Highness the Maharaja of Scindia, and he took this opportunity of announcing that another friend, His Highness the Maharaja of Jaipur, in sending a message asking to be excused from attending this meeting, had most generously forwarded a donation of Rs. 5,000 to the funds of the association to be allocated in any way he (the Viceroy) might think fit. In accepting with gratitude this noble contribution he had decided to hand it over to the Executive Committee with an instruction that it should be devoted to the maintenance of beds at the Dchra Dun War Hospital. He would like to mention the enormous output of work by the ladies both European and Indian of a Western presidency under distinguished and energetic auspices, but he was reluctant to do so lest he should fail to do justice to the magnificent efforts that had been put forth in another presidency under other high auspices and indeed in every part of the Indian Empire. There in Simla he spoke of his own knowledge, and he had been filled with admiration at the way in which various committees and numerous working parties had laboured and slaved in the common cause. But all this self-sacrificing labour would have been thrown away if it had not been wisely organized and directed. Their thanks were due not only to the General Secretary who had worked so hard, but also to the Chairman of the Executive Committee under whose guidance he had worked, and that was to Sir Pardee Lukis himself. He could remember smiling at the enthusiasm of the General Secretary when at the first meeting over which he presided that gentleman expressed the conviction that in a few years there would hardly be a hamlet from Tonk to Trichinopoly and from Bombay to Bhamo where the association was unknown. That day was not so far distant as it seemed to them then, and the Indian Council might reasonably claim that the association had taken firm and healthy root in every corner of the Indian Empire.

Correspondence.

HEMERALOPIA OR NYCTALOPIA.

SIR,—I read with pleasure Dr. Guthrie's letter in this week's BRITISH MEDICAL JOURNAL on the meaning of nyctalopia. I take the liberty of sending you a reprint of an article which I wrote about thirty-five years ago and which was published in the *Royal London Ophthalmic Hospital Reports* in 1882.

My attention was first specially directed to the matter about forty years ago, when plans were prepared for the first edition of *Quain's Dictionary of Medicine*, for which I was asked to write some definitions, and among them "Nyctalopia." After much thought I came to the conclusion that the true meaning of the word "nyctalopia" was night-blindness, though this opinion ran counter to practically all existing literary authorities and that of all the friends I consulted.

A few years later the late Dr. Greenhill and I published two articles on the subject in the tenth volume of *Oph-*

thalmic Hospital Reports, of which I was then editor. As a result of our endeavours the articles relating to nyctalopia in Liddell and Scott's *Lexicon* were rewritten and the word *nyctalopia* was inserted for the first time. The College of Physicians also accepted our view and altered the definition it had hitherto given of the words "hemeralopia" and "nyctalopia" in the ensuing edition of its *Nomenclature*.

Dr. Greenhill and I hoped we had settled the question for ever, but since we wrote a new generation has sprung up, to whom our labours seem to be unknown.—

I am, etc.,

JOHN TWEEDY.

SIR,—Since the appearance of my letter in your issue of July 31st, Sir John Tweedy has drawn my attention to papers by himself and the late Dr. W. A. Greenhill (*Royal London Ophthalmic Hospital Reports*, vol. x, part iii, 1882) in which the whole question was fully discussed and decided in favour of the view that "hemeralopia" means day-blindness and "nyctalopia" night-blindness. Had I been aware of these important and learned treatises, and of the fact that we owe to the labours of Sir John Tweedy and Dr. Greenhill that correct definitions of the terms have been inserted in recent editions of Liddell and Scott's *Lexicon* and in *Quain's Dictionary of Medicine*, 1882, I should not have ventured to trespass on your space. I do not, however, regret having done so, as it is evident that heresy still exists on the subject, and I now have an opportunity of enlightening others who, like myself, were unaware that Sir John Tweedy and Dr. Greenhill had settled the point in dispute for ever, more than thirty years ago.

The fact that in Germany "hemeralopia" is still used in the sense of night-blindness needs no comment.—

I am, etc.,

LEONARD GUTHRIE.

TEMPORARY COMMISSIONS FOR MEDICAL MEN UNDER 40.

An Irish Committee.

SIR,—An appeal was recently made to the medical profession, through the British Medical Association, by Sir Alfred Keogh, K.C.B., the Director-General of Army Medical Services, for whole-time medical officers under 40 to serve with the troops wherever they might be sent abroad, and for men over 40 for service in the United Kingdom.

Sir Alfred Keogh said: "I would urge all those who are under 40 years of age and who are fit for active service to apply for temporary commissions in the R.A.M.C. if their civil obligations will allow them to do so. Such men would have an opportunity of seeing active service on the Continent or elsewhere where we have fighting armies. We are especially in need of young general practitioners who are willing to go anywhere and do anything in the way of duty with troops or with medical units." There is therefore an urgent need of young men for service with the troops, and it will naturally be more easy for men who have qualified in recent years to offer their services than those who are established in practice.

The Director-General further stated that the civil medical profession had already given the army so much generous and self-sacrificing assistance since the outbreak of the war that he regretted to be compelled to make further demands on it. But it was necessary to make adequate provision to safeguard the health of the home army when the Expeditionary Force was increased in strength to such an extent that every commissioned medical officer fit for active service would be required for service on the Continent.

In response to this urgent appeal the British Medical Association, through its local machinery, is trying to make arrangements to facilitate those doctors who are in a position to do so to join the R.A.M.C., and in assisting them to do so by providing substitutes acceptable to them for the conduct of their practices during their absence.

With the latter objects in view a committee has been formed in Dublin consisting of:

- Dr. J. C. McWalter and Dr. H. Mason (Apothecaries' Hall),
- Dr. D. J. Coffey and the Right Hon. M. F. Cox (National University),
- Dr. J. McDowell Cosgrave and Dr. J. O'Carroll (Royal College of Physicians),

Dr. Conway Dwyer and Dr. W. Taylor (Royal College of Surgeons).
 Professor A. F. Dixon and Professor A. C. O'Sullivan (Trinity College).
 Colonel Hearn, R.A.M.C.
 Dr. T. Hennessy.
 Dr. M. R. J. Hayes (Honorary Secretary).

In order that the existence of such a body may be generally known amongst the profession, I am directed to request you to publish this letter.

About 500 Irish doctors have already responded to the call of duty since the outbreak of the war, and it is satisfactory to note that such a large proportion of the Irish medical profession are serving with the troops, but it is believed that there are still a good many medical men under 40 who, if they could see their way clear, would accept temporary commissions for either home or foreign service, and Sir A. Keogh's words leave no room for doubt that it is the duty of such men to volunteer and the duty of their colleagues to make it possible for them to do so.

My committee will therefore be glad—

1. To receive the names of those who are willing to join the R.A.M.C., stating if they require to be provided with substitutes during their absence, and

2. The names of qualified practitioners, including those who have retired from practice who are willing to act as locumtenents for those who volunteer.

As regards whole-time home service in the United Kingdom the physical examination of candidates is less searching than that of an ordinary soldier. The work which home service entails is not more strenuous than that undergone by men in private practice.—I am, etc.,

35, Upper Fitzwilliam Street,
 Dublin, Aug. 2nd.

M. R. J. HAYES,
 Honorary Secretary.

THE STERILIZATION OF THE SKIN WITH TINCTURE OF IODINE.

SIR,—With reference to a communication in the JOURNAL of May 22nd, I wish to ask if Mr. Stretton has any grounds for claiming to be the originator of this method?

Early in 1909 I read an abstract of an account of Grossich's work in the ERYTHRE. It appealed to me so strongly that I performed the last thirty operations I did in the Colchester Military Hospital with iodine as the skin disinfectant, and I wrote a paper which was published in the JOURNAL of February 6th, 1909. I made no claim to originality. Since then I have noticed that at least two London surgeons have laid claim to having originated this method.

Mr. Stretton's technique only differs from that of Grossich in that he uses a weaker solution of iodine, but most of us quickly discovered that 10 per cent. strength was not necessary and was sometimes injurious.

"Give honour to whom honour is due"; but in this instance it is, I think, due to Grossich. He has greatly simplified the problem of skin disinfection, and laid all operating surgeons under a deep debt of obligation to him.—I am, etc.,

F. J. W. PORTER, Major R.A.M.C. (ret.),

H3 derabad, June 17th.

SCHOOL MEDICAL INSPECTION.

SIR,—In the JOURNAL of July 3rd appeared a memorandum approved by the British Medical Association and the National Union of Teachers concerning the method of school medical inspection.

I do not expect that many school medical officers will pay much heed to this *modus vivendi*. This for at least two reasons:

1. The agreement should have been drawn up between the National Union of Teachers and the Society of Medical Officers of Health to which the whole-time school medical officers belong. Few practitioners are taking part in this work, the intricacies of which (I may add with all respect) the British Medical Association does not understand.

2. I already have much more done by the teachers than the memorandum suggests, namely: Name, date of birth, age, address, school, and parents' occupation; also date of inspection, standard, regularity of attendance, clothing, footwear, cleanliness of body and clothing, and intelligence.

The teacher is the only person who knows the usual condition of the child attending school, as opposed to his or her "polished" condition produced for inspection day only.—I am, etc.,

August 3rd.

S.M.O.

ON THE CURVE OF THE EPIDEMIC.

SIR,—I sent my full address with my criticism of Dr. Percival's solution, but, in accordance with the convention of your correspondence columns, this was not printed.

As a solution of a differential equation in y and t must necessarily consist of a relation between y and t , and as $y = a \cos^2(mt - a)$ was the only relation between y and t given by Dr. Percival in the letter of June 12th, in which he presented his solution, I naturally took this to be his solution. I am quite prepared, however, to examine separately on its merits any solution he meant to put forward, if he will only state what it is.

A relation between the variables y and t , like $y = a \cos^2(mt - a)$, is not a transformation for the purposes of facilitating integration, but a test solution. A transformation must replace at least one of the old variables y and t by a new one. A test solution will be a correct solution if substitution in the original equation produces an identity. Dr. Percival challenges me to substantiate my statement that the result of substituting $y = a \cos^2(mt - a)$, that is,

$$-2m \tan(mt - a) = \log CD - \log \frac{aCD}{2N} \left[t + \frac{1}{m} \sin mt \cos \overline{mt - 2a} \right]$$

is not an identity. Before doing so he would naturally agree to my correcting the error in it due to the slip in his work of reduction, to which I referred, and which he wishes me to indicate.

The amended form is:

$$-2m \tan(mt - a) = \log \left[CD - \frac{aCD}{2N} \left(t - \frac{1}{m} \sin mt \cos \overline{mt - 2a} \right) \right]$$

and the slip in Dr. Percival's form is that he has taken the logarithm of the difference of

$$CD \text{ and } \frac{aCD}{2N} \left(t + \frac{1}{m} \sin mt \cos \overline{mt - 2a} \right)$$

to be the difference between their logarithms.

To prove that the above is not an identity I proceed as follows.

If it is an identity the constants can be so determined that it is true for all values of t . Taking the exponential of each side, making certain transferences from one side of the resulting equation to the other, and dividing each side by

$$\frac{aCD}{2N} e^{-2m \tan(mt - a)}$$

must therefore be true for all values of t .

Give then to t the successive values

$$T, T + \frac{\pi}{m}, T + \frac{2\pi}{m}, \dots, T + \frac{r\pi}{m}, \dots$$

The right hand side remains the same, that is,

$$\frac{2N}{a} \frac{1}{m} \sin mT \cos(mT - 2a) - \frac{2N}{aCD} e^{-2m \tan(mT - a)}$$

as these values are put in. The left hand assumes the values

$$T, T + \frac{\pi}{m}, T + \frac{2\pi}{m}, \dots, T + \frac{r\pi}{m}, \dots$$

Hence, subtracting the left hand and right hand sides of

any consecutive pair of equations, we get $\frac{\pi}{m} = c$, which is not true for any choice of m having a finite value.—I am, etc.,

London, N.W., July 22nd.

H. L. TRACHTENBERG.

DIAGNOSIS OF GOUT.

SIR,—In the BRITISH MEDICAL JOURNAL of July 31st, p. 177, I have read with much interest Dr. J. B. Berkart's article on gout. I consider it a very valuable contribution to our knowledge. If I have read it correctly, he relies on a deposit of urates in the joint for a correct diagnosis. Personally, I firmly believe that gout is due to a specific micro-organism. Several observers have isolated one resembling the anthrax bacillus, but proof is lacking. Until the specific germ is definitely isolated, I for one shall not believe we have any infallible means of diagnosing gout. The changes described by Dr. Berkart

Inter-mediate Examination.—D. J. Crowley passed in Pathology; J. H. McKenna and P. A. Sullivan in Pathology and in Medical Jurisprudence; and J. T. McDonnell in Medical Jurisprudence.
Final Examination.—J. B. Ellwood passed in Medicine; J. A. Sullivan in Medicine, Surgery, Midwifery, and in Pharmacy; A. Hegarty in Surgery; and J. H. McKenna in Midwifery and in Pharmacy.
*Completed Primary Examination. †Completed Intermediate Examination. ‡Completed Final Examination.

Obituary.

THE LATE MR. EDMUND OWEN.

The cremation of the remains of Mr. Edmund Owen took place at Golder's Green on Thursday, July 29th. The attendance at the ceremony was large, and the service was conducted by the Reverend William Walker of St. Augustine's, Leytonstone. Among those present were, in addition to Mr. Owen's brothers, Sir Douglas Owen and Mr. Owen, the Earl of Plymouth, Lord Savile, Sir Rickman Godlee, Sir David Ferrier, Sir Henry Morris, Colonel Sir Herbert and Lady Perrott, and Sir John Hewett. The College of Surgeons was represented by Sir W. Watson Cheyne and Professor Arthur Keith; St. Mary's Hospital by the Chairman, Mr. E. Ruffer, and the Secretary, Mr. Pondepeyre; the Hampstead General Hospital by Mr. Albert Langton; the King George V Hospital by Dr. Hammond and Dr. Miles; the St. John Ambulance Brigade to which Mr. Owen was surgeon-in-chief by Colonel Tyrell, Commissioner, and Assistant Commissioner Winy; the British Red Cross Society by the Hon. Arthur Stanley (Chairman), Sir Frederick Treves, Sir Benjamin Franklin, and the Secretary, Mr. Frank Hastings; the Medical Society by the President, Sir J. Bland-Sutton; and the British Medical Association by Mr. Guy Elliston.

DR. FOSTER PALMER (London) writes: Twice only have I come in contact with Owen, and both times in relation to his gift of speech, which I see referred to several times in the obituary notice in the JOURNAL. He is spoken of as "an incisive speaker," with a "marvellous store of apt illustration," as a "pungent and witty after-dinner speaker," and one of his speeches is described as "full of wit and good humour" and a "masterpiece of persuasive eloquence." About seventeen years ago he came to the first annual dinner of the Chelsea Clinical Society and responded for the "Guests" in an eloquent speech. More recently, only a few years ago, he wrote an anonymous letter to the JOURNAL complaining of the distress he suffered from nervousness or stage-fright before making a speech. Having given some attention to this subject, I wrote in reply stating that I believed it to be almost universal with good speakers, that the excellence of a speech is often in direct ratio to the degree of stage-fright, and that I was sure that the writer, whoever he might be, was an eloquent speaker. I received a letter from Owen thanking me for my remarks and for the encouragement they gave him. There is presumably no longer any reason for anonymity. That men of Celtic origin have frequently the gift of eloquence is well known. What is, perhaps, not so well known is that they also suffer severely from stage-fright. The same condition of the nerve centres which results in fluency of speech also produces an almost abnormal sensitiveness as to its possible reception. (The most graphic description I have ever read of a case of stage-fright and its cure is contained in a novel by Rider Haggard called *Mr. Meeson's Will*.)

DR. R. P. SMALLWOOD (Chelmsford) writes: In the notices of Edmund Owen's death in the JOURNAL there does not appear to be one by any one who acted as his house-surgeon, and it is for that reason that I send these few lines. Owen always treated his house-surgeons with the greatest liberality and allowed them to do numerous operations. He was always punctual and expected every one else to be so, and any one who was late or appeared to be slack in any way was very likely to hear of it, generally in a witty and pleasantly sarcastic manner. On one occasion a dresser, in cutting off a bandage from a head on the operation table, made a small cut in the patient's ear. "And the servant's name was Malchus," was Owen's comment when he saw it. On another occasion a

"chronic" on the well-known front bench surprised Owen by answering a question, and he, forgetting that silence is golden, said, "You seem surprised, sir." "So was Balaam," replied Owen. He hated abbreviations, such as pot. iod., liq. hyd. perchlor., and his opinion of drugs was not a high one, and one day, at a consultation, he remarked to one of the physicians, "Drugs are no use, are they?" "Not unless you know how to use them," was the unexpected reply he got. Owen never minded owing to a mistake, and I well remember telephoning to him to come and trephine a case of what I thought was a ruptured meningeal artery. From my account he thought it was not, and so did not come. The man died, and the *post-mortem* examination proved I was right, and Owen gave a lecture on his mistake in not operating, which was much more than most men would have done. There must be hundreds of men who learnt most of their surgery on the front bench, and he spared no trouble with any one who was willing to learn. He was a fine man physically, a bold and rapid operator, a splendid teacher, and one who will long be remembered gratefully by those who came in contact with him.

We regret to have to record the death on July 15th, after a short illness, of Dr. EDWARD A. CLARKE, of Dukinfield, at the age of 51. After studying at Owens College, Manchester, and the London Hospital, he took the diploma of I.S.A. in 1887, and was for a time house-surgeon to the General Infirmary, Wrexham. In 1891 he took the diploma of M.R.C.S.Eng., and settled in Dukinfield. He had a large practice, and was also medical inspector of schools in the borough. He was for several years representative of the Ashton-under-Lyne Division at the Representative Meetings of the British Medical Association, and worked very hard during the Insurance bill controversy. The Division presented him with a clock as a mark of recognition for his services. Dr. Clarke, who was J.P. for Cheshire, took a great interest in the St. John Ambulance movement, and was for many years a lecturer on first aid. He was a great personality at all the divisional meetings, and was held in high esteem by all who knew him. Dr. Clarke leaves a widow and one daughter.

In the issue of the JOURNAL for July 10th a review was published of Dr. Giordano's book on the physiology, pathology, and hygiene of the sulphur miners of Sicily. News has just been received of the death of Dr. Giordano on July 15th. A patient worker and a close observer of his fellow men, no one was better acquainted with the habits, the weaknesses, and the diseases of the sulphur miners, or more fully cognizant of the faults in their social surroundings, than the writer of the treatise referred to. An extern professor of the University of Palermo, and lecturer on the diseases of miners, Giordano spent his life in Lerccara, an old, quiet, out-of-the-way town, some miles from a railway station, and in the heart of the sulphur-mining industry of the island. His opinion upon the health conditions of the sulphur miners was frequently asked by the Italian Government. In an unobtrusive manner Giordano, by voice and pen, did much to improve the lot of the people amongst whom he lived. To have met Giordano, and to have discussed with him problems of industrial and mining hygiene, remains one of the pleasant memories in the life of the writer of these lines. In addition to the book referred to, Giordano published several papers on ankylostomiasis and other subjects. He was an honorary member of several of the learned societies of his own and other countries.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. R. D. Coale, for many years dean of the medical school of Maryland, aged 57; Dr. Jacob Michaux, professor of materia medica and therapeutics in the University College of Medicine, Richmond, Virginia, from its foundation in 1893 till 1912, aged 63; Dr. Rédier, for many years professor of surgical pathology in the Catholic Faculty of Medicine at Lille; Professor Soumenber, surgeon-in-chief of the Moabit Hospital, Berlin, aged 66; Dr. Sherman Voorhes, of New York, a well-known specialist in diseases of the eye, ear, and throat, aged 48; and Dr. F. W. Weisse, for many years

professor of anatomy, surgical pathology and oral surgery at the New York College of Dentistry, and author of a treatise, entitled *Practical Human Anatomy*, published in 1896, and of many other contributions to the literature of medical science, aged 72.

The Serbics.

TERRITORIAL FORCE.

EXCHANGE DESIRED.

CAPTAIN EDGAR V. PHILLIPS, R.A.M.C.(T.), at present attached to the Leicester 1st Royal Horse Artillery, stationed at Diss, Norfolk, wishes to exchange back to his original unit, the 5th Northern Hospital, and would be glad to hear from any medical man able to ride well who would be willing to take his place in the battery.

Medical News.

In the three weeks ending July 31st twenty cases of plague with twenty deaths occurred in Hong Kong.

THE *Archivio Italiano di Ginecologia* has suspended publication for the time on account of the war. We hope to see this valuable periodical come to life again before very long.

It is announced that Professor Dr. B. Fischer, Director of the Hygiene Institute of Kiel University, has died of heart failure in hospital on the German front near Ypres. He was 63 years of age.

A PROVINCIAL sessional meeting of the Royal Sanitary Institute will be held at Brighton on September 3rd and 4th, 1915. The chair will be taken each day at 10.30 a.m. by Sir Henry Tanner, C.B., Chairman of the Council of the Institute. There will be discussions on Indian sanitation, camp sanitation, maternity and child welfare, and the final report of the Royal Commission on Sewage Disposal.

A CONFERENCE was held at Oxford, under the auspices of the Oxfordshire Association for the Prevention of Tuberculosis, on July 17th. Representatives of sanitary authorities, Insurance Committees and other bodies attended. Sir William Osler, who presided, moved resolutions urging that the retention of the dispensing system should be regarded as essential in any scheme for dealing with tuberculosis in the county; that no tuberculosis scheme in the county could be considered complete or adequate which did not make provision for co-operation with a voluntary-care and after-care association on the lines suggested by the medical officers of the Local Government Board; and that the Conference desired to impress upon the responsible authorities the urgent need existing in the county for provision for advanced cases of tuberculosis unable to secure sufficient isolation and attention in their own homes. These resolutions were adopted.

An investigation was made during the past year into the state of the St. Lawrence river water, as the typhoid rate is high in several towns which it supplies. It was found that the water contained colon bacilli in varying degree according to the season of the year and the weather conditions, and that it was not fit to be used for domestic purposes unless adequately purified. A certain amount of pollution, brought down from the watershed, is inevitable; however, it is due chiefly to the discharge of untreated excreta from vessels, and from the places situated on the banks of the river. The population on lake vessels during the season of 1906 was estimated by the United States bureau of census as 14,000,000 persons! In some towns the pollution is largely the result of short-circuiting of their own sewage. It may be possible for some places to obtain their water supply from artesian wells, and experiments are being conducted with this object in view. Where this is not possible, the water will be chlorinated.—For instance, at Kingston, Brockville, and Gananoque; in other places a filtration plant will be installed. It seems difficult to guard against carelessness and irregularity in chlorinating the water supply. In Brockville the practice has been in force for two years, but typhoid epidemics continue to arise, and 82 cases were reported in the month ending January 26th. A false feeling of security is also given by the knowledge that in some places the water is fairly free from contamination most of the time, and it is forgotten that a serious epidemic may be caused by pollution which may be the result of certain weather conditions.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL unless the contrary be stated.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Attingham, Westrand, London*; telephone, 2511, Gerrard. (2) FINANCIAL SECRETARY and BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2520, Gerrard. (3) GENERAL SECRETARY, *Westrand, Westrand, London*; telephone, 2534, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUESTIONS.

CORPUS VILE writes: In my search for an aperient to be used in cases of loss of consciousness, post-anaesthetic, etc., I have been experimenting upon myself with the hypodermic use of codeia. I hope to submit results for publication shortly. In the meanwhile, can any of your readers inform me what is the maximum safe hypodermic dose of codeia salts, and how they are eliminated? What untoward after-effects have been noted in chronic or acute overdosage?

DR. JAMES ARTHUR (Wingate, Co. Durham) writes: On July 26th a girl of 8 years was brought to me with a dislocation of the left elbow, both bones backward. On 31st the child was again brought to me with a similar dislocation of the right elbow, also by a fall on a kerb. Neither had occurred before, both were well marked, and reduction was easy. Was this due to unusual looseness of ligaments, and is it of rare occurrence?

ANSWERS.

KELOID.

DR. HERBERT P. TAYLER (Exmouth) writes, in reply to "J. W. W.": Some years ago I had as patient a child who developed a keloid condition of scars of a scald on the neck. Acting on the advice of the late Sir T. Smith, I painted these with contractile collodion, applying a new coat as soon as the first one scaled off. After many months the scars quite disappeared. Care must be taken to ensure that the collodion is contractile. The solution should be fairly thick.

NOTES.—There is no better work for coloured drawings of sections than Braune's original Atlas. Bellamy's translation is merely an abridgement with plain plates. Hugo Sellheim's *Topographischer Atlas zur normalen und pathologischen Anatomie des weiblichen Beckens*, published by Georgi, Leipzig, 1900, contains very fine coloured sections of the female pelvis.

HARE-LIP.

DR. H. FERGIE WOODS (Golder's Hill) writes that Dr. J. C. Burnett's book, *On the Prevention of Hare-lip, Cleft Palate, and other Congenital Defects*, might be useful to "R."

LETTERS, NOTES, ETC.

IODINE IN CHOLERA.

WE are indebted to Dr. May Thorne for the opportunity of reading a letter from Jolo, stating that tincture of iodine has been useful in the treatment of cholera. Five drops of 10 per cent. solution of iodine in alcohol is given in a tumbler of water every two hours.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive post-reste letters addressed either in initials or numbers.

ON THE IMMEDIATE EFFECTS OF THE
INHALATION OF CHLORINE GAS.

[WITH SPECIAL PLATE.]

BY SIR EDWARD SCHÄFER, F.R.S.,

PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF EDINBURGH.

THE mode of action of chlorine seems to be little known. In textbooks of pharmacology it is dismissed in few words. But in view of the illegitimate use which has been made of it by our foes in the present war it is desirable, as a preliminary to the adoption of measures for antagonizing its effects, that its physiological action—as distinguished from the pathological changes ultimately produced by inhalation—should be investigated. The present research deals with the immediate and fatal effects caused in cats, rabbits, and dogs by its inhalation, the animals having been in every case anaesthetized with chloroform or ether.

From the chemical nature of chlorine it seems evident that its immediate action must be local. For it is scarcely possible to imagine that it can exist in the free state in such a fluid as blood, which contains many bodies with which it would immediately combine, and which would—unless it were introduced in immense quantities—at once render it innocuous. But it is rarely safe to assume anything in physiology. To put the matter to the test of experiment I have injected into the veins of animals Ringer's solution saturated with the gas. If only a small quantity is thus introduced no effect is seen, and if a larger quantity, spread over a certain interval of time so that the fluid becomes well mixed with the blood, is injected the only result (Fig. 5) is to produce a quite temporary diminution of blood pressure (preceded by a slight rise) and a slight increase in the depth of the respirations. The fall is probably due, as we shall see, to obstruction of the pulmonary vessels; the diminution in volume of the kidney which is shown in the top tracing is doubtless passive. These results were produced by the introduction into the jugular vein of a rabbit of 10 c.c.m. of Ringer's fluid saturated with chlorine, the injection being spread over twenty seconds. On one occasion only—in which the same amount was injected more rapidly and presumably mixed imperfectly with the blood—a suddenly fatal result similar to that obtained by inhalation of a strong mixture of the gas with air was produced; in this case probably occlusion of the pulmonary vessels was produced.²

With inhalation the result is always serious. Even with air containing only 1 per cent. of chlorine—although at this dilution no special effect upon either the blood pressure or respiration may be visible for some minutes—a profound change ultimately occurs, and this may show itself with great suddenness (Fig. 6). In the case illustrated, the respirations, which had been quite regular and apparently of normal depth and rate for about four minutes, became suddenly very deep and in another minute convulsive, prior to complete arrest; whilst the blood pressure (which in the first period rose gradually, although not to any great extent, the rise being due probably to the irritation of the sensory nerves of the pulmonary mucous membrane) fell rapidly, and with the cessation of respiration, tumultuously, whilst there was at the same time marked slowing of the pulse. On substituting air for the gaseous mixture, respiration and blood pressure rapidly recovered, the blood pressure rising temporarily to a much greater height than before.

As soon as recovery seemed to be complete the 1 per cent. mixture was again substituted for air, and the animal was allowed to inhale the mixture for another seven minutes, during all which time very little effect on the blood pressure or respiration was produced. But at the end of that period there again ensued a sudden fall of blood pressure and cessation of respiration, which this time was not recovered from.

In Fig. 7 are shown the effects on a rabbit of inhalation of a mixture containing 2 parts of chlorine gas to 100 of air (the middle part of the tracing is omitted). As with the 1 per cent. mixture there is at first a gradual but slight rise of blood pressure, with but little change in the respiration. After four minutes the respirations had become

slower and rather deeper, and the heart was beating more slowly, although the blood pressure was well maintained. At five and a half minutes the respirations became suddenly convulsive, and the blood pressure showed corresponding irregularities. At six and a half minutes the respirations ceased abruptly, and the blood pressure failed suddenly. Respiration was not resumed, but the heart continued to beat for several minutes, the blood pressure gradually approaching zero. Artificial respiration was commenced two and a half minutes after the cessation of natural respiration, and whilst the heart was still beating well, but produced no effect upon the blood pressure, and there was no sign of recovery.

With a mixture of 1 part of chlorine gas to 20 of air (Fig. 8), and with all in excess of this (Figs. 9, 10, 11) a fatal result is rapidly and inevitably produced. The fall of blood pressure begins in less than half a minute, and in most instances is so fast as to reach zero within three or four minutes, whilst the respirations—which at once become slower, but may not be deeper, or may even be shallower except for an occasional gasp—cease in from one to three minutes. After this there are sometimes a few intermittent respiratory movements, but they are entirely ineffectual, and do not influence the blood pressure. Whilst the blood pressure is falling the heart is beating slowly and regularly; in the experiment on the dog illustrated in Fig. 11 the regularity is very striking during part of the time. In this case the effects on blood pressure and respiration are somewhat belated as compared with the experiments on the cat. This was partly due to the greater capacity of the dog's lungs, compared with those of the cat, relatively to the reservoir which contained the gaseous mixture inhaled, so that, although in this case a 10 per cent. mixture was employed, less effect was produced than with a 20 per cent. mixture in the cat; but it may also be connected with the fact that, as Evans¹ has remarked, pulmonary oedema is much more easily produced in the cat than in the dog.

In no case in which a strong mixture (5 per cent. or more) was employed was it possible to produce any recovery by artificial respiration.

As we have seen, these effects must be due to something happening locally in the lung, since the chlorine which is inhaled cannot be carried to the tissues in a free state. There is, moreover, abundant evidence that the tissues retain their vitality even after inhalation of the strongest mixture; for when the body is opened after death, the muscles contract briskly on excitation either directly or through their nerves, and the heart is also responsive to stimulation, and is, indeed, usually seen—especially the auricles—beating spontaneously if somewhat weakly. The only visible change is in the lungs, which even after the shortest exposure to a fatal dose are intensely red and congested, either all over or in innumerable patches. They are less shrunken than usual, and have a more solid feel, with but little crepitation; nevertheless, even small pieces float in water.

In the photograph (Fig. 1) the intensely dark colour presented by a cat's lungs after three minutes' inhalation of a 20 per cent. mixture of chlorine gas with air is manifest. The appearance presented was no doubt extreme, although the congestion may be quite as marked with weaker mixtures. Sometimes it is less apparent on the surface, although on cutting into the lung the section is always deep red in colour, and the tissue seems to be full of blood. There is usually some froth in the trachea and larger bronchi, but not nearly as much as is seen in cases of drowning.

The effects which might be produced locally in the lung by an irritant gas like chlorine are various. It may directly affect the bronchial musculature or the vascular musculature; it may stimulate the mucus-secreting mechanism of the air tubes; it may influence the coagulability or viscosity of the blood within the pulmonary vessels; or it may produce reflex effects by exciting the endings of afferent nerves within the lungs.

It is not possible in the space at my disposal fully to discuss all these points. In the meantime it may be stated that there is strong evidence for the opinion that the fatal result is due to obstruction in the pulmonary vessels rendering it impossible for the blood to pass freely to the left auricle and ventricle.

It appears to be the common opinion that an irritant gas like chlorine must necessarily produce constriction of

¹The lungs show on microscopic examination (Fig. 4) the engorgement of pulmonary vessels and oedema which are characteristic of the lungs of animals which have inhaled chlorine.

the bronchioles. I have attempted to test the correctness of this view in various ways—namely: (1) By alternately driving air and a mixture of air with chlorine at a constant pressure through “surviving” lungs the surfaces of which have been pricked or incised to allow the air to perfuse through the lung, the perfused air being collected and measured; the time being recorded for a given amount of air to pass through the lung under these alternative circumstances. The result of experiments carried out in this manner has been to show that there is usually no diminution in the amount of air perfused when the perfused air has chlorine gas mixed with it, but rather the reverse. (2) Another method which suggested itself was to perfuse warm Ringer’s fluid through the “surviving” lung in the same manner as was done with the air in the last-mentioned experiment, and at a given moment to inject into the perfusion tube a certain amount of Ringer’s fluid containing dissolved chlorine gas. In various ways this method proved unsatisfactory, and the results were discordant; in some experiments there appeared to be contraction resulting from chlorine, in others no effect was produced, in others again there was a marked increase in flow. (3) The method which was finally adopted was similar to (1), but instead of employing the “surviving” lung, the experiment was performed on the living animal. The advantage of this is that any reflex effect which might be produced would be shown, as well as the local result. The experiments were carried out by the employment of positive ventilation with a Brodie pump, which delivered a constant quantity at each stroke through a bottle of the capacity of 100 c.c.m.; a perfectly similar bottle containing a mixture of air and chlorine being so arranged that at a given moment the stream of air from the pump could be sent through this bottle into the lungs instead of through the other. Most of the pumped-in air escaped as usual through the side tube of the tracheal cannula. To gauge the permeability of the bronchial tubes an opening was made in the thorax,

and one of the lungs was pricked in several places with a needle so as to permit the escape of a small amount of the pumped-in air. This was collected in an inverted measuring glass filled with Ringer, the body of the animal being immersed in warm Ringer’s solution. Fig. 12 is a record of such an experiment. It shows that the moment chlorine gas is mixed with the ventilation air there is a marked increase in the amount of air which passes out by the punctures in the lung; therefore the bronchial tubes have become more permeable. It remained to determine the effect of chlorine upon the pulmonary vessels. This is comparatively simple, for it is only necessary to tie a cannula into the pulmonary artery of an animal which has just been killed and to perfuse the pulmonary vessels with warm Ringer, collecting the outflow by means of a cannula tied into the left auricle. The lungs are in the meantime regularly inflated in the usual way by a Brodie pump (positive ventilation). The action of chlorine is determined by injecting, by means of a hypodermic syringe, into the supply tube passing from the Mariotte bottle of the perfusion apparatus a small quantity of Ringer’s fluid containing chlorine in solution. It is found that even if so little as 1 c.c.m. of 1 in 10 chlorine Ringer is thus injected a profound effect is produced upon the pulmonary circulation, the flow through which becomes greatly slowed almost to complete cessation.²

It may be mentioned that chlorine Ringer perfused in a dilute form through the blood vessels of the pithed frog also produces marked constriction.

As a variant on this experiment, the chlorine has been occasionally conveyed to the lungs through the air used for ventilating them, a similar effect being obtained.

We conclude, therefore, from the result of these experiments that chlorine produces its fatal results by causing obstruction of the pulmonary vessels, amounting in some cases to complete stasis, and not by causing contraction of the bronchioles.

Confirmation of this conclusion is obtained as the result of microscopic examination of the lungs of the “gassed” animals. A section of such a lung is shown in Fig. 2, which is a microphotograph magnified 200 diameters. The gas in this case was applied by allowing the chlorine to pass into the chloroform mask over the snout of the animal, so that the percentage inhaled is not known, but from the length of time—nine minutes—which elapsed before a fatal result ensued, the mixture must have been less than 1 per cent. The photograph reproduced in Fig. 3 is from a section of the lung shown in Fig. 1, in which case death ensued after three minutes’ inhalation of 1 in 5 mixture. It is magnified 500 diameters.

In both cases the pulmonary capillaries are gorged with blood, and there is an extraordinary amount of oedema in the interstitial tissue of the lung. In the second case the oedema-fluid has passed more freely into the alveoli, many of which are full of coagulated lymph; some contain blood. Presumably the oedema is secondary to the vascular obstruction, but even if this is so it must set up a vicious circle by increasing the obstruction, and this again will increase the oedema; so that in cases of survival the oedematous condition must tend to increase, at any rate for some time.

Apart from the extreme congestion of the vessels and the oedema, the tissues of the “gassed” lung are normal; the epithelium cells of the bronchial tubes are well preserved, and there is usually little increase of mucus within them. That secretion of mucus does not play an important part in connexion with the fatal inhalation of chlorine is evident from the fact that death results just as inevitably and rapidly after a prior dose of atropine (Figs. 8 and 10) as without it (Fig. 9).

So far as the other organs are concerned, we have already noted that the heart retains its excitability for some time after death, although its contractions are weak. The right side, especially the auricle, is fuller than the left, but not engorged with blood as in ordinary asphyxia. The liver and abdominal organs have a normal appearance; they are not specially congested, indeed, the intestines are usually bloodless, although the veins at the back of the abdomen are full of blood. (The precaution was always taken of tying the vena cava before removing the heart and lungs, in order to prevent escape of blood from the abdominal viscera.)

I have performed a few experiments with bromine vapour which have served to show that, although much more irritating to the conjunctival mucous membrane, bromine is less deleterious to the respiratory organs than chlorine, the fulminating effect of which appears to be absent in the case of bromine. It has, however, not hitherto been possible to complete these observations on bromine, and publication of the results must be deferred.

In conducting the experiments recorded in this paper—especially those on perfusion—I have received valuable assistance from Dr. Harold Pringle.

DESCRIPTIONS OF FIGS. 11 AND 12 IN SPECIAL PLATE.

Fig. 11.—Dog (about 10 kilos). Effect on blood pressure and respiration of inhalation of air containing 10 per cent chlorine gas during three and a half minutes. Notice that the heart, which becomes very slow, continues to beat several minutes after cessation of respiration. Artificial respiration, although followed by a few slow gasping natural respirations, failed to effect recovery, the blood pressure steadily falling to zero. *a*, Blood pressure curve; *b*, respirations; *c*, abscissa of blood pressure; *d*, time in 10 seconds; *e*, signal.

Fig. 12.—Cat. Experiment showing that chlorine inhalation does not produce obstruction in the bronchial tubes. An aperture was made in the thorax and one of the lungs pricked with a needle. Artificial respiration was maintained by pumping a definite amount of air at a regular rhythm into the lungs, the excess escaping by a side tube attached to the trachea tube. A small proportion of the air escaped through the punctures in the lung, and this was collected and measured in an inverted cylindrical measure, the trunk of the animal being immersed in warm Ringer’s solution. Every 25 c.c.m. thus collected was marked on the lowest line of the tracing. At the place indicated by the arrow 100 c.c.m. of air containing 20 per cent. chlorine was pumped in, and the experiment was then continued with ordinary air. Notice the much increased rate at which the air is escaping from the punctured lung after administration of the chlorine. This dose of chlorine, although contained within the limits of a single stroke of the pump, and although a very large proportion must have escaped at the side tube, produced an instant fall of blood pressure, and death ensued in six minutes in spite of the fact that artificial respiration of fresh air was being kept up the whole time by the pump.

SIR E. A. SCHÄFER: IMMEDIATE EFFECTS OF INHALATION OF CHLORINE GAS.



Fig. 1.—Heart and lungs of cat killed by three minutes' inhalation of a mixture of 20 volumes chlorine gas with 100 air. Natural size. The heart, which is still covered by pericardium, has been turned upwards so as fully to expose the ventral surface of the lungs. The lungs were of an intense dark red colour. (Under normal circumstances the cat's lungs are of a pale pink colour after death.)

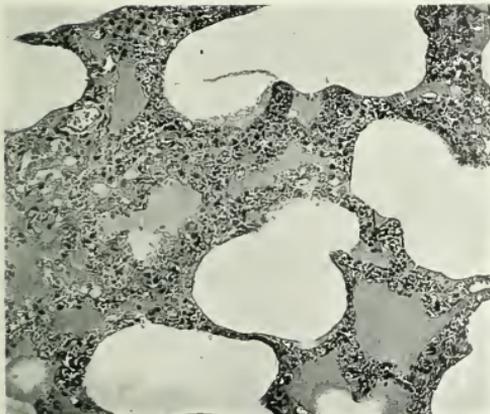


Fig. 2.—Part of section of lung of cat killed by nine minutes' inhalation of air containing chlorine gas. Haematoxylin and eosin. Magnified 200 diameters.

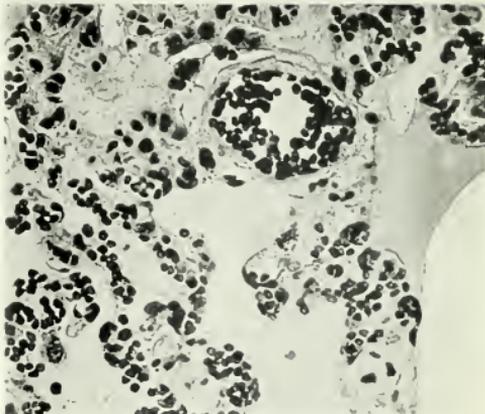


Fig. 3.—From a section of the cat's lung shown in Fig. 1. The animal was killed by inhalation during three minutes of a 20 per cent. mixture of chlorine gas and air. Magnified 500 diameters.

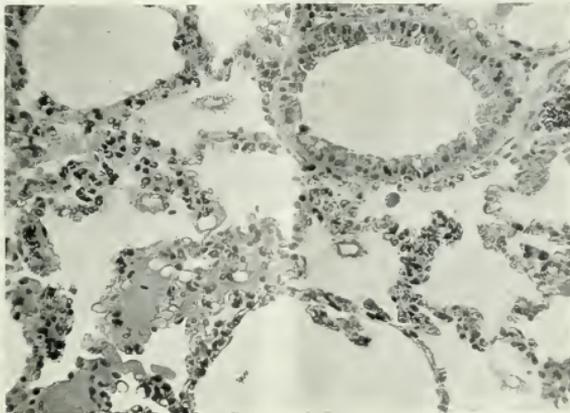


Fig. 4.—From lung of rabbit killed by rapidly injecting 10 c.cm. chlorine Ringer into jugular showing great congestion of pulmonary capillaries and oedema.

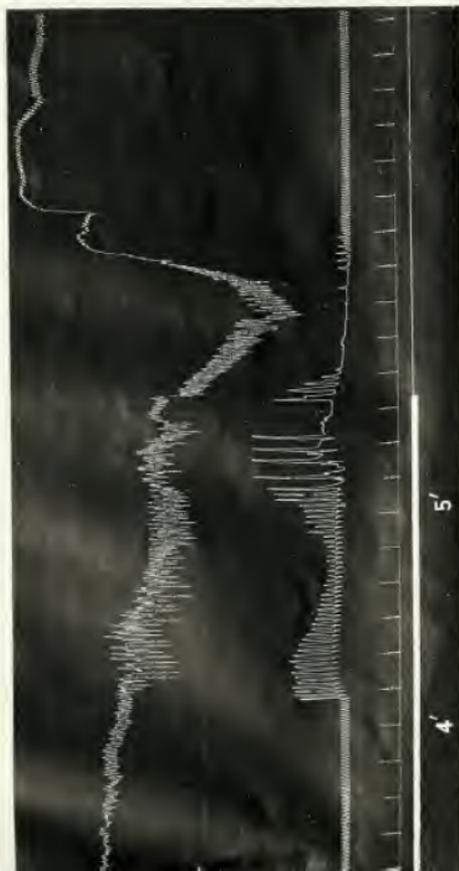


Fig. 6.—Rabbit. Chlorine 1 part to 100 of air inhaled for five and a half minutes. End of tracing shown. Cessation of respiration, but spontaneous recovery on respiration of chlorine mixture by air. Very high subsequent blood pressure. *a*, Arterial pressure; *b*, respiration; *c*, time in ten seconds; *d*, signal.

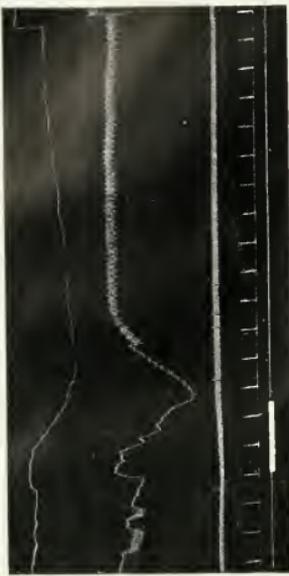


Fig. 5.—Rabbit. Effects on kidney volume, blood pressure, and respiration of slowly inhaled 10 c.c. of Binger's solution saturated with chlorine into the external jugular vein. *a*, Record of kidney volume; *b*, blood pressure; *c*, respiration; *d*, time in ten seconds; *e*, signal.

Interval of 3 minutes.



Fig. 7.—Rabbit. Effect of inhalation during seven minutes of air containing 2 per cent. chlorine gas. Cessation of respiration six and a half minutes after commencement inhalation. The heart continued to beat for several minutes, but artificial respiration failed to effect recovery.

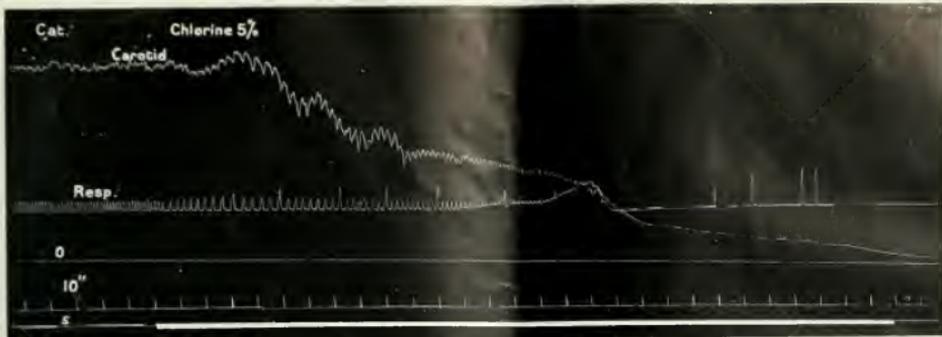


Fig. 8.—Cat. Effect on blood pressure and respiration of five minutes' inhalation of air containing 5 per cent. chlorine gas $\frac{1}{10}$ grain of atropine sulphate had been given in this case.

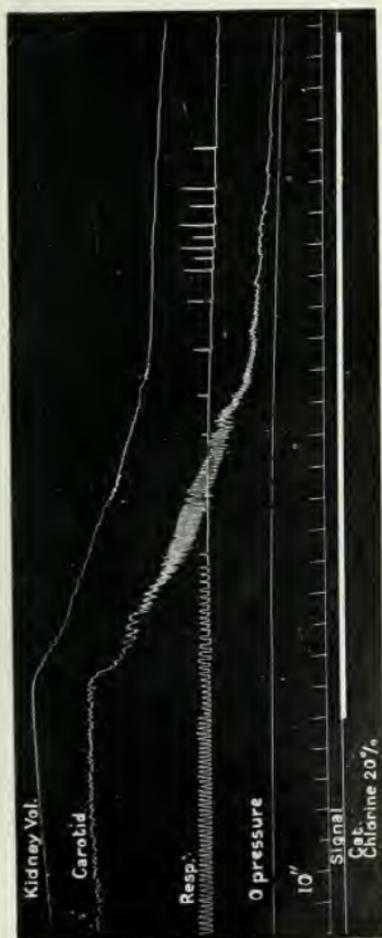


Fig. 9.—Cat. Effects on kidney volume, blood pressure, and respiration of three minutes' inhalation of air containing 20 per cent. chlorine gas.



Fig. 10.—Cat. Effect on blood pressure and respiration of inhalation during three and a half minutes of air containing 20 per cent. chlorine gas; $\frac{1}{10}$ grain of atropine sulphate had been given in this case.

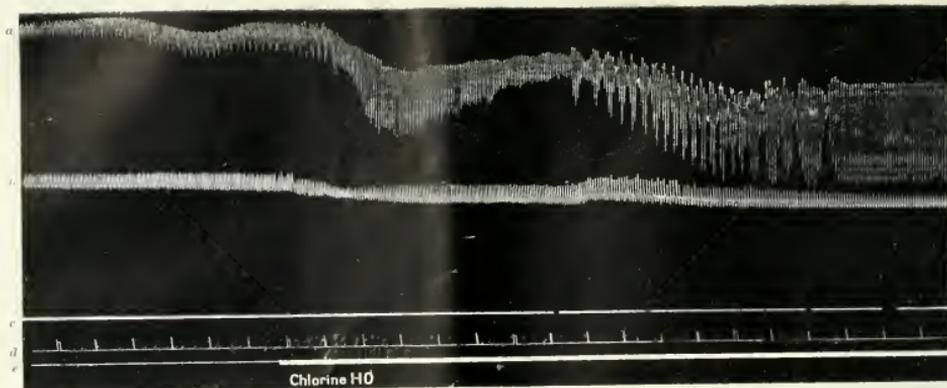


Fig. 11.

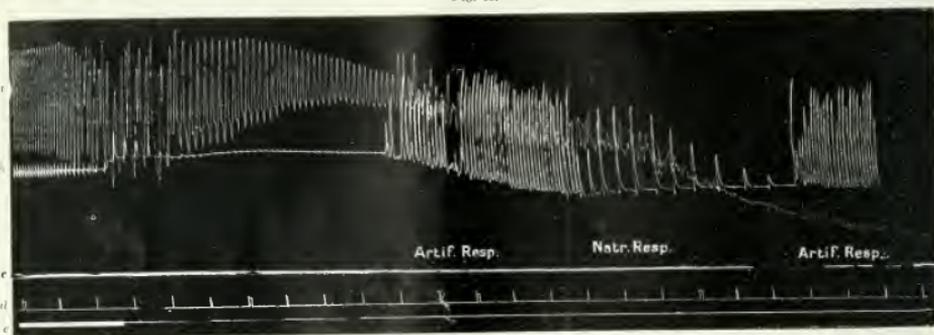


Fig. 11 (continued).

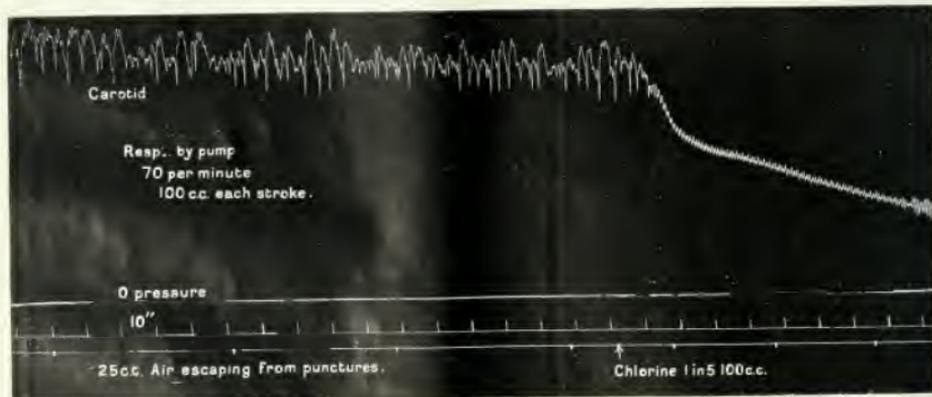


Fig. 12.

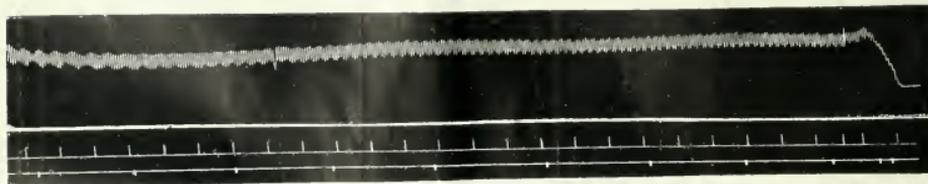


Fig. 12 (continued).

The descriptions of Figs. 11 and 12 will be found on p. 246.

Literature.

I have not been able to find in the literature any references to the immediate physiological action of chlorine. The most exact work on the effects of respiring mixtures of chlorine and air is that of Lehmann,² who placed animals during one to six hours in atmospheres containing from 1 part per 1,000,000 to 1 part per 1,000. He found that prolonged exposure to 1 part in 100,000 is sufficient to produce pulmonary hæmorrhage and œdema—which he regards as inflammatory—whilst exposure to 1 part in 10,000 causes in addition a fibrinous ("croupous") exudation in all the air passages, even the finest, and appears ultimately to produce asphyxiation. Numerous experimental pathologists, including Welch,³ S. Mayer,⁴ Sabli,⁵ and Löwit⁶ have endeavoured to elucidate the conditions of pulmonary œdema. These conditions have also lately been studied in the "surviving" hugg in Magnus's laboratory at Utrecht by Modrakowski.⁷ In these last-mentioned papers the literature of the subject is given, but most of the work referred to has but little bearing upon the œdema produced by chlorine. Binz⁸ found in the frog that exposure to chlorine gas has no influence on the heart (as against Falk), nor on muscle and nerve, nor on the spinal cord, but believes that it is carried to the brain, in which, he states, it can be detected by the smell! I have not noticed any smell of chlorine *post mortem* in the animals I have dealt with.

REFERENCES.

¹ *Journ. of Physiol.*, vol. xiv, p. 213. ² *Arch. f. Hygiene*, vol. vii, 1887. ³ *Fischow's Archiv*, Bd. 72, 1878. ⁴ *Sitzber. d. Wiener Akad.*, Bd. 77-78, 1878. ⁵ *Arch. f. exp. Path. u. Phar.*, Bd. 19, 1885. ⁶ *Beitr. z. path. Anat.*, Bd. 14, 1893. ⁷ *Pflüger's Arch. f. Physiol.*, Bd. 158, 1914, pp. 509, 527. ⁸ *Arch. f. exp. Path. u. Phar.*, Bd. 13, 1880.

TREATMENT OF GAS POISONING IN TRANSVAAL MINES.

BY

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AND

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CASES of poisoning by nitrous fumes are not uncommon in the mines of the Witwatersrand, and from published descriptions of "gassing" in the trenches the symptoms appear to be very similar.

"Gassing" as it occurs here is due

(1) To the inhalation of gases formed as the result of burning blasting gelatine. These gases consist mostly of the oxides of nitrogen.

(2) To the inhalation of gases formed by the more or less complete detonation or explosion of blasting gelatine. These gases consist chiefly of carbon dioxide and sometimes carbon monoxide.

The inhalation of (1), even in small quantity, is frequently followed by delayed symptoms, and, unless treated as described below, may cause death within twenty-four hours. This form of "gassing" is apparently very similar to that caused by the inhalation of the asphyxiating gases used by the enemy. The inhalation of (2) may cause no serious symptoms beyond the immediate ones of asphyxia and unconsciousness, and if the patient is rescued in time he recovers without having developed any secondary symptoms. The symptoms are due to the inhalation of CO and CO₂.

A man who has inhaled the fumes of burning gelatine may present very few symptoms beyond a little headache, cough and tightness of the chest, which soon pass off. In from six to eight hours he begins to have difficulty in breathing and coughs up large quantities of bloody serous fluid and dies of asphyxia and heart failure (delayed nitrous fumes poisoning).

Post mortem there is marked congestion and œdema of the lungs. The mucous membrane of the trachea and larger bronchi is injected. The abdominal veins are greatly enlarged and engorged with dark tarry blood. We have had the blood examined, and have never found any nitric compounds, nor has CO been found by spectroscopic analysis. The cause of the symptoms is the inhalation of nitrous fumes.

Treatment.

Every man who has been exposed to nitrous fumes must be kept under observation, in hospital if possible, for at least twenty-four hours. An emetic of copper sulphate gr. 8, followed by a large quantity of water, is given, or a hypodermic injection of apomorphine. It is imperative that vomiting should be freely induced. If an emetic is given early, any other treatment except rest in bed for a day is not usually required. The onset of dyspnoea and cyanosis is watched, and should moist sounds develop at the bases of the lungs bloodletting is employed, and as much as a pint may be withdrawn from a vein in the arm. This is usually difficult, as the blood is tarry, and coagulates very rapidly. We have transfused with saline to replace some of the blood withdrawn. Atropine may be given hypodermically. Inhalation of oxygen is also useful.

Should symptoms of general œdema of the lungs develop, the prognosis is extremely grave. Very few recover when this stage has been reached.

To illustrate the efficacy of treatment, the following case is quoted: In one of the mines under the care of one of us a case of gelatine was accidentally set on fire. The fumes spread through the workings, and fourteen men were "gassed." Thirteen of them immediately had an emetic, and the next day were all out of danger. One man disobeyed orders, and went home without receiving an emetic. He was sent for, but he had gone out for a stroll after having partaken of a hearty luncheon. He was found four hours after the accident, and came to hospital under protest, stating that he felt quite well. In the evening he developed general œdema and congestion of his lungs, and died before morning.

These notes are written in the hope that they may be useful to those treating cases of "gassing" in the trenches

SOME RESULTS OF GERMAN GAS POISONING.

BY

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MAJOR R.A.M.C.(T.).

CASES of gas poisoning rarely arrive in this country until all the acute symptoms are over, but in the first days of the use of gas two men came under my care who had only been gassed a few days before. Their chests were full of fine moist râles, and there was great dyspnoea. Oxygen they did not like, but compound tincture of benzoin in a steam-kettle gave some relief. The thing, however, which did far and away most good was a big linseed poultice over the whole back. The men constantly asked for the poultice to be repeated.

On admission neither of these men had any albumin in the urine, but a few days later in one of them albumin appeared and rapidly increased in quantity, the urine becoming very scanty. Epithelial and granular casts were present in abundance. The legs became œdematous and the face puffy. There was no rise of temperature. All the moist sounds in the lungs had in the meantime cleared up. The man was in the hospital for two months with very little improvement in the renal condition, and the œdema was still present. He then wished to be transferred to a hospital near his home.

Since then I have seen three other cases of nephritis in men who had been gassed. One had uræmic headaches and early albuminuric retinitis. Obviously nephritis is one of the deadly sequelæ of this gas poisoning.

In my other early acute case all physical signs in the lungs cleared up, and yet, when the man began to get out of bed, he was intensely short of breath. He was kept in hospital some time, being sent out in a bath-chair every day, but he could never walk more than about two miles an hour without getting out of breath. I have at present another man in hospital with the same dyspnoea and no abnormal physical signs, who was treated in France for gas poisoning. The condition is very similar to that of a case of South African miners' phthisis, which I saw some years ago, and probably fibrosis of the lungs has been caused by the irritant gas. The outlook for these men must be very bad.

In neither of these cases suffering from dyspnoea was

there any albuminuria. In three of the cases of albuminuria there was no dyspnoea on walking, and in the other, the original very acute case, there was no way of telling, as he was in bed. It looks as if in some cases the chlorine or bromine damages the lung epithelium so severely that it does not allow absorption into the general circulation, while in others the gas passes through the lungs without affecting them permanently, but then sets up an acute nephritis.

One other case under my care, the result of gas poisoning, is difficult to explain. A well-built man of 24 was rendered unconscious by gas in April. He says that, when he came to, he was lying doubled up with his head between his knees, but he does not think that he was knocked over by shell concussion. Ever since he has suffered from severe attacks of pain in the upper chest, radiating down the left arm. These are relieved by amyl nitrite and trinitrin, and are true angina pectoris. His pulse is 80, the vessel of normal thickness and size, and tension is not high. On listening at the aortic cartilage there is a loud rough systolic murmur and a fair second sound—no diastolic murmur. The systolic murmur is loud along the course of the aorta to the left second space, and is heard in the carotids. The apex beat is in the fifth space in the vertical nipple line, the impulse is fair. There is a good first sound, a slight systolic murmur not conducted outwards, and a second sound; x rays show no enlargement of the aorta. There is no history of rheumatism or of syphilis, and the man was perfectly fit up to the day he was gassed. My impression is that he ruptured one of the cusps of the aortic valve in his struggle for breath.

THE ISOLATION OF TYPHOID AND PARATYPHOID BACILLI FROM FAECES,

WITH SPECIAL REFERENCE TO THE USE OF BRILLIANT GREEN AND TELLURIC ACID.

BY

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AND

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THE methods for the identification of the various organisms belonging to the typhoid-coli group which cause epidemic disease by infection proceeding from the alimentary canal have now been well established.¹ As a preliminary to identification, however, it is necessary to isolate the suspicious organisms in pure culture from the infected subject. In the case of urine this is usually simple, provided that the patient is excreting organisms at the time of examination. When dealing with faeces it may be a matter of considerable difficulty owing to various coliform bacilli being present in great excess over the specific causal organisms. Under ordinary conditions these accompanying organisms tend to overgrow the specific types in culture media. In the early stages of the acute attack of such infections the method of blood culture is, of course, the most important diagnostic procedure, but in convalescent cases, or for the detection of carriers, the faeces and urine must be examined. (The Widal reaction is obviously of extremely limited value as an indication of infection in cases which have recently been inoculated with typhoid or paratyphoid cultures, singly or in combination.)

Unfortunately the argument does not apply that if the specific organisms are so scanty as to be readily missed, then such a case is relatively of only slight importance as a source of infection; on the contrary, it is now well known that the number of specific bacilli in the faeces and urine of a carrier may suddenly undergo marked fluctuations, and a case which is liable to be overlooked at the time of examination on account of the scanty number of organisms present may later on excrete the bacilli in great abundance.

Individuals who excrete these organisms are, of course, a very serious menace to a population unprotected by prophylactic inoculation; but their danger to an inoculated

community must not be underrated. It is to be remembered that immunity is only a relative state, and although the strongest proofs of the value of antityphoid immunization have now been afforded, there can be little doubt that a considerable proportion of individuals who have received the customary two doses of vaccine will still be susceptible to a sufficiently massive infection.

For these reasons it cannot be too strongly urged that every means should be adopted to ensure as thorough an examination as possible of the faeces of possible intestinal carriers. Not merely should the faeces be repeatedly examined,² but the most precise methods available for the detection of the specific organisms should be adopted. In cases where the specific organisms are scanty in proportion to the coliform bacilli, the customary method of spreading an emulsion of the faeces on the surface of a solid medium in Petri plates is obviously a somewhat imperfect procedure. In order to obtain a sufficient number of isolated colonies so as to include one of the specific organisms a very large area of medium may require to be inoculated. The media commonly employed, Conradi and Drigalski's, Endo's, and MacConkey's, do not have any effect in reducing the proportion of *B. coli* colonies; the results of Dreyer, Ainley Walker, and Gibson³ indicate rather that MacConkey's medium tends to suppress *B. typhosus*, and they therefore recommend the use of Endo's agar in preference.

A further defect of these media is that various coliform bacilli yield "pale" colonies resembling more or less closely those of the specific organisms, so that much time may be taken up in testing "likely" colonies which are scattered among others. Of course, in cases where typhoid or paratyphoid bacilli are numerous in the faeces any of such media will yield positive results. On the other hand, where the specific organisms form a relatively scanty proportion of the total number of viable bacilli present, the most hopeful means of isolation depends on the use of some agent which, while suppressing the others, will permit the typhoid and paratyphoid bacilli to proliferate. According to the results of Dreyer, Walker, and Gibson,³ ultra-violet light produces this effect, and they have recently described a most ingenious procedure whereby, after a plate has been inoculated with the emulsion of faeces, the contaminating organisms are killed off by graduated exposure to ultra-violet rays, whereas the typhoid bacilli survive and subsequently produce colonies when the plate is incubated.

Browning, Gilmour, and Mackie,⁴ while investigating the antiseptic properties of a series of benzol dyes, found that "brilliant green" possessed a very marked differential action on organisms of the typhoid-coli group. Thus, in confirmation of Conradi, strains of *B. typhosus* were shown to be in general much more resistant to the action of this dye than were the common members of the coli group; *B. proteus* is also less resistant than *B. typhosus* as a rule; Gaertner's bacillus and paratyphoid bacilli are even more resistant than *B. typhosus* to brilliant green.⁵

The differential antiseptic power of brilliant green for the typhoid-coli group surpasses that of malachite green, and the former compound exhibits the property of permitting the growth of the specific typhoid-paratyphoid pathogenic organisms while inhibiting other coliform bacilli in a more marked degree than any other substance so far investigated. Gram-positive cocci, of course, are suppressed by it. Conradi and other workers had already employed brilliant green for the isolation of *B. typhosus*, but apparently without effecting any marked improvement on previous methods. Thus a solid medium was employed, and this is always disadvantageous if the specific organisms are scanty, since they will occur only where the plate is richly inoculated. Now rich inoculation tends to annul the antiseptic effect, and in consequence the contaminating coliform organisms are enabled to grow exactly where their presence will obscure the typhoid bacilli. In consequence, we recommended the use of brilliant green in fluid medium, a series of tubes of peptone water being employed, to which varying amounts of brilliant green were added; each was inoculated with an emulsion of the faeces, and after twenty-four hours' incubation at 37° C. subcultures were made on a solid medium

¹ For a comprehensive summary of the differential characters of these organisms see Henderson Smith, BRITISH MEDICAL JOURNAL, July 3rd, 1915.

² In regard to the general problems of typhoid and paratyphoid carriers see Ledingham and Arkwright's *The Carrier Problem in Infectious Diseases*, London, 1912.

³ Dysentery bacilli are not specially resistant to brilliant green, hence the method will not apply to the isolation of these organisms.

containing an indicator. It was found that, in cases where only scanty colonies of *B. typhosus* developed on the plate inoculated directly from the faeces, practically pure growths of *B. typhosus* resulted in the subcultures from the brilliant green peptone water tubes; in a considerable number of instances typhoid bacilli were recovered by means of the fluid brilliant green medium, where the direct plate cultures failed altogether to show their presence. Although the common types of *B. coli* are more susceptible to brilliant green than are typhoid and paratyphoid bacilli, it was found that a particular group of coliform organisms was much more resistant; so far most of those brilliant green resisting types have been found to possess another property in common—namely, that they ferment inosite (*B. lactis aërogenes* is an example of this type). The inosite fermenters when present tend to overgrow typhoid bacilli in the brilliant green peptone water tubes. The striking fact was observed, however, that of all the colityphoid group the inosite fermenting types are the most susceptible to the antiseptic action of telluric acid (Browning, Mackie, and Smith); hence by combining telluric acid with brilliant green it is possible to inhibit these organisms in addition to the ordinary forms of *B. coli*, while at the same time permitting typhoid, paratyphoid, and Gaertner bacilli to proliferate.*

We are indebted to several workers (Clarke, Smith, Stokes, Wood) who have tested the brilliant green method on an extensive scale; the original estimate of the utility of the procedure has been substantiated, and it has been shown that the employment of this method, in addition to direct plating, leads to a very material increase in the number of positive results. In the light of the experience so gained, several modifications have been suggested. As regards specimens of faeces which are to be examined for the specific typhoid-paratyphoid organisms by any method, two points are of great practical importance: (1) Cultures should be made from the motions as soon as possible after evacuation, preferably within several hours; faeces which have been allowed to stand for some time are unsuitable for the isolation of typhoid bacilli. (2) In cases where the faeces are normally solid—for example, in suspected carriers, it is advisable to administer purgatives and then examine the resulting fluid evacuations; there is a consensus of opinion that this procedure increases considerably the chances of successful isolation of the specific organisms.

Method for the Isolation of Typhoid, Paratyphoid, and Gaertner Bacilli from Faeces.

A fresh specimen of faeces, preferably fluid, is employed; pieces of solid medium containing an indicator, such as Endo's preferably, or MacConkey's, are inoculated in the usual fashion, so as to secure a large number of isolated colonies. At the same time fluid medium containing brilliant green is inoculated.

The fluid medium consists of 2 per cent. peptone and 0.5 per cent. sodium chloride in distilled water, steamed in a Koch's sterilizer (for three-quarters of an hour) and then filtered through ordinary filter paper. The reaction should be corrected if necessary till it is only very faintly alkaline to litmus paper. The medium is then sterilized by steaming or in the autoclave; when large numbers of specimens of faeces have to be examined simultaneously time is saved by sterilizing the medium in bulk, otherwise it should be distributed in amounts of 10 c.c.m. in test tubes and then sterilized. A stock 1 per cent. solution of brilliant green in distilled water is prepared; this keeps for many weeks or even months. Immediately before use a 1 in 10,000 dilution is freshly made up by adding 0.1 c.c.m. of the stock solution to 9.9 c.c.m. of distilled water, and then this dilution is added to the peptone water.

It was originally recommended that varying amounts of the dye should be added to the 10 c.c.m. peptone water tubes, for each specimen of faeces a series of five concentrations being employed—namely, 0.1, 0.2, 0.35, 0.5, 0.7 c.c.m. of 1 in 10,000 brilliant green. We believe that the employment of such a series is an important feature of the method since the conditions of growth of the specific bacilli depend on factors such as their numbers, the number and type of accompanying organisms, and the amount of organic matter present, none of which can be standardized.

* Extended observations have shown that *B. paratyphosus* B is generally more resistant to telluric acid than *B. typhosus* (Smith).

When the number of specimens to be examined is considerable, however, the carrying out of the full procedure is expensive both in time and materials, hence a simplification consists in using for each specimen of faeces a single tube of fluid medium containing 0.5 c.c.m. of brilliant green 1 in 10,000 to 10 c.c.m. of peptone water. According to the experience of Clarke and Stokes, and also of Smith, this represents the average optimum quantity for the isolation of the specific organisms. When a large number of examinations have to be carried out at one time the mixture of brilliant green and peptone water may be made up in bulk and then distributed in sterile plugged test tubes (10 c.c.m. need not then be accurately measured into each tube).

As regards the amount of faeces to be used, we originally employed a single loopful in each tube, in the case of very fluid faeces a large loop (up to $\frac{1}{2}$ in. diameter) being employed; solid faeces were emulsified by rubbing up with several volumes of sterile water. The tubes were then incubated for twenty to twenty-four hours, and subcultures were made on MacConkey's medium; but, in view of the results of Dreyer, Ainley Walker, and Gibson, Endo's medium would seem to be preferable. Three successive strokes are made from each tube; in this way one 4 in. plate will accommodate the subcultures made from three peptone water tubes. The plates are then incubated at 37° C. for eighteen to twenty-four hours, and the colonies examined, as in the case of direct plates.

Clarke and Stokes prefer the following procedure: The faeces are emulsified with several volumes of sterile water; the mixture is then allowed to sediment (half an hour), and then five or six large loopfuls of the supernatant fluid, free from grosser particles, are added to the tube of fluid medium. When such a rich inoculation is employed, subcultures are best made after nine hours' incubation at 37° C. When the specific organisms are found, they usually occur in abundance in one or more of the subcultures, thus saving much of the time which is taken up in testing a variety of "likely" colonies from the direct plates.

Tubes in which an abundant growth of organisms has occurred, as shown by marked turbidity and replacement of the original green colour of the medium by a yellowish discoloration, are not likely to yield *B. typhosus* in subculture. Where the series of doses of brilliant green is used the lower tubes may show this discoloration and the next higher ones are then the most likely to yield positive results. Should all the tubes appear clear after twenty-four hours and fail to yield growths in subculture, a positive result may yet be obtained after the fluid cultures have been incubated for a further period. When the single tube containing 0.5 c.c.m. of brilliant green 1 in 10,000 is used the occurrence of discoloration indicates the following possibilities: (1) That corresponding to the amount of faeces used for inoculation the period of incubation ought to have been shorter—experience enables the amount of inoculation and the duration of incubation to be adjusted so as to secure the best results—or (2) that green resisting varieties of *B. coli* (usually inosite fermenters) are present. When these occur they tend to overgrow *B. typhosus*. The presence of inosite fermenters is probable when the subculture on solid medium shows a very abundant broad line of growth (suggesting in appearance the half melted creamy portion of the confection known as "chocolate cream").

With a view to suppressing the inosite fermenters telluric acid should be added to the brilliant green medium. The cultures in the green telluric acid mixture may be made along with the others, or, in order to save time, this may be omitted on the first examination. The examination of the first specimen of faeces from a case will probably show whether brilliant green resisting organisms are a disturbing factor; if they occur, then a subsequent examination of a fresh specimen of faeces should be made, using in addition medium containing 0.4 c.c.m. of 1 in 1,000 telluric acid, along with varying amounts of brilliant green per 10 c.c.m. of medium. Since the action of telluric acid when mixed with green is not precisely of the nature of a summation, it is advisable, in order to secure the optimum proportions in any given case, always to use a series of doses of brilliant green (not fewer than two amounts—namely, 0.25 and 0.5 c.c.m. brilliant green 1 in 10,000), each along with 0.4 c.c.m. telluric acid 1 in 1,000, or 10 c.c.m. peptone

water. It was found by Browning, Mackie and Smith, in a case of cuteric fever which they examined, that *B. typhosus* could be recovered from the faeces by means of telluric acid and brilliant green in combination, whereas direct plates as well as brilliant green by itself gave negative results.

The passage of typhoid and paratyphoid bacilli through media containing brilliant green or telluric acid has not been found to affect their fermentation or serological reactions. So far only incomplete series of results are available, but it appears that the employment of these procedures, in addition to direct plating, will increase the number of positive results by more than 25 per cent.

SUMMARY.

1. Specimens of faeces should be cultured within several hours after evacuation. In cases where faeces are normally solid it is advisable to give purgatives and examine the resulting fluid motions.

2. Make the usual smear cultures on plates of solid medium containing an indicator—for example, Endo's or MacConkey's. At the same time inoculate peptone water containing brilliant green; employ preferably a series of tubes for each specimen, but when time prevents this, use a concentration of 0.5 c.c.m. of 1 in 10,000 brilliant green in 10 c.c.m. of medium.

3. The direct plates and the brilliant green peptone water cultures are then incubated; if typical colonies are not found on the direct plates, or if "likely" colonies are scanty, make subcultures (successive strokes) from the green tubes on Endo's or MacConkey's medium. These are then incubated for twenty-four hours and examined in the usual way; should typhoid or paratyphoid bacilli be present in the subcultures from brilliant green medium they usually occur as an abundant growth of typical colonies, and it is possible to proceed at once to identify them by the usual fermentation and serum reactions.

4. In certain cases (where green resisting organisms are present) positive results may be obtained only when telluric acid is employed, in addition to green, in the medium. The cultures in the green telluric acid mixture may be made simultaneously with the others, or this medium may be reserved until the other procedures have failed. Thus, should direct plates fail to yield positive results, and the green medium be overgrown (inosite fermenters), then, in further examinations of the case, employ, in addition, peptone water medium containing a mixture of brilliant green with telluric acid.

REFERENCES.

- ¹ Browning, Gilmour, and Mackie, *Journ. of Path. and Bact.*, vol. xviii, 1913, p. 146, and *Journ. of Hygiene*, vol. xviii, 1913, p. 335. ² Browning, Mackie, and Smith, *Journ. of Path. and Bact.*, vol. xix, 1914, p. 127. ³ Dreyer, Stanley Walker, and Gibson, *Lancet*, March 27th, 1915.

HISTORICAL NOTE ON FARR'S THEORY OF THE EPIDEMIC.

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STATISTICIAN TO THE MEDICAL RESEARCH COMMITTEE.

WHEN modern statistical methods are being applied with more or less success to the study of epidemics, it is, I think, interesting to recall the chief early work on this subject, especially since it has fallen into complete oblivion. The first attempt to describe epidemics quantitatively is due to Dr. Farr. No other person, so far as I can discover, had so early formed the idea that an epidemic was subject to definite laws, but his ideas were greatly in advance of his time, and his treatment of the subject was so episodic, but his discovery—I think that is the true description—has suffered almost complete neglect. His first publication was in the year 1840.¹ In that year he included in his report to the Registrar-General a short note on the course of epidemics, with special reference to

¹ Telluric acid can be obtained from W. Craven Ball, 45, Hop Exchange, Southwark Street, S.E. It should be kept as a 1 per cent. solution and sterilized by heat, otherwise it may become contaminated by moulds. The free acid keeps indefinitely in watery solution; it is therefore preferable to potassium tellurate, which was originally employed, but which is extremely unstable. Brilliant green may be obtained from various chemical dealers, or from Synthetic Chemicals, Ltd., Derwent Street, Derby. Graduated pipettes for measuring 1 c.c.m. and fractions of a c.c.m. can be obtained from most dealers in chemical glass apparatus, or from Messrs. Thomson, Skinner and Hamilton, 38, Sanchiel Street, Glasgow.

the recent prevalence of small-pox. The numbers on which he based his conclusions were moderately large, more than 30,000 persons having died during the outbreak. He specially considered the decline of the epidemic, and fitted the figures to a curve calculated by a method described. Though he gives no equation of the form of the curve, it is quite obviously the normal curve of error. He finishes the article with a few remarks upon measles, typhus, etc., and then adds: "These exhibit the same regularity, but the laws which govern their course will be more conveniently discussed when the abstract of the observations has been extended over another year." He does not, however, in spite of frequent promises,² seem to have discussed the subject again for twenty-six years.

The hypothesis suggested, however, did not pass out of his mind. In fact, it seems rather to have become a part of his belief, for in 1866 he wrote a letter to the *Daily News*,³ a vivid and characteristic utterance in which he challenged the prevailing views regarding the progress of the cattle plague. This cattle plague had invaded England in the end of the year 1865, and caused very considerable damage. With the growth of the new year, week by week the number of cases steadily increased, till in the end of February Mr. Lowe,⁴ in a speech in the House of Commons, anticipated, in the absence of very determined measures, an epizootic of tremendous size. This statement Farr takes as the text of his letter. He definitely states his views regarding the progress of epidemics. In place, however, of assuming that the second difference of the logarithms is constant—a form which gives the normal curve—he calculates, in addition, the third difference from the observations, and uses this as well in his prediction. The curve obtained by this means is the same as that given in Case 2 of my note in the *BRITISH MEDICAL JOURNAL* of May 8th, 1915, though in his case the coefficient of the third power of the time is negative. Using this method, he prophesies an early maximum of the epidemic, with a subsequent decline—a prophecy which approximated with remarkable closeness to the actual facts.

The reception of this letter was not encouraging. The *Daily News* discussed the matter in a complimentary leader next day, yet no member of Parliament—though the cattle plague was being discussed nightly—seems to have thought it worthy of mention. The *Lancet* ignored the communication entirely. The *BRITISH MEDICAL JOURNAL*'s reception was distinctly unkind.⁵ It remarked:

Dr. Farr will not find a single historical fact to back his conclusion that in nine or ten months the disease may quietly die out may run through its natural curve. Dr. Farr says again that the returns show that the weekly relative increase in the number of cattle which now fall with the disease is less than it was at first, and he attributes this to the view that the disease is running the usual course of epidemics. He quite forgets to take into account the fact that at the present time every one is satisfied as to the virulently contagious nature of the disease, and consequently takes measures to prevent it. When the plague first appeared, thanks to the stupid and puffed-up ignorance of the *Times*, the disease was generally set down as a local London cowshed nuisance, got, as "S. G. O." sagely suggested, by "Moonbeam" out of "Dungheap."

The letter was reprinted in the *Journal of Social Science* later in the same year (March 20th, 1866), as follows:

DR. FARR ON THE CATTLE PLAGUE,
March 20th, 1866.

My dear Sir,

I send you my letter to the *Daily News*. The epizootic has apparently attained its maximum, and is now going down, as the "law" led me to believe.

The thing was going up, and looked most alarming, when I wrote. I do not like to alter what I then wrote, lest it should be thought that the alteration is made to suit the facts.

I took the series containing the "back cases," as it was published in the second report of the Commissioners.

Before that, I had calculated a series from the weekly returns of cases reported in each week.

This series follows nearly the same course, but the numbers are about one-fourth less.

The Privy Council returns are all exceedingly imperfect; but in assuming that they are almost equally imperfect throughout, I do not think that I am very wrong.

Ever yours,
(Signed) W. FARR.

To the Editor of the "Daily News."

Sir, The following passage occurs in the report of Mr. Lowe's last speech in the House of Commons:

If we do not get the disease under by the middle of April, prepare yourself for a calamity beyond all calculation. You have seen the thing in its infancy. Wait, and you will see the averages, which have been thousands, grow to tens of thousands, for there is no reason why the terrible law of increase which has prevailed hitherto should not prevail henceforth.

No one can express a proposition more clearly than Mr. Lowe; but the clearness of a proposition is no evidence of its truth. And in the present instance I hope to be able to convince Mr. Lowe himself that the proposition which he has propounded is founded on a misconception.

It admits of mathematical demonstration that the law of increase which has hitherto prevailed, instead of implying "that the averages which have been thousands will grow to tens of thousands" implies the reverse; and leads us to expect that the subsidence will begin in the month of March.

I take the following figures from the second report of the able Commissioners on the Cattle Plague, of whom Mr. Lowe was one of the most efficient.

The number of reported cases from the commencement was:

1865.	Total.	New Cases occurring in Four Weeks.
October 7 ...	11,300	...
November 4 ...	20,837	9,597
December 2 ...	39,714	18,817
December 30 ...	73,549	33,835
1866.		
January 27 ...	120,740	47,191

NOTE.—The numbers include what are called "back cases."

It will be observed that, although the attacks in the second period of four weeks were nearly double those in the first period, that rate of increase did not continue; otherwise, on the principle of doubling, the numbers would have run up from 9,597 to 19,194 to 38,388 and 76,776. But the attacks in the last four weeks were only 47,191; and the real law implies that the ratio of increase goes on rapidly decreasing until the ratio itself is decreasing.

Thus the increase in the first interval was at the rate of 96.07 per cent.; in the second interval it was 79.81 per cent.; and in the third or last interval under observation it was only 39.47 per cent. Now here is a complicated law of decrease in these rates; and the "terrible law" is such that—if it is any law at all—the attacks in the four weeks ending February 24th will be 43,182, and the attacks in the next four weeks ending March 24th will be 21,927, and so on. The attacks in the four weeks ending February 24th will probably exceed 43,182, but the number will certainly not amount to twice—to say nothing of ten times—47,191.

Periods of Four Weeks ending	Reported Attacks.	Calculated Series by "Law."	Actual Figures.*
1865—			
November 4 ...	9,597	9,597	9,597
December 2 ...	18,817	18,817	18,817
December 30 ...	33,835	33,835	33,835
1866—			
January 27... ..	47,191	47,191	47,287
February 24 ...		43,182	57,004
March 24		21,927	27,968
April 21		5,226	15,856
May 19		491	14,734
June 16		16	5,000 (about)

* The actual figures of the course of the epidemic have been printed alongside of Dr. Farr's calculations. The epidemic culminated about a fortnight later than he prophesied. As the actual form of the epidemic is not accurately expressible by the formula he has chosen, the degree of accuracy is certainly all that can be expected.

NOTE.—To obtain the series, multiply the first number (9,597) by 1.967, the product by 1.7981, and the second product by 1.5977. It will be observed that these rates decrease; the second is obtained from the first by multiplying by .9171, and the third from the second by multiplying by .7757. Again, .7757 is obtained by multiplying .9171 by .8458. The process is simplified by employing logarithms, and the series is continued by taking log. .5977, which equals 3.9821355; and the three orders of differences of the logarithms of the numbers derived from direct observation.

If Mr. Lowe will take his compasses and draw ordinates representing these figures, he will immediately perceive the nature of the curve: it ascends first rapidly, and then slowly, until at last it attains a maximum, makes a turn, and falls down more rapidly than it mounted. The nature of the curve is obvious.

Mr. Lowe prophesies. I will not be so presumptuous, and will admit that the law which has hitherto prevailed "will be modified by the introduction of unknown elements. But as it would be fair to infer that a projectile thrown up in the air, losing some of its velocity every second, will stop at last, so it is not unreasonable to infer that the cattle plague ere long will come to an end. The course which it has hitherto taken justifies us in assuming that the attacks will soon be at their maximum.

I will now assign reasons for believing that this indication will be realized; and that, although rinderpest will remain in the country as a sporadic disease, liable to other eruptions, it will subside spontaneously as an epizootic. The holocausts about to be offered up will, we may hope, not retard the consummation.

All the epidemic poisons are reproduced in every individual that they attack; and if they lose part of the force of infection in every body through which they pass, the epidemic has a tendency to subside from this cause, which is strengthened in its operation by the fact that the individuals left are less susceptible of attack, either by constitution or by hygienic conditions, than those destroyed. This is as true of epizootics attacking animals as it is of epidemics attacking men. Now, the Russian physicians have shown that the matter—say *bovine*—which causes the *Bovilla pestis*, diminishes in strength at every transmission by inoculation, so that after it has passed through seven oxen in succession, matter which at first killed 50 per cent. of the inoculated ended by killing only six; while at a further stage of transmission few cattle sickened and none died. This was in cattle of the steppe race. "Before mitigation of the virus appears in other races," says Professor Playfair, "it must pass through from 13 to 15 cattle in succession." (See *The Cattle Plague*, by Lyon Playfair, C.B., F.R.S., one of the Cattle Plague Commissioners.) Allowing ten days of interval, the matter in England will have passed in the natural way through 24 cattle at the end of February.

Diminished activity of the zymotic matter and augmented powers of resistance in the survivors are the factors to which the subsidence of epidemics of small-pox, cholera, measles, scarlatina, and typhus are in themselves referable. The matter (cholera) inducing epidemic cholera was apparently diffused all over England in 1849; and there were two or three deaths by cholera or diarrhoea in nearly every district; everybody more or less felt its power; but the mortality was only great in the low parts of the kingdom, and where the stuff entered the system through water as well as through air and other media.

When an epidemic disease of foreign origin enters a country it encounters difficulties of diffusion, and it is undoubtedly very slow in its way, so that it may pass through its phases within the narrowest possible circle. These precautions as regards all common zymotic diseases are never pushed so far as to interfere with nursing, medical attendance, travelling, or social intercourse in England; yet all these epidemics subside within limited terms as certainly as they spring up.

I have stated that subsidence is a property of all zymotic diseases. I may cite the cholera epidemics in England as examples. In June, 1849, the deaths by cholera were 2,046; they rose in July to 7,570, and in August to 15,872. Here was a rapid and alarming increase of deaths; but the rate of increase was decreasing. The calculated deaths for September and October were 19,488 and 12,638; the actual deaths were 20,379 and 4,654. It fell headlong, and became, as an epidemic, virtually extinct.

Diphtheria is the last epidemic of England. It goes through its course more slowly than cholera. The deaths in the years 1857-8-9 by diphtheria were 1,583, 6,606, and 10,184. Here the rate of increase was itself in a decreasing ratio, and the deaths by diphtheria in the year 1860 were 5,588, which is very near the calculated number. Rinderpest, or *bovillia*, has many points of analogy with small-pox, scarlatina, diphtheria, typhus, and influenza, which all follow the law of increase and decline; the increase admitting of retardation, and the decline of acceleration, by judicious measures.

These diseases decline because their matter, generated in unhealthy varieties of race, loses some of its virulence by transmission, because all are not susceptible, and because, in their progress, they destroy the lives of animals living under such unnatural conditions as the cows of London.

The cattle plague in Rome, which Lancisi has so well described, lasted less time than our calculation gives. It began about August 10, 1713, and left no vestiges of its existence in May, 1714. It killed 26,252 cattle, according to the returns; how many it left alive Lancisi does not state; but, as he is often referred to, let me cite one cheerful passage, in which he asserts that no one felt the scarcity of meat; that lambs and wethers were unusually abundant, that multitudes of cattle fed on the fields and meadows in 1715 as of yore, and that provisions were cheaper in the Ager Romanus than in Picenus, where he was writing, which had suffered nothing from the calamity.

It is but justice to our veterinary surgeons to say that their poleaxe practice is sanctioned by Lancisi; and that, after laying down the strictest rules for the isolation, for the stopping of the movements of rustics and dogs, as well as other measures equally easy of execution, he concludes with the subjoined well-known passage: "Quae cum omnia necum reputo, eorumque simul difficultatem, expensas, pericula, laboresque confero, nihil aut facilius, aut certius, expeditiusque illatae jam pestis esse remedium video, quam si statim ab initio infirmac animantes explosis globulis interficiantur, atisque extemplo scrobibus inferantur."—*Op.*, vol. ii, p. 17.

It has been assumed by Professor Playfair that this advice was accepted by Clement XI. But Lancisi distinctly states that he humbly proposed the policy in the Sacred College: that it was supported by some eminent cardinals; but that it was rejected for a milder course (*Verm potior Patrum pars in mitiore sententiam discessit, et custodituros boves*). The most minute instructions of the Pope and the College are given by Lancisi; but no authority to slaughter, and apparently not a single head of cattle was slaughtered by authority in the Papal dominions. Yet the cattle plague subsided in nine months.

(Signed) W. FARR.

February 16th.

By the time the letter was published in the *Journal of Social Science* the accuracy of Farr's prophecies was quite obvious, and the editor, Dr. Edwin Lankester, enthusiastically received the hypothesis as on the footing of a natural law, stating that "the prediction of Dr. Farr with regard to the cattle plague has been all too literally fulfilled." These encomiums, however, do not seem to be much more scientific than the derogatory remarks with which the *BRITISH MEDICAL JOURNAL* received the communication. In the same issue (April, 1866, p. 306), reviewing works on cattle plague, "J. J. R." writes:

Dr. Farr has been working at the subject, and he has given it to the world that the cattle plague does diminish in virulence as it increases in amount of animals attacked; and it has been stated that in the natural course of events the disease would die out; in fact, that nature has adopted that which Mr. Gamgee recommends as the only cure, a "stamping out." Of course, to such declivities we cannot expect Mr. Gamgee to agree after his decided antagonism to the idea of spontaneous decline, but there is strong ground for supposing that such is really the existing state of affairs.

The *BRITISH MEDICAL JOURNAL* remained unconvinced of its error, commenting impudently on the subject in a few lines in the issue of June, 1866.*

There was a further letter in a subsequent number of the *Journal of Social Science*† by Dr. Markham,‡ which takes a view hostile to Farr, but as the discussion is confined to the accuracy of Farr's treatment of Lancisi's statistics (vide Farr's letter), and his treatment of these statistics is wholly inadequate, further reference is unnecessary. It contains nothing of the least importance at the present day.

From this point no direct reference to Farr's letter occurs in literature. Published in a daily paper it was naturally difficult of access unless the date was known, and the republication of the letter in the *Journal of Social Science* occurred at a time when that journal, never of great vitality, was moribund. Difficulty of reference

accounts in all probability in some measure for its future neglect, but the fact that Farr never returned to the subject, and does not seem to have taken much further interest in it himself, certainly had its share.

Humphreys,‡ editing the memorial volume entitled *Farr's Vital Statistics*, reprints the earlier paper of 1840, but takes no notice of the letter, nor is any mention made of it in the short biography given in the commencement of the volume, nor in the biography of Farr given in the *Dictionary of National Biography*. Two subsequent writers have considered the paper. Dr. Ransome,§ who accepted the hypothesis to a certain extent, discussed it in a paper published in the *BRITISH MEDICAL JOURNAL* for October 10th, 1868, but he appears to be speaking without direct knowledge, and the reference he gives to Farr's paper (*Social Science Review*) is wrong. Dr. Evans,¶ who discussed and approved the method in a paper in the *Epidemiological Society's Transactions* in 1872, states that he received his knowledge secondhand from a member of the society who had obtained it from Dr. Farr. His description of the method is very obscure, but on careful examination it amounts to considering the second difference of the logarithms as constant. The third difference is not mentioned. He has, however, a curious statement in connexion with the decline of the cattle plague. He says:

Now the largest number of reported cases appeared in the sixth week of 1856, and the real decline of the epidemic was more rapid than the calculated decline, a result very reasonably attributed by Dr. Farr to the effects of slaughtering in the later weeks of the epidemic.

What his authority for this statement is I do not know. It is not true on Farr's own calculations, but only on those of Dr. Evans. It may be that he received the information verbally with the description of Dr. Farr's method, or it may be that Dr. Farr wrote some additional note on the subject, which I have not been able to trace. As Dr. Evans has been dead for many years, this point must remain unsettled.

Dr. Ransome,|| rediscussing the periodicity of epidemic disease in the *Transactions* of the same society for the year 1881, states quite definitely that he had never seen the original. Neither of these writers refers to the earlier paper of 1840, which was later reprinted in the volume of *Farr's Vital Statistics*, nor does either appear to have discussed the subject again.

The letter, I think, is one of the epidemiological classics. At the time Farr produced it, though he quotes experiments in its favour, the ideas lay outside the main stream of knowledge. There are now a number of analogous facts, and I am quite convinced that a large part of the theory of epidemics is to be explained by the means first clearly expressed in the letter now reprinted.

REFERENCES.

- * Second Annual Report, Registrar-General, 1838. Dr. Farr's Appendix, p. 20. † Third Annual Report, Registrar-General, 1839. Dr. Farr's Appendix, p. 28. ‡ Fourth Annual Report, Registrar-General, 1841. Dr. Farr's Appendix, p. 85. § *Daily News*, February 17th, 1866. † *Hansard*, vol. 181, p. 570, February 15th, 1866. ‡ *BRITISH MEDICAL JOURNAL*, February 24th, 1866, vol. i, p. 207. § *Journal of Social Science*, March 20th, 1866. ‖ *BRITISH MEDICAL JOURNAL*, June 16th, 1866, vol. i, p. 637. ¶ *Journal of Social Science*, June, 1865, Correspondence. †† *Vital Statistics*, Farr, 1865, p. 318. ‡‡ Ransome, Arthur: On Epidemics studied by means of Statistics of Diseases. *BRITISH MEDICAL JOURNAL*, October 10th, 1868. §§ Evans, G. H.: Some Arithmetical Considerations of the Progress of Epidemics. *Trans. Epidem. Soc. of London*, 1873-75, p. 553. || Ransome, Arthur: On the Form of the Epidemic Wave and Some of Its Probable Causes. *Trans. Epidem. Soc. of London*, N.S., vol. i, p. 96.

DR. BERTRAM HERBERT LYNNE STEVENS, who was for many years engaged in general practice at Park Street, Grosvenor Square, left estate valued at £225,799 gross, with net personality £199,113. He died on May 9th last, aged 59.

The German Society of Apothecaries (pharmacists) has combined with the "War Chemical Company" to control the sale of glycerine and nitrates for pharmaceutical purposes. The rules fix the maximum quantity of glycerine obtainable by any pharmacist at three kilograms a month, and the pharmacist must undertake to use it only in dispensing prescriptions and to make preparations which are official in the German pharmacopoeia; he must not use it for cosmetics, toilette preparations, or in soap. The regulations have been made owing to the great demands of the factories for explosives, and the falling off in the importation of fats.

* Farr, i, cap. 3, p. 5. Geneva edition of his works.

† The editor adds a footnote to this, saying he does not intend to comment on it, as Dr. Farr is quite able to take care of himself, but I have found no further note by Dr. Farr.

TUBO-OVARIAN ABSCESS, INTESTINAL OBSTRUCTION, AND URETERIC OBSTRUCTION:

SIX ABDOMINAL SECTIONS: RECOVERY.

By JOHN D. MALCOLM, F.R.C.S. EDIN.,
SENIOR SURGEON TO THE SAMARITAN FREE HOSPITAL.

A case in which three operations—the first, second, and fifth—were urgently needed to save life within two years seems worthy of record, and it is also of interest that, apparently, the first operation was not the cause of the peritoneal adhesions which brought about the intestinal obstruction.

First Operation.

Double Salpingectomy and Oöphorectomy by Another Surgeon. September 16th, 1912.—After seventeen days' illness the patient, who had in a marked degree the delicate appearance frequently associated with tuberculous disease, was operated upon by an experienced gynaecologist, who has kindly informed me that he removed a tubo-ovarian abscess from each side, that the vermiform appendix was normal, and that an uninterrupted recovery followed. Except for an attack of abdominal pain in May, 1913, the patient continued in good health for nearly seventeen months. On February 7th, 1914, at the age of 23, she consulted Dr. P. A. Storey on account of severe colicky pain of three days' duration, accompanied by vomiting. A dose of morphine was given, and the patient was sent to the Samaritan Free Hospital. On admission all symptoms except a slight fullness of the abdomen were in abeyance, but next morning an intense gripping pain recurred every few minutes accompanied by visible peristalsis. The patient stated that for fifteen years she had suffered off and on from a pain in the right loin; its significance became clear at a later date.

Second Operation.

Fistula Formation in the Small Intestine. February 5th, 1914.—The lower two to three feet of the small intestine were empty and closely matted together over the brim of the pelvis on the right side. The vermiform appendix and caecum were involved in the bowel adhesions, but lay altogether to the right of them, and otherwise appeared healthy. The anterior abdominal wall was not adherent, and where the ovaries had been removed the broad ligaments were smooth and rounded, there being only a few filmy adhesions in the pelvis. The conditions of the former operation did not explain the new trouble. Neither did an appendicitis appear to be the centre of mischief, but, in the absence of a better, this was accepted as the cause of the adhesions. The ureter was not thought of at that time as a source of infection.

The adherent coils were separated and many surfaces had to be sewn over, the mucous membrane being exposed at several places. The manipulation made these coils so limp and inactive that an obstruction from paralysis seemed certain to follow if this part of the bowel was required to carry on its functions. An excision or a short-circuiting operation was indicated, but the small intestine generally showed a tendency to dilate and the patient became so feeble that a rapid termination of the operation was deemed necessary. A Paul's tube was therefore introduced into the lowest coil of healthy small intestine and the abdomen was closed around this tube, provision being made for drainage of the raw surfaces left in the peritoneal cavity. Removal of the vermiform appendix was postponed in the hope that the patient would be stronger at a later date. After this operation marked depression of the circulation persisted for several hours. The bowel above the fistula acted well from the first.

Considerable haemorrhage from the abdominal wall began on the third day, and did not stop until a vessel was ligatured under an anaesthetic on the sixth day. The loss of blood and the disturbance of the parts were unfavourable to a gain of strength, and when the Paul's tube separated the irritation of the discharges threw a further burden upon the patient.

Third Operation.

Ileo-colotomy, Caecostomy. February 27th, 1914.—On the nineteenth day, as no further progress seemed likely,

the intestine was divided above the fistula, its lower end was closed and its upper part was joined to the ascending colon by an end-to-side anastomosis. Adhesions made this operation difficult, and again the circulation became very weak. It was decided, therefore, to open the caecum and put a Paul's tube in it, to ensure an absence of backward pressure at the seat of the anastomosis. The removal of the vermiform appendix was again postponed. After this operation the bowels acted on the third day, and there was never much discharge from the caecal fistula. The patient quickly recovered and increased considerably in strength.

Fourth Operation.

Closure of Caecal Fistula and Appendicectomy. March 24th, 1914.—After twenty-five days the caecal fistula was closed and the vermiform appendix was removed. The separation of firm adhesions of the inactive part of the intestine prolonged this operation and the depression following it was alarming, but, after two days, progress was good until the patient was allowed out of bed three weeks later. She then immediately suffered from severe pain in the right loin and vomiting, with a rise of temperature to 105° F. and of pulse to 120. These symptoms abated after a few days, but returned at intervals. Later the temperature fell to normal and the vomiting ceased, but the loin pain became so severe and continuous that restful sleep was impossible. The patient stated that this pain was the same as that she had suffered from time to time for fifteen years, only more intense. A well-defined very tender immovable swelling gradually developed below the right costal margin, the rest of the abdomen being free from distension or tenderness. The bowels gave no trouble, and the only abnormal constituent of the urine was the *Proteus vulgaris*. The swelling was diagnosed as a distended kidney and the conditions became so serious that surgical interference was considered absolutely necessary to prevent death from exhaustion.

Fifth Operation.

Right Nephrectomy. May 12th, 1914.—On again opening the abdomen a slightly enlarged kidney, fixed in an unusually low position, was exposed. It was misshapen, the pelvis being on its anterior flat aspect instead of at the inner edge, but there was no obstruction in the pelvis. The ureter, where it lay on the pelvic brim, was thickened and fixed, and it appeared that some obstruction at this point was the cause of the kidney pain. It was deemed essential that complete relief should be given at once, and that if possible no further strain should be made on the patient's mental and physical endurance such as a renal fistula would involve. I therefore rapidly excised the right kidney after ascertaining that the left was normal to palpation. This was the shortest operation of those performed by me on this patient, and although the pulse became quick and feeble, she soon rallied. The cut end of the ureter was fixed to the skin between the lips of the incision, and seemed to be a source of infection, union being delayed until some sutures came away. The patient never had any of the old pain in her loin after this operation, and her whole condition at once improved.

Sixth Operation.

Closure of Fistula in Small Intestine. January 1st, 1915.—The fistula made at the second operation, February 8th, 1914, with the blind piece of small intestine above it, was excised, and the bowel below was closed, the abdominal wall being carefully repaired. The wound healed by first intention, and at this time there was no bulging of any of the incisions. The latest report (June 27th, 1915) is that, except for an occasional pain in the back, the patient's health is good, and her bowels give little or no trouble.

It seems to me that in this case there was a very old difficulty in the passage of urine through the right ureter, near the pelvic brim. The abnormal shape and fixation of the kidney could not be a cause of the symptoms, but they suggest the possibility that a congenital abnormality might exist also in the ureter. Otherwise some infection within the ureter, or in a gland close to it, was probably the cause of obstruction. The tubo-ovarian abscesses were certainly due to infection, possibly from the kidney, and their removal had no direct bearing on the history, unless

the mere opening and manipulation of the peritonæum could induce an extension of inflammation from the ureter to the serous membrane. There seems to be no doubt that such an extension took place and caused the intestinal adhesions, the vermiform appendix being involved secondarily.

It is obvious that at the second operation a short-circuiting of the bowel would have rendered the third, fourth, and sixth operations unnecessary, and possibly the need for the nephrectomy would not have arisen, but if the adherent coils had not been separated a pus focus might have been left, and when the absence of any such condition was ascertained the patient, never strong, had become so feeble that the course adopted seemed the safest. Removal of the kidney was essential for health and comfort, so the development of the renal symptoms was not regretted after they had been successfully dealt with.

INVERSION OF THE UTERUS IN A NULLIPARA DUE TO A SUBMUCOSAL FIBROMYOMA.

BY

ROBERT B. JOHNSTON, F.R.C.S., M.R.C.P.E.,

PENRITH.

THE following case being of a somewhat unusual nature, I have thought that a short statement of it might be of interest.

On February 5th I was called at midnight to see a farmer's daughter, a nullipara aged 45. All the appearances of a recent severe hæmorrhage were present. A mass about 5 in. long, somewhat conical in shape, with a blunt apex and base towards the vagina, protruded from the vulva. Its lower part was quite smooth and pale red in colour, and its surface was shiny except in one or two places where there were linear excoriations up to about half an inch outside the vulva, where it abruptly became rough and shaggy, and almost black in colour. It was here covered with dark blood which slowly oozed from its surface, and was tightly constricted at the vaginal orifice. The bed and the patient's clothes were saturated with blood, as in an abortion. The pulse was 120, rather small, but steady; temperature 97°; respirations normal. The patient sweated, and was evidently suffering from shock. Thinking at first that it might be a cervical polypus protruding from the vagina and commencing to slough, I was, however, assured that nothing had projected externally until about one hour before I was summoned. On closer examination I discovered that the protruding mass was a sessile polypus attached to and occupying the whole fundus uteri, and that it had caused a complete inversion of the uterus. The dark, rough, shaggy mass was the fundus in a state of strangulation caused by the narrow vulval orifice, and I could distinguish the dimples indicating the uterine openings of the Fallopian tubes on each side, just inside the vagina. I had received no information as to the nature of the case I was called to see, so that I had no chloroform at hand; but as, fortunately, I had taken my surgical accident bag, I was provided with antiseptics. The patient's condition was very serious, so I decided to try to reduce the mass without an anaesthetic. I carefully cleansed the surrounding parts and the tumour, and grasped the fundus, which was hard and firm, close up to the vagina with my right hand, and then kept up a steady pressure, as in the reduction of a hernia, for about ten minutes, when I became sensible of a softening in its consistency. Maintaining this pressure, I now began to push the mass steadily inwards and slightly upwards until the whole fundus passed inside the vagina. The vulval orifice being so small, I could no longer keep up the pressure on the uterus, so I pressed the fibroid. When the apex of the tumour had reached the orifice, the whole mass suddenly reduced itself, and nothing could be felt in the vagina but the cervix uteri, with an external os which would just admit the tip of the index finger, and with nothing protruding. The whole process of reduction took only twenty minutes. The uterus could now be defined enlarged, as in the third month of pregnancy, and retracted. The fundus, normal in its rounded contour, showed no signs of dimpling. I cleansed the vagina as well as I could under the circumstances, and gave the

patient one-sixth of a grain of heroin hypodermically. As no hæmorrhage or pain ensued I was able to leave her one hour later. The subsequent history was uneventful; the temperature rose to 99° next day, and then fell gradually to normal; the pulse also by the second day fell to 80. On the third day an enema was given with a good result and no untoward symptoms. There has since only been a slight show daily, with no pain.

The history of the case is as follows: Until Christmas, 1914, the patient, who is a strong, healthy single woman, inclined to stoutness, and engaged in farm work, had noticed nothing unusual. After Christmas, however, she suddenly began to have occasional rather severe losses at the periods, with more or less metrorrhagia, but no pain. These symptoms were ascribed to the coming of the menopause. At 4 p.m. on February 5th, after a particularly heavy day's work, pains in the back, with some bleeding, set in, which gradually became more severe, and extended all round, somewhat as in labour. At about 7 p.m. the patient first felt that something occupied the vagina. She did not like to say anything, however, but went to bed, and fell asleep for nearly two hours, when the pains became most intense, and the mass suddenly issued from the vagina, and then I was sent for, four miles from her home.

The unusual feature of this case is the inversion of the uterus in a nulliparous woman—a condition which is rarely mentioned in textbooks, and was no doubt produced by the efforts of the uterus to expel the polypus as a foreign body. Owing to its close attachment to the fundus, the tumour gradually produced a dimpling, this process extending *propter hoc et post hoc* until the uterus was completely inverted. I may add that I was rather surprised at the fairly easy way in which it was reduced, and at the quick and steady recovery from what must have been a severe shock, not to speak of the risk of uterine infection. I would also say that the patient, who dreads operation, so far cannot make up her mind to submit to the necessary surgical treatment for her cure.

ACUTE SEPTIC MENINGITIS DUE TO B. COLI FOLLOWING SKULL WOUND.

By C. E. H. MILNER, M.R.C.S., L.R.C.P.,

LIEUTENANT R.A.M.C.(T.).

THE following case has recently come under my care at the 4th London General Hospital, and in view of one or two unusual features in its etiology and progress I have thought it worth while to place it on record.

Lieutenant R. W. was wounded in the head on May 5th by splinters of a high explosive shell, and sustained a compound fracture of the right parietal bone. Three days later he was trephined in France. Fragments of broken bone were elevated and removed, the original skull wound was enlarged, and the dura opened and drained. He was placed on the danger list and his friends telegraphed for, and it is largely thanks to the accurate observations made by his brother, who went at once to Boulogne, that I have been able to piece together a continuous history.

With a single relapse on May 21st, when he was very drowsy all day and his temperature rose to 100° F., he recovered gradually, until on June 1st he was well enough to be brought to England. On admission to the 4th London General Hospital on June 2nd he had a narrow, horizontal, nearly healed wound 3 in. long, situated 1 in. above the right ear, and overlying a larger trephine wound measuring 3 in. by 1½ in., from which a slight amount of cerebrospinal fluid was escaping. He complained of some headache, which was attributed to the journey by sea and by train. Except for slight weakness of the muscles of the left side of the face (a symptom which had been present from the outset) all the motor functions were normal; the deep reflexes normal to brisk, and both plantar flexion. The optic discs were normal and the temperature 99.8° F. It fell at night to 98.6° F.

At 4 next morning he complained of violent headache, and the temperature had risen to 103° F. There was no rigidity of neck or back muscles; Kernig's sign was absent, and there was still a complete absence of localizing neurological symptoms. Lumbar puncture was performed,

and the cerebro-spinal fluid found to be under slightly increased pressure. Cytological and bacteriological examinations were carried out, with the following results:

There were 3,760 cells per cubic millimetre, of which 70 per cent. were polymorphonuclear leucocytes; colonies of pure *B. coli* were isolated, from which a vaccine was prepared. Urotropine, which had been administered from the outset in doses of 10 grains three times a day, was now increased to 20 grains every four hours.

For three days the temperature remained high, ranging from 101.2 to 103.2 F. But clinically the symptoms—more particularly the headaches—were greatly relieved by the lumbar puncture. The patient was never unconscious, though cerebration was markedly slow; beyond some venous engorgement there was no abnormality in the optic discs.

Autogenous vaccine was given on June 5th and June 7th, in doses of 12½ and 25 million. On June 8th the temperature fell in the morning to 98.2 F. for the first time. Since that date the improvement has been maintained without interruption, and the patient is now in every respect normal.

CONGENITAL HEREDITARY ABSENCE OF SOME OF THE DIGITAL PHALANXES.

BY

D. S. CLARKE, B.A., M.B., Ch.B., R.U.I.,

RESIDENT HOUSE-SURGEON, BAGTHORPE MILITARY HOSPITAL; LATE SENIOR RESIDENT MEDICAL OFFICER, BAGTHORPE INFIRMARY, NOTTINGHAM.

The following observations are taken from a patient who was confined some weeks ago with her third child at the Bagthorpe Infirmary.

The abnormality affects both hands. There is an absence of the proximal and distal interphalangeal joints of the little and ring fingers, and of the distal interphalangeal joints of the index and middle fingers, as shown by the photograph taken of both hands. The tips of the affected fingers are rounded off, without any indication of a nail, excepting a minute vestige on the left index finger. The thumb of each hand is quite normal in appearance. The patient has no difficulty in performing the ordinary movements of the hands, but complains of inability to knit. The accompanying drawings from radiograms taken by myself illustrate the condition described below. The larger represents the mother's hands, the smaller those of her third child. As is seen, the middle and terminal phalanges are absent in both the little and ring fingers.

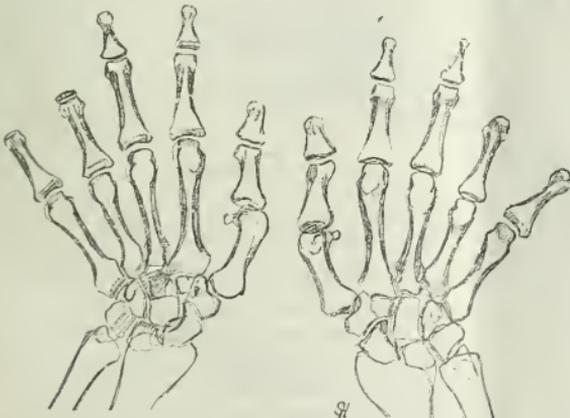


Fig. 1.—Drawing from radiogram of mother's hands.

In the index and middle fingers, the middle phalanx is seen to be absent, and not the terminal phalanx, as might be expected from the appearance of the hand. The patient states that her grandmother was similarly affected, as were also her mother, brother, uncle, and two cousins.

The geneological table is as follows:



The abnormality seems to affect the first two born in each family, irrespective of the sex, and is present at birth.



Fig. 2.—Sketch of mother's hands.

In the case of the above patient her third child (boy), although not by the same father, was similarly affected,

as is shown in the accompanying drawing (Fig. 3). In addition to the deformity of the hands there is a peculiar malformation of the child's penis. I cannot ascertain whether any deformity of the penis was present in any of the other male children. The prepuce is unusually long, but the frenum is imperfectly developed. The glans is quite normal, but the terminal opening of the urethra is not quite central, lying nearer the corona glandis than usual.



Fig. 3.—Drawing from radiogram of child's hand.

On efforts of the child at micturition the prepuce in its lower part becomes distended, almost exceeding in size a grape, and by compressing this distended portion the urine could be expelled in a fine stream, the ballooned portion thus acting as a reservoir.

A fine catheter, if directed forwards, could be made to enter the urethra, whilst if directed downwards and forwards it would be passed into the cul-de-sac above described, thus indicating that the floor of the urethra was incomplete in its terminal portion (partial hypospadias), although to all external appearances it looked quite normal.

In order to stimulate the invention of methods for using alcohol for commercial purposes the Russian Government has resolved to offer for international competition a series of prizes amounting altogether to £67,500. The highest prizes (four ranging from £7,500 to £2,000) will be given for devices to utilize alcohol for internal combustion engines. Other prizes, ranging from £6,000 to £500, will be given for methods of using alcohol for lighting, heating, and in the preparation of various materials useful in industry.

At the annual meeting of the American Medical Association, held in June at Rochester, Minnesota, it was decided that the next session should be held in Washington in 1916. Dr. Robert G. Leconte, of Philadelphia, was elected president.

Memoranda :

MEDICAL, SURGICAL, OBSTETRICAL.

TREATMENT OF LYMPHO-SARCOMA BY SALVARSAN AND GALYL.

I SHOULD like to point out that, besides their undoubted value in the treatment of syphilis, I have found these drugs to be at least efficacious, if not wholly curative, in two cases of lympho-sarcoma. Both were of speedy recurrence after a second excision of glands.

The first case, a young Norwegian sailor, after weekly intravenous injections of neo-salvarsan, refused to submit to further treatment, and left the hospital apparently cured. He worked on board ships for at least eight months afterwards, and was then lost sight of.

The second case is still under treatment with galyl.* He shows no sign of further recurrence, and is very markedly improved in general health.

These are the only cases of lympho-sarcoma I have met with during my tenancy of the post of medical superintendent of this hospital, but their temporary, if not permanently, successful treatment with salvarsan products justifies me, I hope, in appealing to the members of the profession to give these drugs a trial in similar cases.

JOHN HARTIGAN,

Medical Superintendent, Royal Hemarad Seamen's Hospital, Cardiff.

HERPES ZOSTER OPHTHALMICUS AFTER SNAKE BITE.

ON April 1st at 7.30 p.m. I was called to see a woman, aged 54, suffering from violent pains in the right eye. On March 15th she had been bitten in the left hand by a snake, here called *uruth*, and half an hour afterwards she became giddy, though only for a short time, and within three hours a hypodermic injection of antiofphidic serum was administered. It was prepared in the Butantan Institute of this country—S. Paulo State, Brazil. Probably in consequence of this injection, there was no other manifestation of the poisoning besides the giddiness already referred to and some inflammation of the whole left arm. She appeared to be convalescent until she began to feel, on March 29th, a very strong pain in the right eye, which spread to the forehead, the head, and the upper gum of the same side. An eruption accompanied by fever developed all over the parts just mentioned. She could not sleep on account of the pain, and as the right eye became greatly swollen she came up to this town for advice from an oculist. This necessitated a ride from her farm lasting three hours before she reached the nearest railway station.

I found her lying down on her back, crying out and complaining of violent pain in the right side of the head and face. The right eye was very much swollen. I saw that there was intense chemosis of the conjunctiva, but no corneal lesion. Numerous vesicles, varying in size and more or less confluent, covered the right side of the head, the forehead, the temple, the integuments around the eye and the cheek down to the corner of the mouth. I detected a few vesicles on the upper gum, which was toothless, and the right half of the palate. The preauricular gland was swollen and painful, and all over the head, specially on its right half, there was an almost continuous and profuse perspiration. Temperature 38° C. As the pain was the most conspicuous and troublesome symptom, I prescribed:

Phenacetin) ãã gr. iv
Salophen) gr. ½
Caffeine) gr. ½

Make into a capsule; one to be taken every two hours.

As an external application I ordered:

Lassar's paste 3j
Icthyol gr. xxv

On the following day the pains were less severe. The patient had been able to sleep for some hours, but complained of general weakness. Appearances were unaltered; temperature 37°. I prescribed calomel with rhubarb, and instead of the capsules of phenacetin, salophen, and

* Galyl can be obtained in this country from Messrs. Roberts, 76, New Bond Street, London.

caffeine, I directed her to take the following mixture as a cholagogue and diuretic:

Sodium salicylate	...	...	gr. xxxij
Sodium bicarbonate	...	...	gr. lxxj
Potassium acetate	...	...	gr. lxxj
Potassium nitrate	...	...	gr. xxxiij
Syrupus maydis stigm.	...	...	3i
Aq. dest.	...	...	3iv

One tablespoonful every two hours.

In the afternoon her temperature again reached 38° C., but the pains abated so much that she slept well during the day. The disease then ran the ordinary course of herpes zoster. The temperature fell to normal, the vesicles burst and dried up, the perspiration on the head gradually ceased, the chemosis of the conjunctiva subsided and the pains did not return.

This case is interesting:

1. On account of the intensity of the eruption and its extension over the right side of the face and head, as above described.

2. On account of the intense pain inside the mouth, which, I must add, was accompanied by profuse salivation. This pain prevented the patient from taking anything but liquids.

3. On account of the abundant, yet quite local, perspiration, so profuse that it kept the pillows constantly wet, specially at night.

4. On account of the fact that this attack of herpes appeared fourteen days after the bite of a snake, treated by an injection of antiofphidic serum. This circumstance is noteworthy, because the etiology of herpes zoster ophthalmicus is not yet well established, and the case favours the theory that this disease depends on some toxic agent. Physicians who practise in countries where snake bites are common may be able to inform us if they have observed the complication here reported.

The good effect of the combined anodynes in this case is worthy of note, as is also the fact that the pains subsided much sooner over the external parts where Lassar's paste with ichthyol could be applied than in the mouth.

CASSIO DE REZENDE, M.D.

Guareatinguá, S. Paulo, Brazil.

COMPLETE INVERSION OF THE UTERUS.

WHEN in a large general practice in the country I had one case of complete inversion. I found the woman on her side completely exsanguinated, the uterus wholly outside on the bed, and the placenta closely and wholly attached. The nurse said she had pulled it "like that." I peeled off the placenta, which was more adherent than usual, and slowly pushed the uterus back into position, but its substance was so very flaccid that the dome of the fundus kept falling on the supporting fingers. I now poured cold water from jugs on the abdomen; the uterine tone returned, the uterus contracted, and the patient made a slow but uncomplicated recovery.

London, N.W.

EDMUND HOLLAND, M.D., F.R.C.S.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

B.D. PETIT PARSİ GENERAL HOSPITAL, BOMBAY.

SARCOMA OF THE PROSTATE.

(By B. P. SABAWALA, F.R.C.S. Edin., Surgeon to the Hospital.)

SARCOMA of the prostate is rare. Bland-Sutton has seen only one such case, and says that only thirty-four more are on record.

P. N. M., a Parsi lad, aged 17, was admitted on July 24th, 1914, complaining of pain in the back and painful and frequent micturition. The flow at times stopped suddenly, and pressure on the hypogastrum caused a little more to be passed. The day before I saw him the passage of a catheter had been followed by hæmorrhage

† *Tumours, Innocent and Malignant*. By Sir John Bland-Sutton. Fifth edition.

lasting for twenty-four hours. He said he had occasional rises of temperature.

The hypogastrium was filled with a tumour, firm, tender, and dull on percussion. It extended to within an inch of the umbilicus, projecting more in the left iliac fossa than in the right (Fig. 1). A lump was felt in the left inguinal canal, but it could not be separated from the main tumour.

On rectal examination a rounded mass was felt in the region of the prostate about the size of a cricket ball, firm, and extending towards the left iliac fossa. On the right side it could be separated from the pelvic bones. Its upper boundary could not be reached by the examining finger. The kidneys could not be palpated. There was tenderness on deep pressure in the left kidney region. On July 25th it was noted that 40 oz. of urine were passed during twenty-four hours. The maximum quantity passed at one time was 5 oz. Usually about 2 oz. came away.

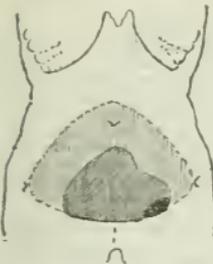


Fig. 1.

My diagnosis was sarcoma either of the bladder or the prostate. Various suggestions were made by my colleagues who saw the case. The von Pirquet reaction was negative. The blood examination was as follows:

Red blood cells	...	3,100,000
White blood cells	...	15,000
Polymorphonuclears	...	50 per cent.
Large mononuclears	...	1
Small mononuclears	...	19 "
Parasites	...	None

No organisms were found in the urine, which was acid in reaction, and no albumin or sugar was detected. Examination by x rays showed no shadow. The pelvic bones were normal.

On July 31st an exploratory laparotomy was done. An incision was made to the right of the mid-line and was finally extended to about 8 in. In the subcutaneous tissue we came upon a bluish mass, about the size of a shilling, which turned out to be an angioma. On opening the peritoneum a tumour was seen arising from the pelvis, which had pushed up the reflection of that membrane from the bladder to the anterior abdominal wall (Fig. 2). The omentum was adherent to the top of the mass, which extended to a little above the umbilicus. On the left side the tumour completely filled the pelvic cavity. Posteriorly there was some space between it and the sacrum. On the right the fingers could be pushed to some distance down the pelvis. The intestines were adherent everywhere, except anteriorly. The bladder was found flattened and stretched on the anterior surface of the tumour (Fig. 2). The other abdominal viscera were palpated, but no secondary deposits were found. An attempt to pass a gum-elastic catheter into the bladder failed. Urine, however, came away on pressing upon the anterior surface of the tumour, which felt soft and fluctuating. The abdominal wall was stitched up with silk in layers.

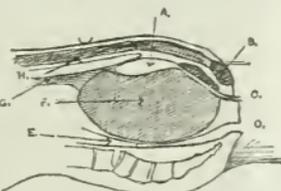


Fig. 2.—A, bladder; B, symphysis; C, urethra; D, anus; E, rectum; F, tumour; G, omentum; H, peritoneum.

On August 3rd the left parotid was greatly inflamed and the temperature was 101.2°. On August 7th most of the stitches were removed, the wound was healed, and the parotitis much better. The patient complained of tingling and numbness in the left foot and leg. He passed a round worm. Calomel and santonin were given, but no more worms came away. On August 10th the temperature was 101.6°, the parotitis had quite subsided; lungs, heart, liver, spleen were normal, and all stitches were removed. The

wound was soundly healed. The tumour had enlarged towards the left iliac fossa, and was firmer.

On August 21st puffiness of the eyelids and the cheeks were noticed. The parotid regions were normal. There was no pitting on pressure. On August 23rd the patient vomited after food, the puffiness of the face had increased, but was still limited as before. There was oedema of the left foot and ankle. About 10 oz. of urine had been passed in the last twenty-four hours; it contained albumin. The voice was husky. The temperature was 98.4°.

The patient was removed from the hospital by his parents on August 24th. The tumour had much enlarged since his admission so that it filled both iliac regions and reached up to midway between the umbilicus and the ensiform cartilage.

The subsequent history I gathered as follows: He was taken to another hospital, and the surgeon in charge also diagnosed rapidly-growing sarcoma of prostate. The patient died three or four days later. Among Parsis *post-mortem* examination is not allowed.

In conclusion, I must thank my colleagues, especially Dr. Baria, for the consultations and his valuable help at the operation, as also my house-surgeon, Dr. Engineer, for his unremitting care of the patient and the detailed notes he kept of the case.

Reviews.

SPRUЕ.

SPRUЕ is a very interesting though obscure disease, and the London School of Tropical Medicine, recognizing this, sent out one of its pupils to Ceylon to investigate the subject in detail. A report on these studies is now published by Dr. BAHR.¹ With its bibliography and appendices, it contains much useful and carefully collected information about the disease as it occurs in Ceylon. Anything that will throw light upon the etiology of this disease is valuable. Of the many different theories that have been advanced from time to time one is that of Kohlbrugge, which suggests that the disease may be in some way connected with certain yeasts; of these *Monilia albicans* is the most widely known, and the author of the present report seems to lean towards the view that it is important in the etiology of the disease. Other observers point out that yeasts are very common in stools generally, even in temperate climates, and that it is very possible that their superabundance in sprue only means that they have found a suitable site in which to multiply and grow in profusion. However that may be, more work based upon this suggestion will not be out of place.

The morbid anatomy of the disease is well dealt with in the report; the belief that the changes in sprue are due to a destruction of the villi and a loss of surface epithelium has lately been questioned by Faber and Justi, and the author agrees with them that some of the changes are due to *post-mortem* degeneration and decomposition, which is specially rapid in a tropical climate. It is right to point out, however, that *post-mortem* examinations made of persons dying of sprue in England in cold weather have shown an atrophic condition of the bowel with patches of denudation of the epithelium and mucosa. In other cases examined in the same manner the intestines have not shown such changes as was to be expected if they are really due to *post-mortem* decomposition. In Dr. Bahr's own diagram facing page 70 the atrophy and disappearance of the villi is very well seen, as is also the small-celled infiltration. The surface epithelium looks as if it were denuded in places, and one can readily appreciate that if the degeneration and inflammation of the mucous membrane went further this layer would disappear. The most important conclusions of the report are that sprue is a specific disease of tropical and subtropical countries, and that it is prevalent in Ceylon and also occurs amongst the natives; this fact, together with the occurrence of the disease in people closely associated with one another, suggests a communication of the specific cause from man to man. The pathological findings suggest an alimentary toxæmia, and rather point to an

¹ A Report on Researches on Sprue in Ceylon, 1912-1914. By P. H. Bahr, M.A., M.D., D.T.M. and H. Cantab., and M.R.C.P. Lond., M.R.C.S. Cambridge: The University Press. 121s. (Sup. royal 8vo, pp. 163, 7s. 6d. net.)

infection with the thrush fungus. Apart from the presence of yeasts no parasites, protozoal or other, were discovered. Though such have not been found at the present moment some new germ may eventually be discovered to be the cause of the disease. Castellani, it will be remembered, has described a chlamydozoon-like body from the tongue epithelium of a case of spruce, and this interesting observation should be followed up. According to Dr. Balz these bodies had disappeared from the case some time later, but this only points to the importance of examining the cases at the beginning of the disease. Castellani has also described a dysentery bacillus associated with spruce, and here again careful and extended observations into the realm of bacteriology might help.

The report is well illustrated and has some coloured plates, one, showing the different spruce tongues, being specially worthy of notice. As already stated, the report contains much useful information, and certainly shows evidence of very careful and hard work. It should prove useful, especially to those who in the future attempt to unravel the mysteries of the etiology of the disease. The London School of Tropical Medicine is to be congratulated on the energy shown in having this important research carried out.

RECTUM AND COLON.

It must be assumed that the author of *Diseases of the Rectum and Pelvic Colon*,² Dr. MARTIN L. BODKIN, of New York, desired either to place his views on the subject before his professional brethren or to write a textbook for the guidance of practitioners and students. He has succeeded, however, only in producing a book which is a puzzle to the reader and an embarrassment to the reviewer. It is not only that many stylistic errors occur in its pages, but the author's meaning is often obscure and sometimes unintelligible, his statements inaccurate, and his accounts of treatment usually catalogues of alternatives. After a chapter on anatomy the author writes on "general examination." He refers to mistakes in rectal therapeutics, and remarks, "this criticism is more severe when the surgeon premeditatedly presumes to treat these cases in an ignorant manner." He states that he not infrequently receives a patient from some professional friend who has "carelessly summarized a rectal condition," and proceeds, "this criticism does not apply to cases presenting themselves for the treatment of a complicated fistula, . . . but it should include the knowledge that the patient is suffering from a rectal disease." The meaning is just intelligible, but obviously a criticism of the author's can hardly include knowledge on the part of some one else. Another example of the same kind of diction occurs later in the same chapter. The writer is speaking on anaesthesia, and says: "When we consider that laboratory investigations have shown conclusively that chloroform and ether impair phagocytosis and produce anaemia, rectal operations, which certainly are more liable to infection, require the best effort in this direction." The chapter following is on the examination of the faeces. The second paragraph is as follows: "Microscopic examination of the faeces ordinarily reveals the digestive residue germs and other elements gathered as the mass travels through the intestinal tract, or there may be present foreign bodies which have been swallowed in the form of fruit pits (*sic*), coins, buttons, etc." The microscopic button is unknown to us. A little further on we read: "Parasites are easily recognized in the stool by the naked eye, as they are common constituents of the intestinal canal," and later we are told that on microscopic examination "fatty acids and soaps may be seen in large amounts." As to the diagnostic value of faecal examination, we are told "intussusception of the sigmoid or complete prolapse of the rectum are diagnosed by local examination independently of the discharges, which are due to traumatism rather than any bacterial factor." Here we fail entirely to penetrate the meaning, and also when we are informed, in regard to typhoid fever, that "the danger of infection to the examiner is unwarranted because of the simple methods now in vogue." Further examples of the author's style are as follows: "Pruritus ani may be confused with marginal eczema (ringworm), and when suspected a microscopic examination will affirm the diagnosis by

finding the fungus (trichophyton)." In dynamic (*sic*) nervous conditions "the relaxed and inactive sphincters may allow the escape of the bowel contents, but by its inactivity, associated with the loss of sensation in the rectum, permit the faeces to mass themselves, causing an impaction." In the practical chapters the writer shows evidence of having read diffusely on the subject of rectal disease, but the want of arrangement and classification and his ineffectual methods of expression make it impossible to recommend the volume.

PHYSICAL CHEMISTRY.

THE unadorned title, *Molecular Association*, will, in all probability, frighten away the unscientific public from Dr. TURNER'S monograph;³ but if the work should by any chance fall into their hands, one can imagine what a crucible of gentle mockery will be prepared for such a term as amidobenzophenoneoxime, or methoxybenzene-azophenol; or, most fearsome of all, a certain bromide which runs almost twice through the alphabet before reaching a conclusion. We own to the feeling that this fretful terminology and its associated symbolism are mere disguises or elaborate pieces of bluff, assumed to hinder us from finding out how very much akin to the romantic poets these physical chemists are. The alarming syllables are only the barbed wire around an Aladdin's palace. Indeed, as we study this work with something of the strenuous patience which is its due, the simile of architecture constantly recurs to us. The molecules are the stones in the temple of matter, and this fundamental investigation concerns the building and unbuilding which proceeds among them according to the nature of their constituent atoms, and to the forces acting upon them from without. This is one of the places where chemistry and physics, so sharply distinguished twenty years ago, now become convergent, and chemical action has something to teach the physicist who is concerned with molecular association. The formation of molecules of so many substances into aggregates is very similar in some respects to chemical combination; intramolecular attraction takes place in both phenomena, but in the one case the attraction is between like molecules, and in the other between unlike. The author suggests, without carrying the idea any further, that the forces which cause molecules to associate may be electrical as distinct from chemical in origin. That is the speculative vista which he opens out in his concluding sentence. Perhaps it is inevitable that such a work as this should leave a ragged edge, and it begins equally abruptly, taking for granted in the reader more than a moderate degree of chemical knowledge. The author discusses molecular association in gases and liquids, and touches briefly upon solids, although very little is yet known about the behaviour of the molecules in this third state of aggregation. Another hiatus is the absence of any adequate means of making quantitative determinations of molecular sizes in the liquid state. It is easy enough to detect the association of molecules, but, so far as methods of measurement are concerned, some great reconciling principle seems to be needed. A most valuable feature of the book is a table containing a summary up to date of the molecular complexity of over twenty groups of dissolved substances, with their concentrations in various solvents. According to this table, the class of organic compounds in which the highest degree of molecular aggregation is reached is the alcohols; then follow amides, carboxylic acids, oximes, and anilides. Strong association has also been found in the case of all true salts. The advanced student of chemistry, whether reading for a degree or proposing to undertake research, should find this summarized account of recent progress most useful.

THERAPEUTICS.

THE second edition of HOLT'S *Practical Therapeutics*⁴ gives a clear picture of current American practice in the administration of drugs. It is concisely written; the first half consists of thirty chapters, in which the various classes of drugs are considered in accordance with their main or reputed actions. In the second half of the book

² *Molecular Association*. By W. F. S. Turner. D.Sc. Lond., M.Sc. Birm. Monographs on Inorganic and Physical Chemistry. Edited by Alexander Findlay, M.A., D.Sc. London: Longmans, Green and Co. 1915. (Post 8vo, pp. 178; 5 diagrams. 5s. net.)

⁴ *Practical Therapeutics*. By D. M. Hoyt, M.D. Second edition, revised and rewritten. London: H. Kimpton. Glasgow: A. Stevenson. 1914. (Med. 8vo, pp. 426; 16 figures. 21s. net.)

³ *Diseases of the Rectum and Pelvic Colon*. By M. L. Bodkin, M.D., of New York. New York: E. B. Treat and Co. 1913. (Demy 8vo, pp. 416; 90 figures. 3.60 dollars.)

is a long and useful list of the chief new and non-official remedies, an index of drugs presenting the matter of the first half of the book in a concentrated form, and a general index. The work offers a brief summary of the physiological actions of drugs, with particular emphasis on their clinical applications and on the limitations of their employment. It lays no claim to encyclopedic completeness, and it should appeal to the practitioner rather than the student of medicine.

The issue of a new edition of the *British Pharmacopœia* has rendered necessary the adaptation of RAHMALDAS GHOSH's well known *Treatise on Materia Medica and Therapeutics*⁵ to the alterations ordained by the official publication. The new edition—the sixth—has been prepared by Lieutenant-Colonel B. H. DEARE, of the Indian Medical Service, with the assistance of the author's son, B. N. GHOSH, F.R.F.P.S. Glasg. The book has undergone a thorough revision. By judicious omissions, mostly of non-official preparations, its size has been reduced by forty-four pages. Necessary additions have been made, and portions have been rewritten in order to bring the volume up to date. The chapters on serum and vaccine therapy have been revised by Major E. Greig, C.I.E., of the Indian Medical Service. The chapter on organo-therapy has been amplified, and useful appendices have been added, indicating "alternative preparations sanctioned for use in tropical, subtropical, and other parts of the British Empire," and "additions and omissions in the present edition of the *British Pharmacopœia*" as compared with its predecessor. While the scheme and contents of the volume, which have met with such warm acceptance, have been preserved, an important change has been made by arranging the articles of the materia medica under classes founded on chemical, physiological, and therapeutical characters. This is an important step towards a more scientific classification than a mere alphabetical arrangement. Difficulties arising from the same drug entering into different classes as fulfilling various indications are met by cross-references and a copious, carefully prepared index. Another useful change consists in adding the doses of drugs according to the metric system. In addition to information regarding the physiological and therapeutic action of medicines, the poisonous effects of overdoses, their symptoms and treatment, are clearly displayed. Synonyms in the Indian vernaculars are given, and the more useful Indian and Colonial drugs included. This edition fully maintains the high position which the work has attained in professional estimation, and is admirably suited for use as a textbook by students and a book of reference by practitioners. It is a marvel of orderly arrangement, condensation, and scientific accuracy.

NOTES ON BOOKS.

BOOKS on flies have lately been much before the public eye. A little work by Mr. HURLSTONE HARDY, named *The Book of the Fly*,⁶ gives a considerable amount of useful information. Perhaps the most interesting chapters are those dealing with the extirpation or destruction of flies. It is said that chloride of lime is now chiefly replaced by a solution of iron sulphate—2lb. in one gallon of water—as a general fly insecticide. The advantage of this substance is that it does not deteriorate the hoar, the cultural value of stable manure. Perhaps, however, the simplest method of all is to spread out the manure in a thin layer in fine weather, thus killing off the fly maggots very quickly. All manure pits and other similar collections in towns should certainly be made fly-proof, and if this were done the breeding grounds of the insects, as far as towns themselves are concerned, would be diminished. In the country, of course, it is not so easy, and unless measures of this sort are universally adopted they are of little use. A greater cremation of refuse is certainly a desirable thing, and this could be adopted with very little trouble. Something, perhaps, might also be done with regard to the natural enemies of the flies, and Mr. Hardy has devoted a

chapter to this subject. In an appendix Wingate's Fly Chart is given, an alphabetical list of sixty families, and an analytical table of families, etc.; these will be found to be of much use. The book can be thoroughly recommended to laymen, and it should prove useful also to sanitary inspectors and others called upon to deal with the fly pest. Though so much has recently been written about flies, it is well to remember that the medical officers of health have been dealing with this subject for many years past, and much useful work has already been achieved.

In *Typical Flies: a Photographic Atlas of Diptera, including Aphaniptera*,⁷ Mr. E. K. PEARCE approaches the subject from a new point of view. As he says in his preface, his work is chiefly a picture book—pictures, he believes, appealing more to the eye than many pages of letterpress. After his preface, then, he gives Brauer's classification of the diptera, marking the species that are illustrated in his work by an asterisk, and passes direct to the photographic representations of the different flies. Some of these are excellent, while others are indifferent, lacking clearness in definition. A short description is printed below each figure, so that the reader is able to appreciate the habits and breeding places of the insect. The work should prove useful to naturalists and others interested in British diptera.

The House-fly, a Slayer of Men,⁸ by F. W. FITZSIMONS, Director of the Port Elizabeth Museum, gives a very good description of the life-history and habits of *Musca domestica*, the common house-fly. The dangers of flies have been insisted upon for some years, and the time has come when something should be attempted to diminish their numbers. A perusal of Mr. Fitzsimons's book, especially chapters viii and ix, will indicate to those not conversant with the subject how this can be accomplished. Many methods are dealt with and some ingenious traps are also described. The little manual is very clearly written, and it should do much to educate the public in this elementary branch of sanitation.

Another book, *Fighting the Fly Pest*,⁹ is well described as a popular and practical handbook. It is written by Mr. C. F. PLOWMAN and Dr. W. F. DEARDEN, and has an introduction by Dr. A. E. SHIPLEY. After chapters on the public health aspects, on the habits of the fly, and the dangers it entails, preventive and remedial measures are described. In the last chapter is related a British experiment which seems to promise well. There are some excellent practical illustrations.

An interesting series of lectures for young men, by well known members of the medical profession, has been published in a small book entitled *How to Keep Fit*.¹⁰ Taken as a whole the book is so good that it is strongly to be recommended to the attention of young men of all classes. As might be expected, considerable stress is laid on the ethical and religious aspect of matters, but this does not impair the vigour and instructiveness of the lectures. Mr. Eccles leads off with a lecture on alcohol. The arguments against it are sufficiently good (we should have thought) to make unnecessary an appeal to its action on plants, whose anabolic and catabolic processes differ so materially from those of animals. Dr. Burnet deals well with the subject of diet; Sir Dyce Duckworth with cleanliness; Sir Douglas Powell with the value of discipline. Perhaps the two best lectures are those of Sir George Savage, "A sound mind in a sound body," wherein he exhibits a penetrative philosophy of life, as well as of medicine; and that of Mr. James Cantlie, wherein he breezily criticizes our common habits of dress and instructs us how to clothe children and boys. The book ends with a lecture on "Chastity"—always difficult to treat—by Sir F. Champeys. It is well done and the facts are soundly presented, though the lecture has a more highly religious flavour than would suit some readers. It must, however, be admitted that it is unlikely that a sound sexual ethic can prevail in communities where religion is at a discount.

¹ *Typical Flies: a Photographic Atlas of Diptera, including Aphaniptera*. By E. K. Pearce. Cambridge: The University Press, 1915. (Sup. roy. 8vo, pp. 55; 155 figures. 5s. net.)

² *The House-fly, a Slayer of Men*. By F. W. Fitzsimons, F.Z.S., F.R.M.S., etc. London: Longmans, Green, and Co. 1915. (Cr. 8vo, pp. 81; 24 figures. 1s. net.)

³ *Fighting the Fly Pest*. A Popular and Practical Handbook. By C. F. Plowman and W. F. Dearden, M.R.C.S. Eng., L.R.C.P. Lond., D.P.H., J.P. With an Introduction by A. E. Shipley, Sc.D., F.R.S., London: J. B. Fisher & Co., Ltd., 1915. (Cr. 8vo, pp. 135; 11 illustrations. 1s. net.)

⁴ *How to Keep Fit*. A Series of Special Lectures to Young Men Delivered at the Central Y.M.C.A., London. London: Jarrold and Sons, 1914. (Cr. 8vo, pp. 131. 1s. net.)

⁵ *A Treatise on Materia Medica and Therapeutics, including Pharmacology, Dispensary, Pharmacology, and Administration of Drugs*. By R. Ghosh, L.M.S., Cal. Univ. Edited by B. H. Deare, Lieutenant-Colonel, I.M.S., with the assistance of B. N. Ghosh, F.R.F.P.S. Glasg. Sixth edition. Calcutta: Hillon and Co. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd., 1915. (Cr. 8vo, pp. 710. 7s. 6d. or 8s. 5.)

⁶ *The Book of the Fly*. By G. Hurlstone Hardy. With an introduction by H. Ross. London: W. Heinemann, 1915. (Cr. 3vo, pp. 124; 1 plate, 6 figures. 2s. 6d. net.)

British Medical Journal.

SATURDAY, AUGUST 14TH, 1915.

THE INSURANCE ACTS COMMITTEE AND ITS WORK.

THE publication in the SUPPLEMENT of the report of the first meeting of the new Standing Insurance Acts Committee affords an opportunity for reviewing the evolution of what is probably the hardest working Committee that even the British Medical Association has ever possessed. The Committee began as the Poor Law Reform Committee, appointed in 1909 to consider the report of the Royal Commission on the Poor Law. It developed into the State Sickness Insurance Committee in 1911, when it commenced the discussion of the principles underlying all systems of insurance against sickness. It collected the views of the profession as to the essentials which any system must embody if a prima facie case was to be made out for its acceptance by the medical profession. When the Insurance Act was under consideration it became the Insurance Act Committee, and to it was entrusted the arduous and thankless task of ascertaining the minimum requirements of the profession. It went through a period, in 1913, of laborious, continuous, and anxious toil under a heavy fire of criticism, which would have broken the spirit of any body less inured to that kind of thing. It got into its stride in 1914 and settled down to steady work for the protection of the interests of that very large section of the profession which, for good or ill, is now an essential part of the machinery of the State Insurance system. Towards the end of that year and at the beginning of this, it grappled with the problem how to co-ordinate the efforts of the Association centrally with the work of the statutory committees set up for the local medical administrative work of the Act, and established itself as the central body to which these local committees might properly look for that unifying influence which is essential. All this time it had been a special Committee elected by the Representative Body from year to year and undergoing from time to time changes in its constitution. Now it emerges as a Standing Committee established definitely under the By-laws of the Association and with a constitution which differs from other committees of the Association, inasmuch as it consists, to quite a considerable extent, of members nominated by bodies other than the Council and the Representative Body. This constitution has been reached by a series of experiments, and is worth a little study. The Committee comprises representatives of three bodies all having a strong natural interest in the working of National Sickness Insurance—the Societies of Registered Medical Women, the Society of Medical Officers of Health, and the Poor Law Medical Officers' Association. It also includes six representatives nominated by the Local Medical and Panel Committees of the kingdom, and thus brings into official and close touch with the Association those committees on whose efforts and vigilance panel practitioners must locally so much depend.

The personnel of the Committee is equally worthy of attention. Some of its members have been on the

Committee since its inception, and their experience is of the greatest assistance to their colleagues, as a proper understanding of some of the newer developments can be attained only through a knowledge of their evolution. In addition to these veteran members there are those with special experience of certain aspects of the Acts and those who have won their spurs by devoted work on local committees. It must be admitted by any candid inquirer that the Committee as now constituted is a very strong body indeed.

Its attention in the immediate future will probably be mainly devoted to strengthening the ties between itself and the local committees and to consolidating its position with the Commissioners as a body of reasonable but, if necessary, determined and pugnacious persons. No body of this kind ever built up a really useful position on pugnacity alone, but composed as it is of persons of experience and judgement and given the support of the Local Medical and Panel Committees and generally of panel practitioners, there is no doubt that its position must be exceedingly strong. Already the Commissioners have recognized it as the central medium of exchange, so to speak, between them and the local committees. It is obviously convenient for all persons concerned that there should be such a body. It remains to be seen whether the local committees are prepared to trust it to act as their central agent in such a way as to save trouble all round, and at the same time build up a strong central and peripheral organization, or whether the committees will insist—as is undoubtedly within their right if they so choose—on having all negotiations, both great and small, conducted between themselves and the Commissioners direct instead of through the Insurance Acts Committee. We believe that convenience as well as wisdom will dictate the latter course. The Committee will naturally be for some time on its trial. Its composition, however, is a guarantee that the interests of panel practitioners, as well as of the profession in general, will be well safeguarded. Its practical experience with the subject of its reference is guaranteed by the fact that of its 25 members no fewer than 17 are actually insurance practitioners themselves, 20 are secretaries, chairmen, or members of Local Medical and Panel Committees, while of the 8 who are not themselves engaged in insurance practice, all but 2 have experience of the administrative work of the Act either as members of Advisory Committees, or Local Medical, Panel, or Insurance Committees.

The profession may at any rate be assured that such a Committee is not likely to be guilty of the ignorance or malice which has instigated a circular recently sent out by a body professing specially to appeal to panel practitioners. The circular repeatedly plays on the fears of practitioners by suggesting that the Commissioners intend to spring on them at short notice fundamental alterations of the Regulations, and that the Treasury grant of 2s. 6d. per insured person has "well nigh run its appointed course." It need hardly be said that the Insurance Act Committee has already satisfied itself on these points. In a letter addressed by Sir Robert Morant to the Medical Secretary of the British Medical Association in March last the statement is specifically made that there is no intention during the war of using the power taken to alter the Regulations at eight weeks' notice, except "in order to meet any entirely unforeseen contingency that might arise. . . . Nothing of the kind has arisen, and consequently no changes of any kind have been under consideration here for adoption during

the currency of the present year." As regards the 2s. 6d. having "run its appointed course," it need only be pointed out that the 2s. 6d. was voted in the Estimates for 1915-16, and no alteration of the terms of remuneration can take effect before March of next year at the earliest. Whether or not any attempt be made at that time to revise the terms, it is quite certain that the medical profession will have ample warning through the British Medical Association. As to this the Commissioners have pledged themselves. Panel practitioners have many anxieties of an extraordinary kind at the present time, and it is nothing less than cruel that a body purporting to be founded in their special interests should set afoot this false alarm, in the hope, as it would seem, that a certain number may be frightened into its ranks. We hope that panel practitioners generally will treat this ill-timed and mischievous effusion with the contempt it deserves.

Meantime the first great task of the Standing Insurance Acts Committee of the British Medical Association will be the consideration of the entirely new conditions that will arise when the Departmental Committee on the drug tariff produces, as is shortly expected, a commercial tariff fundamentally different from that now in operation. But Local Medical and Panel Committees may rest assured that they will be kept fully informed of the position, and will be consulted in good time on this as on all other points which affect them and their constituents.

FARR'S THEORY OF EPIDEMIC FORMS.

We think that all epidemiologists will endorse Dr. Brownlee's conclusion that the letter by Dr. Farr, reproduced by him in the article which appears at p. 250 of this issue of the JOURNAL, is one of the classics of epidemiological science. The thanks of students are due to Dr. Brownlee for the labour he has undergone in tracking down the original publication.

Like so many conclusions of great importance, Farr's law seems simple enough when enunciated in general terms, for it amounts to no more than the assertion that in an epidemic there will always be a period of rise, decline, and fall. So far as the secular aspect of epidemic disease is concerned, the application of this principle was made long enough ago. The precept of ancient philosophy so well phrased by Lucretius:

Sic igitur mundi naturam totius aetas
Mtat, et ex alio terram status excipit alter,
Quod potuit, nequeat: possit, quod non tulit ante,

finds its epidemiological application in Sydenham's famous doctrine:

Quocirca 'opuari mihi fas sit, morbos certas habere periodos pro occultis illis atque adhuc incomperitis alterationibus quae ipsis terrae accidunt visceribus, pro varia scilicet ejusdem aetate ac duratione; quodque, sicuti alii morbi jam olim extiteri et vel jam ceciderunt penitus, vel aetate saltem pene confecti exolvere, et rarissime comparant (ejusmodi) sunt lepra atque alii fortasse nonnulli, ita qui nunc regnant morbi aliquando denum intercedunt, novis cedentes speciebus, de quibus nos ne minimum quidem hariolari valeamus.

We do not, however, recall any passages in the classical writings of epidemiology which apply the same reasoning to the immediate course of an epidemic, although it must have been evident that the vast majority of epidemics did in fact come to an end before all the susceptible persons exposed to risk had been attacked. Perhaps the natural tendency of man to attribute importance to the results of his own

activities may have something to do with this, but of more influence has undoubtedly been the recognition of seasonal factors. In other words, those who did not attribute the termination of an epidemic to their own efforts were generally inclined to lay stress on meteorological conditions, and consequently did not think of applying the principle of secular change to account for possible inherent modifications of the *materies morbi* during the limited period of time which forms the life-history of a single epidemic.

Had Farr merely taken this step, he would have deserved credit, but it would only have been the credit attaching to an ingenious and plausible speculation. He was, however, endowed not merely with scientific imagination but with the hardly less important gift of realizing the necessity of proofs as well as analogies, and of discerning the lines along which such proofs might be profitably sought. There have been statisticians before and since Farr's time whose mathematical knowledge was much greater than his, there have been few or none with greater ability to apply mathematical methods to the elucidation and testing of biological hypotheses.

Some few medical men have objected that Farr's law, either in its original form or as modified by Dr. Brownlee and others, amounts to a fatalistic confession of impotence in the face of zymotic disease. This objection is based upon a very superficial understanding of the law. To state, as Farr does, that "subsidence is a property of all zymotic diseases," is not to say that sanitary measures are useless; even if we went further than Farr actually did and asserted that the form of the epidemic curve was invariable, it would not follow that the scale of its ordinates could not be reduced. To argue, as perhaps we might, that the relative successes of the enemy in August, 1915, being less than those of August, 1914, therefore the Teutonic epidemic curve must shortly descend, would not be to dissuade any one from straining every nerve in the combat. The only form of sanitary enthusiasm which the work of Farr and his successors is calculated to depress is that which we are accustomed to associate with the writings of Mr. Bernard Shaw and his friends in the antivaccination and antivivisection societies, which, unhampered by any real knowledge of epidemiology, attributes all improvements in the public health to the action of some half-comprehended ritual termed "sanitation."

RESEARCH IN ANTISEPTICS.

At a very early stage of the war it was realized by all surgeons who had to attend wounded abroad or at home that a very large proportion of the wounds, including almost all extensive wounds of the extremities, were infected from a very early stage, and in many instances from the moment of their infliction. The aseptic methods by which surgery had been dominated during the previous decade were, therefore, no longer applicable save in exceptional instances, and the study of antiseptic drugs consequently assumed a new importance. Recognizing this, the Medical Research Committee established under the National Insurance Act decided, in accordance with its policy of assisting the military authorities, to subsidize such investigations, and the results are now beginning to be published.

It is an interesting fact that two distinct researches, conducted by two teams of researchers working independently, have both arrived at the conclusion that one of the most effective and innocuous antiseptics is hypochlorous acid, which, in contact with the tissues

or discharges, is decomposed, its antiseptic effect being, there is little doubt, due to the chlorine liberated in the nascent state.

Chloride of lime or chlorinated lime (bleaching powder)—a very old antiseptic and deodorizer familiar for half a century at least—is a mixture of variable composition but consists chiefly of calcium hypochlorite. It occurs in a pure solution in the *British Pharmacopœia* as liquor calcis chlorinatae. There is also a solution of sodium hypochlorite (liquor sodae chlorinatae) in the *British Pharmacopœia*; it is practically identical with eau de Labarraque, which is a common French preparation.

Eau de Javelle, which has long been a favourite preparation in France, and has been largely used by French surgeons during the present war, is made by treating chlorinated lime with excess of sodium carbonate solution. It therefore contains sodium hypochlorite and calcium carbonate. Its reaction is strongly alkaline, and, owing to its high alkalinity, it cannot be applied to the tissues unless greatly diluted.

Under the auspices of the Medical Research Committee, Professor Lorrain Smith, with the assistance of Professor Drcman of the University of Otago, Dr. Rettie, a chemical expert, and Lieutenant W. Campbell, R.A.M.C., undertook, in the pathological department of the University of Edinburgh, a research to ascertain what antiseptic preparation would best meet the special conditions which military surgeons require to be fulfilled in the present war. In a paper published in this JOURNAL three weeks ago (July 24th, p. 129) they stated that comparative tests had in their hands confirmed the conclusion previously reached by other investigators that hypochlorous acid was a most powerful antiseptic, that its action was purely local, its decomposition products being devoid of toxicity, and that it met a condition insisted upon by Sir Almoth Wright in that it induced a flow of lymph from the tissues. The ideal antiseptic for the field, they were advised, should be a dry powder which can be applied direct, not only because such a powder is more portable, but because water is often not procurable. The substance they prepared was made by rubbing up chloride of lime (commercial bleaching powder) to a fine powder, and mixing it with an equal weight of boric acid in powder. When dissolved in water, this yielded a solution containing hypochlorous acid and calcium borate and chloride. Clinical tests in over 100 cases had, it was stated, yielded very satisfactory results.

Last autumn Professor Cohen of the University of Leeds, recognizing the importance of studying antiseptics for surgical use, sketched out a plan of research, and entered into communication with a former pupil, Dr. Henry D. Dakin, Director of the Herter Laboratory, New York, who is acting as bacteriologist to the hospital and laboratory established at Compiègne—with the approval of the French War Office—by the Rockefeller Institute. The arrangement was that the substances produced by Professor Cohen in Leeds should be tested bacteriologically by Dr. Dakin in his laboratory at Compiègne, and that the most promising should be tried clinically by Dr. A. Carrel of the Rockefeller Institute, who is acting as a surgeon to the hospital. The firstfruit of this combined work was reported to the Académie des Sciences in Paris by Dr. Dakin on August 2nd.¹ In this paper he describes an antiseptic preparation, found effective in practical application at Compiègne, which seems to be practically the same as that devised and tested, both bacteriologically and

clinically, by Professor Lorrain Smith and his coadjutors in Edinburgh. The solution used at Compiègne is made by adding 200 grams of chloride of lime to 10 litres of water in which 140 grams of carbonate of soda have been dissolved. The mixture is well shaken and after half an hour the liquid is siphoned off from the precipitate of carbonate of lime and filtered through cotton. To the clear liquid thus obtained boric acid is added in quantity sufficient to render the liquid acid or neutral. The titration is made with an aqueous solution of phenolphthalein; the amount of boric acid required is generally 25 to 40 grams. A solution thus prepared having a hypochlorite concentration of less than 1 in 500,000 was found to kill staphylococci in two hours. The concentration of hypochlorite required to produce the same result in the presence of blood serum was from 1 in 1,000 to 1 in 2,500. Carrel reports that he has found this solution very efficacious in the treatment of infected wounds. They could be irrigated continuously for several days without marked irritation of the skin being produced. Bacteriological examination of the discharges from the wound showed that the solution possessed an energetic antiseptic action, and that it had also the property of dissolving necrosed tissues, and some haemostatic power.

Meanwhile Professor Cohen at Leeds, according to a scheme he had set before himself, had gone on to study a large number of other substances which might be expected to have antiseptic properties, and was sending them to Compiègne to be tested by Dakin and Carrel in the manner above explained. The Medical Research Committee gave its assistance to Professor Cohen, whose researches have recently been concerned with the examination of a long series of toluene derivatives. He has, we believe, already studied between one and two hundred, and one of these has given results in the laboratory and wards at Compiègne as to which Dakin gave some interesting details in his paper before the Académie des Sciences. He expressed the view that the antiseptic action of hypochlorites was probably due to the chlorine they contain replacing atoms of hydrogen in the protein molecules to form substances of the chloramine group; this, he pointed out, suggests the desirability of a careful study of the action of this group of substances. Most encouraging results, he says, have been obtained with sodium salts of the aromatic sulphochloramides, and in particular with derivatives of benzene and toluol.

These substances, he says, are active antiseptics of low toxicity and they can be employed in the treatment of wounds in stronger aqueous solutions than the hypochlorites. They do not dissolve necrosed tissue owing to the fact that their chlorine is already combined with nitrogen. Para-toluen-sodium-sulphochloramide in concentration below 1 in 10,000,000 kills *B. pyocyaneus* suspended in water in two hours. In the presence of horse serum the concentration must be raised to from 1 in 2,500 to 1 in 5,000 to bring about the same result. Staphylococci suspended in water are killed by solutions of the strength of 1 in 1,000,000 and in the presence of horse serum of 1 in 2,000. *B. pyocyaneus* suspended in water is killed by a solution of 1 in 100,000, and in the presence of horse serum of 1 in 1,500. Sterilization is complete in two hours. Experience has shown that a watery solution of para-toluen-sodium-sulphochloramide of the strength of 4 per cent. does not produce appreciable irritation in a wound. It is added that as these substances possess a marked haemolytic power they are not suitable for intravenous injection.

¹ La Presse médicale, August 5th, 1915.

A COMBINED ATTACK AGAINST TUBERCULOSIS IN WALES.

The independent action taken by the founders and supporters of the Welsh National Memorial to King Edward VII, to provide for the treatment and prevention of tuberculosis within the Principality, has been steadily maintained during the past three years, and the president, who is also the founder, Lieutenant-Colonel David Davies, M.P., was able to give a most encouraging account to the recent annual meeting at Llandudno, a report of which appeared in our last issue, p. 235. The third annual report, which embodies the medical report of the Medical Director, Dr. Marcus Paterson, and contributions from other medical officers of the association, contains, apart from statistics, many interesting features which call for more than passing attention.

Foremost among these must be noted the very harmonious combination of the various county, sanitary, and insurance authorities who have worked together to establish an organization which may well claim to give the lead to other antituberculosis bodies throughout the kingdom. With the single exception of Pembrokeshire, all the counties, including Monmouth, have loyally co-operated. The Pembrokeshire County Council would apparently prefer to set up a scheme of its own, but it does not seem to have materialized. Large sums of money have been contributed to the National Memorial, and various plots of land have been given by local landowners for the erection of buildings in suitable districts. Four tuberculosis hospitals have been opened up to the present time and others are projected, but existing and prospective difficulty in the matter of funds and the letting of contracts has suspended any further building ventures. In these, as in almost all hospitals, the withdrawal of so many of the medical and nursing staffs for military service has thrown an additional burden upon those who have been able to remain, but it does not appear that any curtailment of the work has been thereby involved.

In order to cope with the widely-scattered population in the mountainous districts a system of district sanatorium areas has been established; these areas are served by a central institute in each, with several visiting stations affiliated to it. The staff in each case consists of a tuberculosis physician, assisted by a specially trained sister, and the institute is provided with the necessary consulting and waiting rooms. The visiting stations are established in outlying places where they are most likely to be needed, and consist of two rooms only. The cases are there investigated in the first instance, and home conditions ascertained, the more detailed examination of suspected cases being carried out in the institute. By these means it has been found that about 1 per cent. of the total population of Wales has been examined, and of these about 25 per cent. have been found to stand in need of treatment or supervision.

Apart from the purely medical aspect of the campaign, a great deal of attention has been paid to the educational side of the question. The council of the association has determined that "the men and women of the future shall be freer from the scourge of tuberculosis than their predecessors," and vigorous action is being taken to instil the cardinal rules of hygiene into the minds of the rising generation in Wales. Much has been achieved, but it is obvious that much more remains to be done if the comparatively high percentage of tuberculosis, especially in the less accessible parts of the country, is to be dealt with adequately. A pleasant feature of the whole

scheme is the cordial support given to it by the general practitioners, both in town and country districts. While aiding in the discovery and treatment of tuberculous patients they have themselves derived no little assistance from the special skill and knowledge of the tuberculosis physicians.

The need for more appropriate accommodation for dealing with surgical tuberculosis is fully recognized, and is being provided at Glan Ely, near Cardiff, for the southern part of Wales, and at Llangywyfan, near Denbigh, for the northern. The former is a separate institution, while in the latter the surgical hospital will form a separate block of a sanatorium now in course of erection. The general plan in view is to utilize these two hospitals for surgical cases at a stage which calls for active intervention or special treatment of any kind. For instance, at Glan Ely the value of exposing the patient with proper precautions to sunlight has been recognized, and it is intended to install a quartz lamp for treatment by ultraviolet rays during the winter. When the patients have so far advanced that they no longer require active or special treatment, it is intended that they should be drafted into surgical annexes at the various sanatoriums for their convalescence.

Popular errors with regard to tuberculosis are very hard to combat, and in spite of the fact that the sputum is universally recognized as the infective element, still the free spitter in public places is tolerated without remonstrance, while the user of a pocket sputum flask is looked upon, and shunned, as a leper. Hence the difficulty of enforcing the obvious precaution, except within the walls of a home or hospital. The public are learning that promiscuous spitting is generally objectionable, but they have yet to be taught that the use of the sputum flask is a safeguard and not a danger to the community.

WAR EMERGENCY COMMITTEE.

THE second meeting of the War Emergency Committee was, as will be seen from the report in the SUPPLEMENT, mainly occupied in receiving and considering the report of a deputation of its members which had had an interview at the War Office with the Director-General Army Medical Services. The Committee, it will be remembered, contains representatives, not only of the British Medical Association, but also of other medical bodies, including the Universities of Oxford, Cambridge, and Edinburgh, and the Royal Colleges of Physicians and Surgeons in London; it has the power also to co-opt other representatives of universities, colleges, and medical bodies. Sir Alfred Keogh expressed the pleasure with which he had learnt that the Association had set up a special committee to deal with the great and pressing medical emergency produced by the war and the satisfaction he felt that the Committee included members of bodies outside the Association itself. He explained very fully to the deputation the military exigencies determining the number of practitioners who during the next six months will be required by the War Office for the medical service of the new armies, and to replace casualties and invaliding. It is not considered advisable in the national interest to publish figures, but the members of the Committee were fully convinced that the need was still great and urgent. In this connexion it may not be out of place to refer to a matter dealt with more fully elsewhere—that is to say, the serious addition to the total number of casualties attributable to the operations in the Dardanelles. Roughly speaking, it appears, from the figures given to the House of Commons by the Prime Minister on July 28th, that the casualties in the Dardanelles, where operations were only begun last March, had constituted down to the middle of July about one-

seventh of the total of all the casualties in both the army and the navy since the war began a year ago. Without professing to have any special knowledge of the strategy to be developed in Gallipoli, it is safe to say that if the task before the Allies in the Gallipoli peninsula is to be successfully achieved the number of casualties must be expected very largely to increase. This expectation makes it absolutely essential that the War Office should provide a large medical personnel in the eastern Mediterranean. The deputation from the War Emergency Committee having asked that the Committee, in calling upon medical practitioners to join the R.A.M.C., should have the authority of the War Office, Sir Alfred Keogh on August 9th addressed a letter to the secretaries of the Committee stating that he recognized in it an excellent medium for dealing with the great problem which now faced the profession, namely, how to supply medical officers for the forces and at the same time to protect the needs of the civil population. He has authorized the Committee to make appeals to the profession to secure these ends; in doing so he emphasized the importance of ensuring prompt and increasing supplies of medical officers by saying that the claims of the medical department of the army could not be put too strongly before the profession. The War Emergency Committee sitting in London is concerned with making the appeal to the medical profession in England and Wales and Ireland. A similar appeal in Scotland is made by the Scottish Medical Emergency Committee, which has already done most valuable work in organizing the profession in that country to meet the demands of the military medical services by setting free men of fitting age and physique, and making arrangements to provide as far as possible against loss to them and inconvenience to the public.

THE NEUROLOGY OF WAR.

STRUCK by the splendour of a sudden thought, the Neurological Society of Paris has made a special study of the lesions and affections of the nervous system that have been so numerous and varied in the present war, and has published the results of its labours in a special double number of its monthly review.¹ This contains a number of original articles, abstracts of which are published elsewhere in this issue of the JOURNAL. Besides these, the review contains a hundred and sixty-four abstracts of the most important communications on the subject recently made to learned societies in France, and, in a few instances, in other countries. Members of the society have naturally had a very extensive experience of the nervous lesions caused by the war. As a result of this experience, they presented a petition to the French Minister of War last March, praying, first, that all patients suffering, or apparently suffering, from organic or inorganic nervous troubles should be referred as soon as possible to special neurological services; and, secondly, that services organized particularly from the point of view of medical supervision and discipline, should be created to look after patients in whom an abnormal condition persisted in spite of treatment, and those suspected of exaggeration or simulation. The society laid great stress on the importance of an early diagnosis and correct treatment in the military cases of hysteria, hystero-traumatism, traumatic neurosis, and nervous troubles due to suggestion. In their early stages these are all readily amenable to treatment by psychotherapy and counter-suggestion. Late in the day they are difficult to cure, for suggestion gets to work and the patient's moral is sapped by the sympathy, solicitude, and commiseration that have been showered upon him by his *entourage*, medical and otherwise; in addition, obstinate contractures and partial ankyloses may have developed in the affected limbs, and these conditions may even become incurable. The society estimated that, without exaggera-

tion, there actually were, in the French military hospitals and ambulances, thousands of patients such as these, who could have returned to their posts had they been properly treated as the functional cases they were at the outset. Perusal of the papers in this double number of the *Revue Neurologique* makes it apparent that the nervous lesions of all sorts due to the war are protean in their manifestations, and may demand the most thorough and methodical examination before a correct diagnosis can be reached. Disturbances of sensation, disturbances of motility, the electrical reactions of the different muscles apparently involved, vasomotor and secretory troubles, and the distribution of the apparent lesions, must all be mapped out by careful investigation, demanding much time and the use of proper apparatus. Cases in which hysteria or, worse, simulation, is suspected may require careful control and watching by trained observers before the diagnosis can be established; it is satisfactory to note that a clinician of Dejerine's experience was able to say, after six months of war, that no single military case of simulation had yet come under his observation. The need for medical men specially trained in the diagnosis and treatment of the nervous disorders of all sorts due to the bodily and mental injuries of war is undeniable; the French army is fortunate in having the services of the Parisian Société de Neurologie so freely at its disposal.

THE PATHOLOGY OF SHELL CONCUSSION.

THE present war has considerably added to our knowledge of injuries caused, directly and indirectly, by high explosives, but there are some mysterious occurrences of which no satisfactory explanation is as yet forthcoming. Instances have been recorded on apparently good authority in which, without any outward and visible sign of injury, death has occurred so suddenly that the victims retain the attitude, and even the gesture, of the fatal moment. It is said that the French have sometimes met with instances in which such deaths have occurred in groups, the men still lifelike, in the act of eating or drinking or smoking—so much so that the assailants hesitate to approach until the unnatural immobility shows what has happened. One spectator compared such a group to figures in a waxwork exhibition. In other instances death has not taken place at once; a big shell explodes, and the men near by are rolled over by the concussion without being struck by any of the fragments. They get up, feeling rather stunned, but in the course of a few hours, or a day or two, they collapse and die without presenting any obvious injury. These are the sort of cases that used to be attributed to the wind of the cannon ball, which Larrey declared to be a bogey not only hypothetical but absurd. Larrey's denial may apply to instances of laceration of viscera and damage to hard parts beneath an uninjured integument because the lesions can be explained on the assumption of the injury having been inflicted by a projectile at the end of its trajectory, depressing the yielding skin and exerting its momentum on the more resisting parts within. But in cases of delayed death after concussion, not associated with obvious injury, *post-mortem* examination reveals extensive damage to internal organs, especially the hollow viscera, amply accounting for the fatal result. A plausible hypothesis to account for such cases is that the sudden and tremendous disturbance of atmospheric pressure produced by the explosion of the bigger shells acts in one of two ways: either the enormous momentary pressure forces air into the cavities of the body, or the temporary vacuum that follows violently disturbs atmospheric conditions within the body, inflicting extensive lesions. If this be so, it would be the strict equivalent of the wind of the cannon ball which performed such extraordinary feats in the annals of ancient military lore. There are hundreds of instances of acute neurosthenia suddenly induced by the shock of explosion in previously normal men, and in some there have been auditory

¹Revue Neurologique, Paris, 1915, xxii, Nos. 17-18.

or visual disturbances in the absence of demonstrable local injury. Dr. Ravaut has stated that lumbar puncture in some of these cases yielded a blood-stained fluid or one containing an unduly high proportion of albumin, so that it is difficult to exclude the existence of actual physical, though histological, injury to the nerve centres. The suddenness of onset and protracted nature of the psychical disturbances, indeed, compel the idea of structural damage, and pathological evidence, as far as it goes, confirms that assumption.

MESS PRACTICES.

THERE are dozens of Territorial battalions still in England and hundreds of units of the new armies still under training for a task which will test their physical strength to the full and strain their mental and moral fibre to the utmost. In the circumstances it might be expected that they were being prepared for the future that lies before them in every way, but we have an unpleasant doubt whether proper influence is being exerted by the seniors in respect of the young officers. It has been alleged that the messing expenses—in certain regiments, at any rate—are unduly high, and there is no reason to suppose that this statement is ill founded. For some part of its height bad management may account in some cases, but in others the real explanation is that the living standard is far more extravagant than it need be, and more luxurious than it should be, considering the very special circumstances in which these units have been raised. The men who form them are not the ordinary recruits of peace, but soldiers already on the threshold of an enterprise which can successfully be undertaken only by men who are initially well suited to the task, and who, in addition, have left no means neglected of developing their moral and physical capacities to the utmost. In short, in the mess huts of officers who have to set an example to their men, who are daily expecting to enter into a prolonged and trying campaign either in Flanders or the Dardanelles, and who have still to prove their mettle, the tendency should be towards the simple life, even towards a certain degree of asceticism in matters of food and drink. In certain battalions no doubt this tendency does exist, but there are others in which the reverse is the case. If the only result were that messing expenses became unduly high for the pockets of many of the young men who have entered the army the matter might be considered to be of relatively small importance, but this is not the case. We have too good reason to believe that in very many battalions the consumption of alcoholic liquors is a great deal higher than it should be, and that in a certain number, at any rate, the general atmosphere after the morning work and until midnight may be described as being one of drinks all round on any and every excuse. The bad habit of treating, which is a legal offence in the proclaimed districts, ought to be discouraged. In this matter officers should set an example not only to their men but to the country. Some of the evil may be due to the failure of commanding officers of some of the new units fully to realize their responsibility towards their subalterns, many of whom are no more than lads who until the other day were under the discipline of school or the restraining influence of home. We are disposed to think that General Officers Commanding ought without delay to call the attention of officers commanding units in their commands to the risks which are being run, and the serious obligation which rests on them to guide the steps of their juniors through the pitfalls that beset them.

THE ATTITUDE OF DUTCH SCIENTISTS TO GERMAN KULTUR.

THE *Deutsche medizinische Wochenschrift* for June 17th devotes a good deal of space to a plaintive discussion of the unsympathetic attitude adopted by Dutch medical men

to their German colleagues. Dr. Seydel writes that Dr. G. van Rijnberk, editor of the leading Dutch medical journal, *Tijdschrift*, has drawn unkind comparisons between the scientific achievements of many poorly equipped Italian laboratories and the princely establishments of many German "Bier-universities." This contemptuous reference to the convivial tastes of the German scientist is not, in the opinion of Dr. Seydel, worthy of the serious attention of his countrymen, but he deduces from other remarks by the Dutch editor the existence of a widespread movement in the ranks of the Dutch medical profession against Germany. It appears that in the past much of the work of Dutch scientists has been published in German, where it has been submerged in the flood of gigantic tomes and series which for several decades have poured from the German press, so that its educative value has been lost. Foreign professors in Holland are usually Germans, and these imported teachers are in the habit of lecturing in their own tongue. Dutch textbooks are scarce, having been to a great extent supplanted by German works. The Dutchman seeking post-graduate teaching generally goes to Germany, which is also the chief foreign source of instruments and medical appliances. There is a powerful movement afoot in Holland to counteract these Germanic influences, to nationalize Dutch science, and to cultivate greater self-reliance and independence. Holland does not mean to rob herself of the fruits of scientific research elsewhere, but it is her ambition, in addition to fostering science at home, to exchange the one-sided yoke of German *kultur* for a wider and more international scientific intercourse with all her neighbours. Referring to the value of Germany's scientific achievements as compared with those of her neighbours, Dr. van Rijnberk is said by Dr. Seydel to have written: "Still to-day, the great ideas in science germinate repeatedly in France and England, and even in Italy and the Netherlands, whence they are transported to German soil, where they bloom into the perfect plant ready for export." Dr. J. Schwalbe, editor of the *Deutsche medizinische Wochenschrift*, deprecates this attitude of Dutch scientists to Germany, and he interprets the Dutch propaganda not only as a nationalist movement, but also as a movement prompted by actual hostility to Germany. Dr. H. Treub, professor of gynaecology in Amsterdam, who has protested against the appointment of Germans to Dutch professorships, comes in for severe censure for poking fun at Prussianism. It is, in the German editor's opinion, deplorable that Professor Treub should symbolize Prussia in 1813, 1870, 1914, 1915, and 1920 by a series of casts of deformed fetal heads, the Prussia of 1920 being represented as an anencephalic monster!

DEMAND FOR A MIDWIVES BILL FOR SCOTLAND.

A MOVEMENT, which is receiving influential backing, is being made in Edinburgh to memorialize the Secretary of State for Scotland (the Right Hon. T. McKinnon Wood) for the introduction, as a Government measure, of a Midwives Bill for Scotland. But for the war and a small amount of opposition the private bills of 1914 would doubtless by this time have been an Act in full operation, for all the questions of any real difficulty had been overcome both in the House of Lords and in the Commons. The reasons which call for this piece of legislation, even in war time, have already been stated at the various conferences which have recently been held in Scotland in connexion with the Maternity Hospitals and the Approved Societies under the Insurance Act (see pp. 81 and 82 of the SUPPLEMENT for August 7th); but another reason has come to the front during the past few months to reinforce those which have been named. Scotland has sent her full share of medical men into active military service, and when they have been drawn from country districts the

pressure of work upon those left behind has been increased to a degree which is likely in the winter to threaten a complete breakdown; if, however, the remaining practitioners can be helped in their midwifery work by the employment of trained maternity nurses, certified as midwives and on the Roll of a Midwives Act for Scotland, not a little of the congestion in country places may be relieved. These nurses will, it is true, be in large measure the same persons as the ones now practising in Scotland or being trained in her institutions; but, through the passing of such a bill as has been indicated, they will be no longer acting without control and supervision. As an instance of the pressing necessity for some such legislation may be named the application received a week or two ago by the Edinburgh Royal Maternity Hospital to supply a trained midwifery nurse for one of the Shetland Islands, in which several confinements were pending and in which no medical practitioner was available. We understand that the memorial to Mr. McKinnon Wood has the support of the Presidents of the Royal Colleges of Physicians and Surgeons of Edinburgh, of Sir Halliday Croom, Dr. Haig Ferguson, and others.

ASSISTANCE FOR PREGNANCY CASES IN FRANCE.

In a recent communication to the Académie de Médecine, Professor G. Lepage,¹ Obstetrician to the Boucicaut Hospital, Paris, argued that the beneficial action of the French law of June 17th, 1913, may be facilitated and increased by the earlier examination of women who believe themselves to be pregnant. He would add a footnote to the regulations already published as a guide to women for whom the financial benefit both during the four weeks which precede and the four weeks which follow confinement is intended; and he would make the note read: "Every woman who on account of the non-appearance of her period believes herself to be pregnant and who desires to profit by the advantages of the said law is advised, in order that she may know the probable date of her confinement, to consult a doctor during the fortnight which follows the date of the disappearance of the period." It may, however, be asked whether this early medical examination can be expected to yield information of any real value, and to this question Dr. Lepage replies strongly in the affirmative, always supposing that the right method of examination be employed. He admits that the woman's statements with regard to the last date of menstruation, even when fortified by a careful physical examination of her person, does not enable a categorical answer to be given regarding the probable date of confinement, and he also allows that some women have forgotten entirely when they last menstruated; but he expects great advantage from a bimanual examination of the pelvic organs carried out in the first weeks of pregnancy. He instructs the medical man to employ Puzos's method of bimanual examination, which is done as follows: The medical man should introduce his index finger, in the case of a primipara, and both his index and middle fingers, in a multipara, into the vagina; he should push the whole uterus from behind forwards and from below upwards, so as to bring it as near as he can to the upper border of the symphysis pubis. Having accomplished this he should next transfer his finger (or fingers) from the posterior to the anterior vaginal fornix, and, fixing the uterus between the finger or fingers of this internal hand and the fingers of his other hand placed over the abdomen, he should recognize not only the somewhat soft consistence of the uterine walls, but also the changed form and size of the organ, and should be able better to judge the exact age of the pregnancy, and so more accurately foretell the date of confinement. He cannot of course be absolutely certain about the date, but his opinion is more likely to be correct than when the examination is made at a later

time in gestation; and thus his patient is more likely to receive the pecuniary assistance which is hers by right in the four weeks which precede parturition. This assistance will enable her to take the rest from her work which she then needs so much both for her own sake and for that of her child. Every obstetrician may not agree with Dr. Lepage as to the ease with which such a bimanual examination can be carried out or as to the prognostic value of the information to be derived from it, save by such an expert as Professor Lepage himself, but every one will welcome the result which is likely to follow the bringing of such a notice as he advises before the attention of pregnant women. That result will almost certainly be the earlier application of expectant mothers to medical practitioners for advice, and the advice, needless to say, may extend to other matters than the prediction of the day of delivery. In Great Britain, as well as in France, the earlier coming of pregnant women to doctors would have great advantages both as to the health of the women and their expected infants and as to the prevention of the many causes which lead to miscarriages and premature labours. In this country the law in its relation to pregnancy is not so far advanced as in France, but the Insurance Act has opened up a vista along which the expectant mother may look with real hopefulness to the time when she will be watched over medically during the whole of her pregnancy, and be relieved from financial embarrassment during, at any rate, the later weeks of it.

THE SOCIETY OF APOTHECARIES.

ALEXANDER POPE said he would not have the stump of an old tree pulled up which he remembered as a boy, and there are many who share the feeling. Persons of this temper of mind will therefore hear with regret that it has been decided to pull down the old Mill House of the Apothecaries' Hall in order to widen the thoroughfare in Water Lane. To members of the medical profession that corner of London, though not exactly picturesque, is full of historical associations. The Company of Apothecaries was first incorporated by a charter granted by James I in 1606; by this charter the Apothecaries were united with the Grocers. According to Mr. C. R. B. Barrett, they remained united till the end of 1617, when a new charter was obtained which formed the Apothecaries into a separate company under the designation of the Master, Wardens, and Society of the Art and Mystery of the Apothecaries of the City of London. There was a good deal of opposition to the separation on the part of many of the apothecaries, chiefly, it would seem, on financial grounds. The new society, in its early years, had a hard struggle for existence, and it was not till 1632 that it was able to purchase a house and ground in Blackfriars to serve the purpose of a Hall. The Hall was burnt in the Great Fire of London, though, strangely enough, no record of its destruction is to be found in the Minutes of the Society.¹ It was rebuilt some years later, and, as Mr. Barrett says, "the strenuous efforts required to build their home had the effect of spurring the Court of Assistants on to make greater exertions than hitherto to extend the scope of the Society. It became larger and more powerful in numbers, and during the next half-century increased in wealth." Although a committee was formed in 1667 "to treat about the building of the Hall and consider for raising the money and to compute the charge," the Society was too poor to carry out the project in full at the time, and it was not till ten years after the fire that the buildings were completed. Among these was the Mill House, where drugs were ground, weighed, and preserved. The Court of Assistants of the Society decided

¹ *Brit. M. J.*, s. 3, t. lxxiii, p. 18, July 6th, 1915.

¹ *The History of the Society of Apothecaries of London.* London, 1905.

some time before the outbreak of the war that it would be desirable to increase the facilities for the wholesale manufacture of drugs which is carried on at the Apothecaries' Hall, by the construction of a new Mill House with modern and improved machinery in order to cope more efficiently with the large and increasing business done by the Society. This "trade," as it is familiarly called in the Society, has now been carried on for nearly 300 years. As the result of the erection of the new Mill House, the old Mill House is to be demolished, and new buildings erected upon the site. It is a pity, but we suppose that this removal of an ancient memorial of the past must be regarded as a sacrifice to progress.

MILITARY LIFE AND PHYSICAL HEALTH.

The extraordinary improvement in the physical fitness of men who joined the new armies in this country is a commonplace observation, and most of us have had the opportunity of watching the improvement from month to month in personal friends or relations. Similar observations have been made in France, where hundreds of thousands of men accustomed to sedentary lives were mobilized at the beginning of the war, and have since led the strenuous outdoor life which falls to the soldier actually engaged in warlike operations. A correspondent writing from that country tells us that of the French territorials who have been at the front since the outbreak of hostilities, many are being allowed home on short furlough, and that their aspect on arrival is often, nay usually, destructive of many illusions on the part of the pining wife or anxious mother. People at home thought sadly of the absent one, passing nights in half-drained trenches, a prey to numberless scares and anxieties, frightened half out of his wits by exploding bombshells, fed erratically, and exposed to drenching rain or the paroling rays of an implacable sun; he would naturally return with haggard and weebegone looks, the shadow of his former self. But lo! on the contrary, his face beams with smiles and good health. The podgy shopkeeper has lost his *embonpoint* and pasty complexion. He is smart, his eyes are bright, his skin tanned, and his movements alert and manly. The fond wife is on the verge of disappointment, for she was expecting to play the nurse to a worn-out, debilitated husband, instead of which he has regained the jollity of his early married days and, far from complaining, he boisterously describes his strenuous days and disturbed nights. Given a fair standard of physical stamina, it cannot be questioned that the active adventurous life of the soldier in the field makes for health and strength. Confirmed alcoholics, now that their consumption is necessarily kept within moderate limits, recover the power of self-control and appreciate the gain in dignity and self-esteem. Neurasthenics, under the influence of war work, forget to worry about their inside, and, living as they do from hand to mouth, look out instead of looking in. Hard work and frugal living in the open air raise the standard of vitality, and effect cures which had defied the pharmacologist. The moral being undergoes a salutary change *pari passu* with the physical. The implacable pursuit of a common object, the sharing of a common danger, and the perpetual emulation render selfishness despicable and make the man conscious of his individual insignificance; his personality is sunk in the common weal. The weaklings, of course, go to the wall, the strain is more than they can bear, the feeble nervous system breaks down, the damaged heart yields to the strain. Given, however, an adequate margin of resilience, the fact seems to be that, apart from the casualties of actual fighting, the conditions of a soldier's life in war afford a special case of the operation of the law of the survival of the fittest. Those who possess the necessary resilience survive, and are all the better for the experience.

DREAD OF INFECTION FROM PULMONARY TUBERCULOSIS.

The ever-increasing amount of attention devoted to the study and prevention of pulmonary tuberculosis, more particularly the endeavour to familiarize the public with its dangers and its prevention, has, as our columns have more than once borne witness, had one undesirable effect, inasmuch as it has given some of the less instructed an exaggerated idea of the risk involved in attendance on persons suffering from "consumption." A letter published elsewhere in this issue shows that such fears may make it a difficult problem to carry out the home treatment of the disease owing to the dislike which servants manifest to being brought into contact with sufferers. What medical teaching really aimed at was to impress upon those in attendance on phthisical patients the desirability of observing certain elementary precautions in order to prevent the spread of the disease, but the proposals advocated in various countries to make pulmonary tuberculosis a notifiable disease have had the effect of making the public jump to the conclusion that pulmonary tuberculosis is a highly contagious affection. This unwarrantable scare may indirectly be of some advantage by rendering people circumspect, but it entails extremely distressing consequences for the victims, who find it difficult to obtain housing accommodation, and find themselves treated as pariahs. Inasmuch as it is impossible to provide sanatorium facilities for all cases of phthisis, and as there are numerous patients who neither desire nor require to be segregated, it behoves us to complete the education of the public by teaching them that the risk of contracting the disease is almost non-existent when certain simple precautions are observed.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE WEEK'S SUBSCRIPTIONS.

The outstanding feature of the week's subscriptions is the fine contribution from the Canadian Committee. The generosity of the Dominions, which has been so marked a feature in the growth of the Fund, is further shown in subscriptions from Newfoundland and Cape Colony.

Thirty-sixth List.

	£ s. d.		£ s. d.
Canadian Committee (per Dr. J. Gibb Wishart, Hon. Treas.) (6th donation, total £2,227 3s. 11d.)	800 0 0	H. A. Giovannetti, Pritchard, Scully, Burden, Jones, A. K. Anderson, O'Connell, Breslin, Freear, Hogan, Mackay, Cowperthwaite, Mitchell, Stafford, Parsons, J. J. Smith, Cron, Chisholm, Carnell, Donahue, A. MacDonaid, W. Roberts, M. C. Roberts, Jamieson, S. S. Smith, Fitzgerald, LeVisconte, Parker, McLeod, G. N. Murphy, Mr. J. McFarlan	36 7 8
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Newfoundland Medical Men (per Dr. H. Rendell, Registrar, Newfoundland Medical Board) - Drs. McKendrick, Macpherson, Duncan, Rendell, Fraser, R. Forbes, C. Forbes,			

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and would be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

INSTRUMENTS.

The Master of the Society of Apothecaries begs to acknowledge the receipt of surgical instruments, etc., contributed by the following donors since the publication of the last list:

Dr. Frosser White, Wigan.	Miss H. C. Boulman, Leeds.
Anonymous, Merthyr.	Dr. F. W. Collinson, Preston.

SPECIAL courses of toxicology have been organized at the Military Medical School of Val-de-Grâce, near Paris. They are intended for pharmacists who will be employed in the new laboratories recently established at the front. Detachments of analytical chemists have been organized in this country as units of the Royal Engineers.

THE WAR.

MEDICAL ARRANGEMENTS FOR THE DARDANELLES.

THE increase in the magnitude and scope of the operations in the Dardanelles has entailed a corresponding increase in the medical provision for the forces engaged. The Prime Minister stated in the House of Commons on July 28th that the total number of killed and wounded among the naval and military forces engaged in the Dardanelles down to July 18th was 37,962; of these, 8,099 were killed (officers, 562; men, 7,537), while the wounded numbered 29,883 (officers, 1,375; men, 28,508).

Owing to the topographical peculiarities of the Gallipoli peninsula and military exigencies, the problem presented to the Army Medical Service has been one of extraordinary difficulty, and one for which no parallel is to be found in any previous experiences of the military services of any country. The foothold obtained at the southern end of the peninsula and a little further north-east at the point now, we believe, called Anzac, where the Australian and New Zealand Army Corps effected a landing, concerned only a very limited extent of ground, almost everywhere exposed to the fire of the enemy. It was, in fact, not found possible to find a site for a hospital ashore. One casualty clearing station was established near Sedd-el-Bahr, which is at the eastern end of the promontory, five miles in width, which forms Cape Helles. The situation was so exposed that the clearing station was on several occasions shelled out. The wounded brought down from the field ambulances were put as quickly as possible on board barges, which were towed out to the hospital ships afloat. These hospital ships may almost be said to have acted as the casualty clearing stations, as well as the first line hospitals of the force ashore, the base hospitals being at Lemnos, Alexandria, and Malta. The number of hospital ships has been largely increased since the landing at the end of April, as has also the hospital accommodation for sick and wounded both in Malta and Egypt. Malta has been found a particularly suitable place for base hospitals, and a large number of beds are now provided there; but, as is well known, a number of wounded have been brought home to England direct in hospital ships.

The great increase in the accommodation for sick and wounded in Egypt and Malta has called for a corresponding increase in the medical and nursing personnel. As has already been announced, the army has the advantage of the services of a number of consulting physicians and surgeons of distinction who are for the most part stationed at the base hospitals at Malta or in Egypt. The situation, as far as the medical service is concerned, is now well in hand, and steps have been taken to keep up the personnel to full strength, and to increase it as may be required.

The full magnitude of the operations in the Dardanelles has, perhaps, as yet hardly been appreciated in this country, but, after what has been said, it will be easy to understand that the number of medical officers required to serve there in various capacities has contributed very materially to increase the demand which the army is making on the medical profession in this country and in Australasia.

THE BRITISH RED CROSS IN THE DARDANELLES.

The Joint Committee of the British Red Cross Society and the St. John Ambulance Brigade recently received a report from its Chief Commissioner in the Mediterranean, Sir Courtauld Thomson, describing the work which had been done down to the middle of July to assist in the treatment of the wounded from the operations in the Dardanelles. A Red Cross store has been established adjoining the casualty clearing station under Cape Helles, the southern extremity of the Gallipoli peninsula; both are open to shell fire, though it is not believed that they are intentionally shelled. In spite of this, some motor ambulances are working on the peninsula and arrangements are being made to send out others. The wounded, when removed from the casualty stations, are placed on barges and towed out to hospital ships or other vessels, in which they are carried to base

hospitals at Mudros on the island of Lemnos, Alexandria, or Malta. The removal of the wounded to the hospital ships or transports is facilitated by motor boats, but a larger number could be utilized. A Red Cross store has been established also at Mudros, and has been able to supply the ships carrying the wounded from there with additional comforts for the wounded, including shirts, pyjamas, and pillows. A buffet for light refreshments has been established on the beach. More motor boats are also required at Mudros for the conveyance of wounded and stores. These are being supplied by the Joint Committee. From Alexandria the wounded are taken direct to hospitals in the city in motor ambulances, or in ambulance trains to Cairo. At Alexandria two additional convalescent hospitals for officers have been opened. At Cairo the Red Cross hospital has been extended; it is under the charge of Major and Mrs. Phillips, who act as medical officer and matron respectively. There is a hospital and Indian convalescent camp at Suez, where the Red Cross representative (Dr. Arthur Hayes) is able also to supply comforts to the hospital ships proceeding to India and Australia. Red Cross stores have also been established in connexion with provincial hospitals and convalescent homes in various parts of Egypt where local committees are at work. In all the work in Egypt great assistance has been given by Dr. Ruffer, President of the Sanitary, Maritime, and Quarantine Council of Egypt, and by Sir John Rogers of Cairo.

TRANSPORT OF THE WOUNDED.

In the August number of the *St. Bartholomew's Hospital Journal* Captain L. B. Cane, R.A.M.C., gives an account of the difficulties of transporting the wounded to the ships and from them to the base hospital. Within three weeks, he says, nearly twenty thousand wounded men were taken to Alexandria and hundreds continued to arrive daily. "Many of these were shot long before they reached the Turkish shore; some of the boats were sunk and others turned back full of wounded, with scarcely an uninjured man left on board to land. From the beginning the hospital ships have been quite insufficient to deal with such thousands of wounded, and have had to be supplemented by many of the transports in which the troops went out. In some instances these refilled so soon with urgent cases that they returned to the base even before the last of their men and stores had been disembarked. Several medical officers from the field ambulances or other units were put on board each transport, with what orderlies could be spared. These worked night and day during the return voyage, but, in spite of all exertions, found it often quite impossible to render more than the most urgent first aid treatment. Several transports returned with over 800 wounded, one with nearly 1,100 and one with 1,618, and in each only three overworked medical officers, a few orderlies, and no nurses, to do the entire work of an improvised floating hospital, full of surgical cases, during its two and a half days' voyage back to Alexandria."

By the middle of June more complete arrangements had been made, and a number of transports were fitted out for use as hospital ships, with staffs of four medical officers, six nurses, and twenty orderlies on each. The transference of the wounded from the shore had frequently to be carried out under fire. Often the men had dragged themselves or been helped by less severely wounded comrades for about two miles to a dressing station, from which they were carried some distance to the shore. Then they had to be conveyed through shallow water to landing boats or lighters, which were rowed or towed out to the transport or hospital ship. Those who could not walk were slung over the ship's side by ropes; fortunately the sea was smooth. Hundreds of wounded had to be hurriedly dressed on board and then disposed about the docks and in every available space in the ship. At Alexandria notice of the probable date of arrival of each ship and the approximate number carried was in most cases received a short time before she was due, and hospital trains and motor ambulances were waiting on the quay. Four Red Cross trains were in use, each capable of taking about 200, though generally not more than three were got off in a day. A fleet of about forty motor ambulances disposed of the rest, and the work was carried out for the most part smoothly and expeditiously. Disembarkation,

however, was not always free from danger. Captain Cane gives a picture of an officer with seven wounds and a fracture being lowered over the side who, owing to the slipping of the ropes, narrowly escaped being tilted out of the stretcher. The worst cases were usually removed first to the hospital in Alexandria, the others being sent to Cairo or elsewhere by motor ambulances and trains. On one day five ships full of wounded were alongside at once. At one time, when there was an exceptional rush, and after the worst cases had been taken off the ships and retained in Egypt, some 3,000 were sent on to Malta. During the early operations the hospital ships lay sometimes for days close in to the shore between great battle-ships firing broadsides at the Turkish positions and in full view of the fighting. Occasionally aeroplanes dropped shells on the Red Cross ships, sometimes killing a few of the wounded.

THE NEUROLOGY OF WAR.

The Neurological Society of Paris has devoted a special double number of its Review¹ to the organic and functional cases of nervous disorders caused by the war. The original papers on these subjects may be analysed in the following five groups.

Lesions of the Nerves.

J. Babinski discusses the diagnosis of traumatic lesions of the nerves, pointing out how the paralyzes here met with may be simulated by divisions of tendons or muscles, or complicated by hysterical paralyzes. He notes that when a nerve has been divided or injured, the patient has often felt an extremely violent or fulgurating pain at the moment of injury; possibly this symptom is diagnostic of an organic lesion of a nerve. Injuries of the brachial plexus produce lesions of two main types: (1) Paralysis of the circumflex, musculo-cutaneous, and radial nerves, and (2) paralysis of the ulnar and median nerves. Lesions of the nerves commonly produce vasomotor and secretory disturbances, and very often result in fibro-tendinous contractures, especially when the lesion is painful. Surgical interference in lesions of the nerves is often called for, particularly in cases where much pain is felt; the cut nerve should be sutured, the injured nerve freed from adhesions. Sensation often returns early after operation, and before movement. P. Marie and Mme. Athanassio-Benisty have observed that much pain and vasomotor disturbances (cold, cyanosis, sweating) are common in lesions of the median nerve, rare in those of the radial or ulnar. Injuries of the sciatic and internal popliteal nerve, as of the median, give rise to intense burning pain aggravated by pressure. The claw-hand, appearing at once, is characteristic of ulnar lesions, if the median nerve escapes injury. The special phenomena observed in injuries of the radial, median, ulnar, and sciatic nerves are tabulated very fully; the subject gave rise to a general discussion. J. Dejerine and E. Schwartz give a full description of the case of a soldier with an irritative shell wound of the left median nerve which caused articular deformations similar to those of chronic rheumatism, trophic troubles, and hyperhidrosis, in the area supplied by the nerve. Operation four and a half months later showed no visible lesion of any of the nerve trunks in the forearm; treatment effected but little improvement. M. and Mme. Long describe three somewhat similar cases with marked trophic and neuralgic signs and symptoms. M. and Mme. Dejerine and J. Mouzon give a summary of the clinical symptoms of injuries of the large nerve trunks, their complete interruption, their recovery, and the indications for operation in these common cases. The authors remark that the nerves are very fragile structures and should be manipulated or exposed as little as possible by the surgeon. A. Léri records his experience of 400 patients with wounds of peripheral nerves, treated by operation in seventy-five instances. In only one case was the crural nerve injured, as compared with forty-three lesions of the sciatic trunk. Operative interference is advised after two months in cases with complete paralysis, and is to be considered in cases where spontaneous improvement is doubtful or slow after three months. Léri recommends oiling of the nerves exposed at operation, to prevent the further formation of adhesions; and in ten

cases has joined up the cut ends of shortened nerves by enclosing them in the hardened excised arteries or veins of calves, as Foramiti advised, with good results. J. Tinel records a case of ischaemic paralysis of the right leg following ligation of the popliteal artery for aneurysm, with pain, cyanosis, and sweating, greatly improved by treatment. The return of faradic excitability before the power of movement, after lesions of the peripheral nerves, is described as a sign of good prognostic import by P. Marie and Mme. Athanassio-Benisty.

Lesions of the Spinal Cord.

De Lapersonne and Wiard offered for diagnosis the case of a soldier wounded in the neck by the explosion of a shell. A skiagram showed that a fragment of bone was pressing on the cord at the level of the seventh cervical vertebra. The man had paresis of the right leg and arm, some ptosis and enophthalmos, small pupils preserving their reflexes, and marked oedema of the right optic disc, more than two discs in diameter. There was no history of syphilis; the cerebro-spinal fluid was normal. The authors contemplated operation. J. Mouzon and D. E. Paulian give an account of a case of Brown-Séquard paralysis due to a shrapnel bullet entering at the root of the nose and lodging in the right-hand side of the body of the third cervical vertebra. Four months later the right side of the body was weak, and showed associated movements when voluntary motions were made on the left side; there was marked loss of sensation in the areas supplied by the third and fourth cervical nerves on the right, of the sacral and fifth lumbar nerves on the left, and diminished sensibility to heat up to the second thoracic nerve on the left. A. Léri describes functional cases of commotion of the medulla or cord, with partial or complete paraplegia and sometimes disturbances of micturition. The symptoms may not come on until long after the shock that produced them; yet they may last for months unless they receive the proper psychotherapeutic treatment. E. Dupré, Le Fur, and Raimbault communicate notes of a case of traumatic haemorrhachis, with spasmodic paralysis of the four limbs and sphincter troubles, due to the passage of a bullet through the upper part of the neck. The patient made a fairly good recovery in five months. A. Souques relates a case in which a bullet wound of the left leg, leaving a condition of talipes equinus behind it, gave rise to definite ankle-clonus (spinal epilepsy) on examination. This he referred to the state of muscular contraction of the sural triceps. J. Tinel gives details of a case of continual functional nystagmus, transverse and very rapid, capable of arrest for a few seconds on fixing an object, and replaced by a slower and more normal nystagmus on application of the methods of producing artificial nystagmus. It came on gradually in a young soldier awakened by a shell explosion; the patient was nervous and had a pulse of 120 to 140. H. Meige, commenting on the case, remarked that the patient was a cinematograph employee, and was inclined to believe the nystagmus to be a tic, voluntary, used more or less consciously by the patient. G. Roussy and Ichlonski describe the case of a soldier with a bullet wound through the parietal region of the head, who recovered with a left hemiplegia, left astereognosis, and marked syncinetical movements of the left arm and (less so) leg when the right limbs were moved.

Lesions of the Brain.

A. Polosson and F. J. Collet describe the case of a young soldier who received a glancing bullet wound on the right parietal region. Consciousness was not lost, but rapid small movements of extension and flexion appeared at once in the left wrist, four or five a second, with paralysis of the thumb, inability to separate or flex the fingers, and inability to move the wrist; the fingers were semiflexed, the thumb adducted, the form of objects was not recognized by the left hand. The movements persisted during sleep. Eight days later the patient was trephined over the wound, and a small extradural haematoma was found; the dura was not opened. Three days later there was a left-sided fit of Jacksonian epilepsy lasting five minutes; a few more fits occurred during the next days. Three months after the injury the patient returned to the front. The authors describe this as a case

¹ *Revue Neurologique*, Paris, 1915, xxii, May-June.

of "partial continuous epilepsy," or Kojewnikow's syndrome (1894), comparable to pre- or post-hemiplegic tremors, and due in this case to local irritation of a small area of the cortex of the ascending frontal convolution. J. Dejerine and J. Monzon relate two cases of Dejerine's "syndrome of cortical sensibility." The patients had bullet wounds in the left and right parietal regions respectively; their right and left hands respectively preserved sensibility to touch, pain, and heat almost unaltered, but had lost tactile discrimination, sense of position, and deep or bony sensibility; so that astereognosis was present, and the hands were clumsy and ataxic. The authors contrast with this picture thalamic lesions, in which all modes of sensation are altered. G. Roussy and J. Bertrand give details and a discussion of a somewhat similar case. E. Dupré and Le Fur recount the case of a soldier struck by a bullet on the vertex, with fracture of the external table of the skull. This produced an incomplete spastic paraplegia, which made walking, even with crutches, still difficult five months later; two months afterwards lumbar puncture showed that the cerebro-spinal fluid was increased in amount, though free from leucocytosis. The authors concluded that the two ascending parietal convolutions had been injured, with meningeal haemorrhage and inflammation.

Hysteria.

G. Roussy describes how three Zouaves were knocked out by the violent explosion of a shell in their trench, which killed two men outright and buried a dozen more or less completely in earth. Two of the three died from the noise and ears; all three found they were deaf, and became dumb also. Three days later they reached Roussy's clinic in Paris, deaf, dumb, communicating by signs only; one of them, nervous and excited, feverishly wrote long accounts of the accident. The three, presenting such uniform symptoms, were placed apart in separation rooms, and Roussy described in the presence of each how they would recover completely in a day or two. Two recovered hearing partially and speech very completely next day, the third the day after. Each had perforation of the tympanum and otitis media, one bilaterally. Each had been for several months at the front and each had been wounded already, one twice. Roussy has seen a fourth similar case, and gives a careful analysis of 50 cases of hysteria, and 4 of simulation he has had under his care as a result of the war. Nine of the 50 had hysterical fits and required severity of treatment; 4 were temporarily deaf-mutes; 4 resembled cerebral commotion; 7 had functional hemiplegia or paraplegia; 8 resembled cases of neuritis; 16 had painful monoplegia of the arm or leg after shock, injury, or operation, the paralysis being either logical in type or paradoxical. A. Souques described 2 cases of hystero-traumatic crural monoplegia in soldiers, pointing out how difficult it may be to prove that such cases are not cases of simulation. He also illustrated the hystero-traumatic contractures or pseudo-contractures in the limbs of wounded soldiers, which, he said, again might be indistinguishable from simulated contractures. J. Dejerine narrated fully 2 cases of functional paraplegia in emotional young soldiers, due to bullet or shell wounds. In each of these neuropaths there was a past history of similar attacks in years gone by brought on by excessive emotions.

Simulation.

Naturally, the border line between cases of hysterical loss of function and cases of simulation or fraud is very ill defined. J. Babinski points out that there may be no objective distinction between the two, and quotes a case showing that an organic paralysis from disuse may follow a hysterical paresis of the leg. He had had four cases of hemiplegia or paraplegia due to the explosion of a shell at a distance, in which no evidence of organic disease could be found; recovery followed rapidly when military penalties were threatened. P. Marie notes the difficulty of distinguishing fraud from hysteria, quoting three cases of simulation; one patient, a hemiplegic, received as punishment twenty-five days in prison, twelve in the cells. He says the best punishment in these cases would be to state on their papers that their disease is imaginary; and he would divide the apparently hysterical patients into two classes—

namely, (1) unconscious simulators, including neuropaths, cases of hysteria, and traumatic hysteria, requiring strict treatment in military hospitals; and (2) exaggerators, who have actually been wounded, but have added physiological solecisms to their real troubles, and require treatment by suggestion or reasoning, as well as treatment for their surgical lesions. J. Dejerine states that he has not yet seen a case of simulation or fraud among the many patients with functional nervous disorders due to the war who had passed through his hands. He quotes three functional cases in which the plantar reflex had been lost, and expresses the opinion that excessive emotion rather than mechanical shock to the nervous system is the cause producing functional cases. Among other speakers at a discussion on this subject was J. Babinski, who dwelt on the difficulty of detecting adroit simulators of nervous lesions, and on the difficulty of being sure that an apparent fraud, such as a dumbness cured by faralizing the larynx, was not really due to auto-suggestion rather than fraud. He concluded that the object of examining and treating these patients should be to cure them rather than to make a differential diagnosis between hysteria and fraud. Energetic and authoritative treatment would often work marvels, even in the obstinate cases of old standing. As a record or diagnosis to be written on the papers of these patients, he suggested some such formula as the following: "Neuropathic troubles due to suggestion, not grave, and curable by psychotherapy and counter-suggestion." H. Meigs emphasized the importance of discriminating between these cases and those of real trauma of the nervous system. H. Roussy, commenting on his four cases of simulation, was inclined to write the diagnosis on the papers of the patient, and let him suffer the consequent military penalties.

DISPATCHES.

DARDANELLES.

A SPECIAL supplement to the *London Gazette*, published on August 5th, gives a dispatch dated June 12th from General Sir Ian Hamilton, commanding the Mediterranean Expeditionary Force, in which a large number of officers and men are specially mentioned for good service, including the following members of the Medical Services:

R.A.M.C.—Colonel M. T. Yarr.
Field Ambulances.—Major C. H. Lindsay, M.D., 1st West Lancashire Field Ambulance (T.F.), 89th Field Ambulance; Lieutenant G. Davidson, M.D., 1st Highland Field Ambulance (T.F.), 89th Field Ambulance; Corporal J. W. Jones, 89th Field Ambulance; Private A. Cook, 87th Field Ambulance.
Royal Naval Division, Howe Battalion.—Surgeon E. G. Schlesinger, R.N.

AUSTRALIAN AND NEW ZEALAND FORCES.

Australian Army Medical Corps.—Captain A. G. Buller, D.S.O., 9th Queensland Battalion; Captain E. T. Brennan, 11th West Australia Battalion; Captain H. L. StV. Welch; Sergeant H. Jackson; Private L. W. Burnett.
1st Field Ambulance.—Captain C. E. Wassell; Private G. Macgregor.
2nd Field Ambulance.—Lance-Corporal V. Cayley.
3rd Field Ambulance.—Captain D. MacWhae, Lance-Corporal G. C. Faruham, Private C. H. G. Ross.
1st Australian Casualty Clearing Station.—Lieutenant-Colonel W. W. Giblin, Major J. Corbin, Private M. D. Cowtan.
New Zealand Army Medical Corps.—Lieutenant-Colonel W. W. Fearless, V.D., Captain G. Craig, Lance-Corporal G. Steedman.
New Zealand Field Ambulance.—Major E. J. O'Neill, Lance-Corporal W. Singleton, Private J. Comrie, Private J. Crawford-Watson, Private W. Heaver, Private W. J. Henry.

FRANCE.

Some additional names recommended for gallant and distinguished service in the field in continuation of those mentioned in the dispatch from the Field Marshal Commanding-in-Chief dated May 31st, and published in the *London Gazette* of June 22nd, were printed in a supplement to the *London Gazette* issued on August 7th. The following names of members of the medical profession appear in the lists:

Staff: Colonel E. G. Browne, A.M.S.
Munro Ambulance Corps: Henry Jellett, M.D., F.R.C.P.I. late Master of the Rotunda Hospital, Dublin.

CASUALTIES IN THE MEDICAL SERVICES.

NAVY.

Wounded.

Surgeon H. K. Shaw, R.N., Dardanelles.

ARMY.

Killed in Action.

Lieutenant George McCallum, R.A.M.C., was reported in the casualty list of August 8th as killed in Flanders. He was educated at Glasgow, where he took the M.B. and Ch.B. in 1914, and took a temporary commission as Lieutenant, R.A.M.C., on January 25th, 1915. He was attached to the 6th Duke of Cornwall's Light Infantry.

Lieutenant John Cornock Hawkes, R.A.M.C., attached to the 8th Battalion, King's Royal Rifle Corps, was also reported in the casualty list published on August 8th as killed in Flanders. He took the Scottish triple qualification in 1910, and received a temporary commission as Lieutenant on December 16th, 1914. *The Medical Directory* gives his address as Castletown, Berehaven, co. Cork.

Died of Wounds.

Major S. J. Richards, 1st Australian Clearing Hospital, Dardanelles.

Lieutenant John Cattanauch, R.A.M.C., who was reported as wounded in the Dardanelles in the casualty list published on July 29th, has since died of his wounds. He was the son of Mr. William Cattanauch, merchant, Newtownmore, and was educated at Newtownmore and Kingussie schools, and at Edinburgh University, where he took the M.B. and B.Ch. in 1912. He took a temporary commission as lieutenant in the R.A.M.C. on October 10th, 1914. During his university career he was a noted athlete; he was considered the finest shinty player in Scotland. He represented Edinburgh in the inter-university sports of 1909, 1910, and 1911, and received international caps for Scotland both for athletics and for hockey.

Wounded.

Major T. Holt, R.A.M.C.(T.F.), Dardanelles.

Captain J. Lithgow, R.A.M.C.(T.F.), Dardanelles.

Lieutenant (temporary) H. J. Burke, R.A.M.C., Flanders.

Lieutenant (temporary) J. N. Clark, R.A.M.C., Dardanelles.

Both Major Holt and Captain Lithgow have been reported as wounded before, the former on June 15th and the latter on July 24th.

DEATHS AMONG SONS OF MEDICAL MEN.

Andrews, Alan Charles Findlay, 2nd Lieutenant 2nd Royal Fusiliers, elder son of Mr. C. H. Andrews, St. Giles, Norwich, killed in the Dardanelles on June 28th. He was born on November 2nd, 1894, and educated at Norwich Grammar School and at Sedbergh, where he was in the O.T.C., gained his shooting colours, and represented his school at Bisleigh. He held a commission for two years in the 4th Norfolk Territorial Battalion, and after the war broke out joined the 16th Battalion of the Royal Fusiliers. Early in May he was transferred to the 2nd Battalion, with which he went to the Dardanelles, where he fell in the attack on Krithia on June 28th.

Carter, Gerald Francis, 2nd Lieutenant 7th Battalion King's Royal Rifle Corps, son of Alfred H. Carter, F.R.C.P., of Abingdon, late of Birmingham, killed in Flanders on July 31st, aged 18. He was educated at St. Nims, Moffat, and at Winchester, where he twice gained the job of medal for gymnastics. When the war began he was on the point of going to St. John's College, Oxford. He enlisted in the Public Schools Battalion of the Middlesex Regiment, got his commission in the K.R.R.C. on April 6th, and went to the front on May 18th.

Colston, Harold Kelway, Major 1st York and Lancaster Regiment, only son of the late Deputy Surgeon-General C. K. Colston, I.M.S., killed at Ypres on April 23rd. He was educated at Clifton, joined the army in November, 1891, became Captain in September, 1901, and Major in January, 1910. He served in the South African war, in the operations in the Orange River Colony, gaining the Queen's medal with two clasps. He was reported missing on April 23rd, and has since been reported as then killed.

McClellan, Lewis Alexander, Lieutenant 8th Battalion Rifle Brigade, son of William McClellan, M.D., J.P., of Coolen, West Kirby, killed recently in Flanders. He was educated at Merchiston, where he was in the Rugby fifteen, and as a medical student at Pembroke College, Cambridge, and at the London Hospital. He was a noted Rugby football player, gaining his blue against Oxford in 1910 and representing his hospital for three years. He got a commission as Second Lieutenant on September 9th, 1914, and as Lieutenant on December 7th.

MEDICAL STUDENTS.

Dewes, Bryan Osmond, Second Lieutenant 1st Battalion Middlesex Regiment, killed in Flanders on July 30th. He was

the elder son of Hugh Dewes, Esq., was educated at St. Andrews and at Kepton, and had just entered St. Thomas's Hospital as a medical student with a First Arts Scholarship. He was a member of the London Rowing Club, which he represented at Henley in 1914. He enlisted in the Artists Rifles in August, 1914, got a commission as Second Lieutenant on February 2nd, 1915, and was serving as machine gun officer when he was killed.

NOTES.

DISTINGUISHED CONDUCT MEDAL.

On August 5th the War Office issued a list of warrant officers, non-commissioned officers, and privates to whom the Distinguished Conduct Medal had been awarded for acts of gallantry and devotion to duty. The list contained 405 names, besides six by whom the D.C.M. had already been earned, who now gained clasps. Among them were the following members of the medical services:

Lance-Corporal V. Cawley, No. 2 Field Ambulance, 1st Australian Division; Private M. D. Cowtan, 1st Australian Casualty Clearing Station; Private W. R. Fitch, R.A.M.C., attached 1st Hampshire Regiment; Corporal J. E. McNeill, R.A.M.C., attached 2nd Royal Inniskilling Fusiliers; Sergeant J. Percy, R.A.M.C.; Private W. Steedman, R.A.M.C., attached 9th Lancers; Sergeant H. W. Stoner, R.A.M.C., attached 1st Royal Irish Fusiliers; Acting Sergeant R. M. Watchorn, 3rd Welsh Field Ambulance, R.A.M.C.(T.F.).

BRITISH HOSPITAL UNIT FOR RUSSIA.

A special committee has been formed, under the auspices of the Anglo-Russian Committee in London, for the equipment of a complete hospital unit for service on the Russian front. The President of the Committee is the Earl of Cromer, and the members are Lord Chelyesmore, Lord Weardale, Sir Starr Jameson, and Sir William Mather. The details of the proposal will be published shortly. The committee has issued an appeal asking the British people to give practical proof of their sympathy with the Russian people, whose soldiers are at present bearing so heavy a part in the burden of the Allies. Subscriptions should be sent to the Anglo-Russian Hospital Fund, Messrs. Baring Brothers, 8, Bishopsgate, London. All information can be obtained from the Honorary Secretary, Anglo-Russian Hospital, 116, Victoria Street, Westminster, S.W.

THE YOUNGEST RECRUIT.

We are informed that the youngest recruit in the present campaign is Thomas Warwick Newbigging, the son of Dr. T. Duncan Newbigging of Abington, Lanarkshire. At the age of 13 he was engaged at the recruiting office at Leith, and when 14 years old was permitted to join the Lanarkshire Yeomanry. Before this he had been the youngest King's Scout, having joined at 11 years of age.

MEDICAL OFFICERS WANTED.

1st Wesser (S) Casualty Clearing Station, R.A.M.C.(T).

Medical officers are required to complete the establishment of this unit. Two should be operating surgeons, preferably holding F.R.C.S. All must be prepared for both home and foreign service. Those recently qualified acceptable. Ambulance workers specially welcome. Applications to Lieutenant-Colonel C. I. Ellis, Officer Commanding, 71, Holloway Street, Exeter.

We have received a circular containing an appeal from the Presidents of King Albert's Civilian Hospital Fund, the Duchess of Buckingham and Chandos, and the Earl of Halsbury. The aim of the fund is twofold: there is not only an overwhelming need to succour the distressed people still on Belgian soil, but it is also essential that the country through which the allied troops may eventually have to pass shall be free from disease or danger from infection. The condition of the civil population of that portion of Belgium still held by its heroic people is pitiful; invaluable help has already been given by the hospitals at Poperinghe, Ypres, Hazebronne, Montreuil and St. Idesbald, supported partly by voluntary contributions and partly by the Belgian Government. An appeal is now made for subscriptions to the fund, which may be sent to the London County and Westminster Bank, 62, Victoria Street, S.W. The work of administering the relief will be in charge of the Executive Committee, and a direct representative of the fund in Flanders will attend to the distribution of articles and cash. Contributions of medical stores, articles of clothing, foodstuffs, etc., and all books and cases containing such gifts will be gratefully received and acknowledged by the Hon. Mrs. Oliphant Murray or the Hon. Sybil Amherst at the hospital depot, care of Harrod's Stores, 116, Brompton Road, S.W.

Ireland.

THE UNIONS AND THE DUBLIN HOSPITALS.

The guardians of the North Dublin Union at their last meeting discussed the resolution of the Corporation of June 7th, addressed to the Local Government Board, pointing out the congested state of the city hospitals, and suggesting that the amalgamation inquiry should take into consideration the question of converting the hospital buildings of the North and South Unions into a district hospital. The following resolution was proposed:

We consider that no such inquiry would be just to the citizens that did not take into account the enormous number of provincial patients receiving preferential treatment in the city hospitals, and whilst not asking for the return to the state of affairs that existed up to 1877 when citizens had the exclusive right to the city hospitals, we ask, through the City Council, that their representatives on the City Hospital Boards, be requested to produce for the information of the Corporation, and any such inquiry, evidence as to whether the objects for which they were founded are complied with, or that the wishes of all who endowed them with large sums are carried out.

It was objected that such a resolution would do no good, but rather infinite harm to the object they had in view in the establishment of a district hospital for the people of the city. It was pointed out also that no resolution of the guardians would have any effect in interfering in any way with bequests or grants made to any of the city hospitals. After some discussion the motion was put to the meeting and defeated.

INFANTILE MORTALITY IN DUBLIN.

Sir Charles Cameron, Medical Superintendent Officer of Health for Dublin, has written to the press on the subject of infantile mortality, which for some time past has been a subject of much discussion; the mortality, he admits, is high, but he denies the statement, so frequently made, that it is the highest in the towns of the United Kingdom. In the decade ended 1913 the mean death-rate of children under 1 year of age, per 1,000 births, was 149 in Dublin and 136 in the large English towns, an excess in Dublin of 13. But in Dublin, and indeed in all the Irish towns, the death-rate at all ages is much above that of the large English towns. In the five years ended 1913 the average death-rate in the Irish towns was 18.9 per 1,000 persons living, whilst in the English towns it was 15.3, or 3.6 less than in the Irish towns. In the English towns the deaths of children under 1 year formed, on the average of ten years, 23 per cent. of the total deaths, whilst in Dublin they formed 29.3 of the total deaths. It is contended, therefore, that the higher death-rate of Dublin, and indeed of other Irish towns, as compared with English towns, is due in the main to the greater mortality of persons above the age of 1 year. In 1914 the proportion of total deaths ascribed to infants under 1 year exceeded that in the English towns; this was, perhaps, chiefly due to unfavourable economic conditions arising out of the great and continued strike.

SOUTH DUBLIN UNION AND UNSATISFACTORY VACCINATION.

At the last meeting of the South Dublin Union a letter was read from a man stating that his child had been vaccinated three times and that the vaccine did not take effect. The doctor now required the child to be vaccinated a fourth time. The father said he did not object to the law, but he objected to have his child suffer unnecessary pain. The doctor wrote that the lymph supplied by the Institute had been unsatisfactory; it caused much annoyance to parents, who had to take their children to the dispensary so often; he had lodged a complaint about the matter. A guardian said that the case was only one of hundreds. The Chairman said that the Board could not adjudicate in a matter that was purely medical. An order was made that no prosecution be undertaken in regard to it. The following notice of motion was handed in:

That the guardians of the South Dublin Union, having on this date (August 9th) had ocular demonstration of the most convincing and painful character of the evil results of vaccination in the case of the child O'Kelly, 39, Pimlico, which was brought before the Board, hereby decide that no further action be taken in this union in the direction of enforcing the vaccinations.

THE WAR AND INSANITY.

Dr. Graham, Resident Superintendent of the Belfast Asylum, in his annual report states that there was a remarkable decrease in the number of admissions this year as compared with the twelve months preceding—220 as against 276. "This contrast," he says, "would be worthy of notice at any time, but it becomes almost an enigmatic paradox when we recall that the nation since August, 1914, has been plunged, in common with nearly all the great civilized Powers, in a struggle more terrible in nature and more momentous in consequences than any of which our earth has been the scene since the fall of the Roman Empire. The very foundations—moral, social, intellectual, and economic—of European society are being shaken, and in such a period of upheaval it is natural to suppose that mental suffering, ending in collapse of the brain, should be the order of the day, yet up to the present this has not been the case. So far as figures throw light on the matter, there has been a decrease, not an increase, of insanity. And this fact raises an interesting and important question as to the relations of mental disease to the miseries and horrors of war. Why is it that the shock of the world conflict has not worked the mental disaster to be expected, either in the case of the heroes who have survived or in that of the relations of those who have died so magnificently? It is here that attention must be called to a profound psychological law. It is not the great tragedies of life that sap the forces of the brain and wreck the psychic organism. On the contrary, it is the small worries, the deadly monotony of a narrow and circumscribed existence, the dull drab of a life without joy and barren of an achievement, the self-contained anaemic consciousness—it is these experiences that weaken and diminish personality, and so leave it a prey to inherited predispositions or to the 'slings and arrows of outrageous fortune.' It is often said that war brutalizes the soldier and so opens the door for the ingress of all sorts of mental disorders. To this it suffices to reply, not all war degrades, and whether a given war degrades or not depends on the motives which sustain the soldier."

VACCINATION IN ENNISCORTHY UNION.

At the last meeting of the Enniscorthy Board of Guardians a report was read from Dr. T. J. Browne, Medical Inspector of the Local Government Board, calling attention to the fact that there were 5,340 defaulters under the Vaccination Acts in the union area, and pointing out that it was the duty of the guardians to enforce the law. The clerk said that Dr. Browne wanted the guardians to get the doctors in the several dispensary districts to submit a list of the defaulters in their districts with a view to the guardians instituting legal proceedings.

DECLINING FIGURES FOR IRISH EMIGRANTS.

The Registrar-General's return of the number of natives of Ireland who emigrated during June, 1915, showed that 770 males and 353 females left Irish ports, as compared with 769 males and 691 females in June, 1914. For the first six months of the present year the total number of Irish emigrants was 4,061 (2,590 males and 1,471 females), compared with 12,907 (6,757 males and 6,150 females) in the same period last year, a falling off of 8,848. The returns from each of the provinces showed that during the six months 1,168 persons left Leinster, a decrease of 461 as compared with the first half of 1914; Munster 607, compared with 3,548—a decrease of 2,941; Ulster 1,216, compared with 4,281—a decrease of 3,065; and Connaught 1,070, compared with 3,451—a decrease of 2,381.

Scotland.

HEALTH OF EDINBURGH IN 1914.

DR. MAXWELL WILLIAMSON, the medical officer of health for the city of Edinburgh, has just issued his annual report of the Public Health Department for the year 1914. The public has become accustomed to expect more from Dr. Williamson than dry details, and certainly the present document contains much that is of real interest, whilst even the statistics are made if not actually

attractive, at least not repellent, by the skilfully employed device of charts with many colours.

Population.

The population of the city (registration area) at the last census was 320,769, and the present population, calculated to the middle of 1914, and including the inmates of the City Fever Hospital and of Craiglockhart Poorhouse (which are outside the city boundary), was 325,780; the natural increase (excess of births over deaths) was 1,441; and so Dr. Williamson calculated that it would take 173 years before the population (at the present rate) would double itself. The city covered an area of 11,416 acres, but if the public parks and principal open spaces were excluded, the ground covered was approximately 6,267 acres. The density of the population was 28.5 persons per acre over the total area. There were 72,523 inhabited houses and 3,838 unoccupied habitable houses; the number of inhabited houses showed an increase of 902 as compared with the previous year (1913). What was of more importance, and formed the source of some gratification, was the decrease in the number of lower-rented houses and the tendency of the citizens to remove from the central congested districts to the less thickly peopled portions of the city.

Marriages.

The marriages registered in Edinburgh in 1914 were 3,165, as compared with 2,947 in 1913 and 2,857 in 1912; this represented a marriage-rate of 9.7 per 1,000 persons living. Glasgow, with 9.8 per 1,000, was the only large town in Scotland with a higher rate. The medical officer of health is careful to qualify his satisfaction with these figures by the following remark: "An increased marriage-rate may generally be taken as an indication of industrial prosperity, but in view of the large number of 'irregular' marriages which take place in Edinburgh in the course of the year, it is impossible to make any accurate deductions from these figures." The third quarter of the year was the favourite one for marriages, 964 taking place then as against 793 in the second, 776 in the fourth, and 632 in the first quarter.

Births.

The birth-rate for the year, whilst it showed a slight improvement as compared with that of 1913 (20.2 per 1,000 as against 20.0), yielded no real cause for satisfaction, for there had been a steady decline year after year for the past thirty-four years. In 1871 it was 34.8 per 1,000, in 1881 it was 32.2, in 1891 it was 28.2, in 1901 it was 24.9, and in 1911 it was 21.2. The drop each decade had been not much below 4 per 1,000. The striking fact emerged that in 1881, with a population of 226,346, Edinburgh had a total of 7,360 births, in 1914, with a population of 325,780, she had only 6,706 births; in other words, whilst the population had actually increased by nearly 100,000 the number of births was actually less. Even these numbers placed the births in a better position than was really theirs, for when the country births (taking place in Edinburgh) were deducted the city was left with 4,666, or a rate of only 19.8 per 1,000. Again, there was cause for discontent in the fact that when the various wards of the city were examined the higher birth-rates were found (as had been the case in previous years) in the poorer districts, where also the infantile mortality was high. Speaking generally, it would seem that more children were born where the chances of their receiving care sufficient to keep them in life were lower. Dr. Williamson, however, was of opinion that to some extent the higher birth-rates in the parts of the town referred to could be explained by early marriages among the working class population. Leaving out of account (for special reasons) Brighton with its birth-rate of 17.6, there were only three other large towns in Great Britain and Ireland which had lower rates than Edinburgh, namely, Huddersfield with 18.2, Perth with 19.7, and Bradford with 19.6; of these Bradford, in point of population, came nearest to Edinburgh. The only cities having birth-rates above 30 per 1,000 were Greenock, Sunderland, and Liverpool; Glasgow had 28 and London 24.2.

Deaths.

The deaths in Edinburgh for 1914 numbered 5,319, but after correction for country deaths, etc., the number was

reduced to 5,025, giving a death-rate of 15.4 per 1,000 of the population, or 1.1 per 1,000 higher than the rate for 1913. Nevertheless, the city still occupied a good place among the large towns in Scotland; Perth had a rate of 13.8, and Leith one of 15.3. The death-rate for Scotland was 15.5. Among English large towns London, Birmingham, Leeds, Bristol, Hull, Nottingham, Leicester, Portsmouth, Cardiff, Brighton, Derby, Southampton, and Huddersfield had all smaller rates than Edinburgh. Curiously enough, Bradford and Edinburgh, whose birth-rates were 19.6 and 19.8, had death-rates of 15.5 and 15.4. The wards in the city, where the density of population was greatest, and where the housing and general sanitary conditions left much to be desired, had also the highest death-rates, a fact which allows Dr. Williamson to reiterate his condemnation of inferior housing conditions. He supports his contention with the striking case of St. Giles Ward, which, with a much greater number of one-roomed houses than any other ward, had a death-rate of 21.4 per 1,000, a phthisis death-rate of 1.9 per 1,000, and an infantile mortality-rate of 151 per 1,000 births (or 40 per cent. greater than that recorded for the whole city). Statistics are given of the mortality in connexion with various trades and occupations, both for men and women; but the medical officer of health rightly advises that too much reliance should not be placed upon such figures. In dealing with the causes of death, Dr. Williamson refers to the small number of deaths from influenza—9 as against 18 in the previous year; he notes a very slight increase in the mortality from infectious diseases, and he points out that there were 569 deaths from tuberculous diseases in the year (a rate of 1.7 per 1,000). The death-rate from cancer was the highest ever recorded for the city—namely, 1.37 per 1,000 persons living; it was only 0.95 in 1900, but it rose to 1.07 in 1905 and to 1.20 in 1910. An interesting and striking table shows the great and almost continuous fall in the mortality from pulmonary phthisis since 1864 and the steady and alarming rise in that from cancer during the same period. The occurrence of cancer cases in various streets is set forth in the tables; but the key to the understanding of these local variations in frequency has not been found. Whilst most streets did not record more than one or two deaths from malignant disease, Montgomery Street with 6 and Panmure Place with 5 were exceptions for which it would be difficult to assign a cause.

Infantile Mortality.

There were 709 deaths under the age of 1 year, giving a rate of 9 per 1,000 births higher than in the preceding year; still this was a vast improvement on the alarming rates which prevailed before the systematic supervision now carried out was made possible by the passing of the Notification of Births Act in 1907. It is a striking fact that 128 infantile deaths, of which 110 occurred in the first month, were ascribed to premature birth, whilst 107 (of which 64 were in the first month) were put down to atrophy, debility, and marasmus. These figures inspire the hope that there is still a large section of infantile deaths which it may fairly be expected can be prevented. With its infantile mortality-rate of 110 per 1,000 births, Edinburgh came after Perth with 80, Leith with 99, and Greenock with 108; Dundee had 135, Glasgow and Paisley 133, and Aberdeen 121. During the year the number of births intimated was 6,415; but from this figure 276 stillborn infants had to be deducted, leaving 6,139 living births intimated out of 6,706 registered. The number of cases attended in institutions, or by students and nurses from one or other of the various organizations in the city, was 2,020, while 130 were attended by midwives (who therefore did no very large share of the obstetric work in Edinburgh). As in previous years, the systematic visitation of infants belonging to the poorer districts of the city had been assiduously carried out by the voluntary health visitors organized in connexion with the public health department. Further, over 300 homes had been visited, and whilst few of them suggested the presence of poverty, whilst open windows were frequently found, and whilst the babies were almost invariably clean, yet there were defects, particularly in the matter of food and of beds. During the year 118 cradles (22 more than in the previous year) had been sold by the visitors. Interesting health

lectures had been given to the workers during the year. Altogether, this branch of the preventive work in Edinburgh can be regarded as in a flourishing state.

Infectious Diseases.

The infectious diseases which were notifiable were pulmonary phthisis, small-pox, typhus, enteric, relapsing and continued fever, puerperal fever, diphtheria and membranous croup, scarlet fever, erysipelas, cerebro-spinal fever, ophthalmia neonatorum, and "other forms of tuberculous disease," which was added to the list in the month of July. Those which were not notifiable were measles, whooping-cough, and chicken-pox. The notifications numbered 4,450 cases, or an increase of 1,008 as compared with 1913; but to obtain a fair comparison one had to deduct the 105 cases of "other tuberculous diseases" and of ophthalmia neonatorum, leaving 4,345, as against 3,422 in 1913. The increase was due to the increase in scarlet fever and diphtheria in the last four months of the year. A gratifying feature was the increase in the number of cases treated at Colinton Mains in the City Hospital; a table supplied by Dr. Williamson showed that whilst in 1890 only 40 per cent. of the cases of scarlet fever and 29 per cent. of those of diphtheria were sent into the hospital, in 1914 the percentages of cases sent in were 97 and 95 respectively. The number of cases in the City Hospital was further increased by the admission of military patients stationed in close proximity to the city boundary, the army authorities having found it most convenient to have their patients treated there; but, of course, these cases were notified to the public health authorities of the district in which they were discovered. The hospital accommodation had been severely taxed, and, through the absence of Dr. Ker, Dr. MacLeod, two residents, and three ward sisters, by reason of the war, the strain on the staff had been heavy but had been partly met by making use of senior students. The sudden enlistment of the laboratory assistant at an exceptionally busy time had made matters still more difficult. One effect of the strain upon the nursing staff had been the greater number who had contracted infectious diseases. Dr. W. S. I. Robertson reported on the hospital in place of Dr. C. B. Ker.

Phthisis, Typhoid Fever, Diphtheria, etc.

The deaths from phthisis numbered 379, equivalent to an annual death-rate of 1.1 per 1,000 of the population. In Dundee the rate was 1.4, in Glasgow 1.3, in Aberdeen, Greenock, and Perth it was 1.0, and in Leith it was the same as in Edinburgh—namely, 1.1. When the different wards of the city were considered it was found that fully 52 per cent. of the notifications of this disease occurred in five wards (out of the sixteen), that these five were all in older parts of the city, and that they contained only 36 per cent. of the total population. The incidence-rate for these five wards was 3.3 per 1,000, while for the remaining eleven wards it was only 1.7 per 1,000. Enteric fever had 63 notifications, as compared with 45 in 1913; the number of deaths was 11. The decrease in typhoid was very marked when decades were looked at; thus, in the years 1884-1893 the average number of notifications was 375, in 1894-1903 it was 273, and in 1904-1913 only 90 per annum. There had been a marked prevalence of diphtheria during the last quarter of 1914, regarded by Dr. Williamson as an illustration of school influence and as in part due to the congregating of considerable bodies of troops in the city following upon the outbreak of war, and in buildings where the sanitary arrangements were of an improvised character. The number of cases of diphtheria notified during the war was 902, and the number of deaths 97, figures which represented an attack-rate of 2.76 per 1,000 of the population and a death-rate of 0.29 per 1,000. To the hospital, however, no fewer than 1,283 suspected cases were admitted, of which only 857 were true diphtheria; the non-diphtheritic cases were mostly influenzas of the throat type (which were very common in the autumn). The increased prevalence of scarlet fever was brought out by the number of notifications, 2,270 cases, as against 1,675 in 1913 and 893 in 1912; the maximum for the year was reached in October, when 332 cases were reported. The deaths were 45, equal to 0.13 per 1,000 of the population. The cases of erysipelas notified numbered 278, as against 223 in 1913 and 239 in

1912; and there were 12 deaths. In the hospital 151 cases were treated, of which 116 were facial in origin. Previous attacks had occurred in 30 cases, and one patient had had the disease no fewer than nine times. Measles was very common in the early part of the year, how common the absence of notification tended to conceal; but 109 deaths were due to this malady, and of these 104 were in children under the age of 5 years; 316 cases were admitted to the hospital, of which 13 were found to be suffering from German measles. The city was practically free from whooping-cough and chicken-pox was very rare, only 27 patients suffering from it being admitted to the hospital.

Ice-cream Shops, Hairdressing Saloons, etc.

Ice-cream shops, which had been doing a steadily declining business for some years, increased in number during 1914, when seventy-eight new shops were opened. The increase was probably due to the reintroduction of the so-called "gaubling machines," which for some years had been banished. The cleanliness of these shops was rigidly insisted on, 505 visits were paid during the year, and four offenders were summoned, and in each case a conviction was secured. It was reported that in all the hairdressing saloons (174) on the register antiseptics of some kind were in use. The Shop Acts (1912 and 1913) worked smoothly, only one prosecution being necessary.

England and Wales.

SALFORD HEALTH REPORT.

FROM the annual report of the medical officer of health for Salford for 1914 it appears that there has been a slight decrease in the birth-rate from 27.0 to 26.9 per 1,000 and a slight increase in the death-rate from 16.3 to 17.1 per 1,000. The infant death-rate has markedly decreased from 139 per 1,000 births, which was the average of the previous five years, to 126, which is the lowest recorded for the borough. The death-rates from cancer and heart disease continue to increase, but the medical officer of health considers this is due to the larger number of persons that live to the ages where these diseases become more common. The borough has suffered from an extremely severe epidemic of scarlatina, 2,336 cases having been notified in the year, of whom 84 per cent. were removed to the Ladywell Sanatorium. The previous highest record was in 1896, when 1,579 cases were notified. Fortunately the mortality-rate has been low, being only 3.3 per cent. of the cases. At the tuberculosis dispensary 2,256 new cases of tuberculosis came under treatment, the total attendances at the dispensary being 17,300. The treatment of selected cases by tuberculin has been continued with very satisfactory results, as after this treatment 69 per cent. of the cases were enabled to resume their ordinary employment. It is stated that the treatment has seemed to be of more benefit in cases of chronic disease, however extensive, than in cases presenting acute symptoms. There has been a marked reduction in the percentage of samples of milk which showed the presence of tubercle bacilli. In 1913, 16.2 per cent. of the samples contained tubercle, while in the past year the percentage dropped to 6.6, the lowest on record.

The medical officer of health is also the medical adviser to the Salford Insurance Committee, and in the section of the report dealing with the work of the borough analyst it is stated that in addition to regular examination of foods, thirty-nine samples of drugs have been examined, including nineteen mixtures dispensed according to prescriptions under the Insurance Act, and eleven samples, or 28 per cent., were found to be adulterated. This large percentage of adulteration is almost entirely due to the carelessness shown in dealing with the solution of ferric acetate. Of seven mixtures containing potassium iodide, six were correctly dispensed, while the other one contained an excess of 18 per cent. over the correct amount. Samples of atropine sulphate, syrup of orange, ground rambarb, morphine lozenges, and bismuth lozenges were found to be genuine. But of twelve mixtures containing ferric acetate, seven were adulterated. Some of these

contained a large excess of iron, and had probably been dispensed from the stronger solution of ferric acetate official in the 1885 *British Pharmacopœia*. Others had evidently been dispensed from old solutions, as they contained no iron in solution and also a deficiency of total iron, the iron present existing as a precipitate of ferric hydroxide. All the vendors were cautioned, and the local Pharmaceutical Society warned each member as to the care necessary in the dispensing of prescriptions.

Canada.

THE ONTARIO MEDICAL ASSOCIATION.

THE thirty-fifth meeting of the Ontario Medical Association was held at Peterborough on May 25th to 28th in conjunction with the fourth annual meeting of the Medical Officers of Health of the Province of Ontario. The session on May 25th, and part of that of the following day, were devoted to a meeting of the medical officers of health, of whom 280 were in attendance. The presidential address was given by Dr. W. R. Hall of Chatham. The question of salaries paid to medical officers of health was discussed, and a schedule of rates adopted as follows: Townships, 300 dols. per annum; incorporated villages up to 1,000 population, 150 dols. per annum, with addition of 50 dols. for each additional 1,000 population or majority thereof; towns, 100 dols. for first 1,000 population, with addition of 50 dols. for each subsequent 1,000 population; cities under 20,000 population, 1,000 dols. per annum; cities over 20,000, 1,200 dols. per annum. Dr. A. W. McPherson of Peterborough, who is on active service, was elected president for the year 1915-1916. At the evening session on May 26th Dr. D. J. Gibb Wishart delivered the presidential address, and a paper on the clinical manifestations of syphilis was read by Dr. J. G. Phillips of Cleveland. The sections in medicine, surgery, obstetrics, and gynaecology, and eye, ear, nose and throat met on May 27th, and in the afternoon Dr. F. J. Shepherd, former dean of the faculty of medicine at McGill University, delivered the address in surgery. Dr. Shepherd's address was followed by a paper on medical education and fee splitting by Dr. A. H. Wright of Toronto, and one on the local medical society by Dr. A. F. McKenzie. A report of the Committee on the affiliation of the county medical societies was then read by the Secretary, and Dr. H. J. Hamilton of Toronto presented the report of the Committee on the relations of the Ontario Medical Association and the Canadian Medical Association, reporting progress. These reports were adopted. A resolution was then adopted expressing the opinion that active steps should be taken immediately for the prevention of insanity by the establishment of separate neurological wards in general hospitals, especially in those hospitals where clinical teaching is given. It was resolved to express deep appreciation of the loyalty and self-sacrifice of fellow-members of the profession who had offered themselves and were serving the empire and its allies at the front in the various services. In thus serving the cause of freedom, many would come back under conditions which would practically mean beginning their professional life over again, and the members of the association as fellow-practitioners formally assured them that, as far as lay in their power, they would see that their old *clientèle* awaited them on their return to civil practice, and that their relations to former patients were as far as possible restored.

A resolution was passed deploring the fact that such inadequate provision has been made in the Workman's Compensation Act for the payment of medical and hospital fees incurred by workmen injured in industrial pursuits. The hope was expressed that the Act would be so amended that workmen who receive only half pay while incapacitated would not be under the necessity, as at present, of paying such charges out of their already too scanty receipts. At the suggestion of the Section of Obstetrics and Gynaecology it was decided to appoint a committee to consider and enforce adequate measures for a campaign amongst the members of the medical profession and the public to guard against the ravages of cancer by early diagnosis and treatment, and to report to the next meeting of the Association. Next year the Association will meet at Toronto under the presidency of Dr. H. B. Anderson.

The forty-eighth annual meeting of the Canadian Medical Association, which was to have taken place in Vancouver on July 6th, 7th, 8th, and 9th, has been postponed on account of the war. The annual meeting of the Saskatchewan Medical Association has also been postponed for the same reason.

India.

MADRAS PRESIDENCY WATER SUPPLIES.

THE Government of Madras has under investigation an hydro-electric scheme in connexion with what is known as the Siruvani project in the Coimbatore District. Coimbatore town is badly in need of an improved water supply, and it is hoped to get the supply at a reasonable cost from the Siruvani River by combining the hydro-electric power scheme with the water supply scheme. If the power scheme now under investigation is proved to be practicable, it is believed that the South Indian Railway Company will build a new workshop at Podanur, obtaining its power and water supply from the Siruvani project. There is also considerable demand for power for mills in Coimbatore. Another hydro electric project is under investigation in connexion with Pykara Falls. There are minor schemes for the lighting of Ootacamund, one for getting its water power from Lovedale Lake and the other from Kalbatty Falls, yet another power scheme is based on Coonoor River, either alone, or in conjunction with the Karteri Stream.

BENGAL CHEMICAL EXAMINER'S REPORT.

There is a pathetically tragic record of poison cases in the report of the Chemical Examiner of Bengal, narratives of mean crimes that have taken their toll of human life. There is, for instance, an example of a phase of crime not infrequently met with in this country, in which innocent children are sacrificed to satisfy the grudge entertained against their parents. A man had long had an enmity with his cousin over some landed property. The cousin threatened to exterminate his enemy's family. One day he called the son, aged 12, to his house and gave him sugar; he also gave another quantity of sugar to a nephew of his who was standing there to avert suspicion. The deceased, not liking the taste of the sugar, wanted to throw it away, but the accused made him swallow it by giving him a draught of water; the nephew showed no signs of poisoning, but the boy died within a few hours. Arsenic was detected. Then there was the tragedy of a love philtre in which it appeared that a Mohammedan made several unsuccessful attempts to take home his wife from his father-in-law's house. Another Mohammedan who was believed to be in criminal intrigue with his wife, gave the deceased some "charmed" sugar to eat stating that it would make his wife more loving and cause her return to him. The man died within a few hours. White arsenic was found in his case. There are also several cases of death through using quack medicines, and on this is based the opinion that more qualified medical practitioners are needed. Serological laboratory which materially helps the police in the analysing of blood-stains on garments, weapons, etc., is to be retained in Calcutta experimentally until February next.

Hong Kong.

THE annual report on the health of the colony of Hong Kong for the year 1914 issued recently shows that the estimated population exceeds half a million, of whom some 444,000 are Chinese.

Birth-rate.

The birth-rate for the year among the Chinese population was 9.3 per 1,000, and among the non-Chinese 16.8 per 1,000. The low Chinese birth-rate is attributable to the fact that a large proportion of the native working-class population are young male adults whose wives are domiciled in China. The means of transport to and from the mainland are varied and inexpensive, and as the cost of living in the native villages of South China is far less than

in Hong Kong, many of the "coolie" class live, while at work in the colony, in common lodging-houses, or in sheds upon the works, and pay frequent visits to their homes in the intervals of their labour. This explains, to a large extent, the fact that almost 4,000 Chinese passengers leave Hong Kong daily for the mainland of China, and about the same number return. Incidentally, it may be noted that this interchange of passengers must greatly increase the difficulties of dealing with the importation of infection.

Death-rate.

The death-rate for the year among the Chinese population was 23.88 per 1,000 and among the non-Chinese population 12.99 per 1,000; among the resident civil community (non-Chinese)—excluding, that is to say, the army, navy, and mercantile marine—it was 17.85 per 1,000. The death-rate among the Chinese population was high owing to the inclusion of nearly 2,000 deaths from plague. Tuberculosis is very prevalent among the Chinese, for the death-rates show that 11.3 per cent. of the total Chinese deaths are attributable to this cause; this is, however, a considerable reduction on the percentage for the previous three years. The pulmonary form of the disease alone accounts for 7.9 per cent. of the total Chinese deaths. The sanitary department has for years past made considerable efforts to reduce the heavy mortality from this disease by means of antispitting notices, literature, and lectures, both in English and in Chinese, and it is hoped that the spread of education among the masses will tend still further to reduce the death-rate under this head. The deaths from malaria, especially in the city, continue to show a reduction, while the military figures for hospital admissions indicate a steady fall in the amount of malaria infection in the colony. One rural district shows a fairly large increase in deaths from this cause, owing to the fact that several thousand workmen have been employed there during the year on an extension of the city reservoirs.

Plague.

The most important occurrence of the year was a heavy outbreak of plague which was attributed by the medical officer of health (Dr. Francis Clark) to the serious overcrowding resulting from the influx of many thousands of Chinese during 1913, occasioned by political disturbances in Southern China. This overcrowding leads to a great increase in the amount of waste food and refuse generally, which is believed to result in an increase in the rat population, while the crowding of the native houses with the beds and baggage of the refugees is believed to afford greater facilities for the access of rats to these dwellings. On the outbreak of the European war some 60,000 Chinese left the colony hurriedly, and thus the overcrowding was to some extent abated, but too late to stay the epidemic which runs usually from March to July. The recorded mortality from this disease among the Chinese was 95 per cent., while among the non-Chinese (chiefly Indian, Malays, and Japanese) it was 70.8 per cent. Ten British cases were reported, and of these two died. Considerably over 100,000 rats were caught or found dead during the year, and 652 of these proved to be plague-infected. The rat figures for the past few years appear to suggest that a rat infection exceeding 5 per cent. coincides with a severe human epidemic.

Typhoid Fever.

One hundred and forty cases of typhoid fever were reported during the year, of which 38 were Europeans, 92 Chinese, and 10 other Asiatics, and it is recorded that twenty-two of the Chinese cases and one British case occurred in children under 5 years of age. Paratyphoid was made noticeable during the year and 4 British cases, 3 Chinese cases, and 1 Indian case were reported; one of the Chinese cases died.

Other Infectious Diseases.

There were no locally acquired cases of cholera; the incidence of small-pox was light, only 110 cases being reported, while there were 78 cases of diphtheria, most of which occurred in the cool and dry season of the year—December to February.

Rabies was introduced into the colony after many years of freedom, and three human deaths were recorded—one British, one Japanese, and one Chinese. Stringent muzzling orders were at once enforced, and the importation

of dogs from infected countries prohibited. Seven infected dogs were found as the result of the segregation and examination of all suspects, and it is hoped that the disease will be promptly stamped out by a continuance of these measures.

Correspondence.

NOTIFICATION OF BIRTHS.

SIR,—My attention has been drawn to an error in my statement at the Representative Meeting (SUPPLEMENT, July 31st, p. 63) which is contained in my use of the word *or* where the Act says *and*, and the consequences of the correction are interesting and peculiar.

By Sect. 1 (2) notification must be made "within thirty-six hours after the birth."

By Sect. 1 (1) it must be made by the father (if actually resident) *and* by "any person in attendance upon the mother at the time of, or within six hours after, the birth. . . ."

According to this, it might easily happen to be the "duty" of several persons to notify the same birth, but fortunately Sect. 1 (3), which imposes a penalty of 20s. for default, adds the following words: ". . . a person shall not be liable . . . if he satisfies the court that he had reasonable grounds to believe that notice had been duly given by some other person."

Which, after all, is what I said.—I am, etc.,
T. W. H. GARSTANG,
Atricheam, Aug. 9th. Chairman, Medico-Political Committee.

MISSIONARIES AND WAR SERVICE.

SIR,—In a recent number of the JOURNAL (July 17th, p. 124) a correspondent asks why missionaries have not come home to serve their country.

The fact has possibly not been made public that the members of the Medical Missionary Association of India, some 200, of all denominations, on the outbreak of war at once offered their services to the Government of India. Some were accepted for civil duties, thus setting free many I.M.S. men, many more of whom could in this way be replaced by missionary and other civil practitioners if necessary.

Other medical missionaries came home, and at the present time, from the Church Missionary Society alone, no fewer than sixteen doctors are serving in the R.A.M.C.

This leaves many very important mission hospitals very shorthanded. In some of these hospitals 150 beds are kept occupied, and from ten to twenty operations daily performed. Is this work to be stopped? We are told that in many military hospitals there is a large staff with very little work.

As regards clerical missionaries, these also were willing, but they were told that their presence among the natives, fostering loyalty and maintaining confidence, is more valuable than any work they could do at home.—I am, etc.,

Brighton, Aug. 4th. A. NEVE, Major R.A.M.C.

CAPTAINS I.M.S.

SIR,—Might I draw attention to a concession that might be made to those of the I.M.S. whom it affects?

Accelerated promotion to major of six months is given to those who are considered to have deserved it by passing an examination on completing certain courses of study. Now to do this leave is necessary, and this has been notoriously difficult for men in civil employ to obtain. Personally, I have had one year's furlough, and that on medical certificate, in nearly twelve years' service. I think that this concession might be granted automatically during the war to those who are affected, because otherwise the man who went into civil employ early will be very unfairly handicapped compared to his contemporary who remained in military employ where leave is much easier to obtain.

One cannot grumble at the fact that many of us have lost by being reverted to military duty, or that the proposed increase in our pay has been indefinitely postponed. Every one must expect to make sacrifices at such a time,

but I think we may fairly ask that a few of us shall not be unjustly handicapped by the fact that we have been unable to obtain the furlough necessary to qualify, and shall be unable to do so for a long time to come.—I am, etc.,

July 28th.

CAPT. I.M.S.

COMPULSORY MEDICAL SERVICE IN THE PAST.

SIR.—At the present time, when there is likely to be a scarcity of surgeons for military service, it is interesting to note what has been done in the past to meet military and naval exigencies.

I think there can be no doubt that, from time immemorial in this country, the State has exercised the right of enforcing service on any of its subjects, when the voluntary supply was insufficient for national needs. Old records give fairly numerous instances of compulsory medical service in ancient times. We find that in 1560 the following Order under the Great Seal was served on the Company of Barber Surgeons by Queen Elizabeth:

We lett you wete that for certeyne considerations us movinge we have by these presents authorised & lycensed our Trustie and Wellbelovyd Servaunte Thomas Vicary Serjeant of our Surgions & the Wardens of the Fellowship of the said Surgions within our Cytie of London that now be or hereafter shalbe, that they by themselves or their assigne bearer hereof shal & may from henceforth take & retyene at our wages as well within the Cytie of London as elsewhere within any other Cytie Towne Bourouge or other place within this our Realme as well franchised and privileged as not franchised nor privileged suche and as many Surgions as they shall thinke mete and able from time to time to doe unto us servyce in the scyence of Surgerie at any season hereafter as well by sea as lande and further that the Sergeant and Wardens aforesaid shal or maye take of such as be not able to serve such instruments and other stuff of Surgerie as they thinke mete to serve ageynce and payntie therefor to all suche of whom any suche instruments or stuff shall be taken. Wherefore we will and commaunde you & every of you that unto our saide Sergeant and the Wardens aforesaid and their assigne bearer hereof in the due execution of this our autoritie and lycence ye within helpeinge and assistinge as onf as the case shall require without any your denyall lett or contraryoyn as ye and every of you shall please and will avoide the contrary at your peril. In witness whereof We have caused this our Lettres of Comission to be sealed with our Great Seal. Witness ourself at Westminster the day of Decembre the seconde yere of our Reign.

It is to be noted that in this year there was no particular national crisis. War was threatened with Spain, but the period of the Armada was thirty years later. Again the Order for imprisonment was general, and might have been enforced at any time.

Passing on to December 7th, 1598, we read in the Annals of the Barber Surgeons of London:

This day commaundment came from the lordes of her majesty's most honourable privy counsell for to press a Surgion for her majesty's service in Ireland under the conduct of Captayne Winsor.

On December 12th John Cumberland was pressed, and four or five other surgeons were also pressed and handed over *noletis volens*.

As might be expected, abuses arose under summary methods of this character. One of these surgeons, Dominick Lomaline, is recorded on January 16th following, as having voluntarily confessed before the Masters, "that to be discharged of his presse for Ireland, it stood him in Twenty Nobles, of which the Captayne (Winsor) had in moneye three pounds."

The provision of deputies was not always good for the patient, for under date February 6th, 1599, it is recorded that:

One Richard Hallydaie, mariner, made his complainte of Ralphe Rowley for setting forth an insufficient man not approved to serve as a surgeon at sea in the Sheepe called the Costely of London by whose unskiffulness hee was dismembered of his arme and is in greate dainger of life.

Ralf Rowley had been pressed for a surgeon and had sent an unqualified deputy.

Again, in the time of Charles I, when the war broke out with Scotland (1633-39), a large army being collected in the north, the Barber Surgeons of London were directed to "press and forward 23 surgeons to Newcastle." In the Annals of the Company appears the following minute:

20th April, 1639.—Upon reading the warrant sent to this house from Yorke signed by the Lord Generall concerning the want

of Surgians in the Armye it is concluded by the Governour and Assistants here presented that Mr. Warden Dunn and Mr. Collins shall go on, & goe aboarde some Newcastle shipp and agree with a shipper for ye conveyance of ye Surgians & their Chests & provisions & their mates, & likewise give them conduct money, & that for the present that charge to be borne out of the stock of this house until it can be reboytyned from Thrusour of ye Armye.

The cost to the Company was £44 14s., but of this only £23 were subsequently repaid by the Government; so that the profession, as represented by the Barber Surgeons, not only found the men, but also paid a portion of the cost.

In the receipt given for the expenses, the name of Mr. Sergeant Clowes appears. He received £17 10s., but probably had to share some of it with the other surgeons. This was Wm. Clowes, jun., the son of Wm. Clowes, Surgeon to Queen Elizabeth and James I, who accompanied Sir Philip Sidney in the English expedition to Flanders. He was Sergeant Surgeon to Charles I, and did military service during the parliamentary wars.

The above extracts from the Annals of the Barber Surgeons of London will, I think, throw sidelights on the way in which our services were once requisitioned by the State, and history may repeat itself. In the present war the Government has approached the British Medical Association to assist it in getting a voluntary medical service. This is more in accordance with the present principles of democracy, and if voluntary methods suffice, there may be no necessity to follow the example of our forefathers. If, however, a voluntary system prove inadequate, some form of compulsion will become necessary. In that case, it should be clearly understood that compulsion, if unpleasant, is by no means a novelty; that we are only repeating a procedure that has been frequently adopted in the past history of our country.—I am, etc.,

London, N.E., Aug. 11th.

MAJOR GREENWOOD.

IS URINARY CALCULUS RARE IN IRELAND?

SIR.—There seems to be a general opinion that urinary calculus is rare in Ireland. This opinion would seem to be borne out by statistics given in a paper recently read before the Royal Academy of Medicine in Ireland by its President, Dr. Walter Smith, physician to Sir Patrick Dun's Hospital, a reprint of which has been sent to me by the author. Dr. Smith quotes the following physicians and surgeons:

Sir Thomas Myles (Dublin), who states that his experience confirms the view of the late Robert McDonnell, that calculus is rare in Ireland compared to England; Mr. Gunn (Dublin), who, having looked over his cases for some years, finds 19 patients suffering from urinary calculus; Mr. William Taylor (Dublin), who supplies an elaborate table of the results of his practice since 1900 (his total number of cases is 25); Sir William Whitla (Belfast), who sees only a very odd case of calculus; Mr. Mitchell (Belfast), who has met with about 15 cases in the last fifteen years; Professor Sinclair (Belfast), who has not during the last twenty years operated more than thirty-six times for stone; Professor Pearson (Cork), who finds that urinary calculus is very rare in the South of Ireland (he has had 15 cases in fifteen years); and Dr. MacDowel (Sligo), who reports 3 cases in twenty years. Dr. Smith applied to me for statistics from my practice, and I sent him a list of 82 cases, 41 of which were vesical and 41 renal. Unfortunately, Dr. Smith mislaid my memorandum, and the cases were consequently not referred to in his paper. The comparatively large number of 82, to which I have added several since, would indicate that, at any rate in the North of Ireland, calculus is not so rare as Dr. Smith's paper would lead one to suppose. I hope at a future date to publish a short article on my cases, giving, so far as I know, the district in which the patient has been domiciled, and the chemical composition of the stone. These cases have been collected for a period of about ten years, and form about 8 per cent. of something approaching 1,100 cystoscopies in hospital and private practice.—I am, etc.,

ANDREW FULLERTON, M.Ch., F.R.C.S.Irel.
Belfast, July 10th.

DREAD OF INFECTION FROM PULMONARY TUBERCULOSIS.

SIR.—My daughter has the misfortune to be suffering from pulmonary tuberculosis, and is being treated at

home, but I find it increasingly difficult to keep my servants, such as their unreasoning dread of this disease. It is not as if they were asked to nurse her, or, indeed, to do more than convey her meals to her, but, thanks to the campaign against tuberculosis and the proposal to make it a notifiable disease, they have become imbued with a belief in its infectiousness. It is high time we went astern a bit lest the outcome of our efforts to educate the public should be to convert the unhappy victims of consumption into pariahs, and to deprive them of the care and sympathy to which they are entitled, which, moreover, they received until we recklessly disseminated what I am fain to regard as exaggerated views of the risks entailed by the presence of a consumptive person in the family circle.

It is generally agreed that by the adoption of a few simple, common-sense precautions all danger of infection virtually disappears, and this is a point—an all-important point—which the public do not grasp.—I am, etc.,

A MEDICAL FATHER.

THE CAUSE OF HARE-LIP, CLEFT PALATE, CRETINISM, Etc.

SIR,—At the annual meeting of the British Medical Association in Carlisle in July, 1896, I gave a lantern demonstration of cretinism, in which I suggested that the sporadic form, due to lack of development of the thyroid body, was analogous to any other embryological stunting, such as abscence or dwarfing of uterus, ovaries, or testicles, acardia, acphalia, anencephalia, hare-lip, cleft palate, spina bifida, etc.

In Bantlett's *Wild Animals in Captivity* it is stated that lions, fed on the flesh only of large animals, instead of on a larger proportion of the body of smaller animals (with small bones, skin, intestine, blood, and all), rarely have completely developed offspring, the most frequent and almost constant imperfection showing itself in the form of defective palate, and that the certainty of this has been fully established by observations made on animals bred in captivity.

It might be worth while in the case of any infant showing any of the above or other signs of incomplete development, to make inquiries as to any nutritive defects of its parents.—I am, etc.,

Kendal, Aug. 11th.

WM. R. PARKER, M.D.

DIAGNOSIS OF GOUT.

SIR,—Dr. W. J. Midleton's reply to Dr. Berkart is interesting in two respects—first, in his remark that gout is due to a specific micro-organism, and, secondly, in his apparent opposition to Dr. Berkart's derision of counter irritation in the treatment of this supposed trouble. It seems remarkable that anyone believing in the micro-organism theory should suggest treatment by counter irritation in a disease where there would be reasons to believe that such procedure would be as futile and harmful as in phthisis or any other disease of micro-organic origin. The only rational treatment would be the injection of a specific antitoxin when the particular organism has been discovered. But since sufferers from gout have been for ages past bringing on their own trouble by errors in diet and getting better by their correction, the discovery of such organism seems neither likely nor necessary.

A patient of mine, usually in vigorous and robust health, can bring on an attack of gout by drinking a few glasses of champagne; and the effects of rich foods, strong ale, porter, and port wine are too well known to need comment. But I have never yet heard of any inducing an attack by drinking gin. Gin contains juniper, and juniper clears the kidneys, and hence there is little possibility of an accumulation or deposit of urates, which Dr. Midleton seems to think Dr. Berkart relies upon for a correct diagnosis.

I am of opinion that if any medical man who is a sufferer from gout will go to the trouble to study the specific gravities of his urine he will find that for a day or two before an attack, or in some cases for a week or two, his urine will fall in specific gravity—that is, a urine which, in the ordinary health of one who is a free eater, varies between a specific gravity of 1030 to 1015, will fall much below the latter figure, reaching specific gravities sometimes so low as 1003 or 1002, and for some hours may even equal that of pure water. But metabolism is going on and the uneliminated products of katabolism or tissue waste are

steadily accumulating in the blood. The patient sooner or later is ripe for his attack and is struck down in the agonies of gout. But at the same time, or before long, the kidneys, in spite of their previous sluggishness, now take on activity as unaccountable as it is vigorous, the result being a copious deposit of uric acid, and its associates. This clears the system and in a typical case the patient usually recovers. But in the pathological picture which Dr. Berkart draws such recovery would be impossible. That the theory of "perforative synovitis" is inadequate to explain the symptoms of many cases which have hitherto been attributed to the deposition of uric acid or sodium bicurate is plainly shown by Dr. Berkart's own statement, in which he points out that "this cystoid degeneration" . . . "may, however, become gouty if from a concomitant disease of the kidneys uric acid is retained and accumulates in the blood," which is no more than to say that gout after all is due to a deposition of uric acid; and yet in the opening lines of his article he repudiates the supposition of such deposition in the majority of cases as misleading and mischievous, and states that uric acid could act neither as a mechanical irritant nor as a toxic agent without leaving invariably indelible changes in the articular cartilage; concluding the paragraph with the statement that in "numerous instances"—diagnosed as gout—"the articular cartilage appears on *post-mortem* examination to be perfectly normal"—showing plainly that whatever the nature of the trouble, it could not have been due to cystoid degeneration which must necessarily be a permanent pathological change. It is, however, difficult to understand why uric acid, especially when merely acting as a toxic agent, should not undergo absorption leaving as little evidence of its injury upon the articular cartilage when there has been no actual degeneration as that certain skin troubles will frequently disappear, without leaving the slightest evidence of their ever having been present.

Dr. Berkart therefore adequately explains an articular disease due to cystoid degeneration with a superadded gout, but leaves us completely in the dark as to the nature of those "numerous cases diagnosed as gout," but showing no structural alteration in the joints.—I am, etc.,

Liverpool, Aug. 8th.

WILLIAM BRAMWELL.

ON THE CURVE OF THE EPIDEMIC.

SIR,—I thank Mr. Trachtenberg for his letter of July 22nd. The separation of the two parts of the logarithmic expression was of course a slip, and he is quite right in pointing out that the substitution that I made was illegitimate and does not lead to an identical solution. I hastily overlooked the fact that we were not provided with the functional relation between y and t . On May 8th Dr. Brownlee gave us three suggestions, but no indication of what kind of function he intended this y to be. Under the circumstance it does not appear to be possible to integrate the equation, or to form any but the vaguest idea of its meaning.—I am, etc.,

Newcastle-on-Tyne, Aug. 10th.

A. S. PERCIVAL.

THE STERILIZATION OF THE SKIN WITH TINCTURE OF IODINE.

SIR,—If Surgeon-Major Porter were read my original paper, which appeared in the *BRITISH MEDICAL JOURNAL* of August 14th, 1909, he will find that I referred to the work of Professor Grossich. I also referred to his paper which was published in the *JOURNAL* of February 6th, 1909, and to a contribution by Mr. Goodwin the following week.

They had all used a 10 per cent. solution of iodine, which is known in this country as liq. iod. fort. or lin. iod. Prior to my communication no one had ever suggested using tinct. iodi, B.P.

If Surgeon-Major Porter "quickly discovered that the 10 per cent. solution was not necessary and was sometimes injurious," he did not impart this knowledge to us, nor did he suggest an alternative method. I have never claimed to be the originator of the liq. iod. fort. method. I was the first to use and to advocate the tinct. iodi, B.P., and this is the solution which is now universally used.—I am, etc.,

J. LIONEL STRETTON.

Kidderminster,
Aug. 9th.

Senior Surgeon, Kidderminster Infirmary and
Children's Hospital.

THE LATE MR. EDMUND OWEN.

SIR,—I have read with much interest the obituary notice of Mr. Edmund Owen which you published in your issue of July 31st.

I should be glad, however, if you would kindly supplement it in your next issue by mentioning the eminent services which our lamented friend rendered to the French Hospital, and for which he received the Cross of the Legion of Honour from the hand of M. Emile Loubet when, as President of the French Republic, he visited the hospital in 1903.

Mr. Edmund Owen succeeded Sir William MacCormac as surgeon of the French Hospital in December, 1901, and up to his death always manifested the liveliest interest in the hospital; many are the patients who have benefited by his talent and devotion. On several occasions at our annual banquets he has given expression to the sympathy which he had for the French Hospital and the patients whom he had under his care.

But if he loved the hospital, everybody here loved him; his death leaves a great void, and we shall ever regret the loss of a man who combined with the highest professional capacity a character of lofty personality, straightforwardness, and affectionate devotion.—I am, etc.,

ARTHUR BAUME,
President of the Committee of the
French Hospital.

Shaftesbury Avenue, Londres,
Aug. 10th.

Obituary.

HENRY MACDONALD CHURCH, B.Sc., M.D.,

F.R.C.P. EDIN.,
EDINBURGH.

On the evening of Tuesday, August 3rd, Dr. Henry Macdonald Church, after forty years of devoted, sympathetic, and conscientious ministrations to the sick and suffering in Edinburgh, passed peacefully to his reward, and to that life of higher service toward which he had been constantly pressing forward. On the afternoon of Thursday, July 29th, on his return from a visit to a professional friend, while stooping to take off his boots, he was suddenly seized with right hemiplegia and aphasia. He never recovered consciousness. Dr. Church was born in Dalhousie, near Edinburgh, sixty-six years ago.

He studied at Edinburgh University. During his medical course he took the degree of B.Sc., and graduated M.B., C.M. in 1872. He assisted Dr. Shand of Kirkcudbright till November of that year, when he became junior demonstrator of anatomy to Professor Turner. Six months later he entered the Royal Infirmary as resident to Professor Amundale and later to Sir Thomas Grainger Stewart. Having completed these periods of valuable experience, he continued his medical education in Vienna, Berlin, and London, and on his return to Scotland he acted as assistant to Dr. Brotherton of Alloa. In 1875 he began practice in George Square, Edinburgh, where his kindly, skilful treatment drew to him a large amount of general practice. Four years later he was elected a Fellow of the Royal College of Physicians.

During his undergraduate course Church became a member of the Royal Medical Society, and he was afterwards elected one of the presidents of that oldest of all medical societies. He took an active part in the work of the Medico-Chirurgical and of the Obstetrical Societies of Edinburgh and made occasional communications to them. Two of these deserve special mention. One of these was the paper he read in 1903 before the Obstetrical Society on "Overlapping of pregnancy and lactation," founded on facts observed by himself in a series of 7 cases. He pointed out the dangers to the mother, the suckling, and the embryo. The other communication was on rheumatoid arthritis, and in it he discussed the etiology and also advocated on chemico-physiological grounds a liberal diet in treatment. On two different occasions the Obstetrical Society asked him to occupy the presidential chair, a position which he would have adorned, but on each occasion he declined the honour on the ground of health, but he retaliated (in a kindly fashion) by presenting to the society a very handsome chair for the use of future presidents.

Dr. Church was most highly appreciated by those who knew him most intimately. He was a warm-hearted, staunch friend. Although he had a high standard of morals, he was always ready to find an excuse for the failings of others. He had a fine imagination, a poetic mind, and was a great lover of nature, especially of botany. When in 1907 the Royal College of Physicians was invited to send two delegates to Upsala to take part in the bicentenary celebrations of the great Swedish botanist, Linnaeus, Dr. Church was one of the two who were chosen by the College. Linnaeus and Boerhaave were two of his heroes; he loved to study their lives and work.

The anxieties of medical practice press somewhat seriously on those of highly sensitive and sympathetic nature. Dr. Church found it advisable some years ago to take a prolonged holiday, and later to limit the number of his engagements. During his holiday he revelled in his much-loved books. Although he had so great a love of nature, science, literature, and golf, he never allowed any of these to interfere with duty. He always gave his patients of his best. A large circle of friends and patients will greatly miss his kindly presence and his wise counsel.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. F. T. Bicknell, one of the organizers of the medical department of the University of California, and for many years professor of gynaecology in that institution, aged 73; Dr. R. H. M. Dawbarn, clinical professor of surgery in Fordham University School of Medicine, New York, and emeritus professor of surgery in the New York Polyclinic Medical School, aged 55; Dr. Francis Delafield, emeritus professor of medicine in the New York College of Physicians and Surgeons, president of the Association of American Physicians in 1886, author of well-known textbooks on morbid anatomy and physical diagnosis, aged 73; and Dr. W. B. Dorsett, professor of pelvic surgery and gynaecology in the St. Louis University School of Medicine, aged 63.

The Services.

ROYAL ARMY MEDICAL CORPS.

PROMOTION OF LIEUTENANTS, SPECIAL RESERVE, AND TERRITORIAL FORCE.

The following Army Order has been issued:

1.—Promotion of Lieutenants of Royal Army Medical Corps, Special Reserve, and Territorial Force.

1. With reference to paragraph 102, Territorial Force Regulations, it is notified that, during the present period of embodiment, Lieutenants of the Royal Army Medical Corps, Territorial Force, will be eligible for promotion to the rank of Captain on the completion of six months' embodied service.

2. No promotion under this decision will, however, bear a date prior to the 1st April, 1915, even though the officer may have completed the qualifying minimum period of six months' embodied service sometime prior to that date. Subject to this proviso, embodied service rendered before the 1st April, 1915, will be allowed to count as qualifying service for the purpose of these promotions.

3. Recommendations for promotion should be put forward immediately in accordance with the above decision.

4. The promotion of Lieutenants of the Royal Army Medical Corps, Special Reserve, will be made on similar lines. The necessary action in their case will be taken by the Army Council direct.

By Command of the Army Council,
R. H. BRADLE.

War Office,
5th August, 1915.

TERRITORIAL FORCE.

EXCHANGE DESIRED.

LIEUTENANT A. G. S. LOGIE, R.A.M.C.(T.), 21st South-Eastern Mounted Brigade Field Ambulance, Maresfield Park, Sussex, wishes to find a substitute so as to enable him to transfer to a unit going on foreign service. He would exchange with an officer in a unit going abroad or already abroad.

Medical News.

The library of the Royal College of Surgeons of England, which, though the museum is closed, remains open, will be closed as usual during the month of September, to be reopened, according to custom, in October.

AN international committee is being formed to assist the University of Louvain to reform its library. Many of the rarer works it will probably be impossible to replace, but already in response to an appeal made recently in the *Bulletin of the John Rylands Library*, Manchester, upwards of three thousand volumes have been received or promised.

A COURSE of lectures for school teachers and others entering for the examinations in school hygiene has been arranged by the Royal Sanitary Institute, Buckingham Palace Road. The first lecture will be given on Monday, October 4th, at 7 p.m., and the course will conclude on Friday, November 26th. The fee for the course is £1 1s. The sixtieth course of lectures and demonstrations for sanitary officers will be held at the Institute from September to November. Further particulars can be obtained on application to the Secretary.

We are informed by the Secretary of the Board of Education that, some eighteen months ago, Madame Bergman Osterberg, the principal and founder of the well-known Swedish Physical Training College at Dartford, desired to relinquish the active direction of the work of her college. In so doing, she wished in the national interest to secure the continuation of the work which had been so successfully established and developed. With this purpose in view, she generously offered, with the full approval and sympathy of her husband, Dr. Edwin Osterberg of Stockholm, to transfer her college to the Government. For reasons in no way connected with the college, it was found impracticable to accept the offer, and Madame Osterberg was advised to create a trust. Almost her last act before her death was to sign the trust deed, vesting her property in a trust with the object of carrying on the college in the national interest on its existing lines, and maintaining the traditions already established. The trustees appointed are: Dr. Christopher Addison, M.P., Mr. Valdorf Astor, M.P., Sir George Newnes, M.P., the Marchioness of Salisbury, and the Right Hon. Lord Shaw of Dunfermline. While the ultimate control of the institution rests with the trustees, the general management and working of the institution will be placed in the hands of an executive committee of ten persons representative of various official and other bodies concerned with the physical education of women.

The report on the public health of Adelaide for 1914 shows that the population has remained about stationary, an increase of 305 only being recorded. The birth-rate—28.23—was considerably lower than that of 1913, which was 31.03; the death rate was lower also—13.63 in 1914, as against 14.42 in 1913. The infantile mortality rate was considerably higher than 1913, being 87 per 1,000 births; it was 63 per 1,000 in the previous year. The medical officer of health, Dr. Borthwick, however, states that these rates, which are based on the data supplied by the Registrar-General's monthly returns, do not afford a correct view of the position. This is partly owing to many persons who are resident outside the city coming for treatment and dying in the various institutions. The deaths from phthisis represent the lowest mortality-rate on record; the number of deaths from cancer was above the average of the preceding six years. From the tables of prevalence of various diseases we find that the only material increases were in respect of typhoid fever and whooping-cough. There was a satisfactory decrease in the number of cases of diphtheria, scarlet fever, and measles. Some progress was made during the year in the crusade against consumption. The metropolitan boards of health contributed £350 a year towards the funds of the James Brown Trust, which in return provided at least seven beds for the treatment of poor patients in the early stage of the disease. In addition, there are sanatoriums for patients who are able to pay; and the Government has provided for the isolation and treatment of poor patients in the advanced stages of the disease. So far as the city is concerned, the education and supervision of consumptive patients are being carried on by the city-trained nurse, and every house is disinfected after removal or death of a patient. The general sanitation of the city has improved, and the staff of sanitary inspectors, under the medical officer of health, made no fewer than 14,253 visits to various premises in order to abate nuisances.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Hillog, Westrand, London*; telephone, 2633, Gerard. (2) SPECIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Arviculate, Westrand, London*; telephone, 2630, Gerard. (3) MEDICAL SECRETARY, *Medisera, Westrand, London*; telephone, 2634, Gerard. The address of the office of the British Medical Association is 15, South Frederick Street, Dublin.

ES—Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

RECURRENT ERYSIPELAS OF LEG.

C. D. asks for advice in the preventive treatment of recurrent erysipelas of the leg. The attacks have occurred about twice a year for the last ten years. He asks whether any serum is available.

INCOME TAX.

H. B. has been asked by the surveyor of taxes to supply statements of accounts for three years, and inquires as to what expenses he can deduct.

Speaking generally, the cost of maintaining, but not of improving, the professional equipment is deductible. Thus, to take the items mentioned by H. B., the cost of upkeep of a car, including petrol, tyres, driver's wages, etc., but not depreciation, can be deducted, nor the cost of the original car, or the amount by which the cost of a new car exceeds the net cost of the car displaced. The payments made to a locum-tenent are frequently allowed when incurred by reason of the illness of the practitioner and refused when occasioned by a holiday. The interest referred to will be allowed if paid on an ordinary bank overdraft; otherwise H. B. should deduct tax on payment of the interest, and no income-tax allowance will then be due to him under that head. Interest paid off a loan cannot be deducted, being purely capital payments. Expenses of house decorating and painting would presumably be allowed in the same ratio as rent and rates—that is, to a reasonable extent (not exceeding two-thirds), having regard to the proportion of the premises used as surgery, consulting and waiting rooms, and garage. Our correspondent may find it useful to refer to an article on the general question which appeared in our issue of April 18th, 1914.

ANSWERS.

D.—We cannot ascertain that any brown aniline colours have been used medicinally, and we have been unable to find any reference to such use in the literature. With regard to brown colours for colouring food materials, the number of these appears to be somewhat limited. The brown known as Chrysinin K is stated to be harmless, while Messrs. Read, Holtby and Sons, Ltd., Huddersfield, state that they are able to supply Bismarck browns suitable for such purposes.

LOW SPECIFIC GRAVITY OF URINE.

DR. ARTHUR GEORGE HARVEY (Wirksworth, Derbyshire) writes: A few days ago a gentleman came to me to be examined for life insurance. He was a healthy, vigorous young man, aged 23, engaged in farming. I left him alone to pass urine, and on returning to the room I was surprised to find the fluid was exactly like spring water, and had a specific gravity of 1000. He was perfectly normal in every other respect. The next morning he sent a sample of his urine passed early in the morning. This sample was normal in colour, had a specific gravity of 1024, acid, and free from albumin and sugar. I have frequently had cases of low specific gravity of urine due to nervousness, but never one approaching this case. The peculiarity of this case is that he showed no sign of nervousness during examination, and I am inclined to attribute it to his drinking large quantities of tea, as he is a total abstainer. I should like to have the experiences of other men on the subject.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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THE

INFLUENCE OF INTRAVENOUS INJECTIONS OF NEO-SALVARSAN ON THE ARTERIAL BLOOD PRESSURE.

By H. D. ROLLESTON, M.D., F.R.C.P.,

SURGEON-GENERAL (TEMPORARY), R.N.,

CONSULTANT PHYSICIAN TO THE ROYAL NAVY, ROYAL NAVAL HOSPITAL, HASLAR; SENIOR PHYSICIAN, ST. GEORGE'S HOSPITAL.

The blood pressure was investigated in a hundred consecutive cases in which neo-salvarsan was given intravenously for syphilis, in almost all in the secondary stage. The patients were in the Royal Naval Hospital, Haslar, under the care of Staff Surgeon J. S. Dudding, R.N., who kindly gave me every facility for examining them. Their average age was 24 years, and except for twelve who were 30 years of age and over, and for six under 20, were all between 20 and 30 years of age. The amount of neo-salvarsan varied between 0.9 and 0.6 gram. The blood pressure (systolic and diastolic) was taken (i) on one or more days before the injection was given, (ii) about seven hours after the injection, and (iii) on three or sometimes four subsequent mornings. In 19 of these cases the blood pressure was also taken during the intravenous injection of neo-salvarsan. Included in the 100 cases were 12 cases in which the blood pressure was investigated in connexion with both first and second injections of neo-salvarsan—usually at a month's interval. Mercer's sphygmomanometer, with an arm-cuff of 14 cm., was used. The auscultatory method was employed, the maximum systolic pressure being estimated as the mean between the points where the auscultatory sound disappeared and reappeared, and the diastolic pressure at the time of the so-called fourth phase, where the intensity of the auscultatory sound suddenly diminishes. I took all the blood pressure estimations myself, so that errors from more than one personal equation were avoided.

Comparison of the Blood Pressure before and after the Intravenous Injection of Neo-salvarsan.

In every case the average of the blood pressure estimations taken before injection was compared with the average of the blood pressure estimations taken on the days subsequent to the injection. The blood pressure estimations taken seven hours after the injection were not included here, and are dealt with below. In 77 out of the 100 cases the intravenous injection was followed by a fall in both the systolic and diastolic pressures. The average fall of the systolic pressure was 16 mm. Hg, and of the diastolic pressure 13 mm. Hg. Out of the 23 remaining cases there were 8 in which both the systolic and diastolic pressures were higher after than they were before the injection, the average increase in both the pressures being 11 mm. Hg; 8 cases in which the systolic pressure was higher after than before injection (average increase 5.2 mm. Hg), while the diastolic pressure was lower after than before injection (average fall 6.5 mm. Hg); 6 cases in which the diastolic pressure after was higher than before injection (average increase 4.5 mm. Hg), while the systolic pressure after was lower than before injection (average fall 8 mm. Hg); and one case in which both the systolic and diastolic pressures were the same before and after injection. By arranging these figures rather differently it is seen that after injection there is

A fall in both the systolic and diastolic pressures in	77
A fall in the systolic alone in	6
Making a fall in the systolic pressure in 85	8
A fall in the diastolic alone in	8
Making a fall in the diastolic pressure in 85	8
A rise in both the systolic and diastolic pressures in	8
A rise in the systolic pressure alone in	8
Making a rise in the systolic pressure in 16	6
A rise in the diastolic pressure alone in	6
Making a rise in the diastolic pressure in 14	1
No change in either the systolic or diastolic pressure in	1

It is therefore clear that the average of the blood pressure estimations taken after injection is usually lower than that before injection. In the systolic blood pressure there was a fall in 85 cases, as compared with a rise in 16, or in the proportion of 5 to 1. The average fall in the

systolic pressure was 15.4 mm. Hg. In the diastolic blood pressure there was a fall in 85 cases, as compared with a rise in 14, or in the proportion of 6 to 1. The average fall in the diastolic pressure was 12.4 mm. Hg. The fall was therefore slightly less in the diastolic than in the systolic blood pressure. But before assuming that the fall in blood pressure is the direct result of the injection of neo-salvarsan, two factors must be taken into account:

1. That the patients were kept in bed from the day before the injection until some days after, and that the blood pressure estimations were nearly always taken early in the mornings of the days subsequent to the injection when the patients were in bed, even though they sometimes got up later in the day. In some cases the last blood pressure was taken when the patient was up, and in these cases the pressure was usually higher than those taken in bed. The fall of blood pressure may, therefore, have been partly due to rest in bed.

2. Mental excitement, although guarded against as far as possible, may have raised the blood pressures before injection; and hence the fall in the average of the blood pressure estimations taken after injection may have been more apparent than real.

In the light of these considerations, it does not appear that the fall in blood pressure was necessarily due to the intravenous injection of neo-salvarsan. At any rate intravenous injection of neo-salvarsan does not tend to raise the blood pressure on the following days.

Comparison between the Blood Pressure taken before and that taken Seven Hours after the Intravenous Injection of Neo-salvarsan.

In 55 out of 99 cases both the systolic and the diastolic pressures were lower seven hours after the intravenous injection of neo-salvarsan than they were before; the average fall of the systolic pressure was 16 and of the diastolic pressure 10 mm. Hg. In 16 of these 55 cases the temperature rose to 100° F. or higher, and in these the average fall in the systolic pressure was 19 and in the diastolic pressure 11 mm. Hg. Among these 16 febrile cases, 7 showed Herxheimer's reaction, and presented an average fall in the systolic pressure of 19 and in the diastolic of 13 mm. Hg. In the other 39 cases the averages of the falls in the systolic and diastolic blood pressures were 15 and 9 mm. Hg. The influence of fever caused by excessive liberation of spirochaetal toxins was not marked, as the average fall of the systolic and diastolic blood pressures was 4 mm. Hg only. In the remaining 44 cases the following results were obtained: In 19 cases both the systolic and diastolic pressures were higher after than before injection. The average rise in the systolic pressure was 8.4 and in the diastolic pressure 9 mm. Hg. In 4 of these 19 cases the temperature rose to 100° F. or above, and the average rise in the systolic pressure was 6 and in the diastolic pressure 9 mm. Hg. In the other 15 cases the average rise in the systolic pressure was 9 and in the diastolic pressure 10.6 mm. Hg. In 7 cases the systolic pressure was higher (the diastolic being on an average 7 mm. Hg lower) after than before injection. The average rise in the systolic pressure was 5 mm. Hg. In 1 of these 7 cases the temperature rose to 100° F., with a rise of 2 mm. Hg in the systolic pressure and a fall of 14 mm. Hg in the diastolic pressure. In 18 cases the diastolic pressure was higher (the systolic pressure being on an average 8 mm. Hg lower) after than before injection; the average rise in the diastolic pressure was 7 mm. Hg. In 9 of these 18 cases the temperature rose to 100° F. or above, and the average rise in the diastolic pressure was 8 mm. Hg and the average fall in the systolic pressure 11 mm. Hg. In the other 9 cases the average rise in the diastolic pressure was 6 mm. and the average fall in the systolic pressure was 5.5 mm. Hg. By arranging these figures rather differently it is seen that seven hours after injection there is

A fall in both the systolic and diastolic pressures in	55
A fall in the systolic pressure alone in	18
Making a fall in the systolic pressure in 73	7
A fall in the diastolic alone in	7
Making a fall in the diastolic pressure in 62	19
A rise in both the systolic and diastolic pressures in	19
A rise in the systolic pressure alone in	7
Making a rise in the systolic pressure in 26	7
A rise in the diastolic pressure alone in	18
Making a rise in the diastolic pressure in 37	1

The blood pressure seven hours after the intravenous injection of neo-salvarsan is therefore usually lower than the blood pressure before injection. In the systolic blood pressure there was a fall in 73 cases, as compared with a rise in 26, or, approximately, in the proportion of 3 to 1. The average fall in the systolic blood pressure was 14 mm. Hg. In the diastolic blood pressure there was a fall in 62 cases, as compared with a rise in 37, or in the proportion of 5 to 3. The average fall in the diastolic pressure was 9.6 mm. Hg. The fall in the diastolic pressure is therefore slightly less than in the systolic pressure. The fall of blood pressure seven hours after injection cannot be explained as due to fever, for a rise to 100° F. or more occurred in 30 cases only. Out of these 30 febrile cases the systolic pressure was lower in 25 and higher in 5 cases seven hours after injection than it was before injection. The average additional fall of the systolic blood pressure in the 25 cases was 4.5 mm. Hg, while the diastolic was lower in 17 and higher in 13 of the 30 febrile cases; and the average additional fall in the 17 cases was 2.6 mm. Hg. The influence of fever so far as it goes in depressing the blood pressure is even less marked on the diastolic than on the systolic blood pressure.

Comparison of the Blood Pressure taken Seven Hours after Intravenous Injection of Neo-salvarsan with the Average of the Blood Pressure Estimations on Subsequent Days.

Out of 98 cases there were 58 in which the averages of both the systolic and diastolic pressures on the days subsequent to injection were lower than those seven hours after the injection. The average fall in the systolic pressure was 7.3 mm. Hg and in the diastolic pressure 10.4 mm. Hg. Among these 58 cases there were 17 with a temperature of 100° F. or more seven hours after injection, showing an average fall of 10 mm. Hg in the systolic and 11 mm. Hg in the diastolic pressure; whereas in the other 41 cases the corresponding average falls in blood pressure were 8.7 and 10 mm. Hg. Out of the remaining 40 cases there were 13 in which the averages of both the systolic and diastolic estimations on the subsequent days were higher than the blood pressure seven hours after injection. The average difference in the systolic pressure was 9.5 mm. Hg and in the diastolic 8 mm. Hg. In 4 of these cases there was, seven hours after injection, a rise of temperature to 100° F. or more with corresponding differences of 13 mm. Hg and 16 mm. Hg, contrasting with differences of 8 mm. Hg (systolic) and 5 mm. Hg (diastolic) in the remaining 9 cases. In 21 cases the average of the systolic blood pressure estimations on the subsequent days was higher and the average of the diastolic blood pressure estimations on the subsequent days lower than seven hours after injection. The average difference in the systolic pressure was 5 mm. Hg, and in the diastolic 6 mm. Hg. In 8 of these 21 cases there was a temperature of 100° F. or more seven hours after the injection, and the corresponding differences were on an average 3.5 mm. Hg (systolic rise) and 6.5 mm. Hg (diastolic fall); whereas in the remaining 13 cases the difference was 6 mm. Hg in both cases. In 6 cases the systolic pressure was higher and the diastolic pressure lower seven hours after injection than the average of the blood pressure estimations on subsequent days, the average differences being 4.3 mm. Hg and 3 mm. Hg respectively.

By arranging these figures rather differently it is seen that, as compared with the blood pressure seven hours after intravenous injection, there is on the subsequent days:

A fall in both the systolic and diastolic pressures in	58
A fall in the systolic pressure alone in	6
Making a fall in the systolic pressure in 64	
A fall in the diastolic pressure alone in	21
Making a fall in the diastolic pressure in 79	
A rise in both the systolic and diastolic pressures in	13
A rise in the systolic pressure alone in	21
Making a rise in the systolic pressure in 34	
A rise in the diastolic pressure alone in	6
Making a rise in the diastolic pressure in 19	

This shows that the average of the blood pressure estimations taken on the subsequent days is usually lower than the blood pressure taken seven hours after the intra-

venous injection. The systolic blood pressure was lower in 64 cases and higher in 34, or roughly in the proportion of 2 to 1; while the diastolic pressure was lower in 79 and raised in 19 cases, or in the proportion of 4 to 1. The fall, therefore, is more marked in the diastolic than in the systolic pressure. The modifications in the blood pressure in the cases with fever seven hours after injection are not sufficiently constant or definite to justify any conclusions as to the influence of fever.

Blood Pressures taken during the Intravenous Injection of Neo-salvarsan.

As already mentioned, this was done in 19 cases. In 15 cases both the systolic and diastolic pressures were higher during the injection than they were on the previous days or day. The average rise in the systolic pressure was 22 mm. Hg, and the greatest 46 mm. Hg. The average rise in the diastolic pressure was 14 mm. Hg. In 2 cases the systolic pressure was higher, but the diastolic pressure lower, than on the days or day before the intravenous injection. In 1 case the systolic pressure was lower, while the diastolic pressure was higher than before injection. In 1 case both the systolic and diastolic pressures during injection were slightly lower (systolic by 1 mm. Hg, diastolic by 3 mm. Hg) than before injection. By taking the blood pressure throughout the process of injection it was shown that the systolic pressure may fluctuate considerably; the maximum variation was 28 mm. Hg, and the average 15 mm. Hg. It may be highest before the skin is punctured; thus, in 1 case the systolic blood pressure was 160 mm. Hg just before the injection was actually given and fell while it was going on to 140 mm. Hg. In most instances it was lower at the end than at the beginning of the *séance*. The diastolic pressure fluctuated less than the systolic pressure during the performance of intravenous injection; the maximum variation was 14 and the average 6.5 mm. Hg. In 18 out of the 19 cases both the systolic and diastolic pressures were higher during the injection than they were seven hours later, the average systolic difference being 23 mm. Hg, and the average diastolic difference 12.8 mm. Hg. In the remaining case the systolic pressure was higher, but the diastolic pressure was lower during injection than seven hours later. In 18 out of the 19 cases both the systolic and diastolic pressures during the injection were higher than the average of these blood pressure estimations taken on the subsequent days. In the remaining case the systolic pressure during injection was 22 mm. Hg higher than the average of the systolic estimations on subsequent days, but the diastolic was 3 mm. lower than the average of the diastolic pressures on subsequent days. It appears that the rise of blood pressure during the intravenous injection of neo-salvarsan is due to mental excitement.

Comparison between the Blood Pressure Estimations taken in Connection with (1) First and (2) Second Injections of Neo-salvarsan.

In 12 cases the blood pressure estimations were carried out in connexion with two intravenous injections of neo-salvarsan given at an interval of about one month. In 10 of these cases both the systolic and diastolic blood pressures taken before the second injections were lower than they had been before the first injection; in one case the systolic before the second injection was higher than it had been before the first injection, and in one case the diastolic pressure before the second injection was higher than it was before the first injection. The fall in 10 out of the 12 cases might be interpreted to mean that the remote effect of treatment was to lower the arterial blood pressure. But this must not be insisted upon, as the pressor effect of excitement would be much more powerful when the estimation was first done than on the occasion before the second injection. In addition 12 cases is too few to justify any far-reaching conclusion.

A comparison between (a) the average of the blood pressure estimations made on the days subsequent to the first injection, and (b) the blood pressure taken before the second injection, shows that in two-thirds of the 12 cases the blood pressure was higher in (b). But it must be remembered that in (a) the patients had been in bed for some five days, which would tend to lower the blood pressure, whereas in (b) they had been up.

CONCLUSIONS.

1. The average of both the systolic and diastolic blood pressures on the days after injection is generally lower than before injection, the fall in the systolic being slightly more marked than in the diastolic pressure. This fall, however, is very probably not a direct result of the action of neo-salvarsan, and, in part at least, may be due to rest in bed.
2. The blood pressure seven hours after the intravenous injection of neo-salvarsan is usually lower than it was before. The fall in the diastolic pressure is slightly less than that of the systolic pressure. The fall cannot be explained as due to fever.
3. As compared with the blood pressure taken seven hours after the intravenous injection of neo-salvarsan, the average of the blood pressure estimations on subsequent days is usually lower. This is more marked in the diastolic than in the systolic blood pressure.
4. During the actual intravenous injection of neo-salvarsan both the systolic and diastolic pressures are nearly always higher than on other occasions. This appears to be due to excitement. During the operation the pressures may vary considerably, the systolic blood pressure being more affected than the diastolic.
5. The blood pressure before the first injection of neo-salvarsan is nearly always higher than the blood pressure before the second injection of neo-salvarsan, but here again mental excitement may be responsible.
6. Finally, the general effect of intravenous injections of neo-salvarsan is rather to lower, certainly not to increase, the arterial blood pressure.

NOTES ON THE TYPHUS EPIDEMIC IN SERBIA, 1915.

By T. GWYNNE MITLAND, M.A., B.Sc., M.D.,
D.P.H.L.,

DIRECTOR OF THE TYPHUS COLONY, SKEPLJE, SERBIA.

From March 1st to the end of April, 1915, about 1,800 cases of typhus passed through our hands. It is impossible to form anything like a correct estimate of percentages with regard to deaths and sequelae, for the hospital was seriously handicapped by reason of the dearth both of nurses and medical attendants. So far as hospitals were concerned, the epidemic was almost entirely neglected during the first three weeks. So great was the mortality among the native doctors that the few who could be induced to take charge of the General Fever Hospital had to leave the supervision and treatment of patients almost entirely in the hands of the orderlies.

HOSPITAL ORGANIZATION.

When the Sixth Reserve Hospital was taken over for the purpose of isolation and treatment of these cases it was considered unjustifiable to detach nurses from the existing units, inasmuch as most of these nurses were surgical nurses whose services were required elsewhere. It thus happened that during the earlier days at the Sixth Reserve Hospital the nursing was left in the hands of three volunteers from the surgical unit. Two only of these were fully qualified nurses; the third was a probationer. These three nurses, together with one doctor, were left to cope with the typhus outbreak.

With such a staff it was, of course, impossible to provide adequate treatment, and so it was necessary to enlist in the work some Serbian soldier orderlies and a number of Austrian prisoners, and as a necessary precaution only orderlies and prisoners who had had typhus were selected. The wards one by one were emptied, scrubbed and washed with disinfectants, and the ceilings, walls, and floors were afterwards brushed with petrol. This cleaning was done twice weekly afterwards throughout the entire hospital buildings. The Austrian and Serbian attendants were, with a few exceptions, thoroughly washed, bathed in disinfectant, and given clean clothes. They were then isolated and not allowed to come into contact with anybody, save those in authority or patients under supervision. It was hoped in this way to avoid all contamination, and we found that only one case during the first few weeks became reinfectd by vermin. A certain number of the orderlies were not disinfected, and these were given the

charge of the admission of patients to the wards. To them was left the duty of unclotting the patients, shaving their heads, and passing them through the bath of disinfectant. From the bath of disinfectant the patients passed directly to the clean orderlies, who wiped them down and gave them clean night things. They were then sent to clean beds. We invariably carried out this method of handling new arrivals. As soon as we had a sufficiency of the requisite combination garment (to which reference will be made later) to distribute throughout the hospital staff, all the orderlies were disinfected, as they were enabled to maintain their cleanliness by discarding their clothes after each admission.

In the early days the conditions under which all the foregoing was performed were extremely primitive. The patients were disrobed on the steps of the pavilion in the open air, and passed into the hall—the antechamber to the wards—where they were immersed in a disinfectant bath, after which the “disinfected orderlies” took them at once into the wards. Later on, when the colony included two excellent cadet schools, we were able to take over the outside offices—kitchens, baths, and wash-houses—and here, in these outbuildings, the patients received the same treatment as above, but under much more favourable conditions.

It is unnecessary to dwell upon all the difficulties that we encountered in this procedure, such as shortage of water, and occasionally the inability of the Serbian authorities to give anything like proper notice of arrivals. The staff in the earlier days was driven to distraction by the difficulty of trying to uphold the ideal of scrupulous cleanliness as regards patients admitted. Realizing all these difficulties and how gravely we were understaffed, it is not surprising that during the first three weeks we could not perform any autopsies or bacteriological investigations. It was only later, when we obtained the services of Dr. Bellingham Smith and Dr. Daylell, and an efficient staff, that we were able to undertake this work. With our full staff—two doctors and Dr. Daylell, the bacteriologist, and twenty-six nurses—we were able to introduce order and provide adequate treatment.

To prevent lice getting into underwear it was necessary to improvise suitable garments—not such an easy matter, since the necessary tailoring was not to be had. At first we tried a jacket fitting high in the neck, long sleeves to button securely over the wrist, trousers fastening round the waist with string, and the legs tucked into high rubber boots. Finally I decided upon a sort of combination suit which answered admirably to all requirements, and was especially welcome in the hot weather. It was made in one piece, fastening at the neck like a bathing suit—that is, by two buttons on the shoulders, the trousers ended in feet which were slipped into sandals. To protect the hands, rubber gloves (previously boiled) came up well over the wrists. We made it a rule that all the staff should wear this outfit. Changing-rooms were provided, the combination suit being put on before going into the wards, and removed when going off duty.

SYMPTOMS AND COURSE.

As is always the case when one meets with diseases with which one is unfamiliar, one is inclined to dogmatize on the first few cases, but in reviewing to-day all the cases which passed under our notice, one finds it extremely difficult to give anything like a clear-cut picture of this fever. For instance, one hesitates now to conclude that the gravity of the case was indicated by the severity of the exanthem, or to presume that if the first fortnight passed without incident the prognosis was good. Infereuccs such as these were in course of time corrected. So far as possible one ought to abstract from the many cases, and give a typical example.

The incubation varies from five to fourteen days, but usually it is a period of twelve days—an onset of two days and a fever of sixteen days resolving in lysis. At the onset the patient shows no more discomfort than he does with an ordinary common cold. He may feel slight headache, a little pain in the back; he may lose his appetite, but for two days he does not show anything very suggestive. It is only on review that he remembers that he was somewhat out-of-sorts. On the third day these symptoms become aggravated, and he may now begin to suggest the typhus facies. He is not yet feeling sufficiently

unwell to take to his bed, but he has no inclination whatsoever for work, and by the following day, probably, definitely takes to his bed. Now the typhus facies is almost universal. If asked to distinguish it from the facies which goes with a common cold, one might say that it differs only in the respect that the secretions, instead of being excessive, are suppressed, and that as a consequence the nose and lips do not present the slightly swollen appearance they have in the common cold; otherwise the face is flushed slightly and the eyes are unquestionably congested, the vessels being decidedly injected. It is, perhaps, this absence of swelling of the nose and lips and the presence of the congestion elsewhere that makes all those who come in contact with typhus expert in distinguishing it by these features alone. The pulse is the only other feature which is at all distinctive. Its rate is slightly increased, it remains rhythmic and regular; with a large amplitude to the wave, its tension is low.

The skin looks slightly reddened all over, and frequently shows a kind of watercourse appearance, red channels running in every direction, confluent and often so diffused as (when not closely examined) to give merely an appearance of erythema. The urine is unchanged, there is no great increase in urates, and no albumin at this period. The bowels are slightly inactive and the appetite is poor. The thirst is from the first excessive. There are no physical signs to help one at this stage. The spleen is not enlarged. On the fourth or fifth day there appear for the first time some rose spots, widely separated and located variously over the abdomen, the lower part of the chest, and on the anterior surface of the shoulder. The patient is now beginning to look seriously ill. He is lethargic, his movements are sluggish, and he is almost comatose. From this time onwards his mouth is the greatest source of trouble. Sordes appear, and unless the mouth is carefully washed its foul condition is the beginning of various sequelae—parotitis, laryngitis, and otitis media. At the very best there is always a certain hoarseness and a certain amount of deafness. It is common at this stage also to find the urine suppressed for two or three days and then afterwards to find the urine displaying albumin and casts. For seven to ten days this condition goes on practically without change. The patient remains lethargic, seems dull and stupid, and almost comatose. He becomes markedly constipated, frequently wets his bed, and his mouth throughout the whole of this time requires constant attention. After this the patient begins slowly to recover, and at the end of the fourteenth day frequently shows a crisis which turns out to be a remission, the fever running up again for two or three days to decline afterwards in lysis. From this point onwards the patient again slowly recovers, and may, at the end of another week, begin to show a healthy and voracious appetite, a clear mind, and a considerable contentment. He is, however, distressingly weak; all his muscles are flaccid and his heart is readily upset.

SEVERE TYPES.

The two morbid types which we found to defeat all treatment were, first, those we called fulminating, and secondly, those exhibiting circulatory stasis.

Fulminating Cases.

Beginning in the ordinary way, the great difference between these and the normal cases took place about the second or third day after a rise of temperature had set in. It is from the observation of these cases that one is well advised to take the deposition of all patients before they lose consciousness, since these fulminating cases never recover consciousness. The patient passes into a deep coma. He displays very marked and exaggerated twitchings—subulturn tendinum. He mutters, picks at the bed-clothes, his face is markedly congested, and his eyes are frequently nystagmic with a squint. He has no control whatever over his sphincters, and usually within three days or so he dies.

Cases exhibiting Circulatory Stasis.

The next class of cases, in which the mortality is, perhaps, as great, is infinitely more disappointing. Patients in this class seem to pass through the whole fever without incident, so that one is justified in presuming that everything is well, when there begins,

about the twentieth day or so, typical circulatory stasis. The feet frequently become blue, the pulse small and thready; sometimes gangrene sets in, and the patient dies as if from asthenia.

These two types are the two morbid types. If one might venture to generalize, one might say the full plethoric individual is the more liable to the fulminating attack; the second is the type which affects and causes a great mortality among the older men, and, curiously enough, chiefly among the Austrians. It suggests inability of tissue recuperation, through senility of tissue in the older men; in the Austrian prisoner, devitalization of tissue through exposure, want, and depression. The impression that these cases leave with us is that the toxin is overwhelmingly potent, and affects all the tissues equally. There does not seem to be usually a selection or a nidus, except in the fulminating cases, where the toxin undoubtedly appears chiefly to irritate the cerebral cortex—in fact, the whole appearance of the patient makes one feel that he is of essentially low vitality, that all his tissues are depressed, particularly his musculature. As evidence of this he betrays hardly a movement. The tongue, for instance, which in health is constantly undergoing movement, lies in the mouth as if dead. It is no wonder that in such a septic cavity as the mouth, when the secretions are suppressed, there is such extensive vegetable formation to account for the sordes which is always present.

CONCURRENT DISTURBANCES.

Now, as regards the variety of coincident troubles that may develop in the course of this fever. In early days, when we were unable to provide individual treatment, we found that a large number—probably between 20 and 40 per cent.—displayed either parotitis, otitis, conjunctivitis, or laryngitis. One, some, or all together. On examining the patients the absence of spots did not permit us to exclude typhus—it was enough to find a patient unable to speak, almost deaf, or with a swollen gland or discharging ear, to make one suspicious that the disease was due to typhus. These symptoms alone were sufficient to justify us in placing the man under observation.

The Exanthem.

The spots usually described as typical of typhus were not characteristic in the majority of our cases; a minority of cases showed the typical form—that is, a rose spot about 1 mm. in diameter with indefinite edges, sometimes raised, sometimes impalpable. This rose spot occasionally became purplish, and was then definitely hæmorrhagic, no longer disappearing on pressure. A careful look-out for the first appearance of the exanthema will reveal the fact that it is first found on the upper segment of the abdomen, just as in typhoid; at a later stage only is it found extending up the chest and on to the shoulders. The majority of cases are protean. Very few of the spots become petechial; the majority vanish before that stage. This is the rule. Then, again, the time of persistence of the rash varies extraordinarily. Some spots behave in the orthodox manner, but they may be so evanescent as to elude observation altogether. It might be only that the case presented other distinctive symptoms that one was able to decide on the diagnosis at all. Again, the exanthem is by no means invariably a spotted rash; it presents occasionally a kind of watercourse appearance (already described), or a general erythema. Only in about two or three cases did we see a definite spotted rash extending over the entire body, with the exception of the face, the palms of the hands, and the soles of the feet. These cases were, it is true, unusually severe—in fact, fulminating cases; but there were fulminating cases without this extensive rash, so that one must not be led to the conclusion that the extensiveness of the rash was in proportion to the severity of the toxæmia. On the contrary, we found that the toxæmia was equally profound in evanescent rashes, so that it would be unwise to lay down rules with regard to the prognostic value of the rash.

One may say with regard to the concurrent disturbances associated with typhus that these may be removed to a great extent by careful nursing. One of the points which we insisted on was that the mouth should be most rigorously attended to. The mouth was washed out with

somo solution, such as permanganate—the only disinfectant we had in any quantity in the earlier days; later, when we had supplies, hydrogen peroxide was substituted, and, as a result, parotitis, otitis, and other naso-pharyngeal disturbances disappeared. Constantly snubbing the back of the throat considerably ameliorated the condition of deafness. Patients who were able were taught to gargle periodically throughout the day, and as a result the laryngeal trouble was improved.

Circulatory Disturbances.

Another condition which caused us much anxiety, and which occurred frequently in asthenic cases, was the circulatory trouble. For a considerable time we were unable to account for this. All that we noticed to begin with was that the feet and hands became blue and cold, and the pulse small and thready, indicating a general cardiac failure. But, apart from this, we found that we had to deal with local degenerative troubles. Patches of redness usually appeared on the feet, active congestion evidently occurring there, and later this was followed by patches of gangrene. Sometimes the toes would be symmetrically affected, would disorganize and fall off. We had two cases in which the nose was affected. The fingers, though frequently showing the earlier signs, never, in cases under my observation, went on to gangrene, but, in fact, completely recovered.

The general plan adopted in these cases was that, when the feet showed coldness and blueness, hot-water bottles were at once applied, and a supporting treatment was also adopted. Strychnine and digitalis were frequently injected, brandy occasionally administered, and, when possible, massage was given. If the condition of the extremities did not improve under this treatment but proceeded to redness, then evaporating lotions were applied, and these measures met with a fair amount of success.

If one were to form a surmise one might venture to say that the extremities were the parts most likely to become morbid, in view of the fact that they were the parts exposed to the detrimental action of frost and cold in the trenches, and that in all cases it might be said there was a previous degenerative disturbance due to long exposure to cold. It is well known, for instance, that a frost-bite, once obtained, leads to a tendency to recurrence under conditions which would not otherwise produce a frost-bite, and so in this condition we have such a grave circulatory disturbance that with the acute toxæmia of the disease and the preceding history of frost-bite there was a sufficient local disturbance to bring about a further depression of the circulation and a condition of gangrene.

Temperature.

On the second or third day of the onset of malaise the temperature gradually rises, until it reaches 103 on the fourth or fifth day. This temperature is continuous, occasionally rising to 104, until it ends in lysis. In some cases the temperature is remittent, and these, together with the fulminating cases, are the types which give the most anxiety. The cases with remittent temperatures caused the greatest anxiety after the subsidence; they were probably due to the associated cardiac disturbance—the failure of the cardiac muscle to respond to the toxins. The fulminating cases usually displayed continuous temperatures.

Pulse: Respiration.

The pulse was never very rapid and was usually associated with the temperature. The respiration was, however, frequently entirely dissociated with the temperature and pulse, and in some cases, until we gained larger experience, this dissociation with the temperature and pulse caused us grave anxiety. We felt it represented a definite local toxæmia of the medulla and to be the prelude to dissolution. Fortunately, however, with a wider experience we found that this dissociation was not a grave matter. A pulse of 98 and a temperature of 101° was occasionally combined with a respiration of 45. There never was the least sign of pulmonary stasis, and this is one of the most remarkable features of the typhus epidemic, considering the amazing depression of all the tissues together with the cardiac asthenia, that congestion and oedema of the lungs was not more frequently met with. In very few cases indeed did we know of any lung trouble at all, and these were only due, it was said, to secondary invasion. In only one case under my observation did we

get a bronchopneumonia, which is usually considered a frequent sequel, a result of the extension of the infection of the organism from the mouth down the larynx into the bronchi.

TREATMENT.

Finally with regard to treatment. A supporting diet, which usually included soups, Benger's food, Horlick's milk, and so on, was administered for the first fortnight. Occasionally brandy was given, but not often. There is a great prejudice in the Balkans against the use of brandy for typhus. One must acknowledge the right of the local opinion in this matter because of the considerable experience they have of the local form of typhus; they declare, and we think with good reason, that alcohol in any form aggravates the cerebral symptoms, which are such grave and important indications of brain toxæmia.

It must be remarked, therefore, that the next point in treatment which they always insist upon, and which is a corollary of the above, is the application of ice to the head. Ice was placed on the head from the onset, and maintained there until the subsidence of fever, and, if one can generalize at all, one may say with the greatest benefit. As has been stated, the mouth was attended to every half-hour throughout the day. In some cases sordes collected almost as quickly as it was wiped away. The patient was always moved very carefully, and turned from side to side to avoid bedsores, which occurred with amazing frequency considering the short duration of the decubitus. The extremities were kept warm. There was of course the greatest insistence on fresh air, and the window frames in the wards were removed. This appeared to the majority of patients to be, of all things, their greatest hardship when the icy winds of March were blowing through. In fact, patients of all classes in the Balkans always cover their heads when going off to sleep, and it was the duty of the nurse to see that their heads were uncovered, and that breathing was free and comfortable. At one time we thought that if we were to insist sufficiently on the principles of fresh air we should do much to diminish the virulence of the toxæmia, but we are unable to say that it had that profound effect we anticipated. The tradition of typhus is that it is associated with filth, overcrowding, and the absence of fresh air, and of course it was believed that if one could provide cleanliness, space, and fresh air, one would do much to diminish the virulence of the fever. But our experiences went to show that here fresh air was not apparently the potent factor that it is advertised to be, though naturally fresh air in all disease is a *sine quid non*.

ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

A CLINICAL STUDY OF EIGHTEEN CASES.

BY

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THE object of this paper is to give a brief account of our clinical experience at Tranquille in the treatment of pulmonary tuberculosis by compression of the lung with artificial pneumothorax in a series of 18 cases. The literature on this subject during the past two years has been very extensive, and the selection of cases, results obtained, and obstacles to be overcome in the use of artificial pneumothorax are still too much in the formative stage for any one to be too dogmatic. It is through correlating the experience of many independent observers in different circumstances that we can hope to ascertain the true place of this procedure.

Artificial pneumothorax was first used by us at Tranquille in December, 1913, and since that date we have tried to give 18 patients this treatment. The apparatus used was a modification of the Floyd-Robinson.¹ We were forced to make our own apparatus as a matter of economy, and have found it to work quite satisfactorily. At first we used nitrogen gas obtained by abstracting the oxygen from the air by pyrogallic acid and potash solution. After reading the research work of Webb and others² we came to the conclusion that sterile air would be quite as good and less troublesome, and for some months past we have been using

sterile air. Our results have been quite as good and we have not found that we had to make refills any oftener. We unfortunately have no x-ray apparatus at the sanatorium, so that we were not able to check our findings by this means.

The technique has been that most commonly used—namely:

1. Sterilization of the skin with tincture of iodine.
2. Injecting 4 per cent. novocain as a local anæsthetic. The important point here is to inject the novocain deeply, so that the parietal layer of pleura is anæsthetized as well as subcutaneous tissues.
3. Puncturing the skin with a sharp, thin-bladed knife.
4. Inserting the blunt Floyd needle. With practice we have found that one could tell when the needle had passed through the parietal pleura by the slight popping sound heard, like sticking a needle through a tense piece of cloth. The site of injection has been by preference the fourth or fifth interspace in anterior or mid-axillary line, though sometimes it has been found necessary to go much further back.
5. After withdrawing the stylet of the needle to get a proper fluctuation in the manometer. This is the crux of the whole proceeding. Once a proper fluctuation is obtained the rest is easy. In favourable cases, at the first injection slight withdrawal of the needle, and with very little manipulation, a good fluctuation was obtained almost at once. It has averaged from negative 2 cm. to negative 4 cm. (water). Unfavourable cases—that is, cases in which there were many adhesions—often required prolonged manipulation, and then only a very slight fluctuation of 0 to 0.5 cm. was obtained. Several times we punctured the lungs during our manipulations. Beyond the spitting of a little blood-streaked sputum it did no harm. After getting a fluctuation the gas or air may be allowed to flow in at the rate of about 100 c.cm. a minute, manometric pressure being taken after every 100 c.cm.

Refills.

The average amount injected at the first operation was 734 c.cm. The highest quantity was 1,200 c.cm. and the lowest 195 c.cm. In the earlier cases as much as 1,000 c.cm. to 1,200 c.cm. were injected at the first sitting, and though the patient showed no subjective symptoms at the time, yet we found symptoms sometimes developed within an hour or two, and now I consider 500 c.cm. to 600 c.cm. quite sufficient for the first injection. At subsequent refills the sensations of the patient have been our best guide. Severe pain, shortness of breath, and sensation of tightness or coughing, are all signs showing that enough had been injected. Even in the absence of sensations we have found that when pressure in the manometer went to about 4 cm. or 6 cm. positive water pressure it was time to stop, as we were liable to have subcutaneous emphysema if more were injected. This, while not a dangerous complication, is unpleasant. During the injection a number of our patients complained of pain in the shoulder. This was due to stretching of diaphragmatic adhesions, and is an excellent example of referred pain as pointed out by James Mackenzie.³ In attempting to give this treatment to cases in which there were many adhesions and considerable fibrosis we have met with great difficulty. In some cases in which we had been able to get 500 c.cm. to 700 c.cm. of gas in the first time and which showed on examination a partial pneumothorax, we were greatly disappointed in that we had as much, if not more, difficulty with the refills.

In a number of those classified below as Group 2 we have secured a fair fluctuation, from zero to 0.5 cm. or even 1 cm., and proceeded to allow the gas to flow in. On testing it from time to time we found no change in the fluctuation, and even as when in one case we allowed 3,000 c.cm. to flow in, the patient noticed no increasing tightness or any symptoms whatever. The only explanation, of course, is that the gas escaped into the parenchyma of the lung, either through puncturing a cavity or small bronchus. I have never seen any harm result from this, in fact the patients often assert that they felt better because of the large amount of gas they were able to take.

We have given in all 202 injections, and in one case we had symptoms of pleural reflex. The patient stopped breathing and went into a state of collapse, lasting

one or two minutes; another patient vomited after each injection, but the reason in both these cases was putting in too much gas at one sitting. From my experience I would say that it is rarely advisable to give more than 700 c.cm. to 1,000 c.cm. of gas at one sitting, unless it is necessary to get a rapid collapse to stop hæmoptysis. Pleuritic effusion has been diagnosed in three of our cases. It has possibly been present in more, as in one case it was discovered by x-ray examination while the patient was away at the neighbouring town, and had been entirely overlooked in our physical examination. The quantity was small, and possibly if all our cases had been systematically screened we would have found more effusions. It developed in each case after the patient had been treated for some time.

Cases Treated.

The cases we have attempted to treat by pneumothorax may be divided into three groups.

Group 1 (3 Cases).—Far advanced febrile cases with bad prognosis, the disease being mostly confined to one side, but some involvement of the other lung. We treated three of this type. In all of them the prognosis was absolutely bad. One had only one injection, and refused to go on. He died two months afterwards. Of the other two, in one a partial, and the other a good pneumothorax was obtained. One died in two months, the other in eight months. Both claimed that their symptoms were better after treatment, but I do not think the treatment hastened or delayed the inevitable result.

Group 2 (8 Cases).—These were far advanced long-standing chronic cases, mostly non-febrile. In this group the cases were those in which there was extensive involvement of most of one lung with long-standing cavity. The other was involved, but had undergone considerable fibrosis. They had all been under sanatorium treatment for a long time, some of them for years. Their condition had in each case been stationary for a long time under ordinary sanatorium life. The pneumothorax treatment was given with the hope that the outlook of a life of chronic invalidism might be changed into one of at least partial usefulness. That this hope was not realized in these cases is one of our great disappointments in this treatment. The average time from onset of the disease to the time of doing pneumothorax on these cases was forty-two months. They were all difficult to treat on account of adhesions and the general fibroid condition of the lung. In 3 a good pneumothorax was obtained, in 5 a partial one, and in 1 we could not find the pleural space. In 3 there was partial benefit, symptoms of cough and sputum being lessened, but no marked improvement in their general condition. Of the 5 in whom a partial pneumothorax was obtained after six months' treatment, in none could signs of a pneumothorax be found. Their condition was practically the same as when the treatment had been started. The air had escaped into the parenchyma of the lung either through rupture of adhesions or punctures made at refills. I could not see that the treatment had done them any harm, and they were all rather disappointed when the treatment was discontinued. These old-standing cases are not likely, unfortunately, to be benefited by this treatment. Adhesions and general fibrosis hinder collapse of the part of the lung we want collapsed, and should one obtain a partial pneumothorax it is the remaining healthy lung tissue which is collapsed rather than the diseased area. However, I still think it is worth trying to get a collapse in those cases in which the disease is unilateral, as occasionally a case in which a good collapse is obtained will improve considerably, and a bad prognosis modified if not absolutely changed. If, though, after two or three refills, it is still difficult to find the pleural cavity and signs of collapse are not marked, it is hardly worth while persisting.

Group 3 (6 Cases).—This is the most encouraging group of the series. They were all, except one, far advanced cases, but the onset had been recent. The average time since onset of the disease to the time of doing a pneumothorax was 7.8 months. The disease was more active than in Group 2, as indicated by moist rales, rapid pulse, and slight rise of temperature. It was not so extensive, and, as far as I could tell, very little fibroid change. In all this group a good pneumothorax was easily obtained, and refills were made without any trouble whatever. Every

one of this group showed marked symptomatic improvement, and all but one improved in their general condition, as denoted by gain in weight and ability to take exercise without rise of temperature. One has been under treatment sixteen months, two eleven months, and they have shown such marked improvement that a bad prognosis has been changed to a good one, and we can be hopeful in each case of a permanent arrest of the disease. The others have only been under treatment from four to six months, but they are all showing marked improvement. Their improvement has been more rapid with pneumothorax than it was under exactly the same conditions without it.

Our experience in this group may be illustrated by one typical case:

A. R. G., male, aged 25, physician, had always had good health until onset of present illness. Onset of illness, December 1st, 1913, with rather severe haemoptysis. Admitted to the sanatorium January 14th, 1914. Weight, 120 lb. Average afternoon temperature, 99.4°; pulse, 92. Examination of chest showed: Right, consolidation of upper lobe, and infiltration of upper part of mid-lobe; left, thickened pleura at the apex and some fibrosis, probably due to an old lesion. There was also a suspicion of some laryngeal involvement. The patient did well for a time under sanatorium treatment, but then had another haemoptysis in April, developed an afternoon temperature of 100°, and examination of chest showed extension of the disease. In June, after five months' sanatorium treatment, practically a bed patient all the time, the patient showed upper two-thirds of right lung involved, with signs of cavity in upper lobe. There were a few fine crepitations at left base. He also developed a fistula in ano, which was discharging quite freely. June 26th, 1915, artificial pneumothorax was done on the right side, and examination of chest showed extension of the disease, a fluctuation of negative 2 cm. to negative 4 cm. (water) was obtained at once; 850 c.cm. of gas was injected the first time. Six days later he was given 1,100 c.cm., twelve days later 1,250 c.cm., and in two weeks 1,500 c.cm. There was evidence of a good collapse, and since then he has received refills of from 600 c.cm. to 900 c.cm. at four to six weeks' intervals. He showed marked improvement from the beginning; temperature became normal; he had no more haemoptysis, except on two occasions slightly streaked sputum. In January last his condition was so far improved that he was operated on for the cure of the fistula in ano. He took the anaesthetic well, and stood a rather extensive operation well. Since then his improvement has been rapid. At present date his general condition is good; temperature normal, pulse 90°, weight, 130 lb. (normal weight for him). There is a good collapse of the right lung; x-ray examination showed a slight amount of fluid present. His throat condition has cleared up, and the fistula in ano was healed.

I have given a rather lengthy account of this patient as I consider this the type of case in which we are likely to get good results from pneumothorax treatment. My regret in this case is that we did not compress the lung at the beginning.

Conclusion.

To draw conclusions from so limited a number of cases is somewhat dangerous, and it would be absolutely unfair to judge the merits of the treatment from the results obtained from these 18 cases. Of the first 12 of the series 9 were failures and only 3 showed partial benefit. This was because they were long-standing cases, in which there was an absolutely bad prognosis anyway. To obtain good results we must, I am convinced, use this treatment in those of recent origin.

The moderately advanced case of recent onset, with the disease confined almost altogether to one side, is the type of case in which we should produce a pneumothorax at once. Many of these progress rapidly, and at the end of six months must be classified as far advanced, so that by the use of artificial pneumothorax we have a most valuable adjunct to our treatment. Incipient cases, with severe haemoptysis, should also be treated by pneumothorax at once. In so many of these there is such a rapid extension of the disease after haemoptysis that it is better to give them the benefit of this treatment. I cannot go as far as some and advocate that all incipient unilateral cases be treated, as our results with ordinary sanatorium treatment are good. My great complaint is, like that of all men in sanatorium work, that so few of these cases are sent for treatment. On the other hand, my experience does not encourage me to hope for much benefit from pneumothorax in the far-advanced, long-standing cases. I would distinguish here the far-advanced case which has recently become so, and that in which the disease has been of some years' standing.

A case of recent onset, which from physical signs we must classify as far advanced, but which from general condition is still moderately advanced, is eminently suited for pneumothorax, provided, of course, the disease is mostly unilateral.

Artificial pneumothorax is, then, a valuable addition to our methods of treating tuberculosis, but unfortunately its application is restricted to not more than 5 per cent. of cases which have come under my observation.

REFERENCES.

1 C. H. Vrooman and F. W. Wittich: *Journ. Amer. Med. Assoc.*, March 21st 1914, vol. lxviii, p. 929. 2 Gerald E. Webb, G. Burden Gilbert, T. L. James, Leon C. Havens: *Artificial Pneumothorax*, with Report of Gas Analysis to determine the use of Air Nitrogen. *Archives Int. Med.*, December, 1914, xiv, p. 835. 3 James Mackenzie: *Symptoms and their Interpretation*, 1909, p. 209.

OUR PRESENT POSITION WITH REGARD TO THE PRESCRIPTION OF PROPRIETARY FOODS IN INFANT FEEDING.*

BY

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In the artificial feeding of infants we must recognize two types of diet, and if we keep the distinction clearly in mind we shall be saved from a good deal of the confusion which at present hangs around the subject. In the first place we must recognize that for the normal healthy infant, who is unfortunate enough to be deprived of his mother's milk, there exists what we may call a standard substitute diet.

I. Cow's Milk as the Standard Substitute Diet.

It is the experience of all those who are best qualified to judge that in cow's milk we have the most suitable standard diet available in a form that is cheap and easy to procure. It does not matter whether we use the cow's milk undiluted with the addition of a little sodium citrate, and we shall then obtain both the good effects and the bad effects of a diet of cow's milk in the purest and most pronounced form, or whether we dilute the milk by the admixture of water or barley water and add very small amounts of sugar. It does not even matter very much, broadly speaking, whether we use fresh milk or substitute for it a preparation of condensed milk—so long as we choose an unsweetened variety with all the cream retained—or one of the many preparations of dried milk which have now been placed upon the market. In every case the result which we shall attain will be very much the same.

The infant fed upon cow's milk in one form or another will show in his growth and development the marks of the character of his diet. If he does not rival the child at the breast in agility, in rapidity of growth and in resistance to infective catarrhs, at least there is much in his condition with which we may be well satisfied. A critical eye may note at times a laxity and flabbiness of the muscles; the skin may be a little pale, although this is often masked by a fixed colour in the cheeks due to a slight eczematous infiltration over the malar bones and at the point of the chin; the abdomen is sometimes too distended, and the umbilical cicatrix may be unduly stretched; constipation is common and the putrefactive changes in the bowel are apt to be more prominent than the fermentative changes, and to make themselves evident by the characteristic smell of the evacuations; sweating is often excessive and micturition profuse; there may be some tendency to the appearance of transitory urticarial and erythematous skin eruptions. But these are small drawbacks to a diet which gives in general good results, and which can claim that it possesses one all-important advantage. Upon a diet of cow's milk the digestive processes of the infant are comparatively stable, and the infant runs little risk of such violent, dangerous, and even fatal attacks of diarrhoea and vomiting as are common enough in children whose food contains a high percentage of starches and sugars. I am not here speaking of the possibility that the contamination of the

* An address delivered at the Child Welfare and Mothercraft Exhibition at the Passmore Edwards Settlement, Tavistock Place.

milk with virulent organisms of disease may produce in the child a severe or even a fatal infection of the bowel. That is a possibility which must always be borne in mind, although I would protest against the view, which appears to be widely held at the present time, that the origin of most severe cases of diarrhoea in infancy is to be found in accidental infection of the bowel wall by organisms conveyed in the food. To me it seems proved without doubt that the truth lies with those who contend that the origin of the majority of alimentary disturbances in infancy is to be found in a bacterial fermentation of the food, both within and without the alimentary canal, by which not the bacteria themselves but the decomposition products of the food constitute the dangerous factors.

Nevertheless, it is to be conceded that the chief drawback to the use of cow's milk as the standard substitute diet in infancy lies in the readiness with which it is infected in its passage from the udder of the cow to the child's mouth, and that although the vast majority of contaminating organisms are harmless to the child, there exists always the possibility of an accidental infection with virulent organisms capable of producing enteritis. It is clearly the part of those who would attempt to reduce the high infant mortality from diarrhoeal diseases in this country to do all they can to safeguard the purity of the standard diet. Such a society as the National Association for the Prevention of Infant Mortality and the Welfare of Infants rightly does all in its power to raise the standard of the milk supply of this country, and it busies itself in framing directions for the preservation of milk in the homes of the people, and for its administration to infants. In such an effort the assistance of the lay public and of all those who are interested in the care of the health of the nation is of the first importance.

2. *Carbohydrate Foods as Therapeutic Diets.*

The practising physician, however, must carry the matter a stage further. He must not only be familiar with the standard substitute diet and the effects produced by it, he must be prepared to recognize certain diets which, for want of a better term, I may perhaps call therapeutic diets. The physician must be prepared to deal with that minority among children in which the ill effects of a cow's milk diet are unusually prominent and call for correction, and he must be prepared to deal with infants who are suffering from intercurrent infective disorders and illnesses of all sorts during which cow's milk may not be well borne. To achieve good results in such cases it is necessary to know how to change the character of the diet in order to modify and control certain unfavourable symptoms. Half a century ago and more it was clearly recognized by the physicians of the day that there were certain infants who, for the time being, refused to thrive except when their diet contained a much larger carbohydrate component than is contained in cow's milk. They therefore devised certain foods with a generous admixture of malted or dextrinized flour, and they gave to the world certain simple recipes for making these preparations in the kitchen. Our grandmothers were taught to prepare, and no doubt often did prepare, for our fathers and mothers a preparation of dextrinized flour, known as "Baked Flour." Dr. Cheadle constantly recommended a preparation of dextrinized flour which is known by the name of "Cheadle's mixture." Liebig showed the success which can often be obtained in the treatment of wasted infants by the use of his celebrated *Maltsuppe*—a mixture of milk, malt, and flour. I might multiply these examples, but these three must suffice to make my point clear. Those who first recommended them understood clearly that their use was only temporary; they had recourse to them to produce certain effects and to control certain unfavourable symptoms in the child, and recognized that they were remedies potent for good in suitable cases but capable of disastrous results if used ignorantly or carelessly—in other words, they did not set them forth as substitutes for the standard diet, but as therapeutic diets to be used in certain contingencies.

3. *The Objections to the Use of Carbohydrate Proprietary Foods.*

In more recent times these recipes have been utilized by the manufacturers of innumerable proprietary foods. A recent investigation by Dr. Coots and Mr. Julian Baker

for the Local Government Board goes to show that, of 106 foods examined, over 70 per cent. consisted of "baked flour." Liebig's malt soup has become the progenitor of a number of preparations described as malted milk or malted food. At least one largely advertised food seems to be practically identical with Dr. Cheadle's mixture. The price of these foods is very high, owing no doubt to the large sums spent upon advertisement and the large profit to the proprietor. A packet of baked flour which contains twopence worth of baked flour may be sold at a shilling or even more. The malted foods are still more expensive.

It is not only because of their high price that exception is taken to the extensive use of these infant's foods at the present time, but even more because of the misleading character of the advertisements which extol their merits. These advertisements commonly claim that the particular food concerned excels and should supersede the standard milk diet. Their net must be spread as widely as possible and the praise of their own merits must be coupled with an attempt to bring the use of cow's milk into discredit. In this attempt they are assisted to some extent by the steadfastness with which medical opinion has adhered to the view, of which Biedert was the foremost champion, that the protein of cow's milk presents unusual difficulties to the digestion of the infant. Although Biedert's views were based upon faulty observations—as, for instance, when he confused the common soap curds in infants' stools with casein curds—and although his theories are not supported either by the careful researches, from the chemical side, of his successors in the German school, or by the clinical observations of Budin and many others both in France and in this country, nevertheless the belief that the difficulties of infantile digestion revolve around the question of the coagulability of the casein clot and around this alone remains imprinted upon much of the writing and teaching upon the subject in this country. The extreme emphasis which has thus been laid upon a peculiarity of the protein element of cow's milk has been utilized by the vendors of proprietary foods to encourage the popular distrust of the use of cow's milk.

As the permanent diet of the child the majority of these foods are quite unsuitable. An exception may possibly be made in the case of the foods composed of dried milk and malted flour. As compared with Liebig's original recipe, the amount of added carbohydrate which they contain is in most cases small. Speaking in terms of pharmacology they contain relatively little of the active principle—namely, the malted flour. They are thus, relatively speaking, much better adapted for use as a permanent diet, although their therapeutic effects are correspondingly less marked. Nevertheless, the practitioner who understands the use of a malted flour in controlling the occasional ill effects of a diet of cow's milk will probably prefer himself to add the prescribed amount of malted flour to the milk, and to keep the control of the dosage in his own hands.

4. *The Reasons for the Occasional Success of their Use.*

No doubt even when the proprietary food is adopted by the mother haphazard and in complete ignorance of its nature and composition, good results follow in not a few cases. The foods achieve success by reason of the contrast which their composition presents to that of cow's milk, to their low content of fat, and to their richness in carbohydrate of one form or another. For this reason they do not infrequently succeed when the use of cow's milk has been something of a failure. Moreover, they are often better digested during the course of some intercurrent infective disorder. Upon such lucky chances their reputation depends, and the grateful mother henceforth attributes to them powers which she would never claim for an identical mixture made in her own kitchen, and is not slow to recommend her favourite preparation as a panacea for all infantile disturbances of digestion however produced. In practice one has often occasion to observe how faulty is the reasoning which attributes recovery to the fortunate prescription of a patent food. A mother brought her baby to me with the story that some five weeks before the breast had suddenly begun to disagree. The child had therefore been weaned, and two different kinds of

food had been tried only to be discarded. Of these the mother professed the poorest opinion. When, however, a third largely advertised food was begun improvement had been immediate, and of this her praises were loud. An examination of the baby showed that its illness had been due to anterior poliomyelitis, which had paralysed the extensor muscles of the right leg. Because of the obvious paralysis in this case it was easy to prove the point that the alimentary disturbance had been secondary to the infective disorder and had disappeared when the infection declined, and that, as many diets had been tried, the last was bound to bear off the credit. In most cases, however, the infection which underlies the symptoms of digestive disturbance will subside leaving no trace by which we may confute such claims.

In observing the course of an alimentary disturbance which is secondary to infection of parts remote from the bowel—which is secondary, for example, to influenza, naso-pharyngitis, bronchitis, otitis media, pyelitis, and so forth—it is obviously a matter of great difficulty to estimate the part played in improvement by changes in diet, and the inherent tendency of the infant to recover from the infection must not be taken as evidence of the success of any dietetic modifications which may have been introduced. The frequency of these obscure and often undetected infections in infants, and especially in artificially fed infants, accounts for the apparently discordant results obtained in the treatment of infantile diarrhoea and vomiting by dietetic measures, and while it explains many of the successes which have followed a haphazard change to a proprietary food, it teaches us at the same time how little importance is to be attached to the deductions of nurses and mothers which appear in the testimonials and advertisements.

5. The Dangers of their Prolonged Administration.

The child which is permanently deprived of the standard substitute diet, that is to say, cow's milk, and receives only one or other of the proprietary foods which contain a high percentage of starch and sugar, is in a condition of unstable equilibrium. For a time the greater intake of carbohydrate may appear to have achieved nothing but good. The rate of growth may become more rapid, and the agility and vigour of the child may increase. When the tolerance for carbohydrate is exceptionally good these benefits may even be permanent. For the majority of infants, however, the risk of fermentative dyspepsia is too great to be lightly disregarded. Especially in times of great heat, when both the need for carbohydrates and the tolerance of them rapidly diminish, a very large proportion of infants fed in this way will develop severe diarrhoea.

The dyspepsia of infants fed upon cow's milk to which no large proportion of carbohydrate has been added resembles that of the breast-fed infant in its relatively mild type. In the infant whose diet contains a relatively high percentage of starch or sugar dyspepsia may become a formidable disorder with intense diarrhoea, severe prostration, and a great and rapid loss of weight. Although the risk is not equally great with all proprietary foods, nevertheless it remains true that their permanent use is fraught with dangers which are too considerable to be neglected. With the baser kinds of foods, which consist chiefly of unaltered starch, their tendency to cause diarrhoea becomes an important factor in the production of our present high rate of infant mortality.

But the danger of a too high percentage of sugar or of starch is not confined to the risk of severe and even dangerous fermentative diarrhoea. It is, perhaps, of even greater significance that the use of such a diet is often accompanied by a profound lowering of the child's resistance to infective processes of all sorts, and that the infant fed in this way is not only more prone to nasal, respiratory, or intestinal catarrhs, but during the attack suffers more severely, and shows more constitutional disturbance than the child whose diet is better adjusted.

6. Conclusions.

The danger to the nation of the unrestricted sale of carbohydrate foods or of foods containing a very high percentage of carbohydrate is not lightly to be disregarded. The great movement which is now afoot, and which has as its object the lowering of our high infant mortality, is checked on all sides, not only by the ignorance and apathy

of the poor and by the difficulty of securing a reasonably pure milk supply, but also by the blind, unquestioning belief of the public in the misleading claims of the vendors of proprietary foods. Although in appropriate cases their temporary use under strict supervision may achieve excellent results, nevertheless, if it were possible wholly to do away with them, only good would result, because they contain nothing which cannot be adequately replaced by a simple combination of milk, malt, and flour, and because their advertisements deliberately encourage in the public mind distrust of the standard substitute diet, cow's milk.

In France—a country forced by the stern necessity of a fast declining birth-rate to interest herself in the welfare of infancy—the Roussel law prohibits the administration of any solid food to infants under the age of 12 months without the express direction of a medical man. In Australia a regulation is general which demands that starch-containing foods shall bear upon a label the words, "Not suitable for infants under the age of 6 months." In this country no such safeguards exist, and no attempt is made to curb the vast sale of foods unsuitable for young infants, nor is it likely that legislation will shortly supply the deficiency.

There is but one suggestion which it seems worth while to make. The undoubted therapeutic effect of the use of carbohydrate foods can be achieved equally well by preparations of baked flour or malted flour made in the home; and if among the poor the want of facilities for cooking prove an obstacle to this, then I do not see why it should not be possible to have something in the nature of a pharmacopoeial preparation of dextrinized flour and a pharmacopoeial preparation of malted flour, which, dispensed in a plain wrapper, could be prescribed without fear of the effects of misleading advertisements.

CALCULI OF THE PROSTATE.

BY

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IN THE BRITISH MEDICAL JOURNAL of January 6th, 1912, I reported a case in which two calculi of the prostatic urethra were removed by the suprapubic route from a youth of 20. I there called attention to their faceted arrangement and the resemblance they bore to the scaphoid and semilunar bones of the wrist.

I now report two other cases of calculi of the prostate, from one of which twelve faceted calculi were removed, and from the other forty-six seedling calculi.

Prostatic calculi usually occur in middle life and old age. In the three cases that have so far come under my notice, the largest stones occurred in youths of 19 and 20, and small seed calculi in a man of 35.

As to the origin of prostatic calculi we know that, though lodged in the region of the prostate, they may have three modes of origin and formation:

1. They may be formed in the substance of the prostatic gland itself. They have then as their basis the corpora amyacea with varying amounts of calcium phosphate and carbonate deposited round them, giving rise to stones varying in size from grains of sand to large calculi.

2. They may be formed in pouches, congenital or acquired, that communicate with the prostatic urethra, catching up deposits from the urine, and eventually forming stones that are more or less the moulds of the pockets that lodge them.

3. They may have their origin in the kidney or bladder, and become lodged in the prostatic urethra secondarily, where successive phosphatic deposits cause an increase in their size and mould them to the shape of the passage or diverticulum that gives them lodgement.

CASE I.—One Vesical Calculus and Twelve Prostatic Calculi Removed by Suprapubic Cystotomy; Subsequent Perineal Drainage; Recovery.

W., 19, Cingalese, agricultural labourer, was admitted into the General Hospital, Colombo, on September 5th, 1912, complaining of great difficulty in micturition, accompanied by a burning sensation in the urethra during the act, and of pain in the hypogastrium and penis at all times, but worse at night. He was in a highly nervous state, and was continually trembling.

CASE II.—*Forty-six Scedling Calculi of the Prostate, Combined with Urethro-Rectal and other Fistulae, and Strictures of the Penile and Bulbous Urethra.*

S. A., 35, Cingales, cultivator, came into hospital on January 31st, 1914, complaining of great difficulty in micturition; he had also two urinary fistulae, one scrotal and one perineal, and a urethro-rectal fistula. There was frequency of micturition to the extent of about eight times during the day, and five to six times at night. Whenever he urinated there was also an inclination to defaecate; he sometimes felt that urine dribbled through the anus. Micturition was most easily accomplished by resting on one or other buttock, especially the left, and coxing the urine out by stroking the skin at the peno-scrotal junction. Even at the end of micturition he never felt that he had completely emptied his bladder. Whenever the inclination to micturate was strong there was some incontinence, the urine flowing out in drops at the fistulae and meatus. He states that for the last three years he has not had seminal emissions during coitus, an act which he is, however, capable of performing. He is the father of a child aged 4 years, but has had no children since.

His present illness dates from twelve years ago, when he had an attack of gonorrhoea, which lasted for about eighteen months, and was complicated by a left epididymitis, which terminated in a small focus of suppuration; this attack left him with disordered micturition, there being great frequency—at one time almost hourly—and considerable difficulty in passing water; he states there were times when each act lasted about half an hour. Some months ago there was a profuse discharge of pus through the rectum.

Operation.

On February 13th, 1914, Wheelhouse's operation was done, as the bulbous stricture was an impassable one; there was also a penile stricture and a prostatic urethro-rectal fistula. The scrotal and perineal fistulous tracts were dissected down to the urethra and removed. On inserting a Wheelhouse's probe into the bladder a sensation of gritiness was communicated to the hand; this led to the discovery of a large number of minute stones—forty-six stones were removed with a scoop; the largest were about the size of grape seeds, the majority about the size of cardamom seeds. A rubber catheter was passed from the external meatus into the bladder and tied in; the urethra was partially mobilized and the deficiencies left in it by the dissection of the fistulae were repaired with catgut. No attempt was made to dissect up and suture the recto-urethral fistula, as manipulation was difficult in the position it occupied, namely, in the prostatic region. The patient left hospital six weeks later relieved of his symptoms, but with the urethro-rectal fistula still persisting.

Description of the Calculi.

Forty-six were removed in all, a few being probably left behind. Four or five of the biggest were about the size of grape seeds; the others averaged about half the size. They were smooth and of various shapes; some were rounded, most flattened; the majority were more or less faceted. They came away in clusters, cemented together by a glutinous material. It was difficult to say whether they occupied separate pockets or were agglomerated together in a single one.

Mr. C. T. Symons's report on one of the largest of these was as follows: It consisted mostly of calcium phosphate, with trace of another compound, probably oxalate. It contained no urates.

This was a case in which antecedent gonorrhoea seemed to play an important part. There were strictures and fistulae; there was undoubted evidence of persistent infection of the prostate, as shown by epididymitis with suppuration, and the fact that a prostatic abscess burst years later into the rectum establishing a recto-urethral fistula. In the infected prostate and the recesses left by foci of suppuration in it scedling calculi, the so-called true prostatic calculi, formed.

As to the mode of formation of these calculi and their relation to the corpora amyacea, it may not be out of place to summarize some views. Corpora amyacea are found in various organs of the body. Thompson says they are always present in the prostate after the twentieth year of life throughout the gland, chiefly in the ducts about the verumontanum; in one prostate several thousands are present. They are microscopic as a rule. Their colour is a light yellow growing darker with age. Although the small uric acid calculi, they are not of urinary origin. Siegler says they are due to degeneration of epithelial and connective tissue cells, others say to stagnation of gland fluid, calcified glandular epithelium, etc. Posner classes them as calculi, and English shares Posner's view, and says that a final cause of their formation is possibly a microbic invasion of the gland. The small bodies are mostly organic and the larger chiefly inorganic. According to Thompson the corpora amyacea, having attained the size of their enclosing follicle, act as foreign bodies, and in consequence of the general law that all mucous membranes

when sufficiently irritated throw out a deposit of calcium phosphate and carbonate, ultimately form calculi; the earthy matter they contain being from 45 to 85 per cent. They are associated with glandular hypertrophy and periacinous round cell infiltration; pressure atrophy may cause entire disappearance of the gland with the exception of the capsule. English points out that the paucity of symptoms is in striking contrast to the wide extent of disease in the gland, hence the great importance of physical examination. The complications apt to arise are abscess, fistula, incontinence or retention, and sexual disorders.

To return to the present case. On surveying the condition of things, we see that in addition to the prostatic calculi there were two strictures and several fistulae present; the symptoms, therefore, should be warily interpreted, as those caused by the calculi are almost hopelessly obscured by the other conditions. Most of the symptoms recorded were no doubt due to the strictures and fistulae rather than to the prostatic stones.

The absence of seminal emissions may have been due to:

1. Occlusion of the common ejaculatory ducts by the prostatic abscess, and stenosis of the vas and ducts of the epididymis on one side at least—the left—where an abscess is said to have formed. It is significant that there was no atonic impotence so often associated with chronic prostatitis.

2. The presence of urethral strictures and fistulae; these are of themselves sufficient to prevent any seminal fluid present from appearing at the meatus. The fact that a son was born to him about eight years after his initial attack of gonorrhoea and epididymitis is proof that the ducts from the testicle were not completely destroyed or occluded before that time. The events that occurred after this were (a) the prostatic abscess which burst into the rectum, and (b) the gradual tightening of the urethral strictures. It is therefore probable that the prostatic abscess was responsible for the absence of seminal emissions by destroying and occluding the openings of the ejaculatory ducts or by directing what little seminal fluid there was down the fistula into the rectum, the impassable bulbous stricture helping in this.

THE CAUSES AND TREATMENT OF SEVERE PRURITUS ANI.

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PRURITUS ANI is a peculiar complaint in that, with the exception of pruritus vulvae, to which it is closely related, it differs from all other forms of irritation of the skin. Other forms of skin irritation, though common enough, are never so localized nor so persistent; moreover, they are generally due to some constitutional condition. Pruritus ani is seldom due to a constitutional condition, and the worst forms never are. Diabetes is always given a prominent position in the textbooks as a cause of pruritus ani, but I have never yet seen a case of bad pruritus ani due to this cause.

In this paper I do not propose to deal with these cases of pruritus ani in which the irritation is only of an intermittent character and is relieved fairly easily, although perhaps only temporarily, by some simple application, but with the really bad cases in which the irritation is almost continuous and sufficiently severe to cause insomnia and serious interference with the patient's general health. In this category one must include all the cases of "paroxysmal pruritus ani" in which itching of an intense character comes on suddenly in violent paroxysms. It falls to my lot to see a large number of such cases, and the first thing that strikes one is that they are very difficult to treat successfully. This is shown by the fact that a very large proportion of such cases have been previously treated by many other practitioners, and often for years without any permanent success.

The causation of pruritus ani is a very difficult subject, and one has only to read a few of the textbooks on rectal

surgery to realize that we do not yet know very much about the pathology of the condition. A great number of different causes are given by different authors, and there is little agreement. Thus one writer states that he believes the cause to be a small internal fistula beneath the mucous membrane. Another is equally convinced that the cause is hypertrophy of the anal papillae. Others put the cause down as constitutional, and so on. I have always believed that pruritus ani is a condition set up by a local cause, and increased experience has only tended to confirm me in this view. The obvious deduction from this is that the pruritus can be cured if the local cause is discovered and removed. Unfortunately, however, this is not the case, and any one who has had a large experience in the treatment of these cases must have been struck by the fact that in quite a large number the removal of an obvious local cause entirely fails permanently to relieve the irritation. What one finds is that in cases in which the pruritus has been in existence only a short time, say a matter of months, the removal of the local cause, such as, for instance, a fissure, polypus pile, or submucous fistula, will, if accompanied by suitable local treatment, lead to a complete and permanent cure of the irritation. On the other hand, where the pruritus has been severe and continuous for a long time, and is, in fact, a matter of years, the removal of even a quite obvious local cause usually fails to give any permanent relief. In the typical paroxysmal type, in which frequently no local cause can be discovered, treatment generally fails to give any permanent relief.

Many patients have in the course of time discovered some local application, often an ointment, which if applied frequently gives temporary relief, but they are hopeless without this application, and there are times when it fails, with the result that they have sleepless nights and get bad attacks of eczema from the constant scratching. I have often seen patients who had become so desperate from constant irritation that they had seriously contemplated suicide, and one often finds that they have applied such things as pure carbolic, or almost boiling water, to the parts in order to try and get some temporary cessation of the itching. It is obvious, then, that we have to deal in these cases of old-standing pruritus with a different condition from that which is present in slighter and more recent cases, and that some change has taken place in the skin as the result of prolonged irritation, which is interfering with recovery. I believe that this change is of the nature of a fibrosis in the terminations of the nerves, or possibly the end plates supplying the affected area of skin. It seems probable that this has been set up by the constant scratching, but in any case it certainly takes a long time to occur, and is not present until the irritation has persisted over a long period. It is obvious that such a condition ought to be capable of proof by pathological evidence. There are, however, practical difficulties in the way of obtaining such evidence, and it is not at present forthcoming. It has for a long time been recognized that some definite pathological lesion of the affected skin is present in old-standing cases of pruritus ani, and various theories have been propounded as to the nature of this change. Thus, Unna suggested that it was due to a difference in the osmotic pressures of the different layers of the skin. It seems much more probable, however, that it is in the nerve extremities themselves that we have to look for the lesion.

The earliest treatment which was based on this assumption was cauterization or excision of the skin in the affected area, as sometimes carried out by the Allingham's. The operation originally described by Sir Charles Ball in the BRITISH MEDICAL JOURNAL (January 21st, 1905) was designed on this assumption. I shall not go into the details of the operation here, as a full description will be found in my book on *Diseases of the Rectum and Anus*, and also in Sir Charles Ball's original paper. The object of the operation is to divide all the nerves passing to the affected area of skin just before they reach the skin. I have for the last ten years frequently performed this operation, or some modification of it, and the results obtained have convinced me that the lesion lies in the nerve endings; and I have become so convinced from my own experience of the value of this operation that I always advise its performance in cases where I have reason to believe that this change in the nerve endings has already occurred, and careful non-

operative treatment has been given a good and sufficient trial.

There are several modifications of the original operation, but all have the same object—namely, division of the nerves before they reach the skin. One modification consists in making radiating incisions from the anus, through which the nerves can be cut. Other surgeons, again, advise the subcutaneous division with a tenotome. Personally I prefer the original incision described by Sir Charles Ball, or a modification of it which I have recently adopted, in which a narrow bridge of skin is left on each side to prevent retraction of the flaps. Several surgeons have, I know, discarded this operation owing to frequent failures to cure the patient. I believe, however, that the cause of the failure has been that the nerves have not been completely divided. It is obvious that if the operation is to be a success all the nerves to the irritable area must be cut. As an immediate result there will be complete anaesthesia of the whole of the affected area. The operation has not been successfully performed unless it is found on examining the patient the day after that there is absolute anaesthesia over the whole of this area. I am convinced that the cause of non-success with this operation is the failure to divide the nerves sufficiently. It is essential for success that the anaesthesia should be total. Many of the sensory nerves passing to the edge of the anus come down from between the sphincters and pass parallel to the bowel wall and just beneath the mucous membrane. These nerves are easily missed unless the operation is performed very carefully. The operation looks very easy and simple on paper, but in practice it is far more difficult than it appears, for one has to be certain to divide all the nerves, and at the same time to avoid buttonholing the skin or seriously damaging the blood supply. In a large experience with this operation I have never seen any serious sloughing of the flaps, or any stricture or other serious inconvenience result from it. The anaesthesia prevents pain after the operation, and the relief from the irritation is immediate. The anaesthesia is total for about ten to fourteen days. After this slight sensation begins rapidly to reappear in the skin, and sensation is generally normal in the affected area of skin within three or four weeks.

The only failures I have had with this operation have been cases in which the division of the nerves has not been sufficient, or in which the irritation has occurred in some area the nerves to which were not cut. The skin around the anus returns to a perfectly normal condition in a very short time, even though it may have been thickened and horny for years.

The explanation of this operation seems to be that new nerve endings grow into the skin to take the place of the original ones which have degenerated as the result of the division. It is inconceivable that the nerves should be able to find their original nerve endings, and one must assume that new nerve endings are formed.

I have never seen a case in which sensation was not normal at the end of a month or five weeks. This operation is the only method of treatment upon which one can at all rely to give complete and permanent relief in old-standing cases of pruritus ani and in severe cases of paroxysmal pruritus. I feel convinced that failure to achieve success by this operation is to be attributed to incomplete division of the nerves to the affected area. If, on the day after the operation, the affected area is found to be completely anaesthetic I do not think failure will result.

This method of treatment may easily be adapted to treatment of pruritus vulvae, and I have frequently used it in such cases with success. As already stated, the operation is by no means as easy as it looks, and requires to be carried out with great care. The after-treatment, too, must be carefully supervised in order to prevent sepsis beneath the flaps.

If properly performed, however, the operation gives wonderful results. The pruritus is immediately cured, and does not return. I have operated upon patients whose lives for ten or fifteen years have been rendered miserable by irritation, and they have never had any return of the trouble. One such patient went directly after the operation to reside in a tropical climate for two years, and never had the slightest reminder of the pruritus which had previously been a constant torture to her. I am convinced that division of the cutaneous nerves to the affected area

is the only treatment which affords any real chance of a permanent cure to sufferers from this condition when it has been in existence for more than a short time.

A cure has sometimes been effected by x-ray applications in large doses, but I have been very much disappointed with x-ray treatment in pruritus, most of my cases in which it has been tried having been complete failures. I have several times operated with success after x-rays had entirely failed.

Memoranda :

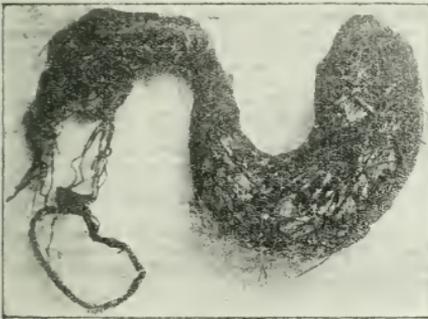
MEDICAL, SURGICAL, OBSTETRICAL.

FOREIGN BODY IN THE STOMACH.

An idiot, M. E. J., was admitted on September 13th, 1906, at the age of 6 years. It was expressly stated by his parents that he had never suffered from epilepsy or convulsions of any kind.

In August, 1907, however, he was sent to the institution infirmary suffering from a succession of convulsions with severe collapse. The ordinary treatment for collapse was resorted to, and in addition the patient was ordered an enema, which resulted in the evacuation of a large quantity of such rubbish as hair, bits of bootlace, string, etc. He continued to pass this stuff for some days, but eventually recovered completely.

He was never a strong boy, and constantly suffered from lung trouble, colds, and diarrhoea, but there is no further



note of his having had another fit until May 6th, 1915, while in the infirmary with general debility and persistent diarrhoea. On this date he was very much collapsed, everything having failed to relieve the very persistent and offensive diarrhoea. Just before death he had an epileptic seizure, from which he never rallied.

On post-mortem examination, the stomach and beginning of the duodenum were distended and very hard. I removed the lower part of the oesophagus, the whole of the stomach, and the duodenum.

On opening these I found a hard, solid, and compact mass of hair, tapc, bootlace, etc., as shown in the illustration, forming a complete cast of the stomach, and weighing 14½ oz. The stomach was slightly dilated, but showed no sign of ulceration; the remainder of the intestines were normal.

This case is of interest in two ways:

First, was the gastric irritation set up by the presence of this foreign body the cause of the boy's epilepsy?

Secondly, so much controversy has been raised lately regarding the shape of the stomach that I think the accompanying photograph is interesting as showing the shape, at least, of the contracted stomach.

The Royal Earlewood Institution,
Bedford, Surrey.

J. M. GAGE,

It is reported that in Hungary several doctors have been arrested on the charge of improperly giving medical certificates to persons who sought to avoid military duties.

Rebivus.

ARTERIAL DISEASE AND ANGINA PECTORIS.

The unstinted admiration of the profession will be accorded to Sir THOMAS CLIFFORD ALBUTT for the untiring energy which he has displayed in the devotion of the later years of his busy life to the advancement of medical knowledge and to the promulgation of new lines of thought on many of the obscure phases of medical science.

Many as have been the subjects to which he has devoted his remarkable powers of clinical investigation, there are few to which he has given more earnest thought than to the problems associated with arterial pressure and the conditions under which it may be modified.

The depth and wide range of his study of this subject may be judged by the two weighty volumes on *Arterial Disease and Angina Pectoris*,¹ which have recently been made public. Nearly a quarter of a century has passed since he made his own views on these points known to the profession, and on several occasions in recent years he has pressed some of them home in addresses and lectures, but the difficulties and intricacies of the research have been made increasingly manifest as time has gone on, and the literature of the subject has reached huge proportions. In order to deal fairly with the observations and conclusions of others, Professor Allbutt has expended a vast amount of energy in the attempt to bring them into some sort of line and order. His readers will readily concede the claim, laid down in the introductory chapter, that such labour has been honest labour, undertaken with the sole desire to unravel a very tangled skein. Although described as the winter fruitage of an old tree, they will also find it to possess the soundness of maturity, delightfully blended with the mellowness of age. The perusal of a work such as this is indeed a delight to the clinical reader.

Careful observation, checked by critical acumen; reasonable deduction tempered by common sense and well-balanced conclusions enunciated after judicial summary, are the distinguishing features of the methods adopted throughout this important work. No one, and least of all the author himself, would claim that finality has been reached. There is far more yet to learn than has hitherto been achieved, but a definite classification is possible which, if accepted, may go far towards a better understanding of the disease and its treatment in time to come.

Arterio-Sclerosis and "Hyperpiesia."

Degeneration of arteries, localized or diffuse, producing visible lesions, has been recognized since the earliest days of medicine, but it was not until the middle period of the last century that the microscopic changes in vascular walls began to be noted and described. The condition known as arterio-capillary fibrosis was gradually demonstrated and its close association with renal disease was generally accepted. With it also was associated the condition of increased tension within the pulsating vessels, and this high tension was directly attributed to the altered condition, with loss of elasticity in the vascular wall, coupled with the hypertrophy of the left ventricle of the heart, which was, in itself, the consequence of the obstructed circulation. About the year 1875 the late Dr. Mahomed of Guy's Hospital brought forward some striking evidence to prove that the condition of high tension was not always the consequence but might be the forerunner of the renal and vascular changes of a later stage. Although it was afterwards abundantly proved that such cases of high vascular tension might continue for long periods without producing the more obvious lesions either in the renal or other organs, still the work done by Mahomed definitely established the fact that high tension might be present without any recognizable cause for it.

It is to this form of high arterial tension unassociated with renal disease that Sir Clifford Allbutt has devoted his best powers of study and investigation during the last twenty years; the outcome is embodied in the work under review. While others have been content to follow their leaders in maintaining that high tension is produced by

¹ *Diseases of the Arteries, including Angina Pectoris*. By Sir T. Clifford Allbutt, F.R.C.B., M.A., F.R.C.P., F.R.S., Hon. M.D. Dub., LL.D., D.Sc. In two volumes. London, Macmillan and Co. 1915. (Med. Rev. pp. 576 and 565. 3s. net for the two volumes.)

vascular fibrosis or other forms of obstructive degeneration, he has steadfastly maintained that the increased tension is generally the cause, and not the consequence, of arterio-sclerosis. In this he has been supported by a few but by no means a majority of clinical observers.

To this condition of high tension of indeterminate origin he has given the name of "hyperpiesis," and the disease itself he describes as "hyperpiesia." It may be defined as persistent high blood pressure with cardiac hypertrophy, but without clinical evidence of renal disease.

Arterio-sclerosis, when recognizably established, may be regarded as due to mechanical and toxic influences of innumerable variety; but a definite form of the disease, to which he has given the name of "decreescent arterio-sclerosis," is insisted upon by the author. This form is characterized by an assumed frailty or toxic susceptibility of the arterial structure, and has been found to run in families. It is not of necessity associated with high arterial tension. A long series of conditions which might conduce to such arterial degeneration are passed in review. The influence of a toxic poison is very difficult to demonstrate; a vast field of recorded observation has been closely investigated, and has been found to present much conflicting evidence. The results of his researches in these and other stores of clinical and pathological archives are set forth in the breezy argumentative tone of the critical physician, which renders the whole work attractive to the reader, even where a good deal of superfluous energy appears to be expended in disposing of self-condemning assertions.

Although the main purpose of the book is to inquire into the whole question of arterio-sclerosis as it occurs in practice, the phenomena of high tension, before and after the occurrence of the obvious vascular changes, is constantly kept in view, and, as a consequence, a good deal of repetition is unavoidable. Professor Allbutt has convinced himself of the soundness of his opinions, and he is well alive to the fact that new ideas must be rammed home if they are to find an abiding place in the average brain.

Among the many important considerations involved in acceptance of his hyperpiesia as a definite morbid condition is the evidence that he quotes to prove that cerebral haemorrhage is more often the result of high tension than of arterial disease, of hyperpiesia than of decreescent arterio-sclerosis. But the causes of the hyperpiesia have still to be assumed rather than demonstrated. At best it can only be said to be a proclivity to some ill-understood poisoning, making for high pressures.

That it may occur at all periods of life and that it is susceptible of modification or even cure by means of moderation and mercury is clearly manifested. But the intricate relation which it bears to renal, cardiac, and other organic diseases is manifold, and its extent may be to some degree gauged by the countless investigations made by observers in many lands, aided by the most ingenious mechanical means of record, to which reference is made in this comprehensive work. The end is yet to seek, but Sir Clifford Allbutt's work has established a platform upon which others may build, and has indicated the lines for future research, while clearly demonstrating the present position of a most difficult subject.

Angina Pectoris.

In the second volume the author has set forth his views as to the causes, diagnosis, and treatment of angina pectoris. They have been submitted to the judgement of the profession on more than one occasion, but are here revised and brought into relation with the latest observations by the most modern investigators, due acknowledgement being accorded to the work of the younger generation of experimental pathologists.

For many years he has maintained, against a good deal of important adverse criticism, that the group of symptoms rightly comprised under the heading of angina pectoris is a direct outcome of disease of the aorta, more especially of that part of it immediately above the sigmoid valves, and that the disease and occlusion of the coronary arteries so often found after death, although they may be the cause of the final stoppage of the heart, are not the true cause of the angina.

The whole subject of aortitis is first considered, and it is made manifest that inflammatory affections of the vessel are much more common than is usually taught, and

that they not infrequently follow some of the commoner forms of infectious disease, especially in young persons. The many clinical controversies that have raged in past times over the exact part played by syphilis in the production of arteritis and aneurysm is recalled in a most interesting section, wherein every aspect of the subject is presented in the light of personal experience or published records.

Confusion has too often arisen from lack of precision in nomenclature, and many thoracic pains have been called angina which do not present the concomitant features of the recognized disease. The position of the pain itself is variously stated by different writers. Although its sub-sternal position is almost universal, it has been described as precordial or intercostal by many, and its area of distribution has been very loosely defined. Upon these points the author lays down very definite instructions, especially with respect to the lines of radiation which the pain of true angina has been observed to follow. Incidentally, the occurrence of herpetic eruptions along such lines is noted.

The theories that have been put forward to account for the pain by changes in the coronary arteries or by overaction of the muscular walls of the heart itself are somewhat severely handled, but not without fair and full examination. Equally severe is the dissection of the theory of intermittent claudication. The seat of the pain is in the aorta, and the immediate cause of it is held to be tension of the fibrous outer coat of the vessel, of which the nerve supply is traced.

That pain may be of cardiac origin he does not deny, but he maintains that it is of recognizably different character and course from that of true angina. The sudden stoppage of the heart which may attend an attack and which cannot be accounted for by obvious cardiac lesion is held to be due to the shock of the sudden pain exercising inhibitory influence through the vagus. The interpretation of symptoms which are found to be due to varying pathological conditions must always be the subject of controversy, and Professor Allbutt admits that in many of his contentions he is in a minority. The arguments by which he upholds his views, his cogent criticism of opposing theories, and his apt illustrations by means of recorded cases cannot fail to carry weight with those who are open to conviction and are equally bound to give pleasure to others who are not to be shaken from former beliefs.

Thus the profession is the richer by a comprehensive clinical treatise which will doubtless take its place among the medical classics of its day as the *magnum opus* of a great clinical philosopher.

THE EMERGENCIES OF PRACTICE.

In the preface to his *Urgent Medical Symptoms*² the distinguished author, Professor SAUNDY of Birmingham, tells us that it "is intended to be a handy work of reference for the busy practitioner or student who desires to learn quickly, without the delay and labour of consulting several volumes, the significance of a particular symptom, the indications it affords, and the means whereby it may be relieved, due regard being had to the importance of attacking the true cause, and not merely the superficial phenomena of disease." To those who may be disposed to object that the treatment of symptoms is in all cases undesirable, the author justly replies that "there are many symptoms which are sources of distress, or at least of discomfort," and that "attention to them need in no way interfere with the measures required to control or cure the main disorder." All experienced practitioners will assuredly agree that it is (in the bad sense) a "counsel of perfection" to teach that symptoms as such are in all cases unworthy of direct therapeutic attention. One of the paradox-mongers of the late nineteenth century asserted that "the only golden rule is that there are no golden rules," and the saying is not without its application to medical practice. Assuredly the house-physician or young practitioner who wants to have ready to hand a book to serve as guide, philosopher and friend in medical emergencies, may safely be recommended to acquire Professor Saundby's well-stored volume. The author's clinical and scientific repute

² *Urgent Symptoms in Medical Practice*. By R. Saundby, M.D. Edin., Lect.-Col. R.A.M.C.(T.). London: E. Arnold, 1915. (Post 8vo, pp. 437, 7s. 6d. net.)

is ample guarantee that he will not be led astray, even if we had not satisfied ourselves that the guidance offered in respect of the numerous conditions touched upon is always sound and physicianly. The book is arranged in alphabetical form, and is obviously designed purely as a work of reference. As such it bears on every page evidence of wide experience, keen observation and familiarity with all the latest developments of diagnostic and therapeutic method. It abounds in valuable hints as to the management (hygienic, dietetic, and medicinal) of everyday ailments such as asthina, quinsy, constipation, and epilepsy. Not less useful are the clear and concise definitions of many rare and obscure symptoms and symptom-complexes, for example, paramyoclonus multiplex, paragonimiasis, Korsakoff's psychosis, Gordon's reflex, Magnan's sign. Under the heading "Flanders foot" the two conditions erroneously termed "frost-bite," which have been observed as results of standing for many hours or even days in the half-frozen mud of the trenches, are briefly described, the one attended by desquamation, haemorrhages, or oedema, the other only by pain or other perversions of sensation. From what we have said it will be evident that Dr. Saundby has produced a book which, inasmuch as it renders easily accessible a great deal of valuable information, some of it not readily obtained elsewhere, deserves and is likely to enjoy wide popularity.

The German original of *Emergencies in General Practice*,² written early in 1913, was reviewed in the BRITISH MEDICAL JOURNAL of that date (BRITISH MEDICAL JOURNAL, 1913, i, 1116), and we welcome Dr. KRONN's excellent translation which now puts it within the reach of medical practitioners in this country. The book is divided into seven sections, dealing with sudden dangers to life that may arise in connexion with diseases of the brain, the lungs, the heart, the digestive tract, the urino-genital apparatus, pregnancy, and poisoning. At the end there is an excellent chapter on serum sickness, or the anaphylactic troubles to which the use of antitoxic serums may give rise, and there is a good general index. It is clear that the work is from the pen of an able general practitioner with actual experience of most of the acute morbid conditions with which he deals, and with a sound judgement in the matter of the lines of treatment he advocates or condemns. The pathology and diagnosis of the conditions described are well expounded, and this is one of the most valuable features of the book. The book is well printed; it may be noted that the German original is published at two-thirds the price of its English translation.

² *Emergencies in Medical Practice. The Pathology and Treatment of Morbid Conditions that may Suddenly Endanger Life.* By Dr. R. Kronn, M.D. Translated from the third German edition by R. E. S. Krohn, M.D. London: John Bale, Sons and Danielsson, Ltd. 1915. (Roy. 8vo, pp. 532. 2s. net.)

SIR FELIX SEMON.

The Internationales Centralblatt für Laryngologie, Rhinologie, etc., which was founded by Sir Felix Semon, contained in its issue for June (Jahrgang XXXI, Berlin, Juni, 1915, No. 6) a declaration, of which the following is an accurate translation:

Declaration.

In the *Times* of July 12th there is an open letter from Sir Felix Semon as follows:

To the Editor of the "Times."

Sir,—For many years I believed in the possibility of a better understanding between this country and Germany, and it was a most bitter disappointment to me when the great crash came last year. Even then I hoped that it would suffice for a naturalized British citizen of German extraction loyally to do his duty by his adopted country without making any public expression of his faith. The inhuman methods of German warfare, however, have often and of late with ever increasing force, induced me to think that it would be right for a German by birth to publicly express his detestation of that policy. What has hitherto deterred me from doing so has been the fear that such a statement might be misconstrued as a desire to personally court favour. But now that Sir Arthur Pinero in the letter published in *The Times* of to-day has pointed out that an attitude of continued silence might be interpreted as "sitting on the gate," I beg to say that I emphatically abhor the barbarous methods, one and all, employed by Germany.—Yours obediently,

FELIX SEMON.

Signalls, Great Missenden, May 11th.

When Sir Felix Semon, surely misled by the lying reports of the Press inimical to Germany, wrote this letter in which he publicly takes a stand against the land of his birth, he must have known that he thereby caused sincere pain and bitter disappointment to his German friends and colleagues. Sensible and farseeing as he is, he surely could not be in doubt for a moment as to the effects which were bound to result for his further relations with everything which connected him with the old Fatherland. Nor could he doubt that the same conditions would apply with regard to his relation with this *Centralblatt*, which he has founded, edited for a quarter of a century and made successful, and which in memory thereof still bears his name. For, although this journal is an international one, intended to transmit the results of scientific work in the whole domain of our speciality to the specialists of all countries, and although it has always most carefully kept this international character, yet the fact remains, that it is being published in the German language and in the capital of the German Empire.

The Editor and Publisher, who are proud to be Germans, consider it to be further irreconcilable with this fact, that at the head of this journal the name of a man should appear who in a public declaration has sided against their fatherland, and hence they feel compelled to declare, to their keen regret, and whilst still gratefully acknowledging Semon's achievements with regard to this journal, that the name of Semon in the title of the "Centralblatt" will henceforth be omitted.

The Editor and Publisher of the *Internationales Centralblatt für Laryngologie,*

Professor DR. G. FINDER,
AUGUST HIRSCHWALD.

Sir Felix Semon, who has resided and practised in this country for some forty years, is, even in the retirement which he imposed upon himself a few years ago, still, we think, looked upon by British laryngologists as their leader. His declaration of loyalty to his adopted country has already led to his name being expunged from the list of honorary members of the laryngological societies of Vienna and Berlin. This, in the present state of the mind of even scientific men in Germany, was perhaps to be expected, but the action of the editor and publisher of the international journal which Sir Felix Semon founded must be looked at in a different light. Sir Felix Semon is a man of world-wide reputation and the *Centralblatt* is international; the action taken by the editor and publisher has been deeply resented by laryngologists in this country. All the British editorial contributors to the *Centralblatt* who have hitherto had an opportunity of seeing the declaration printed above have withdrawn their names and have resigned their editorial connexion with it. Among these are Dr. Peter McBride, Dr. H. J. Davis, Dr. Logan Turner, and Dr. Watson-Williams. They have taken this course as the only effective protest open to them against the affront to a British colleague for whom they entertain the highest respect involved in the removal of his name from an international journal founded by him. We have no doubt that similar resentment will be felt by his colleagues in France, Italy, and Russia, and in neutral countries also. Already, we understand, the American collaborator, Dr. Emil Mayer, has withdrawn his name and resigned his editorial connexion with the *Centralblatt* as a protest against the high-handed action of the editor and publisher.

We desire to add the expression of our own sympathy with Sir Felix Semon, who has shown himself a loyal citizen of this country not only by his own declaration but also in the fact that all his three sons are now serving the country in military capacities.

The Times states that the official reports give 629 cases of Asiatic cholera in Austria on August 1st. The deaths include the Austrian Army Corps commander, General von Ziegler, who was the only officer on the staff who refused to be inoculated against the disease, and the only soldier in the whole district who died of cholera.

The Hon. John Mildred Creed, M.D., member of the Legislative Council of New South Wales, has been a prominent figure in Australian politics for the last forty years. It is announced that Mr. Herbert Jenkins will issue next month a book by him entitled *My Recollections of Australia and Elsewhere*. Dr. Creed's reminiscences include numerous anecdotes of many distinguished personalities who have visited Australia during that period.



DESIGN FOR THE WELSH NATIONAL SCHOOL OF MEDICINE.

The part to the spectator's right will form the Physiological Department. The building of this part and the central tower will be proceeded with at once.

From a sketch by the architect, Colonel E. M. Bruce Vaughan, F.R.I.B.A.

THE WELSH NATIONAL SCHOOL OF MEDICINE.

THE foundation stone of the physiological department of the buildings for the Welsh National School of Medicine at Cardiff was laid by Lord Pontypridd on August 12th.

The School of Medicine of the University of South Wales and Monmouthshire was established in 1893, when a story was added to the main buildings of the college in Newport Road. Dr. W. T. Edwards, physician to the Cardiff Infirmary, had long cherished the desire for the formation of a medical school for Wales, and when President of the British Medical Association, at its annual meeting in Cardiff in 1885, he offered £1,000 for the foundation of such a school. Dr. Edwards continued to show his interest in the project, and when he died on April 11th last, he left in his will the sum of £7,000 to the University College. For the purpose of the alterations and extensions made in 1893 the sum altogether of £7,000 was raised.

The extended buildings were opened in 1894 by Sir Richard Quain, then President of the General Medical Council, and for the last twenty-two years teaching has been provided in the subjects of the first three years of medical study, including physiology, and since 1899 post-graduate instruction for the diploma in public health. The first professor of anatomy was Dr. Alfred Hughes, who died during the Boer war after serving in South Africa. His memory is perpetuated in the school by a medal and by a fine anatomical museum. He was succeeded by Professor Dixon, now of Dublin, and the present occupant of the chair is Dr. Hepburn, now in command of the 3rd Western General Hospital at Cardiff. During this time Dr. Berry Haycraft has been continuously professor of physiology. During the twenty-two years 224 former students have obtained medical qualifications and have won 32 gold medals and distinctions at the University of London. They have also won 45 entrance scholarships into London hospitals.

The council of the college has worked in cordial relation with the authorities of King Edward VII Hospital. The professor of pathology and bacteriology of the college is one of the honorary pathologists of the hospital, and is now officer commanding of mobile bacteriological laboratory of the Welsh Army Corps, and all the work of the school in pathology and bacteriology, which has hitherto necessarily been of a post-graduate character, is done at the hospital, where the necessary rooms and laboratories have been provided by the foresight of the hospital authorities for that purpose. The department was opened by Sir William James Thomas on June 1st, 1912.

Since 1903 the college has received a grant from the Treasury for the purposes of the medical school. In 1906 the University of Wales obtained a supplemental charter

authorizing it to confer degrees in medicine and surgery, but, owing to the want of a complete medical school at Cardiff, students have hitherto had to go to other schools for the later subjects of the medical curriculum. In 1908 Professor Haycraft drew attention to the need for new physiological laboratories, both for teaching and research, and three years later, at the instance of Colonel Bruce Vaughan, Chairman of the House Committee of the Cardiff Infirmary, a committee of the council of the college was appointed to consider the needs of the department of physiology and the comparative claims of other departments. This committee recommended that greatly improved accommodation for the medical school was required. Eventually, in February, 1913, Sir William James Thomas offered a sum of over £10,000 towards the cost of building the new department of physiology, and in the end undertook to erect the whole of the buildings required for physiology and to increase his donation to £30,000 so that the great hall and staircase for the use of the complete school of medicine should be provided at the same time. In January, 1914, Sir William James Thomas announced that he was prepared to promise a further sum of £60,000 to provide a public health department and school of preventive medicine, together with the necessary buildings for a complete school. One of the conditions attached to the offer was that the Treasury, in addition to its present annual grant of £1,500, should make a grant adequate for the administration and maintenance of a school worthy of Wales. In February, 1914, a deputation consisting of members of the University of Wales and its constituent colleges and of other bodies interested in medical education in Wales, appealed to the then Chancellor of the Exchequer, Mr. Lloyd George, for Government assistance towards the maintenance of a complete medical school for Wales at Cardiff. Mr. Lloyd George promised a substantial contribution from the Government, and a scheme has recently been submitted to the Treasury by the Welsh Educational Conference for the formation of a University of Wales Council of Medicine. The school will thus become a national institution controlled by a national body, while its administration will, subject to certain conditions, remain in the hands of the Council of the University College of South Wales and Monmouthshire.

THE NEW PHYSIOLOGICAL BUILDINGS.

The new physiological buildings, with the great hall and staircase now to be erected, form the first part of the larger scheme for the complete school of medicine. The new building will face on to the Newport Road, one of the principal thoroughfares of the city, and will be within five minutes' walk of the hospital. When completed it will measure 368 ft. from east to west. The physiological

department will occupy 116 ft. of its frontage, and the hall, which will be common to all departments of the new school, 42 ft. The design by Colonel E. M. Bruce Vaughan, F.R.I.B.A., provides a basement, a ground floor, four upper floors, and a mezzanine between the first and second floors. It will have a depth of 47 ft.

The eastern part of the basement and ground floor will be occupied by a large lecture theatre to seat 140 students; adjacent to it will be preparation rooms and a museum. The first floor, to be devoted to experimental physiology, will contain large laboratories for forty-eight students, a smaller laboratory for advanced students, the professor's private room and private laboratory, a dark room, a departmental library, and a workshop. The second floor for chemical physiology will contain a students' laboratory with eight benches for five students each, a lecture room for small classes, a research laboratory, a private room and a research laboratory for the lecturer in chemical physiology, and store and preparation rooms. The third floor will be entirely devoted to histology and embryology. The laboratory with both top and side light will provide accommodation for eighty students, and there will also be a lecture room, a demonstration theatre, a room for the lecturer, a laboratory for advanced students, a museum for embryological and histological specimens, and preparation and store rooms. Above the third floor there will be a photographic dark room and an optical room.

In the design of the front the need for abundance of light has been fully recognized, and the façade shows many windows. The centre and end blocks and the wide bays between are stone. The main walls will be faced with narrow red bricks joined with light mortar. The general design is English Gothic of the fourteenth century, modified by the influence of the French Renaissance architecture of the following century. The central block rises to a height of 100 ft. with side turrets, between which will be a pointed arch deeply recessed. The lower portion of the central feature, forming the portico, will be divided into three bays by columns surmounted by canopied niches to contain the statues of Hippocrates and Esculapins. The flanking panels will contain busts of Pasteur, Lister, Hunter, and Jenner. Over the central block will be a lantern with a vane rising to a height of 150 ft. above the ground. The entrance hall will measure 65 ft. by 30 ft., and the ceilings will be panelled, showing the arms of each county in the Principality with the arms of Wales in the centre.

THE FOUNDATION CEREMONY.

In opening the proceedings at the ceremony of laying the foundation stone Lord ABERDARE, who presided as president of the University College of South Wales and Monmouthshire, said that the Welsh National School of Medicine would be a memorial to many great men who had worked in or been born in Wales and had attained eminence in medicine. He was glad, particularly, that Dr. W. T. Edwards had lived long enough to know that the generous gift of Sir William James Thomas had ensured the beginning of the erection of buildings suitable for a national school. He paid a tribute to the work of Colonel Bruce Vaughan, expressing his belief that no one had done so much for the medical school and for the King Edward VII Hospital as he.

The stone was then laid with proper ceremonial by Lord PONTYPRIDD, who in the course of a short address spoke of the pioneer work of Daniel Jones of Beaupre, who would have rejoiced that they had returned to the site chosen by him when he built the hospital, and were now commencing the erection of an institution of loftier ideals than could have been conceived in his time. Having traced the development of the King Edward VII Hospital from the days when, twenty-five years ago, it was a "glorified cottage hospital," with Mr. Lynn Thomas as the only house surgeon, Lord Pontypridd said that the great extension of the institution to its present magnitude was largely due to the influence wielded by the architect of the new buildings of the National School of Medicine about to be erected. Colonel Bruce Vaughan and Mr. Lynn Thomas from their first association with the hospital had bent all their energies to the attainment of the loftiest ideal of a complete medical school. The institution that was being set up would not only be of the first order, but would be the pioneer in

Great Britain in adopting the methods and system of the most advanced schools on the Continent and America. It was gratifying to be assured that the project had the cordial approval of such high medical authorities as Sir Donald MacAlister and Sir William Osler. Those distinguished gentlemen, by their warm encouragement, had inspired all concerned to make a supreme effort for the consummation of the object all had at heart. There were many absent faces they might recall, especially that of the late Dr. W. T. Edwards, the father of the present medical school. The success of the school was immediate, under the able direction of Professor Berry Haycraft and Professor Alfred Hughes, and had continued unabated up to the present time. Professor Haycraft was still with them, and they trusted it might be his good fortune long to enjoy the great facilities that his valued suggestions had done so much to crystallize. The name of the late Professor Alfred Hughes was so well known throughout Wales and his Cardiff friends so valued his work and personality that they had perpetuated his name by calling the Museum of Anatomy the "Alfred Hughes Museum." As a Welshman, Lord Pontypridd continued, he wished to point out that the nationality of the candidates for positions on the professorial staff of the school did not count, but their efficiency. As an instance of this he recalled that although the first holder of the chair of anatomy was a brilliant Welshman, Dr. Alfred Hughes, the second, Professor Dixon, was a distinguished Irishman, and the third was Professor Hepburn, an eminent Scotsman. The number of gold medals won by the students was one of the proudest achievements of the University College. But however high their attainments might have been in Cardiff, they were compelled to go elsewhere to complete their medical course. Very shortly Welsh medical students would have the opportunity of completing their studies in Wales under auspicious conditions. A beginning was that day being made in the building of a complete medical school, thanks to the means placed at their disposal by the princely munificence of Sir William James Thomas. It would be a national institution; and, as such, the Welsh nation, through its accredited representatives, would be associated in its management. It would be an institution that would fulfil Wales's highest aspirations, and be a source of pride and gratification when ranked with the great medical schools of the world. He had once said that the great captains of industry in Wales had not done themselves justice in connexion with their national institutions. That could be no longer said of two of them, Sir William James Thomas and Colonel David Davies, M.P. The inspiring work of those two young sons of Wales was a landmark in the history of their country, the one being the complement of the other, and thus making a grand unification of design in the endeavour to solve the problem of health.

THE LUNCHEON.

The company present were afterwards entertained at luncheon at the City Hall by Sir William James Thomas. After the usual loyal and patriotic toasts the Lord Mayor gave the health of Sir W. J. THOMAS, who, in reply, said that it was a great and peculiar pleasure to him that Lord Aberdare was able to preside at the ceremony, for it was to his distinguished father, as much as to any other man, that the establishment of the University College of South Wales and Monmouthshire was due. Moreover, it was also to his great work as Chairman of a Departmental Committee of Inquiry, appointed thirty-five years ago, that Wales was indebted for what might be called, without exaggeration, the most important document ever published in connexion with education in Wales; it was, indeed, the Charter of Education of Modern Wales. To Lord Pontypridd, also, warm thanks were due for his valuable services in connexion with the college and for laying the foundation stone of the first of the new buildings of the Welsh National School of Medicine. He thanked those representatives of physiology and of medicine who were present, and expressed regret at the absence of Sir Isambard Owen, who had done so much for the University of Wales not only by speech, but by action, and whose ideals had inspired it on more than one occasion to real purpose. He went on to bear testimony to the great work which Colonel Vaughan had accomplished at the hospital and in the college; to his efforts, more

than to those of any other single individual, it was due that the ceremony of the day had taken place, marking a stage in progress towards the establishment of a complete school of medicine for Wales. No one who had seen the great work of healing the sick and suffering carried on within hospital walls, and had realized the part hospitals took in the still greater work of research, could fail to be touched with a desire to have the privilege of taking some share in it. For himself, he had willingly promised to perform a humble share in setting up this school by providing the necessary buildings, for he had been convinced that unless the several departments of a modern school were well housed and equipped, men sufficiently highly qualified to make the school one of the leading schools in the world could not be attracted. There was much left for further private munificence to do and for adequate co-operation by the State. There was a great opportunity to retain the services and future distinctions of Welsh students for Wales by endowing research, thus enabling the greatest brains Wales produced to spend all their days in research which did not bring immediate results, but whose reward would come in the improved health and happiness of future generations. Another argument that had appealed to him as a reason for the establishment in Wales of a full school of medicine was that parents not in good circumstances, and who were therefore not in a position to send their sons to London or elsewhere for the latter half of their training, should be able in the immediate future to send them to Cardiff for their medical education. Mr. Lloyd George had expressed the same desire when replying to the deputation on February 18th, 1914. He said: "The cost of medical education was almost prohibitive, except for people who could spend large sums upon the education of their children, and he hoped that the establishment of the school at Cardiff would make it easier for children of parents of small incomes to enter that noble profession." Sir W. J. Thomas concluded by saying that he hoped that what had been able to do would be an inducement to others not only to assist in the completion of the medical school but in the many other activities for which the college required money, such as the proper housing of the applied sciences, and new laboratories for chemistry, physics, and other departments. It would, he hoped, also induce the wise and generous co-operation by the State.

Sir WILLIAM OSLER, in proposing the toast of the Welsh National School of Medicine, paid a tribute to the excellent work done in the departments of physiology and anatomy by Professors Hayeraft and Hepburn. During the past twenty-five years or so the first and most essential element in a great medical school—namely, a great hospital—had been established, and in connexion with it a good pathological department in charge of a whole-time professor. When the building, the foundation stone of which had been laid that day, was completed, the medical school would have as good a physiological department as there was anywhere in the kingdom or anywhere in the world. The school would have also an anatomical laboratory, a splendid public health and pharmacological laboratory, and a central library. Touching upon the relation between the medical school and the hospital, he said that the authorities would have to face the problem of organizing the departments in the hospital on university lines. It had to be recognized that the departments of medicine, surgery, pathology, and obstetrics and gynaecology, as well as the minor departments, must be units in the university scheme. The university and the hospital must work in co-operation, and all the departments in connexion with the hospital must be equipped on exactly the same scientific lines as the physiological department. He was aware that there were difficulties in adjusting the relations of the medical school with the University of Wales, but with goodwill they could be overcome. It would be unwise to attempt to have three universities, and equally unwise to attempt more than one medical school. Turning to the question of the selection and appointment of professors, Sir William Osler expressed an emphatic opinion that all appointments should be made by a small board of electors, and the best men appointed irrespective of nationality. He knew that a grant was expected from the Treasury, but he might say without fear of contradiction that the Government only helped those who helped themselves. Wales was helping itself nobly, but it must not

expect too much from the Government, although it was known to be willing to help.

Dr. E. H. GRIFFITHS, Principal of the University College of South Wales and Monmouthshire, said that the object in view was that the school should be national in the true sense. While all the higher educational interests in Wales should have some voice in its management, it must remain a collegiate institution in the sense that Cardiff could not spare its medical students.

The toast of the Visitors, given by Sir GARRON THOMAS and Professor BERRY HAYCLAFF, was acknowledged by Mr. H. E. DAVIES, the secretary of the Welsh department of the Board of Education, by Professor LANGLEY (Cambridge), and Professor STARLING (University College, London).

Sir E. VINCENT EVANS, in proposing the toast of the Lord Mayor and Corporation of Cardiff, said that Wales owed a great debt of gratitude to Cardiff for what it had done.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE CENTRAL COMMITTEE.

At the last meeting of the Central Committee, which was held on August 12th, it was announced that the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés had acknowledged the receipt of the cheque sent to the Committee on June 12th. The minutes of the meetings of the Belgian society showed that its financial position during June and up to July 8th was satisfactory. The last report received, bringing the accounts up to the beginning of June, showed the Belgian society to have £750 in hand. By June 10th this had dropped to under £500, but by June 24th the total in its hands had risen to over £900, at about which figure it was maintained till July 8th, the date of the last minutes received. The minutes showed that the receipts and expenditure seemed to balance very well, as the sum on July 8th was a little larger than the sum in hand in the beginning of May, although credit had not been taken for the last sum sent in June by the British Central Committee. Subscriptions in Belgium, though small, appeared to be regular, and the sums spent in relief were only granted after close investigation. The chairman said that, acting on the authority given by the Committee on July 15th to himself, the secretary, and the treasurer, a further sum had been dispatched to Belgium, Mr. Hoover advising this course.

A letter was read from Dr. Des Voeux, the treasurer, who is absent on a short holiday, reporting that places had been secured now for most of the Belgian refugee doctors, and that there was much less demand for relief in money or kind. He brought before the Committee the question of refunding to its donor, a Belgian pharmacist, a sum of money which that gentleman had expended out of his own pocket on one of the refugees who had already been helped by the Fund. This was an exceptional case, as the lady in question is alone in England. Her father is much respected by both Belgian doctors and pharmacists, and she has worked gratuitously amongst the Belgian refugees for a long time. She now, however, has obtained work in the Censor's office. In the meantime her benefactor has become penniless. The Committee decided to pay a portion of the debt. Dr. Des Voeux's financial statement showed that up to August 11th, 1915, £17,892 had been received. From July 15th to August 12th £2,417 2s. 3d. had come in, including £22 6s. 6d. bank interest.

THE WEEK'S SUBSCRIPTIONS.

The following subscriptions to the Fund have been received by Dr. Des Voeux:

Thirty-seventh List.

£ s. d.	
South Australian Belgian Doctors' Relief Fund (per the Agent-General) (3rd. instalment—total.	100 0 0
£500	100 0 0
Dr. John Stewart (2nd donation)	2 2 0
Dr. G. D. H. Carpenter	1 0 0
Dr. C. G. MacLagan	1 1 0

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

British Medical Journal.

SATURDAY, AUGUST 21st, 1915.

THE SALE OF SPIRITS IN FRANCE.

The Académie de Médecine of Paris has been discussing alcoholism and alcoholic beverages on and off since last autumn. The Académie has a way of its own of discussing a subject of general interest. It often happens that when a paper is read remarks by one or two other members show that the question raised is ripe for debate, if not for decision. The custom then is to refer it to a commission which may take several weeks or months to prepare its report. This, however, does not prevent other members or correspondents from reading papers on the subject in which they express their individual opinions. When the report of the commission is presented it may lead to a full dress debate, extending over portions of three or four sessions, and contemporaneously a whole series of independent papers may be read dealing with various parts of the original subject, or opening up new considerations by which the grounds of debate are enlarged. In this way no doubt the subject comes to be looked at from many points of view, but the Académie sometimes finds it a little difficult to reach finality and the foreign reader may be not a little embarrassed to make certain what the opinion of the Académie really is, if indeed he can be sure that it has gone so far as to express any collective opinion.

The discussions of the last six months, however, have gone a long way to define the attitude of the Académie towards alcoholic beverages, or at least towards spirituous liquors. On February 12th, during the debate on the bill to regulate the sale of alcoholic beverages, the French Chamber of Deputies passed a clause prohibiting the manufacture and sale, wholesale or retail, of absinthe and "similar beverages"; in the measure, as it eventually became law, this term was retained. Meanwhile, a report of a committee on the measures to be taken against alcoholism had been presented to the Académie on February 23rd by M. Gilbert Ballet, Professor of Neuro-pathology in the Faculty of Medicine, Paris. This report was discussed at a meeting of the Académie in the following week, when a series of resolutions were adopted recommending (1) that a surtax should be imposed and regulations made in respect of the manufacture and sale of all *apéritifs* containing essences and of those made from wines of alcoholic strength greater than 23 degrees, (2) the diminution of the number of wine and spirit shops and the prohibition of the sale in such shops to women and to children less than 18 years of age, (3) that the right of private distillers should be abolished, and (4) that debts incurred for the purchase on credit of alcohol by retail should be rendered insusceptible of recovery by judicial process. Later on the regulations proposed to be made by the fiscal authorities under the Act were reported to the Académie, and it appeared that the authorities had difficulty in defining the term "similar beverages." The Académie accordingly turned its attention to this subject, and on June 29th Professor Ballet presented a further report by the committee. At its meeting

on July 13th the Académie unanimously adopted a series of resolutions for the guidance of the fiscal department and parliament. These resolutions recommend: (1) The prohibition of the sale of spirits exceeding 50 degrees in strength,² (2) The prohibition of the manufacture, distribution, and sale of all liqueurs and all aromatic wines of strength above 23 degrees, neither category of these beverages being permitted to contain more than $\frac{1}{2}$ gram of essence to the litre. Sweet liqueurs, containing 300 grams of sugar to the litre, may be permitted of the strength of 30 degrees. (3) The prohibition of the use for flavouring alcoholic beverages of chemical products, plants, or essences containing among their normal constituents thujone, benzoic aldehyde, aldehyde, or salicylic ethers; and (4) the imposition of a high supertax on all beverages, of whatever nature, in which the amount of alcohol exceeds 15 degrees. The Académie also adopted two supplementary resolutions. In the first it expressed the hope that the public authorities will without delay, and pending the adoption of legislation to diminish the number of spirit shops, institute the necessary measures of supervision and police to close the very numerous clandestine spirit shops which exist; in the other it recorded the pleasure with which it had noted that the high command of the army had forbidden the sale and distribution of alcohol in the zone of the armies, and expressed the desire that this protective measure should be maintained and extended.

In order to understand the action of the Académie, it should be noted that wine is not among the alcoholic beverages it condemns—that is to say, the ordinary light wine, chiefly red, which is made in nearly all districts in and south of the Loire Valley. In the greater part of France it is the usual beverage of all classes; it is of low alcoholic strength, and is taken very commonly diluted with water (*eau rouge*). The wine is not only light but acid, and does not make any strong appeal to the untrained British palate. Nor does the Académie's condemnation extend to beer—for the most part very light—nor to the elder drunk in many parts of Northern France. The recommendations no doubt in theory include certain strong wines, but practically they affect almost solely spirituous liquors, or strong wines in which aromatic substances are dissolved—brandy, *apéritifs*, and liqueurs. It must have struck many travellers in France that the drinking of neat brandy—or shall we say *eau de vie*, for it is often a very artificial product—is a rather common habit at odd times of the day among porters and labourers, and that it does not always follow a cup of coffee even early in the morning. A similar habit, with whisky instead of brandy, is not unknown in Scotland, but in England it is rare to see a man drink neat spirit, though the total quantity of spirit consumed by the English toper may not be less than that taken by his Scottish or French counterpart.

The third of the Académie's resolutions is directed against absinthe, the typical *apéritif*. Thujone, an isomer of camphor, occurs in the essential oils of absinthe (*Artemisia absinthium*) and of sage (*Salvia officinalis*); it has also been found in several other plants of less common occurrence. Benzoic aldehyde (C₆H₅CHO), or benzaldehyde, is a colourless liquid having physical properties identical with those of oil of bitter almonds which has been deprived of hydrocyanic acid; in fact, the oil so treated consists

² The word "degree" of alcoholic strength when used in this connexion is equivalent to per cent. of real alcohol by volume. A spirit of 50 degrees therefore contains 50 per cent. by volume of absolute alcohol.

almost wholly of benzaldehyde; a minute trace of this substance also occurs in cherry-laurel water. It is made synthetically on a large scale from benzyl chloride. Aldehyde, by which is no doubt meant acetaldehyde (CH_3CHO), is a colourless liquid with a characteristic odour, formed in the oxidation of ethyl alcohol. A number of salicylic ethers are known, the only one of interest in this connexion, however, is methyl salicylate, which is the chief constituent of oil of wintergreen and oil of sweet birch. It is prepared synthetically on a very large scale from methyl alcohol and salicylic acid. It may be pointed out that the liqueur known as *noyau* or *crème de noyau* sometimes contains oil of bitter almonds, while *crème de menthe* is stated to be prepared from ingredients which include sage. Such liqueurs might be prohibited by a strict interpretation of the third resolution, but they are probably intended to come under the head of "sweet liqueurs," on the ground that, like other pungent aromatic liqueurs, they are generally taken after meals.

The Académie, as has been said, raised no objection to the use of wine. In fact, what may be called another discussion has already been raised by a series of papers by Vidal, Armand Gautier, and Landouzy, who urge that the wine ration should not only be maintained but even increased. The suggestion has been referred to the committee on alcoholism for report.

THE TYPHUS EPIDEMIC IN SERBIA.

The great armies which are engaged in this tremendous struggle have so far been remarkably free from serious disease, at least when we recall the experiences of other campaigns; but the small kingdom of Serbia, which has fought so splendidly for the cause of the Allies, is an unfortunate exception, for she has in very truth been stricken by pestilence.

We publish to-day the first detailed account, from the clinical standpoint, of the epidemic of typhus which has been raging in Serbia since the beginning of January, but which has now, thanks to the exertions of various British and foreign doctors and the devoted labours of many nurses, been brought to an end.

Though there were some sporadic cases of typhus in Serbia prior to the great Austrian defeat last December, there is good ground for supposing that the epidemic originated among the Austrian prisoners, of whom, early in the year, the Serbians had taken as many as 67,000. The starting point seems to have been Valjevo, a small town in the north-west of Serbia, not far from the frontier of Bosnia. When evacuated by the Serbians it had been free from disease, but on their return they found 3,000 wounded and sick Austrians, many of them suffering from typhus fever. In one building 150 dead Austrians were found in the cellars; men and cattle were buried indiscriminately.

From there the disease spread in a south-easterly direction to Kragujevatz, and then to Nish, the temporary capital of Serbia, where a very large number of troops were encamped, and after that further south to Skoplje in new Serbia, and Monastir, close to the borders of Greece, and, in fact, to wherever the army might be quartered. There were, of course, plenty of cases among the civil population, but the soldiers were the main victims of the disease. The infection was carried largely by soldiers returning home from the army, by peasants wandering about at large, or travelling in the crowded trains, clad in filthy clothes, rags, and goatskins, there being at first no restrictions placed on railway travelling or any attempt made to

disinfect the carriages. Later on, when, early in March, a detachment of the Royal Army Medical Corps arrived, Colonel Hunter and Lieutenant-Colonel Stammers, in conjunction with the parliamentary sanitary commission at Nish, caused quarantine stations to be established behind the various camp lines, notification of disease was enforced, infectious patients were removed from their homes to hospitals; all railway communication was stopped for a time, all soldiers on leave were immediately recalled so that there might be no danger of re-infecting the railway carriages after the disinfection, which was carried out during the stoppage.

It will be advisable to wait a little before attempting to frame an estimate of the total number who suffered in the epidemic. We know that early in March there were 8,000 cases at Nish. At Kragujevatz, out of a civil population of 20,000 inhabitants, there were 1,400 cases of typhus. Dr. Maitland mentions 1,800 cases as having passed through his hands in two months at the typhus hospital at Skoplje, and there were doubtless as many cases in the two months before the hospital was in full working order. Probably in the six months during which the disease was active, when the returns from all the villages have come in, the number of cases will be found to amount to something like 80,000.

Dr. Maitland describes in some detail the methods of disinfection which he adopted for the wards and the orderlies, hampered as he often was by shortage of water and the inability of the Serbian authorities to give adequate notice of the arrival of new patients. Certainly his policy seems to have been eminently successful, and the disease was got under control at Skoplje sooner than elsewhere. Colonel Soubotitch, Vice-President of the Serbian Red Cross Society, and one of the leading medical authorities in Serbia, inspected this hospital and was deeply impressed by it, saying that the isolation scheme there adopted was the only effective plan, and that it would be copied all over the country.

In the interesting account which Dr. Maitland gives of the symptoms, stress is rightly laid on the importance of the hygiene of the mouth, the neglect of which so readily leads to such complications as parotitis, laryngitis, and otitis media, which at first could hardly be avoided when the number of the patients and the smallness of the staff prevented adequate attention being given to individual cases. In most instances the onset of the disease was rather slow, which is contrary to what has been generally observed in previous epidemics, but to some extent each epidemic is a law to itself. The great infrequency of pulmonary stasis, where there was often much cardiac asthenia, is certainly a striking feature.

Tender toes, which are often described as a sequel of enteric fever, are in reality extremely rare after that disease, whereas after typhus fever they are very common; the condition lasts for ten days or a fortnight, without any discoloration or swelling, but perhaps giving the patient more pain and discomfort than any other symptom of the disease; it is probably due to a local peripheral neuritis. In spite of careful nursing, bedsores occurred with astonishing frequency, thus showing the devitalizing effect of the toxin on the tissues. Patients who survive typhus usually regain their former vigour, but for a considerable time there may be much neuro-muscular weakness, which often retards convalescence; the usual view that recovery from typhus is rapid, requires, therefore, some modification. In many cases this neuro-muscular weakness recalls post-influenzal conditions, but typhus, unlike influenza, does not

permanently damage the myocardium. The prejudice in the Balkans against the use of brandy in cases of typhus, to which Dr. Maitland alludes, is undoubtedly well founded. The heroic doses of alcohol given by our ancestors, such as the two bottles of Madeira daily for several days ordered by Dr. Carmichael Smyth to a Spanish prisoner in the Winchester gaol, or the two bottles of port in twelve hours to another who recovered, were probably due to an excessive reaction against the treatment by venesection.

It was generally expected in Serbia that cholera would break out there in the early months of the summer; happily, so far this expectation has been falsified, and, in any case, preparations by inoculation and attention to the water supply have been made to meet this unwelcome guest.

With the knowledge gained from this epidemic of typhus fever it seems highly probable that there will not be another outbreak this winter, or that, if it comes, it will assume much less serious proportions. The Serbians have already learnt much about sanitation and ventilation, and will doubtless daily learn more from the large number of foreign doctors and nurses still present in the country. In the month of March there were as many as 300 foreign doctors, nurses, and orderlies in Serbia. The whole administration of the country will also have improved, and there will not be the same deficiency of food, which is so important a factor in the production of typhus that at one time it was known as "famine fever."

To many of our readers Skoplje, the scene of Dr. Maitland's labours at the typhus colony, may be better known as Usküb, as which it appears in most maps. The town is beautifully situated on the river Vardar, surrounded by snow-clad mountains; it is of considerable antiquity, and by some authorities considered to be the birthplace of the Emperor Justinian. It was the ancient capital of Serbia in the fourteenth century, when their empire, in the famous reign of Stephen Dusan, included the greater part of the Balkan peninsula. But on the fatal field of Kossovo (1389), when the Serbians, owing to treachery, were defeated by the Turks, Usküb was lost to Serbia for more than 500 years, and has been a Turkish town until 1912, when the Balkan Alliance won its signal victory over the Turkish Empire, and Usküb, or Skoplje, passed once again under Serbian rule.

THE SHORTAGE OF GLASS.

It is unfortunately a fact that for many years Great Britain and other countries have largely depended upon Germany and Austria for their supplies of several varieties of glass used in the manufacture of lenses and optical apparatus. Thus, the Jena glass—a product with a high "antidispersion" coefficient—was, before the war, imported from Germany. Not only was it not produced commercially in England, but even now it is difficult to obtain the pure barium compounds which are necessary for its manufacture. The history of the Jena glass is interesting. We believe that we are correct in saying that it was only discovered after years devoted to costly experiments, and that success was not attained until the Government stepped in and subsidized the firm engaged in the work when its financial resources were exhausted. The amount of this glass required in the optical trade of the world being comparatively limited, it is not commercially possible for an English firm to undertake its manufacture unless it receive adequate guarantees, for any attempt to compete with Jena would be successfully met by price cutting. The absence of the necessary technical education, the want of protection, and, it is said, the vexatious

interference of trade union officials, have made it impossible for British firms to compete with Germany, and the manufacture of high-class glass has been driven out of this country. The same circumstances killed the home production of chemical glass apparatus, which, before the war, was imported from Bohemia. Soon after the outbreak of hostilities the British Science Guild appointed strong committees to investigate the questions of the manufacture of optical instruments and scientific glass apparatus respectively. The reports published in the spring of this year show that the Guild is satisfied that the supply of optical glass for the manufacture of telescopes, binoculars, range finders, and other service instruments is sufficient for the purpose. Messrs. Chance Bros., of Birmingham, have quadrupled their plant for the production of optical glass, and are fully prepared to increase its capacity still further. With regard to the special grades of glass used in the manufacture of photographic and microscopic lenses the outlook is not so promising. The Guild is of opinion that serious inconvenience is to be expected, more especially because, as has been stated above, it is very difficult to obtain in England the necessary barium salts in a pure state. The variety of English glasses offered is insufficient for the most recently designed optical systems. Thus, while the leading English firm listed only thirty types of glass, the chief German firm offered and actually stocked seventy types. The Guild pointed out the lack of facilities for research upon the manufacture of optical glass, and suggested as immediately necessary an investigation to discover a refractory lining for the melting "pot" which would resist at fusion temperatures the action of the materials used in the glass mixtures, and would leave the contents of the pot uncontaminated at the end of the operation. It suggested that this research might be undertaken by the National Physical Laboratory. The Guild regards the provision of adequate facilities for education in technical optics as a national want, and states that at present they are quite inadequate. The second committee—that which investigated the provision of glass apparatus for educational purposes—reported that the efforts made since the outbreak of hostilities have been attended with satisfactory results as regards the quality of the products. But, in the absence of any promise of protection after peace has been signed, British manufacturers are disinclined to expend the capital necessary to establish a new industry, inasmuch as there is every likelihood that they will be undersold by dumped goods in the British market when normal trade conditions are re-established. The Guild has been informed that this fear has acted as a strong deterrent to British glass manufacturers contemplating the production of scientific glass apparatus. The Guild has written to 860 educational authorities, and about 70 per cent. have promised, as far as possible, to buy only British-made glass apparatus during the war and for a period of three years after its conclusion. Finally, the Joint Committee expresses its strong conviction that every effort should be made to encourage the manufacture of glass and porcelain apparatus in the United Kingdom.

DEFECTIVE ADMINISTRATION OF THE SERVICE FOR THE FRENCH WOUNDED.

ALLEGATIONS against the military medical administration have brought about, or have been used as an excuse for bringing about, something approaching a political crisis in France. A debate was raised on August 15th during which the arrangements for treating the wounded were very severely criticized. M. Peyroux, who led the attack, said that the arrangements for the evacuation of the wounded after the battle of the Marne were of the most casual kind, and as an instance of mismanagement said that over 1,300 men had been sent to a place where there was not a single bed. At that time there were no hospital trains, and though an order had been given on November 10th for the equipment of such trains, cattle trucks were

still being used within the last three weeks. He alleged also that there had been great waste of money in requisitioning hotels quite unsuitable for use as hospitals. He also alleged that men had been employed as hospital orderlies who had undergone no sort of training, while mobilized medical students might have been employed in this capacity. Finally, he alleged that the organization of the medical service at the Dardanelles was extremely bad, and that at Mudros there were no beds, no bedding, no drinking water, and hardly any drugs, M. Navarre, who followed, condemned the spirit of routine which prevailed in the Medical Department of the War Ministry and the opposition it showed to all voluntary effort, a statement which was received with loud applause. Every difficulty, he said, had been put in the way of the National Committee of Public Hygiene over which Dr. Rous, Director of the Pasteur Institutes, presides, and he made a strong attack upon M. Troussaint, Director of the Army Medical Service, on the ground among others that he had failed to appoint surgical specialists to places where their services could have been of the greatest use. The Chamber became very excited, but on the appeal of the President the discussion was adjourned until August 20th, so that the reply of the Ministry has not yet been heard. M. Andre Maginot, formerly Under Secretary of State for War, has since published in *Le Journal* a long article in which he analyses the defects he has observed in the French medical service, but states that certain improvements have been introduced, among others a system under which surgeons at the front and at the base exchange places from time to time. He asserts, however, that many temporary military hospitals are insufficiently equipped with linen and clothing, and that the deficiency in instruments and surgical appliances leads to men being detained in hospital awaiting operation for weeks or even months. He alleges that no steps are being taken to heat the temporary buildings during the coming autumn and winter. He traces all the defects of the service to the fact that the authority of medical officers is insufficient; they have to get anything they want for their hospitals through a circumspection office where laymen sit in judgement on medical demands. He quotes one instance in which a lay official replied to the medical officer in charge of a hospital, "Your demands are justified in principle, but they are too numerous and will end by tiring out the patience of the Minister." The remedy, he asserts, is to give a greater degree of autonomy to medical officers in charge of hospitals.

DIETETIC TREATMENT OF SICK INFANTS.

LAST January some account was given in an editorial article of two valuable reports issued last year by the Local Government Board on the use of proprietary foods for infant feeding, by Dr. F. J. H. Coutts, and on the analysis and composition of some proprietary foods for infants, by Mr. Julian Baker, F.I.C. Mr. Baker undertook a systematic and comprehensive analysis of a large number of proprietary foods, which showed that by far the greater number consisted of cereal flours, the starch of which was not appreciably altered. Dr. Coutts discussed the whole question in some detail, and brought forward a mass of evidence to show how misleading were the claims of the advertisements of many of the proprietary foods, and how unquestioning was the belief which they inspired in the mind of some sections of the public. He described at length the regulations which had been adopted in other countries to control or abate the evil, and devoted a chapter to a discussion of the general question of the suitability of foods containing starch and high percentages of sugar for young infants. The opinion of many authorities can be quoted both for and against their use. Dr. Cameron returns to this question in our present issue. He emphasizes the distinction between the standard substitute diet of cow's milk and

certain special diets, which, however unsuitable as the permanent food of the child, are, nevertheless, useful in the treatment of certain disorders, and in the control of certain unfavourable symptoms in artificial feeding. To the latter class by far the greater number of proprietary foods belong, and he urges that under no circumstances should we allow their claim that they may serve as permanent substitutes for the standard diet of cow's milk. The subject is of importance in view of the keen interest which has always been shown in the subject of artificial infant feeding by persons who have not undergone any medical training, and of the use which is now being made of the services of lay workers and nurses in schools for mothers and centres for infant welfare. Dr. Cameron is no doubt right in saying that the artificial feeding of infants, so long as it is concerned only with the use of cow's milk, is to a great extent a matter of routine, rightly falling within the province of an intelligent district worker or nurse. It ought not to be difficult to frame general rules which would be almost universally applicable, as to methods of cleanliness, dosage, and dilution, in such terms as could be understood by the general public. To recognize this is not, however, to shut our eyes to the harm and needless suffering and loss of life which results from the failure of the medical profession to keep completely in its own hands the control of the diet of sick infants. At the present time foods containing very high percentages of carbohydrate, whether in the form of cane sugar, unaltered starch, or flour partially or completely malted, are freely administered by self-constituted and ignorant advisers. The sick baby, without medical examination and without any attempt at diagnosis of the cause or nature of the disorder, is too often condemned to suffer a series of rapid and radical changes of its diet in the hope that some one of many much lauded foods will make good its claims and save life. That the majority of infants survive the indigestion so produced and ultimately begin to improve only brings conviction to the mother that matters have after all been managed for the best, and the sufferings of each infant in turn achieve only the unfortunate effect of establishing in one family circle at least the reputation of some one proprietary food. It is to be hoped that the work of such societies as the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy will succeed where we fear the medical profession has somewhat failed, and, while encouraging among mothers and lay persons the study of a sound technique of artificial feeding with cow's milk, will at the same time be successful in putting a stop to all ignorant and rash assumption of knowledge and experience in that most difficult of subjects, the dietetic treatment of the sick child.

THE DEATH-RATE IN BERLIN DURING THE FIRST SIX MONTHS OF THE WAR.

A PAPER by Stadtrat Dr. Gottstein¹ on the death-rate in Berlin and Charlottenburg brings out some curious facts. He has drawn up a table showing the mortality from various diseases and suicides in Berlin in the period August to January, from the year 1910 to 1914 inclusive. Putting the mortality from various causes during these years of peace at 100, he shows that the corresponding mortality in the period August, 1914, to January, 1915, was in some cases considerably affected by the war. This was particularly the case with regard to suicides, which for men have fallen since the war to 76.2 and for women to 80.9. He admits that there may be sources of error in his calculations, and he points out that as the mortality from malignant growths can scarcely be affected by the war, the fall in the mortality from this cause to 96.5 is the measure of the margin of error. The mortality from pulmonary tuberculosis among men was raised to 102, and among women was lowered to 97.6. Curiously enough the

infantile mortality for children born out of wedlock has fallen to 94.7, and for children born in wedlock to 97.8. Most striking of all was the increased mortality from diseases of the heart and blood vessels, which rose to 107 among men and to 110.9 among women. A closer scrutiny of these two figures showed that there was no increase in the mortality from these causes among patients under 50 years of age, whereas there was a rapid rise among patients over 60. It would therefore appear that the war has taken a heavy toll among elderly patients suffering from heart disease.

CAPTIVE MILITARY SURGEONS.

THERE have on all sides been complaints of the high-handed action taken with military surgeons who have fallen into the hands of the Germans. The French medical papers have published from time to time lists of military surgeons who have been illegally kept back in Germany. The French protests have drawn from Dr. J. Schwalbe,¹ editor of the *Deutsche medizinische Wochenschrift*, the following defence of Germany's action. In the Geneva Convention of July 5th, 1906, there are, he says, two important clauses, dealing with the retention by the enemy of members of the Army Medical Service. In Article I it is agreed that the belligerent who is forced to leave the sick and wounded in the hands of the enemy must also leave a certain proportion of medical attendants and equipment. In Article 12 it is agreed that members of the Army Medical Service who have fallen into the hands of the enemy must continue their duties, but that as soon as their services can be dispensed with, they must be sent back. Dr. Schwalbe argues from these articles that it is lawful for the enemy to retain the services of captive military surgeons as long as their services are required, and that the decision whether their services are indispensable or not must be made by the captor, not the captive. Dr. Schwalbe goes on to enumerate the arguments for retaining the services of captured military surgeons for attendance on their fellow captives. It is, he says, of great advantage for the Russian prisoner, who does not speak German, to be attended by a Russian surgeon, in whom he would naturally have greater confidence than in a German. This arrangement also sets free German surgeons to attend to their wounded countrymen. It is further admitted that this arrangement diminishes the risk of infection for German surgeons. Infectious diseases, such as typhus, are prevalent among the Russian prisoners, and are, according to Dr. Schwalbe, more dangerous to the German than to the Russian surgeon, whose immunity is greater. Dr. Schwalbe admits that his arguments cut both ways, and that captive German military surgeons are probably kept back for the above reasons. According to the official lists, and these, he says, probably do not include all the losses, the majority of the 166 missing German surgeons are kept back by the enemy. He says that Russia has not hitherto sent back a single German surgeon, and that the majority of the missing German surgeons have been captured by the Russians. He is convinced that the supply of military surgeons captured by the Germans is at present inadequate for attendance on the more than 800,000 prisoners requiring treatment, and that these prisoners still constitute a drain on the supply of German military surgeons.

INFLUENCE OF REMOVAL OF THE ADRENALS.

DR. G. A. FRIEDMAN publishes in the (Boston) *Journal of Medical Research*, May, 1915, a series of experiments throwing light on the influence of removal of the adrenals and one-sided thyroidectomy upon the gastric and duodenal mucosa, and demonstrating the experimental production of lesions, erosions, and acute ulcers. The

experiments recorded number forty-eight, and included extirpation of the adrenals in rabbits and dogs, extirpation of the adrenal on one side, and removal of a thyroid lobe on the same side or the opposite, in one sitting in rabbits, one-sided thyroidectomy in rabbits and dogs, and repeated intravenous injections of commercial thyroid gland. The result of these and earlier experiments, already published, is summed up by Dr. Friedman thus: Adrenal hypofunction causes lesions in the stomach in rabbits and dogs. An excess of thyroid gland, as produced by repeated intravenous injections, was probably responsible for the gastric lesions of four animals submitted to experiment. Thyroid hypofunction caused the appearance of duodenal lesions in five out of six. An excess of adrenalin, produced by repeated injections of the drug, led to the appearance of lesions in the duodenum of dogs. The simultaneous production of adrenal and thyroid hypofunction did not lead to any lesions in the stomach or in the duodenum of rabbits. Lastly, when after removal of one adrenal the other became hypertrophied, lesions were seen in both viscera of three rabbits and in the duodenum of one.

THE MERCURIAL TREATMENT OF GONORRHOEA.

JOHN HUNTER treated gonorrhoea with mercury, but this was because he confounded gonorrhoea with syphilis. Mercury has, however, been advocated from time to time in the treatment of gonorrhoea since this disease was shown to be distinct from syphilis. Morel-Lavallée, in 1881, recommended iodide of mercury in the treatment of gonorrhoeal rheumatism; Thomas, in 1901, intramuscular injections of calomel; and Oro, in 1903, intravenous injections of mercuric chloride. J. W. Taylor, in 1899, pointed out that gonorrhoeal salpingitis was often improved or cured by prolonged treatment with mercury and iodides provided it stopped short of pyosalpinx. More recently B. L. Wright¹ has reported good results in cases of gonorrhoeal arthritis from intramuscular injections of succinimide of mercury. He began this form of treatment in cases of tuberculosis and has since extended it to the majority of bacterial infections, on the theory that mercury is the chemical affinity for every vegetable parasite. G. B. Lake² has applied this method to cases of gonorrhoeal urethritis with apparent success. In the 20 cases reported 13 became clear of gonococci in an average time of six to seven days, and remained so for periods of three weeks to seven months. In other words, it is claimed that 65 per cent. were cured in less than a week. In most of the cases local treatment of the urethra was used also. The dose of succinimide given was 40 mg. in the earlier cases and 65 to 78 mg. in the later. A second dose of 40 mg. is recommended if the gonococci do not disappear in six days.

GOITRE IN FISHES.

It is interesting to learn that one order of vertebrates, which lives largely in water where there is a good supply of iodine, is not free from enlargement of the thyroid gland. A. T. Cameron and Swale Vincent, working in the Physiological Laboratory of the University of Manitoba, have recently published a note³ on an enlarged thyroid occurring in an elasmobranch fish (*Squalus sucklii*). Among 217 specimens of this fish, a dog-fish from the North Pacific Ocean, they detected in one specimen a thyroid about three times larger than usual. The gland, instead of being flat and leaf-like, its normal form, was pear-shaped and nodular. It contained large cysts with proliferating growths, adenomata no doubt, but in certain regions there were infiltrations of the interstitial tissue,

¹ *Med. Record*, July, 1914.

² *Ibid.*, April, 1915.

³ *Journal of Med. Research* (Boston, U. S. A.), May, 1915, p. 251.

with appearances suggesting round-celled sarcoma. Scott and Gaylord have already detected a so-called cancer in the thyroid of teleostean fishes, where the gland is unencapsuled, a fact which influences the mode of growth of the neoplasm. The clasmobranch thyroid is definitely encapsuled. Two other points deserve notice. First, these changes were detected in wild fish, and as Gaylord has pointed out, such occurrences are rare. Secondly, they affected animals for which a constant amount of iodine is readily accessible. Cameron and Vincent add that in fresh water fishes iodine is a valuable curative agent, whether given inorganically or in organic combination in the American butter fish, which is not, it must be remembered, the *Gunellus*, a marine fish so-called by English naturalists, but the *Stromateus triacanthus*, allied to the mackerel.

LIGHT ARMOUR.

THE possible advantage of light armour as a protection against bullets and fragments of shell seems to have appeared more to the French than to the other nations at war, but even in France opinion is by no means unanimous. Dr. Caradee of Brest speaks well of plates of sheet steel moulded to cover the head, the heart, and the lower abdomen. If these three vital regions could be effectually protected, he says, 60 per cent. of serious wounds would, according to the estimate of Dr. Pouliquen, be prevented. The armour plates which have been designed by M. Boulevard, of the same seaport, weigh only 115 to 120 grams, and have stood the test of experiment well. On the other hand, an official communication, of which the following is a translation, has been issued to the French press: "The attention of the Minister for War and the military authorities has on several occasions been called to the dangers attending the use of cuirasses and other protective appliances invented and sold since the outbreak of hostilities by certain tradesmen in France. Experiments have been made which show that these cuirasses and appliances are often not strong enough to afford effective protection against bullets. Their only effect is to deform or deflect the bullets, or sometimes to give them a movement of rotation. In this way wounds which might not have been dangerous acquire an extremely serious character. In consequence it is important to call the attention of the public to the dangers attending the use of various types of cuirass on sale in commerce."

VACCINATION IN AUSTRIA.

THE steadily-spreading epidemic of small-pox in Austria has led to an organized agitation for the introduction of compulsory vaccination. Hitherto this agitation has not convinced the authorities that the populace would submit to compulsory vaccination, but where legislative measures might have failed, the presence of small-pox has induced great numbers to submit voluntarily to vaccination. Dr. Ernst Mayerhofer states,¹ as the result of investigations on the frequency of vaccination among children in Vienna, that in 1914 of the children in the second to the fifth year inclusive 82.4 per cent. were unvaccinated. Between the sixth and seventh years there was a sudden rise in the number of vaccinated children, and between the seventh and fifteenth years as many as 86.3 per cent. were vaccinated. Down to the end of 1914 it was as rare to find an unvaccinated adolescent among the working classes as it was to find a vaccinated infant. Towards the end of 1914 and early in 1915 the spread of small-pox evoked a great demand for vaccination. The public was urged by the medical and lay press not to neglect vaccination, with the result that during the first quarter of 1915 the proportion of vaccinated children under school age was 56.7 per cent. as compared with 17.6 per cent. for the same age in

1914. Of the children between the ages of 7 and 15 years, 96.2 per cent. were vaccinated as compared with 86.3 per cent. for the same age in 1914. It has been estimated by v. Jaksch that 96.2 per cent. of the adults in Prague were vaccinated in the decade 1902 to 1912. Dr. Mayerhofer does not consider this percentage high enough, for the remaining 3.8 per cent. of the adult population is quite sufficient to feed the present epidemic indefinitely, especially as the unvaccinated belong to the lowest strata of society. Again, the popular practice of deferring vaccination till children have reached the school age or later is, he urges, a grave source of danger. In the absence of legislation, revaccination is commonly neglected, as the public is apt to overestimate the value of the first vaccination in early childhood. For these reasons Dr. Mayerhofer urges the necessity for compulsory vaccination, and argues that such a measure, so far from curtailing the liberty of the individual, would enable him to avoid the far stricter measures, including compulsory isolation, to which persons are subjected who have contracted small-pox, or are merely suspected of having been in contact with the victims of this disease.

WAR GRADUATES IN FRANCE.

A THESIS for the doctor's degree has lately been presented to the University of Paris by M. Perrin of Grenoble in somewhat unusual circumstances. It was written in hospital while the author was recovering from severe shell wounds of the leg, and dealt with the treatment of conditions which he had seen in the field and the trenches, and of which he had had experience in his own person. His courage had won for him, besides a mention in army orders, the Military Medal and Cross. Professor Landouzy, Dean of the Faculty of Medicine, who was present at the ceremony, recalled that on July 16th, 1815, some military surgeons had presented their theses to a jury of which Larrey, Percy, Puel, and Desgenettes were members. Among them was Professor Landouzy's grandfather. The dean said the medical officers of 1915 were more fortunate than those of a century ago, for whereas their predecessors had to appear before their examiners while the Allies were encamped in the Champs Elysées, M. Perrin and his fellows had victory before them. M. Landouzy took the opportunity of congratulating not only the candidates, but all the French doctors at the front and in the hospitals on the admirable work they were doing. In the long line stretching from the plains of the Yser to the ridges of the Vosges already sixty auxiliary officers and nearly one thousand médecins-majors had lost their lives. Professors Letulle, Couvchaire, and Hartmann also congratulated M. Perrin, who was wearing his decorations.

THE President of the French Republic recently received a deputation representative of the Association Générale des Médecins de France. M. Poincaré consented to become patron of a fund which the association is raising in aid of doctors who are serving with the army. The number is estimated at 14,000. Many of these must be ruined by the loss of their practices. Among the members of the committee are Dr. Langlet, Mayor of Rheims; Professor Combemale, Dean of the Medical Faculty of Lille, and the deans of all the other medical schools of France; the presidents of the principal medical societies; the doctors who are members of the Senate and Chamber of Deputies, and representatives of the medical press. Before any public appeal was issued a sum of nearly £2,000 was contributed.

A MEETING of the War Emergency Committee for England, Wales, and Ireland will be held at the offices of the British Medical Association on Wednesday next, August 25th.

¹ *Wien. med. Woch.*, June 19th, 1915.

THE WAR.

RECENT BRITISH EXPERIENCES IN THE TREATMENT OF INJURIES IN WAR.

A Memorandum on the Treatment of Injuries in War based on Experience in the Present Campaign has been added to the list of publications issued by the War Office.

In a short preparatory note Sir Arthur Sloggett, K.C.B., the Director-General in France, states that the handbook has been prepared with a view to summarizing the experience gained in the military hospitals in France during the last ten months, and of obtaining some uniformity of methods of treatment based upon the definite observations that have been made. The recommendations contained in the volume are designed to meet the conditions under which the medical service has been working, and therefore have regard to the actual character of the wounds, including the special features dependent on climatic conditions, environment, and new methods of warfare, and to the primary transport of sick and wounded men from the field and the rapid transference of patients to home hospitals, which restricts the treatment of any individual case to a limited part of its course. In the various sections a distinction is, where possible, drawn between methods suitable for the front and the base respectively. The conditions of the campaign in France have caused the surgical treatment of patients to be divided into three more or less distinct stages: (1) At the field ambulances and casualty clearing stations; (2) at the various medical bases in France; and (3) at the actual medical bases at home.

General Management of the Wounded.

The first part of the book deals in a general way with wounds at field ambulances and casualty clearing stations. The practical point is at once made that in every convoy of wounded there are always some men in a serious state of collapse due to bleeding, exposure and hunger, serious visceral injury, extensive shell wounds, especially when associated with fracture of the long bones, and particularly of the femur, or to the infliction of multiple injuries by shells and bombs. Such men should be allowed to rest quietly for an hour or two before an attempt is made to dress their wounds. If the collapse be severe, and especially if it be due to hæmorrhage, the injection of normal saline subcutaneously, intravenously, or continuously by the rectum is indicated, and pituitary extract has been found very useful in many cases. Subject to this qualification, it is pointed out that it is of the utmost importance that the first field dressing should always be removed as soon as possible; it may have been applied by the soldier himself or his comrade; it has been soiled by dirty clothes and with dirty hands and often applied to a dirty skin, and it has almost always been put on too tightly. Medical officers and orderlies are instructed to wear clean aprons or gowns, and to use sterile rubber gloves if wounds are explored with the finger or opened up for drainage.

Antiseptics and Drainage.

In discussing the methods of cleansing the wounds it is pointed out that drainage tubes will often be required, and the use of very large tubes, $\frac{3}{4}$ to $\frac{1}{2}$ tubes with numerous large lateral openings, is recommended. It is stated that observation of a very large number of cases has shown that the provision of adequate drainage suffices to prevent any serious extension, general or local, of infection which has already occurred, and in conjunction with proper mechanical methods of cleansing forms the essential element in the primary treatment of gunshot wounds.

Experience has, it is said, been disappointing as to the efficacy of any antiseptic medium to inhibit bacterial growth within the soiled wounds produced either by shell fragments or shrapnel or by rifle bullets where the apertures of entrance and exit depart from the simplest type; antiseptics enumerated as having been found useful in the primary treatment of wounds are 2 per cent. solution of iodoine in spirit, solutions of carbolic acid in strength of 2½ to 5 per cent., lysol solution (1 drachm to 1 pint), biniodide or perchloride of mercury (1 in 1,000), and 1 per cent. picric acid which is a useful anodyne for multiple superficial wounds caused by small fragments of high explosive shells or bombs and by dirt and stones which they drive in. Hydrogen peroxide (5 to 10 volumes) has,

it is stated, been extensively employed in wounds soiled with soil, and it has often been used as a preliminary to the application of one or other forms of antiseptics or mixed with them. The importance of sending down with the men a proper account of what has been done is insisted upon in a paragraph headed "on the filling up of tallies," and directions are given for their completion. Next the secondary cleansing of wounds and their later treatment is discussed, and it is stated that the application of powerful antiseptic media to the wound has been found undesirable. The advantages of the hypertonic solution described by Sir Almoth Wright in our columns last April are mentioned, but it is stated that its substitution for all antiseptic media in military hospitals cannot be considered safe or advisable; a hypertonic solution, it is added, may form the basis, to which an addition of carbolic acid, 2 per cent., may be made.

Gas Gangrene.

There is a short discussion on the etiology and pathology of gas gangrene and gaseous cellulitis, and it is stated that the general indication for treatment consists in the removal of as much blood clot and devitalized tissue as possible, provision of free access to the air and efficient drainage.

Tetanus.

The next section of the book deals with tetanus. The results of directing that a preventive dose of serum should be given to every wounded man are stated to have been excellent. A large number of cases occurred during the first two months of the war, but in the last six months there were only 36 cases of the disease among those who received a preventive dose of serum within twenty-four hours of being wounded. In the same period 34 cases of severe tetanus were reported among the very small fraction of wounded men who, for one reason or another, did not receive a preventive dose of the serum within twenty-four hours; 32 of these men died, a case mortality of 94.1 per cent., whereas among the 36 cases which occurred among the enormously larger class of wounded who received a preventive dose only 28 died, a case mortality of 77.7 per cent. The preventive dose recommended is 500 units given subcutaneously at the earliest possible moment; it is added that though doses of 1,500 units have not infrequently been given there is no evidence that the smaller dose is insufficient if promptly administered.

Injuries of Bones and Joints.

After notes upon recurring and secondary hæmorrhage, upon amputations, upon wounds of the great vessels and aneurysms, we come to an important section on the treatment of fractures. Particular attention is given to the treatment of fracture of the thigh, and in an appendix the application of certain splints, including the modified Thomas's splint recommended by Mr. Robert Jones in our columns last January, and the splint designed by Mr. Page and described, also in our columns, last May, are illustrated. The treatment of wounds of joints is next considered. In an introductory paragraph the common types of injuries are summarized in four classes. First mentioned are cases of effusion without lodgement of the projectile in the joint, which are said to be obvious subjects for expectant treatment. The second class is constituted by cases in which the projectile has lodged within the synovial cavity or in one of the articular ends; a rifle bullet retained within a joint may in favourable circumstances, it is held, be left until firm union of the primary track has occurred; free fragments of shell or bombs or distorted rifle bullets should be promptly removed. If embedded in one of the articular ends, bullets may often be left, but fragments of shell, since practically all carry in infective material, should be removed by the shortest and safest route. The third class of cases enumerated are those in which the synovial cavity has been more or less widely opened; in such cases careful treatment of the wounds and immobilization of the joint may lead to sealing of the opening, though drainage of the joint is often called for at a later period. The fourth class of cases is constituted by those in which serious comminution of one or more of the constituent bones has occurred. It is stated that, generally speaking, if the joint is extensively shattered and soiled, especially if the main vessels or nerves are torn, primary amputation may be

necessary, but that comminution of the condyles or of the head of the tibia, for example, does not necessarily indicate operation. The importance of immobilization is insisted upon, and it is stated that one of the best splints for the less severe cases is the gutter "fracture splint" recommended by Major Robert Jones.

Injuries of the Head.

With regard to the treatment of head injuries, it is pointed out that some of the symptoms of injury to the brain—such as the effect of shock, local oedema, or concussion—are only temporary, and that before undertaking any operation it is desirable to have a clear idea as to what its aim is, what result is to be anticipated from it, and how best that result is likely to be attained. The objects enumerated are the relief of symptoms of cerebral injury, the prevention of complications in the future, and the cleansing of the wound and removal of bone fragments and missiles. Loss of consciousness, headache, slowing of the pulse, and blurring of the optic discs which often occurs quite early, are produced by pathological increase of intracranial pressure due to traumatic oedema and small hæmorrhages not confined to the neighbourhood of the injury, for the whole brain is bruised and oedematous. The pressure is rarely sufficiently high to require relief by operation. The course of cases due to destruction of cerebral tissue cannot be influenced by immediate operation. The conclusion, therefore, is that early operation is very rarely called for on account of cerebral symptoms whether general or local. In severe cases the essential point in treatment must be the provision of adequate drainage for damaged brain tissues. With regard to decompression it is stated that in view of the facts that the early rise of intracranial pressure is rarely of sufficient degree to require a decompressive operation, and that lumbar puncture will give at least temporary relief, that progressive hæmorrhage is in these cases a condition of great rarity, and that when widespread infection exists the majority of cases are hopeless (local abscesses excepted), it is clear that an operation of decompression is rarely called for. When such is required, however, it may be done locally or contralaterally, and the disadvantages of the local operation are briefly indicated.

Injuries of the Chest.

The pathology and treatment of penetrating chest wounds are next considered. The importance of absolute rest at first in the recumbent or semirecumbent position is insisted upon. A third of a grain of morphine given subcutaneously as soon as possible has been found to relieve the pain and spasm, and to allow the other lung to do its work; the morphine may be repeated in a similar dose for the first day or two. No movement should be permitted for several days, but at the end of a week the patient may be sent to the base. With regard to treatment it is stated that "it has repeatedly been found by autopsies on those who have died with progressive dyspnoea and cyanosis from the fourth or fifth day onwards that the fatality was not the result, as is generally supposed, of continued bleeding, but that it was due to the rapid development of an infection in the hæmothorax."

Wounds of the Abdomen.

In discussing wounds of the abdomen it is stated that hæmorrhage and perforation of the hollow viscera are the two chief complications of all abdominal wounds. The majority of the patients, it is stated, who arrive at the clearing stations are too ill to permit of any operation being done. When the question of making an exploration arises due weight must be given to the condition and surroundings of the patient before and after its performance. Useful hints are given as to the symptoms which may assist in determining what viscus is injured, and it is stated that "when a bullet traverses the abdominal cavity the injuries it inflicts are commonly multiple. Not only are several coils of small bowel usually shot through, but the same bullet may wound also the large bowel or extensively lacerate the mesentery or the vessels of the omentum, and may injure also the solid viscera. It necessarily follows that such patients bleed from many injured places, and it may be said truly that if a man with a wounded intestine dies within thirty-six hours his death is due to bleeding, and not to the fact that a hollow viscus was perforated. In the majority of cases of wounds of

the small intestine there is practically no escape of the contents."

Injuries of the Ear and Eye.

With regard to the treatment of injuries of the tympanic membranes due to shell explosions, the dangers of syringing or the introduction of lotions, especially hydrogen peroxide, are insisted on, and it is stated that the best treatment has been found to be a light application of 2 per cent. iodine solution in spirit to the cartilaginous portions of the external auditory meatus, and light plugging with cotton wool.

A short essay on the treatment of injuries of the eye is followed by notes on trench foot or frost-bite, in which prophylactic measures are described.

Gas Poisoning.

The last section of the book deals with gas poisoning. In the symptoms produced by "drift gas" three stages are recognized: (1) That of direct poisoning, which may cause death in a few hours; (2) that of oedema of the lungs with general asphyxia, which may cause death at any time from the first to the fourth or fifth day; and (3) the secondary infections of the bronchial passages and lungs which, when they occur, cause purulent bronchitis, bronchopneumonia, pleurisy, or even pyæmia or gangrene of the lungs. Such cases may end fatally in the second or third week. Most men who have survived to the third week have recovered, at any rate from the acute illness. The symptoms also are divided into three classes: (1) Those due to irritation of the respiratory tract; (2) those due to gastric irritation; and (3) general toxic effects. To check bronchial spasm and lessen the oedematous flooding of the lungs during the first twenty-four hours atropine is given in doses of $\frac{1}{16}$ grain every four hours, and it is stated that ammonium carbonate in 10 grain doses every six hours is also useful. Vomiting, which relieves the stomach, and may help to empty the lungs temporarily, appears to be advantageous and may be provoked: oxygen inhalations have been found useful. When, from the second day onwards, the oedema of the lungs is established and bronchial spasm has ceased, oxygen still gives relief, but extreme cyanosis with a full pulse requires venesection to about 15 oz. Except when secondary infection occurs the men who have escaped death in the first few days recover quickly, and, so far as is known, completely, but all cases should remain in hospital until the fine rales have vanished from the axillæ and base of the lung.

The book has a good index and is of handy size for the pocket. No more practical work could be imagined. It is concise and seems to deal with every debated point likely to cause perplexity to the surgeon first confronted with wounded men. It states briefly but fully the lines of treatment which those who have had experience in the present war have found to be the best, and it contains enough discussion of pathology to make plain the reasons for the recommendations made.²

MEDICAL ARRANGEMENTS OF THE BRITISH EXPEDITIONARY FORCE.

[From a Special Correspondent in Northern France.]

SCIENCE AND THE ARMY.

Mobile Laboratories.

At no time during the last ten years and more has it been possible to charge the Medical Department of the War Office with failure to take advantage of the progress of medical knowledge. Very numerous examples of its full recognition of the value of science could be adduced, but perhaps none has been quite so concrete and striking as the introduction into field operations of the mobile laboratories whose general construction was the subject of a recent note in the BRITISH MEDICAL JOURNAL.

In the early stage of the war there were only one or two of them, but there is now quite a fleet. They differ to some extent in minor detail, but each is so constructed that it can follow the section of the army to which it is attached wherever this goes, so that it can do its work if necessary even in a neighbourhood where buildings are

² The volume has not been placed on sale, but it is, we understand, being circulated to medical officers at home and abroad.

entirely lacking. The practical mobility of the laboratories is still further increased by small vehicles, one of which is attached for work with each laboratory and used for the collection of specimens, or for visiting other localities at moments when it is not considered desirable to move the laboratory itself.

The common aim of the laboratories is to provide any additional scientific data which may from time to time be required when the general principles of preventive medicine are being applied at the real front. In other words, they are part of the general machinery for maintaining the health of the troops, and for lessening the wastage due to contagion, or to air-borne, food-borne, or water-borne disease.

Their precise work seems to vary from time to time, but I understand that while a few are habitually occupied with questions relating to the maintenance of adequate supplies of potable water, the rest are engaged in the bacteriological diagnosis of suspected cases of zymotic disease, and the discovery of the infection in recognized cases.

An idea of the work they do may perhaps best be conveyed by a few notes as to what the writer has himself seen at more or less frequent visits to three of these laboratories, which will be designated "A," "B," "C."

At "A" laboratory the principal work in progress seemed on different occasions to be—

(a) The testing of the urine of every man of one whole division who was known or suspected to have previously suffered from enteric fever, with a view to the discovery and removal of typhoid carriers.

(b) Testing the effect of the inoculations of living cultures of *B. typhosus* in acute cases of true typhoid. The underlying idea was that if such inoculations proved to be harmless (as might be anticipated from the results of the researches on the effects of living plague vaccines as published on various occasions in the *Journal of Hygiene*) it would be desirable to try them therapeutically on a large scale. Apart from the possibility of the inoculations setting up natural antigen factories in the subcutaneous tissues, there were many reasons for believing that the antigen contained in a living culture must be more normal and therefore more potent than that in a killed culture.

(c) The diagnosis of cases of cerebro-spinal meningitis and the watching of contacts.

(d) Supervising bacteriologically the treatment of acute cases of this disease by various specific means, including a living culture of the meningococcus, and comparing the results.

At "B" laboratory most of the time of my visit was spent in the study of a series of annotated maps relating to work of two quite distinct classes. One set bore upon the possible sources of potable water in the district behind a considerable section of the Allied line, and showed that at one place the outfall of a natural catchment area had been raised; that at another an artesian well had been sunk; that at a third the equivalent of a sedimentation reservoir and of a distribution reservoir had been created in connexion with an existing water source.

The second set of maps, charts, and figures related to work which had for some time been completed and was of quite a different order. This was the task of dealing with the epidemic of typhoid fever among the Flemish which led to the opening of the hospital at Mallassise described in the *JOURNAL* some months ago. I gathered that the measures adopted included compulsory notification of typhoid fever and that the position of a Belgian civilian sanitary authority had been conferred upon those engaged in the work, who were thus empowered to remove cases for isolation and to insist on antityphoid inoculation. In the event it does not seem to have been found necessary to use compulsion of any kind; the whole of the part of Belgium concerned is Roman Catholic, and the village priests co-operated heartily with the British authorities. The net result, in addition to all actual cases being brought under treatment and the homes of the patients put into proper sanitary condition, was that over 20,000 people sought the protection of antityphoid inoculation, and that about 80 per cent. of these returned for the desirable second dose.

At "C" laboratory, which I found at a place behind the fighting line, the work was varied. Investigation of suspected cases of typhoid formed the staple occupation, but other forms of disease, such as diphtheria and cerebro-

spinal fever, had also been investigated, and, in addition, a good deal of work in general pathology was done.

It was, for instance, in this laboratory that I gathered the information furnished in one of these notes a little time ago as to the *post-mortem* appearances in cases of gas poisoning that succumb within a few hours. It was also in "C" laboratory that I heard of a case on which might perhaps be founded an interesting contribution to the study of the so-called gas gangrene. In a patient who had a gunshot wound of the arm gas gangrene occurred not only in the wound itself, but at several distant spots where there was no visible lesion. One of these was in the sound arm at the spot where a dose of morphine had been introduced at a casualty clearing station. It is clear that the gas-forming organisms concerned in this case must have possessed an exalted capacity for multiplying themselves; yet this did not seem to be accompanied by any evidence of special virulence. At all events, the patient made a good recovery.

Some other facts mentioned to me by the officer in charge of this laboratory on the occasion of one of my visits possibly explain why there has been so much acute difference of opinion as to what is the organism to which the occurrence of gas gangrene must be ascribed. Early in the war, when working at a hospital at home, he had found a class of organism to predominate in gas gangrene cases which he had encountered comparatively rarely after he had begun to work at the real front with quite fresh wounds.

The day's work seemed to be fairly equally divided, as a rule, between indoor and outdoor occupation. The early hours were devoted to examining the previous day's cultures, and assessing the results, to dispatching telegrams and other reports on completed investigations, and then starting a new series of cultures and fresh investigations. In the afternoon a visit had generally to be paid to some unit for the purpose either of obtaining material for the investigation of a case, or of consulting with the medical officer in direct charge of the men among whom a suspected case of typhoid had occurred, or with the A.D.M.S. of the division to which the detachment belonged. In the evening a certain number of field telegrams notifying cases requiring examination or bearing on questions already under investigation generally arrived, and replies stating the steps it was proposed to take had to be sent.

The problems that arose were varied, but in most cases the primary question was whether bacteriological evidence supported a suspicion that a given patient was suffering from typhoid fever and should therefore be sent to the base. If the answer was in the affirmative the next question was, "How did the patient become infected?" In deciding the latter point the rule was to hunt not only for some inanimate source of infection, but also for a carrier or previous case of typhoid among the patient's companions or among civilians with whom he might have been in contact when in billets or elsewhere. The procedure in regard to other zymotic disorders was of an analogous kind, and it was clear that the co-operation between all persons concerned—namely, the regimental medical officer, the divisional A.D.M.S., the bacteriologist, the D.M.S.Armey, and the D.G.M.S. was very close.

I also learnt that spot maps and charts relating to the history of every unit in respect of typhoid and general zymotic disease were kept both at the head quarters of divisions and at the principal sanitary base. As this had been the rule from the beginning the amount of information now acquired must be so large and complete as to put the sanitary authorities of the army in a very good position for controlling outbreaks of epidemic disease—so far as this task depends on knowledge of the probable sources of any outbreak—despite the constant growth in the size of the army and the numbers of its units. It is impossible, in fact, not to feel much impressed by the way in which the whole business of dealing with zymotic disease is managed, including in this statement the steady endeavours made to bring the percentage of typhoid protected men up to 100 in every unit.

The net result has been to keep the zymotic morbidity curve, and especially the typhoid curve, down to a level which has so far been satisfactorily low, and which will probably be deemed quite remarkably low when information as to the corresponding figures for the armies of our

allies and of the enemy becomes more complete and general.

As for the part played in the matter by the mobile laboratories, the account already given of their work is sufficient to indicate its importance.

Being an entirely new departure in the medical history of war their introduction has given rise to a good deal of interest and discussion, and I have heard it claimed that the same scientific needs could have been met by less original and less expensive means. This, of course, is an arguable proposition, but the fact remains that these mobile laboratories, besides being effective in themselves, anticipate all the possibilities of a campaign more completely than could any laboratory which was dependent on its environment for its ability to work, and that the responsibility for their introduction rests upon shoulders well able to bear it—namely, those of men who have nothing to learn from anyone as to possible ways of bringing science to bear on the problems of active service, and their respective advantages and disadvantages.

It may be noted, in conclusion, that to take charge of one of these mobile laboratories cannot be regarded as any man's job. To perform its duties successfully the holder of such a post must be a good deal more than a mere laboratory expert. He has to deal with problems which have clinical and military as well as scientific aspects, and he sometimes has to influence men—combatant officers and others—who have no profound respect for science in itself. He must also be a man who, whatever his enthusiasm, is capable of refusing to allow his attention and energies to be diverted from his direct duties by the hundred and one interesting side issues that they open up. Finally, if he be in charge of one of the more advanced laboratories, he must not only be physically strong, but be prepared to shrug his shoulders at the risk involved by visiting areas which are at times, in soldier's parlance, more or less "unhealthy."

NOTES ON SOME CASES UNDER TREATMENT AT THE 2ND EASTERN GENERAL HOSPITAL, BRIGHTON.

BRIGHTON has become one of the chief centres in England for the treatment of sick and wounded, and we have from time to time published notes of interesting cases treated there. The following are some further notes of cases:

Bullet Wound of the Face: Facial Paralysis and Total Deafness.

A man was shot in the face by a bullet which entered a little to the outside of the external canthus and made its exit behind the mastoid process. It caused complete facial paralysis which has not improved during the time—three months—which has elapsed since the man was shot. Undoubtedly the facial nerve was severed. There is also total deafness on the left side, due probably to an injury of the eighth nerve during the passage of the bullet.

Cases of Compound Fracture of the Leg not due to Bullet Wounds.

Although the great majority of cases of compound fracture admitted to the hospital have been caused by gunfire, there are a few instances which have been due to other causes. The first case was that of a man who was kicked by a horse on the shin; both bones were broken, and the fracture was compound. The fracture could not be got into good position by the ordinary methods of reduction. The wound in the soft parts soon healed, and the patient was operated on; the broken ends of the bones were secured in position by means of a plate.

In a second somewhat similar case no union occurred after two months, and the bones were not in good position. The fracture was accordingly cut down upon, and a piece of bone, about 3 in. long, removed from the tibia was used as a splint to keep the broken ends together. The result was to increase considerably the callus formation, although there was no improvement in the position of the broken bones.

Many Wounds of Hand by High Explosive Shell.

A man was shot in the hand, receiving a very large number of small wounds. An x-ray photograph showed

a number of tiny pieces of metal, some dozens in all. A few which were causing trouble were removed. Only a high explosive shell could have caused this wound, as shrapnel does not break up into such small fragments.

Fracture of the Necks of Four Metacarpal Bones.

A man was shot in the hand by a bullet which entered on the dorsal surface of the neck of the fifth metacarpal bone. It made its exit at the level of the second metacarpal, fracturing all four inner metacarpal bones at their necks. The wounds of entry and exit soon healed, and the hand is now in good condition, with the exception of slight swelling and stiffness, which probably massage will soon correct.

Some Examples of Explosive Wounds.

By an explosive wound is meant a bullet wound in which the destruction of tissue, especially on the exit side, is very great. In practically all cases the bullets have shattered the bones, though there are a few examples recorded in which the bullet has only traversed soft parts. In an explosive wound the exit wound is much larger than the entry wound, being represented by a funnel-shaped cavity which extends to the bone, which is pulverized and comminuted, especially if a long bone, fragments being driven in all directions, often for a considerable distance, leaving a space between the ends of the shaft. The soft parts—vessels, muscles, tendons, and nerves—are lacerated, and project from the cavity of the wound, which is bounded by jagged skin flaps. With this extensive injury on the exit side, the wound of entrance may be quite small.

Such extensive injuries were at one time supposed to be due to the employment of explosive bullets or small-arm shells, contrary to the Geneva Convention, but this is now proved to be, at least in the great majority of cases, incorrect. Solid rifle bullets, provided they strike with sufficient velocity, and encounter considerable resistance, can, and do, produce explosive wounds.

All the various theories—the theory of hydraulic pressure, of rotation of the bullet, of heating of the bullet, of deformation of the bullet, of the structure of the bullet, of compressed air, etc.—are, on careful testing, found to be incorrect. The true explanation is that the explosive wound is due to the high velocity of the bullet, and therefore the large amount of energy inherent in it at the moment of impact. This energy is communicated to the resistant bone, which is shattered, the pieces acting on the neighbouring parts as secondary missiles and causing laceration of the soft tissues.

In one case of explosive wound of the lower jaw caused by a rifle bullet there was a wound of the lower jaw on the right side, showing a large lacerated cavity with several pieces of comminuted bone. The jaw was kept in good position by means of the ordinary jaw bandage, and the wound healed with only slight deformity after the separation of several pieces of bone.

In a case of explosive wound of the shoulder from a rifle bullet the wound of entry in front of the shoulder was quite small. The exit wound at the back of the shoulder was of a typical explosive character—a cavity as large as one's fist. The head of the humerus was blown right out of the wound.

Explosive wounds of the wrist, of the metacarpus, and of other parts of the body have also been met with. This type of wound, although not uncommon, does not form a very large percentage of the cases admitted. It is impossible to ascertain at what range these injuries are received, as under present conditions of fighting very few men know where the weapons of their opponents are fired from.

"Wind Contusion."

In former times severe cases of gunshot injuries were met with without any sign of wound or contusion of the skin. These injuries were said to be due to "the wind of the shot." This explanation is denied by modern military surgeons. Stevenson, in the latest edition of his book on wounds in war, says: "But the question of the so-called 'wind contusion' hardly requires discussion in these days. So many cases of shot passing as close as possible to men without absolute contact in which wind contusions were not produced are now on record, that it is evident that the wind theory does not explain the condition of things referred to. These injuries are always the result

of solid shot, unexploded shell or grape, or of large fragments of shell."

"The results of the explosion of the latest very powerful high explosive shells make it almost certain that this statement will require revision, and that this old theory of "wind contusions" is, in some cases at least, accurate. Men are knocked out by the concussion of these shells without being touched by them.

A high explosive shell from a gun of about 8 in. calibre struck the ground and exploded, blowing to pieces a large number of men. An officer standing quite close to the spot where the shell struck the ground was knocked down and lost consciousness. He was certain that he was not struck by any part of the shell; it was simply the force of the concussion which knocked him over. He stated that this was a quite common occurrence. He must have regained consciousness rapidly, for the first thing that he remembers is that on recovering his senses he was breathing asphyxiating gas. He pulled his smoke helmet down at once. "This saved his life, for thirteen of his men died from the poisonous fumes given off by this shell.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed.

COLONEL NEVILLE MANDERS, Army Medical Staff, was killed in the Dardanelles on August 8th or 9th. He was born at Marlborough on December 12th, 1859, the youngest son of the late Major Thomas Manders, 6th Dragoon Guards (Carabineers) and educated at Marlborough. After qualifying as M.R.C.S. in 1883, and L.R.C.P.Lond. in 1884, he entered the army as surgeon on August 2nd, 1884, becoming surgeon-major on August 2nd, 1896, and lieutenant-colonel on August 2nd, 1904, and being promoted to full colonel on December 21st, 1913. He served in the Soudan in 1885, at Suakin, receiving the Egyptian medal with a clasp and the Khedive's bronze star; and in Burma in 1885-89, when he was severely wounded, and gained the Indian Frontier medal with two clasps. On promotion to colonel, he was appointed Principal Medical Officer in Egypt, and in January, 1915, went from Egypt to the Gallipoli Peninsula as Assistant Director of Medical Services with the Australian and New Zealand Army Corps. He is the first medical officer of the rank of full colonel who has fallen in the war.

Major Samuel Jabez Richards, of the Australian Army Medical Corps, the bare fact of whose death was announced last week, died of wounds received in the Dardanelles, at the age of 51. He was then in command of the first Australian Clearing Hospital. He attained the rank of major on March 8th, 1913.

Captain Arthur Kellas, R.A.M.C.(T.F.), is also reported as having been killed in the Dardanelles on August 6th, aged 31. He was the youngest son of the late James F. Kellas, Superintendent of Mercantile Marine at Aberdeen, and was educated at Aberdeen University, where he took the M.B. and Ch.B. in 1906, the D.P.H. in 1907. After qualifying, he filled the post of resident physician and surgeon of the Royal Aberdeen Hospital for Sick Children, and, when called up for active service, was senior assistant physician of the Royal Asylum, Aberdeen. After serving in the university troop of Scottish Horse, he joined the 1st Highland Field Ambulance, in which he became captain on August 2nd, 1912, and was serving as second in command of this ambulance, with the 29th Division, when he was killed.

Died of Disease.

We regret to have to record the death of Lieutenant-Colonel G. A. Edsall, R.A.M.C.(T.F.), commanding officer of the 13rd Home Counties Field Ambulance. He had been at the front for several months, and had contracted pleurisy. He was invalided home, but died at his house in Surbiton on August 15th.

Wounded.

Major D. S. Skelton, R.A.M.C., Dardanelles.
Lieutenant (temporary) E. W. Adcock, R.A.M.C., Dardanelles.
Lieutenant (temporary) M. J. Cronin, R.A.M.C., Flanders.
Lieutenant (temporary) C. M. Harris, R.A.M.C., Flanders.

Lieutenant C. R. Dudgeon, R.A.M.C. (Flanders).

Lieutenant R. P. Nash, R.A.M.C., attached 1st Battalion Lincoln Regiment (Flanders).

DEATHS AMONG SONS OF MEDICAL MEN.

Chisholm, William Malcolm, who died at Ligny on August 27th, 1914, from wounds received on the previous day, was the son of Dr. William Chisholm of Sydney. He was educated at Sydney Grammar School, entered Sandhurst in 1911, passed out in 1912, and received his lieutenancy in the East Lancashire Regiment in 1913.

Morgan, John Cecil, Captain 6th Battalion Yorkshire Regiment, only son of John H. Morgan, C.V.O., F.R.C.S., consulting surgeon to Claring Cross Hospital, was killed in the Dardanelles, aged 39. He joined the 3rd York Militia in February, 1899, and served in the South African war, became captain in 1906, and resigned in 1909. He rejoined the army with the rank of captain on October 4th, 1914. He was educated at Trinity College, Oxford, where he took the M.A. degree.

Payne, Henry Tonkin, Second Lieutenant 3rd Battalion Essex Regiment, son of Dr. Payne, of Witham, Essex, killed in the Dardanelles on August 6th, aged 22. He was a tea planter in Ceylon, and came home and enlisted in the 5th Battalion of the Essex Regiment when the war began, receiving a commission in the 3rd (Reserve) Battalion of the same regiment on March 6th, 1915.

Pirrie, R. Bowen, Lieutenant 1st King's Shropshire Light Infantry, who was killed on August 10th, while leading his men to the assault on the Hooge trenches, was the eldest son of Lieutenant R. R. Pirrie, M.D., R.A.M.C., of Ryton-on-Tyne. He was 21 years of age.

Medical Student.

Sutherland, James Gilbert, Second Lieutenant 11th Battalion Highland Light Infantry, son of Andrew Sutherland, of 7, Hope Park Terrace, Edinburgh, died in France on August 11th of wounds received on the previous day. He was educated at Edinburgh University, where he was a corporal in the O.T.C., and, after taking the M.A. degree, was pursuing the medical course with a view to qualifying as a dental surgeon. He got a commission on August 30th, 1914, and went to the front in May, 1915. His brother, also a dental student, is serving in the artillery.

NOTES.

MEDITERRANEAN DISPATCH.

ON August 16th the Admiralty published a dispatch from Vice-Admiral John M. de Robeck, dated July 1st, reporting the landing of the army in the Gallipoli peninsula on April 25th and 26th. Among a large number of officers specially mentioned in this dispatch are the following medical officers: Surgeon P. B. Kelly, R.N., attached Royal Naval Air Service; temporary Surgeon W. D. Galloway, H.M.S. *Cornwallis*.

Honours.

Among the honours conferred on officers mentioned in this dispatch, the D.S.O. is bestowed upon Surgeon P. B. Kelly, R.N. The following is the record of the services for which he received the distinction:

Surgeon P. B. Kelly, R.N., was wounded in the foot on the morning of the 25th in *River Clyde*. He remained in *River Clyde* until morning of 27th, during which time he attended 750 wounded men, although in great pain and unable to walk during the last twenty-four hours.

Among those medical naval officers honoured for service prior to April 25th and 26th—that is, during the first attack on the Dardanelles by the navy alone—occur the names of Surgeon Martyn Henry Langford, R.N., who receives the D.S.O., and of Fleet Surgeon Edward Henry Meaden, R.N., and Surgeon John Harding Baynes Martin, R.N., who are commended for service in action.

The honour of D.S.O. received by Surgeon Langford is shared by three engineer officers of H.M.S. *Inflexible*. While the ship was steaming to Tenedos after having struck a mine, the engine-room being in semi-darkness and great heat, and the ship in possible danger of sinking on passage, Surgeon Langford brought up the wounded from the fore distributing station in the dark. Fumes permeated the place, rendering five men unconscious. Surgeon Langford, though partially overcome by the fumes, continued his work.

NAVAL LOSSES.

During last week the loss was reported of three minor units of the navy, all within two days: H.M.S. *Ramsey*, patrol vessel, sunk by the German armed liner *Meteor* on August 8th, the *Meteor* herself being blown up by her own crew to avoid capture a few hours later; H.M.S. *India*, armed liner, torpedoed by a submarine near the Lofoden

Islands; and H.M.S. *Lynx*, destroyer, mined and sunk in the North Sea, both on August 9th. In the first and third cases the majority of the ships' complements were saved, including three medical officers: temporary Surgeon F. W. Lawson and Surgeon-probationer J. T. Johnston on the *India* and Surgeon-probationer R. P. Langford-Jones on the *Lynx*. The *Ramsey* does not appear to have carried any medical officer. Unfortunately the loss of life on the *India* was large. The list of casualties occurring in connexion with the sinking of the transport *Royal Edward* in the Egean on August 14th has not yet been published.

ARRIVAL OF HOSPITAL SHIP IN DUBLIN.

On August 7th the hospital troopship *Oxfordshire* again arrived at Dublin from Havre with 611 wounded soldiers. A staff of officers and orderlies of the St. John Ambulance Brigade, under the direction of Dr. Lumsden, Deputy Commissioner, were ready on the quay to receive them, and to transfer them from the ship into the numerous motor ambulances and conveyances waiting for them. Of the 611 wounded men on board 597 were non-commissioned officers and men and 14 were officers. About fifty different regiments were represented; 150 men were dispatched in the Great Northern ambulance train to Belfast; of these 20 were stretcher cases. The Great Southern and Western ambulance train took 150 cases, leaving 50 at the Carragh and taking 100 to Cork. The remaining 311 men, about half of whom were stretcher cases, were distributed among the various Dublin hospitals. The fact that room could be made for these cases so soon after the arrival of the previous hospital ship was largely due to the opening of the Princess Patricia Hospital at Bray, which contains 200 beds, and is intended for soldiers who are not in need of active surgical treatment. This hospital was formally opened by His Excellency the Lord Lieutenant and Lady Winborne on August 3rd. Up to the present the Dublin hospitals have been considerably hampered in their work by being overfilled with chronic cases, as there were only a few small convalescent homes to which such cases could be sent.

HOTEL FOR PARALYSED SOLDIERS.

To those who are familiar with "fair Richmond's green retreats," as the poet physician, John Armstrong, called them in his *Art of Preserving Health*, there is something to touch the imagination in the announcement that the famous Star and Garter Hotel on the summit of the famous hill is to become a permanent home for paralysed and totally disabled soldiers and sailors. The splendid building, which in its time has lodged such personages as Louis Philippe, Victor Emmanuel when King of Sardinia, Napoleon III, the Empress Eugénie, the ill-fated Archduke Maximilian, and the father of the present German Emperor, will have a lease of new though more subdued glory. The hotel estate is being purchased by the council of the Auctioneers' and Estate Agents' Institute of the United Kingdom for presentation to the Queen, and her Majesty proposes to hand it over to the British Red Cross Society, which has undertaken to equip and maintain it. It is intended to devote the building chiefly to the purposes of a home for paralytics who are totally disabled, but that in addition to these bedridden cases it is proposed to assign the first floor to disabled men who are still able to walk up and down stairs. The ample ground floor, containing a number of large and lofty rooms which will form exceptionally fine wards, is to accommodate about 135 beds for the absolutely helpless (and for these alone). Each bed is to be provided with large wheels on ball-bearing joints, so that at every suitable opportunity the sufferers can be taken out on the beautiful terraces and grounds which command a view stretching away to Windsor Forest and the Surrey hills. In addition, it is intended to provide accommodation for fifty further cases of the same class by building in the garden, which is on the steep crest of Petersham Common, a little street of cottages and bungalows, each with one good room capable of accommodating four beds. These "garden city" residences will be of a permanent kind, built for use in winter as well as in summer. Thus, apart from the undetermined number of men who are able to walk, the totally helpless cases dealt with in the hotel and grounds will be 185. The upper portion of the building is to be devoted to the staff, save for a series of rooms forming guest chambers for relatives of the men, who will be invited to occupy them for

two or three days at a time. The soldier, when afflicted with incurable paralysis, is discharged from the army on a small pension, and the public dismiss him from their minds under the comfortable impression that he is well tended by his friends. Usually, however, neither his own means nor the means of his friends enable him to command the skilled and special nursing, nor the particular type of bed and other appliances desirable for his comfort. The result is that he becomes more or less a prisoner in a cottage bedroom, and any kind of outdoor life is an impossibility. The Richmond hostel will be handed over to Her Majesty as soon as the contracts are exchanged, and the annex will be opened for the reception of cases in about three months, although the extensive alterations necessary to the main building will take longer to complete, and plans for remodelling the interior are still under consideration. We understand that the hotel, which originally cost over £80,000, is being purchased for £21,500. To assist in raising funds for its acquisition, the president and council of the Auctioneers' and Estate Agents' Institute are appealing for gifts of real or personal property, which they will provide machinery for collecting and selling by means of Red Cross auctions similar to that held recently at Christie's. Any surplus will be handed over to the British Red Cross Society for equipment. Sir Howard Frank, of 20, Hanover Square, W., is the chairman of the joint executive committee which has the arrangements in hand.

AMERICAN COMMITTEE FOR WAR RELIEF IN FLORENCE.

When Italy decided to take part in the war a meeting of Americans resident in Florence was held to organize help for the Italian wounded. It was resolved to equip and maintain a hospital for convalescent privates discharged from the military hospitals but not yet able to rejoin the colours or return to their homes. For this purpose a committee was formed, and at its disposal the Villa della Sole di Camerata, with the sanction of the Red Cross authorities, was placed by its owner, Dr. E. Modigliani. It has accommodation for 100 patients, and stands in a large park and garden. It is fitted with modern appliances for heating, lighting, and sanitation, and is admirably suited for a hospital. The medical staff will be appointed by the Italian Red Cross, with the co-operation of the American Committee. That Committee will further undertake such work as may be delegated to it by the medical authorities. The initial expense of equipment for 100 beds is an equal amount, and the monthly cost of maintenance at the hospital will be not less than £10,000 for one year. Towns resident more than £4,000 has been promised by America, and public in Florence, and an appeal is made to the general public of America for active support.

MEDICAL OFFICERS WANTED.

1st London (City of London) Sanitary Company, to fill Medical men with sanitary qualifications are required for vacancies for commissions in this company. Applicant to the Officer Commanding, 1st London (City of London) Sanitary Company, Duke of York's Head Quarters, Chelsea, S.W.

33rd Northumbrian Field Ambulance, R.A.M.C./T.F. Medical officers are required for this unit. After a period of training they will be drafted to replace casualties 1st Lt. or six in the Ambulance (now overseas). Promotion to Captain after 12 months' mobilized service. Pay and allowances as in regulations. Recently qualified men will be accepted. Applicant to Major Wm. A. Thompson, Commanding 33rd Northumbrian Field Ambulance, Royal Army Medical Corps (T.), 3rd Lt. Col., The Camp, South Dalton, near Beverley.

21st South-West Mounted Brigade Field Ambulance. Medical officers are wanted to complete this unit. Must be of Imperial Service obligation. Apply Captain Edwards, 2nd Lt. South-West Mounted Brigade Field Ambulance, Bowood Camp, Caine, Wilts.

Scottish Women's Hospital.

The Scottish Women's Hospital for Foreign Service invites applications from medical women for the post of pathologist and bacteriologist on the staff of the Wales and London Unit for Serbia, Honorarium at the rate of £200 per annum, together with uniform and all travelling expenses. There are also vacancies in this unit for qualified women assistant physicians and surgeons without remuneration, but uniform and travelling expenses are provided. Application to the Secretary of the Personnel Committee, Scottish Women's Hospital, 2, St. Andrew Square, Edinburgh.

Ireland.

REGISTRAR-GENERAL'S ANNUAL REPORT FOR IRELAND.

The following are the outstanding features of the Registrar-General's report of marriages, births, and deaths registered in Ireland in the year 1914: The birth-rate (22.6 per 1,000 of the population) was low, the marriage-rate (5.41 per 1,000 of the population) was the highest since 1867, the death-rate (16.5) was the lowest recorded in Ireland since 1868, and the emigration-rate (4.6) was much below that for any year since emigration returns were first compiled in 1851. The estimated population in the middle of 1914 showed an increase of 2,386 on the estimate for the middle of 1913.

The marriages registered during the year numbered 23,695, the births 99,806, and the deaths 71,345. The marriage-rate showed an increase of 0.33 per 1,000 of the estimated population as compared with 1913, and of 0.22 as compared with the average rate of the last ten years. The birth-rate was 0.2 per 1,000 under that for the preceding year, and 0.7 under the average for the previous ten years; the death-rate was 0.8 per 1,000 below the rate of 1913, and the same below the average rate for the preceding ten years. The counties with the lowest death-rate per 1,000 of the population were: Mayo 12.8, Kerry 12.8, Roscommon 13.2, and Clare the same. The counties or county boroughs with the highest rates were the following: Dublin County Borough 23.7, Belfast County Borough 18.3, Limerick County and County Borough 17.5, and Monaghan 17.5.

Deaths from tuberculosis in Ireland numbered 9,089, the lowest number recorded for 51 years, beginning from 1864. The number of deaths from the disease in this country in 1914 was 298 under the number registered in 1913.

Evidence of the progress of elementary education in Ireland is afforded by the signatures of the contracting parties in the marriage registers or certificates. In the year 1914 there were 22,405 or 94.6 per cent. of the husbands, and 22,845 or 96.4 per cent. of the wives, who wrote their names, and the remainder signed by "mark," as against 20,584 or 89.6 per cent. of the husbands, and 21,122 or 92 per cent. of the wives, in 1904; and 17,912 or 82.9 per cent. of the husbands, and 18,039 or 83.5 per cent. of the wives, in the year 1894.

THE BELFAST TUBERCULOSIS SCHEME.

We have received the following letter from our correspondent in Belfast:

Sir.—Dr. Andrew Trimble, Chief Tuberculosis Officer of Belfast, has replied in your issue of July 31st (p. 195) to some remarks I had previously made on the Belfast Tuberculosis Scheme. A short holiday and consequently unopened JOURNALS are my excuse for delay in thanking him for his correction.

I am afraid he has caught me napping, and I acknowledge I have been guilty of a *supplicatio veri*, but inadvertently. It is common knowledge that Dr. Trimble went to endless pains to qualify himself for the post he now holds with distinction, that he devotes endless energy to the work, and is insistent in season and out of season in the advancement of the cause he has at heart. Some time ago I had the pleasure of seeing and admiring his methods and his organization. I should have made this statement preliminary to any stricture I felt called upon to advance on the progress of the scheme in general; the figures he gives in his second paragraph are proof of what can be done under difficulties.

But there are other responsible authorities besides Dr. Trimble—there are boards, committees, and sub-committees; my censure—if such passing remarks should be dignified with such a term—deals with the action and inaction of these bodies; Dr. Trimble is not touched personally in the slightest. Of the subject matter he has neither disproved nor, indeed, contradicted one single statement, nor disputed the accuracy of one single set of figures. Large sums of money have been held up, by which apparently the town should have been benefited; public boards have been wrangling; new posts were created long before the City Council had any practical experience of the working of the sanatorium; the record of this institution under its previous board and medical officers was good; why rush into change and fresh expense? There are fewer patients now in it than there were when it was taken over from the Poor Law guardians.

Surely these facts form legitimate subject for comment in the medical press. If Dr. Trimble makes a bad case it is because the defence of these boards, committees, and sub-committees is well nigh hopeless.

There are many other points of great interest; their discussion would have to be in detail to be satisfactory, and the profession cannot be expected to be concerned just now with local matters. As regards medical salaries, I feel sure they will have to be ere long increased, but surely, again, this is all the more reason for economy at the start. I can with confidence deplore with him the want of centralization, but it is not the only failure to be deplored. Dr. Trimble misquotes me in his fourth paragraph; he quotes me as saying, "£13,000 a year was to have been obtained," etc. My words were, "A sum of £13,000 was to have," etc. Throughout I have quoted from the public press, and I often compare two papers to ensure accuracy and independence; if I have misunderstood or wrongfully interpreted my source of information I can only express my regret.

To avoid the possibility of a wrong impression or of the suggestion of suspicion, it is perhaps better to say definitely, although it sounds like an impertinence, that neither publicly nor in private conversation does one hear anything but eulogiums of the individual officers in their difficult and trying, but most beneficent, work.

Sydney.

THE MEDICAL PROFESSION AND THE WAR.

It has been announced that the University of Sydney is prepared to allow students of medicine who have offered their services at the front to take their final degree examinations earlier, so that they may qualify within a shorter period than the regulation five years. This arrangement has practically arisen out of the attitude of the students towards the war. They have been long anxious to take a more active part, and they presented an offer in writing to the effect that the greater number of the present fifth year would try to qualify earlier so that they might be able to get away this year, and the whole of the present students of the fourth year would submit to a more strenuous course of study, so that they might be ready early next year. This offer was submitted to a meeting of the Faculty of Medicine, and it was unanimously agreed that nothing should be omitted from the regular teaching of any subject, but that the whole of the work should be done by packing the courses of study into a shorter time. To do this the students agreed to give up every vacation between Easter and Christmas, and the teachers to sacrifice their personal convenience. The Faculty, however, was determined that there should be no lowering of the standard in any subject, but decided that the final examination should be divided into two parts. This, it is believed, will do much to relieve the strain of work, and tend rather to raise the standard in the individual subjects.

The Sydney Medical School is well represented in the number of the profession on active service abroad. Already 154 graduates in medicine are on active service. Out of 84 students in the present fifth year 54 have offered to go this year as soon as they can be got ready. Of 75 students in the fourth year 3 are women who hope to graduate early next year so as to relieve men who could go; 65 students have volunteered unconditionally for service at the front next year. All the third-year students are accelerating their course, and undergoing earlier examination in order to bridge the gap between the third and fourth years, and to be in a position to volunteer should occasion arise. Some 30 undergraduates from the earlier years in medicine, impatient of delay, have already joined the forces. As a result of this great demand for medical men for the front there is a serious shortage of medical men for resident posts at the hospitals. Several are now very short-handed as regards both resident medical men and nurses.

NEW QUARANTINE REGULATIONS.

Several new regulations under the Quarantine Act, 1908-1912, have recently been published. One regulation provides that every overseas vessel arriving at any port in the Commonwealth must bring a bill of health from the port of departure, which must contain information as to the existence or non-existence of small-pox, cholera,

plague, yellow fever, typhus fever, or any other pestilential disease at or in the vicinity of the port concerned during the fortnight preceding the visit of the vessel. The most important amendment is in relation to the notification of cases of disease by the master of the vessel. The regulations state:

The master of any vessel in port shall give notice in writing to the Chief Quarantine Officer of the State in which the said port is situated of every case on his vessel of any of the following diseases: Small-pox, chicken-pox, plague, cholera, yellow fever, typhus fever, leprosy, anterior poliomyelitis, cerebrospinal meningitis, Malta fever, scarlet fever, measles, whooping-cough, gastro-enteritis, typhoid fever, diphtheria, malarial fever, gonorrhoea, and syphilis.

Gastro-enteritis has been included in order that mild cases of cholera should not be overlooked. The inclusion of the venereal diseases is an important step, and the operation of this regulation will be watched with interest. For besides the notification of these diseases the regulations give the power to detain and isolate if necessary any patient suffering from any of these diseases.

Correspondence.

MEDICAL STUDENTS AND THE WAR.

SIR.—On the strength of an answer given by Mr. Tennant in the House of Commons the authorities in medical schools have advised the students to remain there until they are qualified, instead of joining the forces. Contrary views have, however, been expressed, and on account of this uncertainty I have been asked from the War Office. These students are quite willing to become recruits if their services are needed, but they do not like the idea of being forced to do so later if, and when, universal service is adopted, while they have a chance now of joining the forces voluntarily. I therefore wrote to the Secretary of State for War and ventured to express my own opinion that medical students, like munition workers, should not be called upon to go the front, for medical men will be urgently needed in the future for both the civil and combatant population.

I append the reply I have received from Lord Kitchener's secretary; it will be seen that he views the matter less widely than I do, but although I regret his decision, it is only right that medical students should know exactly how the War Office regards the question.—I am, Sir,

King's College, London
August 16th.

W. D. HALLIBURTON.

[COPY.]

Dear Sir,—Lord Kitchener desires me to say in reply to your letter of the 1st inst. that it is advisable for medical students in their fourth and fifth years to continue their studies, with a view to qualifying as soon as possible. The War Office would be unwilling to suggest that junior students should be discouraged from taking combatant commissions.—Yours very truly,

W. D. Halliburton, Esq.
11th August, 1915.

H. J. CANDY,
Private Secretary.

INDIAN DOCTORS AND VACANT APPOINTMENTS.

SIR.—I am glad that at a meeting convened by the British Hospitals Association at Charing Cross Hospital on July 30th, and reported in the JOURNAL on August 7th, Sir William Collins called attention to the claims of Indian medical men to a share in filling medical appointments in this country. Seeing that the Indians are just now proving their mettle in the battlefield and fighting side by side with the English, it is time the old prejudice against them, like many other fallacies which the war has exposed, should be adjusted and modified according to present conditions and needs. Only two or three weeks ago the appointment of an Indian to the post of house-surgeon somewhere in Cornwall was cancelled at the very last moment after it had been duly made because of his nationality. A single case like this would do more harm now to the English cause in India than a thousand Indian sedition mongers. My long experience enables me to say that Indian doctors in their various appointments, after the first feeling of strangeness caused by the difference of colour is over, not only give satisfaction to their autho-

rities, but endear themselves by their gentleness and abstemious qualities.

One can quite understand and even justify the preference of an Englishman when he is competing for a post with an equally able and efficient Indian candidate, but one feels prejudice has triumphed over justice when an Indian is rejected even though he is proved superior in talents and ability to his English rival. Especially now, when all the world is praising the bravery of the Indian troops, their wonderful patriotism in rallying round the British flag, their devotion in giving freely their lives and treasure, the least the hospital authorities and governors can do is to give the Indian an opportunity to compete on equal terms with others (he asks for no favour) without prejudicing his candidature because of his colour and nationality.—I am, etc.,

Wells, Aug. 16th.

C. MCTHUR.

LEGAL RESPONSIBILITY FOR CRIME.

SIR.—In your issue of June 12th Dr. Mercier writes:

My medical colleagues never venture to adopt any doctrine of mine until it has been stolen by a German and sent back here as having been made in Germany.

Now, I do not exactly know to whom he refers as his "medical colleagues." If he means only those of light and leading in mental science, I cannot at all answer for them; but if he includes asylum men generally, then I can assure him it is far otherwise, and that there are many of us who are proud to declare ourselves his disciples, and gladly and gratefully to own that we owe all we know to his teaching.

Speaking for myself, I simply floundered about in confusion of ideas until his writings made smooth the way for me and cleared away my difficulties. That being so, I need not try to express the respect and admiration in which I hold him.

We Britishers are apt to think ourselves very fine fellows, and do not hesitate to say so, but it would be more seemly if we generalized less in this way and tried to overcome our peculiar shyness and give honour more freely where it is justly due, and I think it would be difficult to do too much honour to the author of *Conduct and its Disorders, Criminal Responsibility, Sanity and Insanity*, and many other notable works.—I am, etc.,

Fort Beaufort, South Africa, July 10th.

C. G. CASSIDY.

RESEARCH IN ANTISEPTICS.

SIR.—The statement which you make of my part in the discovery of the new antiseptics is entirely misleading. Dr. Dakin is a chemist and physiologist, and not a bacteriologist. The scheme of research was planned exclusively by him, and my part has been to act as his chemical assistant. I can claim no further share in his researches. He was invited at the beginning of the year by Dr. Carrel to join him at Compiegne, where the various substances prepared by Dr. Dakin and myself have been submitted to careful bacteriological tests by a specialist attached to the hospital and then applied clinically.—I am, etc.,

The University, Leeds, Aug. 15th.

J. B. COHEN.

THE USE OF IODINE AS AN ANTISEPTIC AND STERILIZER.

SIR.—So long ago as the year 1886, when I was dressing for Mr. Henry Morris (now Sir Henry Morris, Bt.) at the Middlesex Hospital, it was his practice to use a weak solution of iodine for washing out cavities, such as the pleural cavity, or sinuses of whatever description that required thoroughly sterilizing. Sir Henry Morris distinctly impressed upon us the high value of iodine as an antiseptic. This information I have always found useful, and have since been in the habit of using it often.

Combined with this knowledge I have associated the teaching I received when a pupil at the Royal United Hospital, Bath, 1883-4, when each case of ringworm and tinea kerion was subjected to a vigorous painting with tincture of iodine, with absolutely certain result of quick cure. For a long time past I have used the much stronger solution, liquor iodi fort., for first treatment of cuts, scratches,

and other injuries which readily permit of such an application. I would not use it for injuries in or about the eye, mouth, or other mucous openings. The liquor iodi fort. is still sure to cure housemaid's-knee, and other such enlargements, if applied with sufficient regularity and perseverance. I cannot understand how it is that iodine has only now been discovered as an antiseptic.—I am, etc.,

Jos. Wm. GILL, M.D., D.P.H.,

Billa Mill, Cornwall, Aug. 16th.

Obituary.

SIR PETER EADE, M.D., F.R.C.P.LOND.,

CONSULTING PHYSICIAN TO THE NORFOLK AND NORWICH HOSPITAL,
AND TO THE JENNY LIND HOSPITAL FOR CHILDREN, NORWICH.

It is not often that we record in these obituary columns the decease of a member of our profession in the tenth decade of life, yet it is our painful duty this week to place on record the death of Sir Peter Eade at his residence in Norwich on August 12th last, in his 91st year. If a man reaches this advanced age he must be exceptionally well preserved, and this was the case with Sir Peter Eade, who was carrying on the ordinary activities of his life until a few days before death claimed him. He was the last of the generation of Norwich doctors which included Cadge, Bateman, and T. W. Crosse.

Born at Acle, Norfolk, in 1825, Sir Peter was the only son of Mr. Peter Eade, a surgeon in that village, and grandson of the Rev. Peter Eade, Rector of Cotton, Suffolk. His early years were spent at Blofield, about seven miles from Norwich, to which village his father moved soon after his birth. In due course "indentures" binding him to his father as pupil for five years were executed, though the last year of this pupilage was passed at the Norfolk and Norwich Hospital under the supervision of the eminent surgeon, John Greene Crosse. During this year the boy rode into Norwich from Blofield and out again daily. In 1844 he was entered as a medical student at King's College and King's College Hospital, where he had a distinguished career, carrying off many prizes. The eminent physicians, Drs. Todd, G. Budd, Guy, and Boyle, were his teachers at the hospital. Later, King's College elected him as an Honorary Fellow. In 1847 he took the degree of M.B.Lond., when he was awarded the "University Medical Scholarship" and three gold medals, and in 1850 he proceeded to the degree of M.D.Lond. In 1873 he was elected a Fellow of the Royal College of Physicians.

Having proved his ability at the University of London, Eade received the distinction of being offered an assistant-surgery in the Indian Medical Service, an appointment made by nomination at that time, and not by examination, as now; he declined this complimentary offer, however, and returned to Blofield to help his father with his country practice. This work, however, did not satisfy his ambition, and in 1856 he started to practise in Norwich as a physician. Two years later he was appointed to succeed Dr. Goodwin on the staff of the Norfolk and Norwich Hospital. In 1858 he was promoted to the consulting staff, which he held until his death, so that for a continuous period of fifty-seven years he was a member of the staff of that institution, thus beating all previous records, including that of Dr. Rigby, who for forty-three years was surgeon to the hospital and physician for a further period of seven years, namely, until 1821. It is impossible to record in this short notice the many valuable services that Sir Peter rendered to this hospital; his interest in it never waned, and up to within a few weeks of his death he was a constant attendant at the staff meetings and at the weekly Board. He will, perhaps, be best remembered by his history of the hospital.

There are few medical charities in Norwich with which Sir Peter Eade was not in some way or other connected during his long and distinguished career, and at the time of his death he was on the consulting staff of the Jenny Lind Infirmary for Children and of the Norwich Dispensary, and for very many years he was one of the trustees and for some time chairman of St. Helen's Hospital, an almshouse for the deserving poor of the city. He was also one of those who started in 1883 the Children's Convalescent Home at Yarmouth, an institution in which

he took the greatest interest, and he was the first chairman of its committee.

His enthusiasm for the writings and character of Sir Thomas Browne was second only to that of Sir William Osler, and it was largely due to his initiative and untiring efforts that the statue to this most distinguished citizen of Norwich was erected and publicly presented to the city on October 19th, 1905.

In spite of his very busy professional life, Sir Peter was able to find time to engage in public work. He was a great advocate of temperance and of increased open spaces and recreation grounds, and his efforts in the latter direction bore much fruit in Norwich, where a central public garden was laid out, and a people's park established on Mousehold Heath. As far back as 1863 he served on the Norwich Board of Guardians. In 1869 he was first returned as a member of the town council, upon which body he served until well into the eighties. In 1880-1 he was Sheriff of Norwich, and on three occasions served the office of mayor—namely, 1883-4, 1893-4, and part of 1895. It was during the last year of his mayoralty that he was presented with the freedom of the city, the scroll being contained in a handsome silver-gilt casket, subscribed for by the citizens. In 1885 he received the honour of knighthood. For many years he was a director of the Norwich Union Life Assurance Society and of the Norwich and London Accident Insurance Society, both of which appointments he held up to his death. Our readers interested in the subject will remember Eade's "Remarks on some medical aspects of life insurance," which appeared in the JOURNAL of April 1st, 1899. It is as a public-spirited citizen that the memory of Sir Peter Eade will be handed down to posterity, and in this respect he has set an example to medical men which it were good for others to follow. He married, in 1868, Ellen, the daughter of Mr. Robert Rump, surgeon of Wells, Norfolk, and widow of Mr. Ling, Lady Eade survives her husband. He was buried at Blofield on August 16th; the first part of the funeral service being held at St. Giles's Church, Norwich, at which the Lord Mayor and Corporation attended in state.

At the Norwich meeting of the Association (1874) Sir Peter Eade was President of the Section of Medicine. It was a peculiarly brilliant assembly, for, as was noted in the pages of the JOURNAL, Sir James Paget, like Eade a Norfolk man, gracefully stepping down to a second place, delivered an admirable address as President of the Section of Surgery, in which he informed his audience that forty years earlier, regularly every market day at Yarmouth, where he was apprenticed to a surgeon, he used to bleed patients till they fainted. Paget declared that not one of those patients suffered harm, and he believed that there was at the time he spoke (in 1874) no remedy employed from which the immediate relief derived was so great or so complete as it was from bleeding. At the same time Peter Eade was addressing his Section, dwelling, like Paget, on old methods. Within a stone's throw of the spot where he was delivering his address, Sir Thomas Browne had lived, written his famous essays, and died. Many of those "vulgar errors" which Browne exposed had ceased to be believed, yet Peter Eade feared that many equally important unrealities and misconceptions remained or had grown up, and he trusted that it might hereafter be said that in the city of Norwich, and with Browne's philosophic spirit, his Section had done something to cut down some of the scientific weeds of our own age, and to add something to the great store of knowledge which it was one of the main objects of the Association to accumulate. Sir Peter Eade was justified in his hopes, as may be proved by reference to the second volume of the JOURNAL for 1874. Sir David Ferrier, Sir Rose Cornack, Sir W. R. Gowers, Dr. Sidney Ringer, Dr. Ogle, and other eminent physicians, read and discussed papers on questions of high importance; M. Michel Peter of Paris read a highly suggestive monograph on accidents that might happen to pregnant women suffering from disease of the heart, and the President himself read notes on a disease of carpenters. Sir Peter Eade stated that its special symptoms were shortness of breath, vague pains in the chest, ascending to the neck, face, and head, a peculiar fidgetiness of manner, and, especially, a constant secretion of salivary mucus.

As recently as in 1900, when the annual meeting was

held at Ipswich, Sir Peter Eade joined in the important discussion on influenza as it affects the nervous system, introduced by Dr. Judson Bury in the Section of Medicine under the presidency of Dr. Buzzard. Eade laid stress on the fact that influenza was still being discussed by the Association ten years after the latest invasion. He expressed his opinion that the coma, or sleeping sickness, occasionally met with, was due to the slow or bradycardiac condition, which added defective brain circulation to the already impaired nutrition of the nerve matter.

In 1859, shortly after Eade had established himself in practice in Norwich, he recorded in the *Lancet* reports of some cases of paralysis after diphtheria, which were amongst the first distinctly noted examples of this sequela of the disease in England. Eade's experience in the treatment of diphtheria became very large, as Norfolk was one of the first counties ravaged when that disease first appeared in England in 1857. He wrote several articles on the subject from time to time which he published in a collected form as *Medical Notes and Essays; Notes on Diphtheria, and particularly on this Disease as it has occurred in Norfolk*, in 1883. This little treatise, though now of relatively small value from a therapeutic point of view, will without doubt remain of permanent importance as the record of a distinguished physician's practical experience of the appearance of one of the gravest diseases which developed in the last century. Eade's experience in collecting his own writings on diphtheria having proved satisfactory, he was induced some years later—namely, in 1892—to collect some more medical notes and essays, this time devoted to influenza in East Anglia, 1847, 1848, and 1890 to 1896; these notes were so much appreciated that a second edition was published in 1896. Among Sir Peter Eade's contributions to this JOURNAL is a paper on the treatment of boils and carbuncles, published in the issue of July 1st, 1876. He advocated the application of small quantities of strong solutions of carbolic acid in oil or glycerine.

Sir Peter Eade's book, entitled, *The Norfolk and Norwich Hospital, 1770 to 1900*, which appeared in 1900, is a complete history of that institution from the anonymous letter published in 1744 in the *Norwich Gazette* advocating the establishment of a county hospital in the city of Norwich, and the establishment of the first Norfolk and Norwich hospital in 1771, with Bishop Yonge's sermon, down to the opening of the new hospital in 1883, and of the Fletcher Convalescent Home at Cromer in 1893, whilst all improvements and innovations from that date till the last year of the nineteenth century were included. This work is freely made use of to the present day by the governing body. Eade previously, in 1886, had written a large volume, *Some Account of the Parish of St. Giles*, in which he lived and practised. A second edition was issued in 1896. This important work was based on a lecture on St. Giles's parish delivered in 1870, which attracted so much attention that Eade was induced to compile a treatise of more enduring value on the subject.

Dr. SAMUEL J. BARTON, Senior Physician to the Norfolk and Norwich Hospital, writes:

A dear old friend and colleague and a highly esteemed citizen of Norwich has passed to his rest in the person of Sir Peter Eade at the ripe age of 90. Others may detail the works he accomplished during his long life. I wish merely to speak of him as a personal friend of thirty six years' standing. In June, 1888, Sir Peter resigned his position as honorary physician to the Norfolk and Norwich Hospital after thirty years of devoted work in the wards and in the interests of the institution generally. He was then appointed consulting physician, and I succeeded him on the acting honorary staff. Sir Peter, however, retained his position as chairman of the honorary staff at its weekly consultations until recent years. Thus his colleagues were in constant touch with him, and had the benefit of his vast experience, which they appreciated. He kept up almost to the last his deep interest in his profession. He read with regularity his *Lancet* and BRITISH MEDICAL JOURNAL, and followed with deep attention the rapid strides in scientific and practical medicine. I recollect a long talk with him when "606" was introduced by Ehrlich. He maintained that it would save more lives than vaccination against small-pox.

Sir Peter was vigorous in argument, taking a very strong

line on his personal conviction, but he never was known to bear the slightest malice to his opponents five minutes after the most heated controversy. He was a staunch friend to many, but an enemy to none. Honourable to a degree in all transactions, he would go out of his way to do a kind action for anybody requiring it. This I can testify to from personal experience. His purse was ever open to the poor of his parish, and they made free use of it. As a host he could not be excelled; his luncheons to the profession of the city and county, and his society dinners of twenty years ago were widely known and much appreciated. Sir Peter was genuinely loyal to all his colleagues, even at times under trying circumstances, and I cannot recall having ever heard him make an unkind remark about a member of the profession. *Requiescat in pace.*

Mr. HAYNES S. ROBINSON, President of the Norwich Union Life Insurance Society, of which Sir Peter Eade was vice-president, writes:

The death of Sir Peter Eade has robbed the profession of one of the most eminent physicians in the Eastern Counties, and the city of Norwich has lost a very distinguished citizen. He has left us at the mature age of 90 years with all his faculties unimpaired, and able to take a keen interest in the affairs of life to within a few days of his decease.

Having been intimately connected with him for more than fifty years professionally and otherwise, I could but admire the energy he displayed in all he undertook and his patient attention to the smallest details. As a physician he was well known as a consultant of the best type, and when gradually withdrawing from his professional duties at the age when most are glad to retire altogether, he kept up his reading and took the greatest interest in all modern modes of treatment and ever interested himself in the welfare of the Norfolk and Norwich Hospital, with which he had been so long and honourably connected, and also in all the philanthropic movements in the city and the parish in which he lived.

Of small stature and frail physique he was ever quick and active in his movements, with which the activity of his mind seemed to correspond. Although holding strong opinions on many subjects, he was most tolerant of those who differed from him, and generous and honourable in all his actions, with an extremely kindly disposition. He lived his long life amongst us gaining not only the esteem and admiration of all, but the affectionate regard of those who best knew him and with whom he was almost in daily contact.

ALFRED MANN, M.D., C.M., J.P.,
CHESTER.

By the death of Dr. Mann, at the age of 56, Chester lost one of her prominent citizens, and the medical profession of the district an able and much valued colleague.

It was evident to those who knew him well that a severe attack of pneumonia, which he contracted some years ago, had left its mark upon his health, but he continued to discharge his duties, both civic and professional, with apparently undiminished activity. An operation, the issue of which gave rise to considerable anxiety, was in the end completely successful, and he returned to his home with every prospect, it was hoped, of a safe convalescence. Shortly afterwards he was seized with an attack of heart failure, and died in the early morning of August 3rd.

Dr. Mann was a native of Bridlington and received his medical education at the University of Edinburgh, where he graduated M.B., C.M. in 1886, taking his doctor's degree in 1889. After holding a resident surgical appointment in the Nottingham General Hospital, he went to Chester as visiting surgeon to the General Infirmary, and afterwards commenced practice in the city, being associated for the first ten years in partnership with the late Mr. James Taylor. He earned the confidence and affection of his patients, whilst his counsel and advice were highly esteemed by his colleagues in the deliberations of the Chester Medical Society, of which he was past president. During the closing year of his life he rendered valued service in the treatment of wounded soldiers as a member of the honorary medical staff of the Richmond House Red Cross Hospital.

Dr. Mann took a prominent part in the civic life of the city, having been a member of the city council for twelve years, chairman of the Public Health Committee for four years, and sheriff of the city in 1904-5. During his tenure of the chairmanship of the Public Health Committee he did much to further the efficiency and working of that department, the housing of the poor being a question in which he had always taken a burning interest, and which formed the theme of his first, and also of his last, speech in the council. He was a good speaker, with a clear and incisive style, marshalling his facts accurately, so that it was always a pleasure to listen to him.

Pressure of professional work necessitated his retirement from the council in 1912, at a time when his fellow councillors would willingly have accorded him the highest civic honours. The regret, freely expressed in the council, at his retirement found its counterpart in the opinion of the citizens generally.

In 1913 he was appointed a magistrate for the city, an appointment which gave universal satisfaction. He was a member of the Chester Port Sanitary Authority, and represented the council on the Chester Insurance Committee.

He married Miss Lillian Skelton of Norwich, who survives him with their family of two sons.

CAPTAIN JOHN CHARLES GILMAN, I.S.M.D., died in the General Hospital, Calcutta, on July 2nd. He was born on July 27th, 1862, and entered the service in 1881, rising to commissioned rank as lieutenant on July 23rd, 1908, and becoming captain on September 23rd, 1912. He served in the Sikhian war of 1888, gaining the frontier medal with a clasp, and also a special promotion to 1st class assistant surgeon. Most of his service, however, was spent in civil employ in Bengal, where he held the posts successively of medical officer to the pilot brigades at the Sandheads; the civil surgencies of Sainibhum, Ruri, Dinajpur, Serampur, and Sambalpur; while since 1909 he had been medical inspector and certifying surgeon of factories in Bengal. He was also medical officer of the Cossipur Artillery Volunteers. He qualified as L.S.A. in 1886.

Medico-Legal.

A GERMAN DRUG COMPANY AND THE PATENT MEDICINES STAMP DUTY ACT.

We take the following report of proceedings at the Mansion House Police Court on August 16th from the *Morning Advertiser* of the following day:

Knoll and Co., Ltd., of Harp Lane, and the secretary of the company, Walter Braun, whose address was given as Stradella Road, Herne Hill, were summoned before Alderman Sir John Knill for uttering, sending, and exposing for sale certain medicines or medicaments for the prevention, cure, and relief of diseases and complaints incident to and affecting the human body, without the stamp required by the Patent Medicines Act. There were eleven summonses.

Mr. Frank Dart, solicitor to the Customs, in opening the case, stated that since these proceedings the secretary of the company had been interned in the Isle of Man as an alien enemy, and he proposed to withdraw the case against him, and to go on with the case against the company only.

Mr. Kerby, K.C., defending, said that the only person able to give him proper instructions was this Mr. Braun, and they had applied for an adjournment, but this had been refused.

Mr. Dart said the company, although registered as an English company, was a German company pure and simple. It was run entirely by Germans, and all the directors, he was instructed, were Germans with addresses out of England. The case was an extremely bad one for the company never stamped any of their articles, and in this way competed unfairly with firms who did properly stamp their articles. None of the articles, he contended, came within the exemptions as being an entire drug, but all were preparations and mixtures.

Mr. Chas. Simmonds, analyst to the Board of Customs, gave evidence as to the admixtures. In cross-examination, he said that the starch and sugar added to overaden might be for the purpose of holding the drug together. Strictly speaking, the coating of sugar on pills might be against the statute, but in practice the Commissioners of Customs did not so regard it.

Mr. Kerby submitted that there was no evidence to support the case as there had been no holding out of the preparations to the public. The price list of the firm was addressed to chemists and doctors, and such was not a recommendation of the whole preparations to the public, which was the essence of the whole case. He also urged that the preparations were entire drugs, as they were mixed by something which had no medical effect.

They were dealing at present only with summonses regarding overaden, and if the decision was against him he should ask for a case to be stated, as he regarded it as a test case.

Sir John Knill decided to convict, and imposed a fine of £5, with 5 guineas costs on the first summons.

Mr. Kerby asked the alderman to state a case for the consideration of the High Court.

Sir John Knill: Certainly.

Mr. Kerby said that in the circumstances he would agree to a conviction on each of the ten remaining summonses, the penalty to be the same in each case, without costs.

The Services.

INDIAN MEDICAL SERVICE.

WAR CONDITIONS.

Retention on Active List after Retirement has become Due.

The following is the text of the letter of the Government of India, Army Department, dated April 8th, 1915, conveying the decision that the period for which an officer of the Indian Medical Service is retained on the active list, in consequence of the war, after his retirement becomes due, will be permitted to count for pension:

No. H.-4098.

Government of India.

Army Department.

Simla, April 8th, 1915.

To the Director General, Indian Medical Service.

Sir,—I am directed to acknowledge the receipt of your letter No. 90-357-A, dated February 10th, 1915, inquiring whether officers of the Indian Medical Service, who would have been compelled to retire under the operation of existing rules, but who have been retained on the active list in consequence of the war, will be permitted to reckon for enhanced rates of pension the service rendered by them after their retirement ordinarily becomes due.

2. In reply I am to say that the period of retention of the officers referred to will count towards pension—that is, their pensions will be calculated with reference to their total service at the time of retirement.

3. I am to add that the extra pensions of £100 each per annum granted under Army Regulations, India, Volume I, paragraph 734, should be allotted in the ordinary way to selected officers, but payment should be held in abeyance till they actually retire.—I am, Sir, your most obedient servant,

(Signed) B. HOLLOWAY, Brigadier-General,
Secretary to the Government of India.

Reversion to Military Duty.

The following is the text of Army Department letter, dated July 3rd, 1915, intimating that it has been decided that officers of the Indian Medical Service reverting to military duty from permanent civil employment, in consequence of the war, whether they proceed on active service or remain in India, are entitled to pay not less than that of an officer of their standing in permanent medical charge of a regiment:

No. H.-6006.

Government of India.

Army Department.

Simla, July 3rd, 1915.

To the Director, Medical Services in India.

Sir,—I am directed to say that the Government of India have decided that officers of the Indian Medical Service reverting from permanent civil employment in consequence of the war, whether they proceed on active service or remain on military duty in India, are entitled under paragraph 153 H, Army Regulations, India, Volume I, to pay not less than that of officers of their standing in permanent medical charge of a regiment.—I am, Sir, your most obedient servant,

(Signed) B. HOLLOWAY, Brigadier-General,
Secretary to the Government of India.

TERRITORIAL FORCE.

EXCHANGE DESIRED.

LIEUTENANT A. G. S. LOUIE, R.A.M.C.(T), 21st South-Eastern Mounted Brigade Field Ambulance, Maresfield Park, Sussex, wishes to find a substitute so as to enable him to transfer to a unit going on foreign service. He would exchange with an officer in a unit going abroad or already abroad.

Universities and Colleges.

UNIVERSITY COLLEGE, DUNDEE.

At a meeting of the Council on August 11th it was announced that a bursary in memory of Mr. Robert Hepburn had been founded by his sister. It will be open to any male or female student of medicine at the College, and will be tenable for three years.

Medical News.

THE French War Ministry has issued an official communication intimating that the statements to the effect that the French troops have used poisonous gases is incorrect.

THE Hygiene Committee of the Chamber of Deputies has nominated a committee composed of MM. Pottevin, Mélin, and Foucher to proceed to the Dardanelles to study the working of the French medical service there.

MESSRS. SMITH, ELDER, and CO. will publish a book in which Mr. Ian Malcolm, M.P., who has been serving with the British Red Cross, has embodied his experiences. The text is illustrated from original documents.

THE Swedish Academy has decided that the Nobel prizes shall not be awarded this year. It is stated that the funds which will thus be accumulated will not suffice to cover the special Swedish tax for national defence.

THE *Revue de Laryngologie, d'Otologie et de Rhinologie*, the editor of which is Dr. E. J. Moure of Bordeaux, has resumed publication, suspended since August last. Owing to difficulties created by the war it will for the present be issued every two months. The present number (August 15th) will continue the series interrupted in August, 1914.

WITH the issue of the *Athenaeum* for July 3rd was published the first instalment of a subject index to periodicals undertaken at the request of a committee appointed for the purpose by the Library Association. The progress of science and technology in 1915, with special reference to the war, is the first subject to be indexed.

SIR LAURENCE GODME contributes a preface to Mr. Frederic Swann's *Primer of London Citizenship*, which Messrs. King of Westminster will publish shortly. The work is intended to explain the system of local government in force in London, to elucidate some of its intricacies, to point out some of its defects, and to examine those measures that have been proposed for its simplification and improvement.

A SPECIAL convalescent home for the French aviation services has been established in a country house with a large park at Viry-Châtillon, near Juvisy, where is the great aerodrome. The estate has been lent by Dr. Mouglin, who is the medical officer in charge of the home, which has been recognized as an auxiliary military hospital. It has been equipped by public subscription, among the subscribers being the President of the Republic and the Presidents of the two Chambers. It provides forty beds, and not only pilots and observers but also mechanicians mobilized for service in the army or navy aviation corps are eligible for admission.

ON July 28th a miner, named Coates, was buried in a fall of roof in the South Pelaw Colliery, near Chester-le-Street, Durham. The accident happened some time after 7 a.m., and he was found about 9 a.m. It was impossible to extricate him, and Dr. W. A. McKellar of Chester-le-Street, who had been sent for, went down the pit about 11.30 a.m., reached the man at the coal face by crawling for some distance, and, after several attempts, was able to inject strychnine into his back. As the right arm was terribly crushed, Dr. McKellar advised that an attempt should be made to hew away some of the fall so that the limb might be amputated. This was found impossible, and Dr. McKellar was able with difficulty to give another injection; when eventually, about 6 p.m., it was found possible to relieve some of the pressure, the man died. Dr. McKellar remained with him throughout. The coroner, in commenting on the incident at the inquest, said that Dr. McKellar's conduct in doing all that was possible in such difficult circumstances, and in remaining with the man till the end, was in the highest degree creditable. The jury heartily concurred with the coroner's remarks, and an official who prefers to remain anonymous, in calling our attention to the incident, expresses the opinion that Dr. McKellar's attempt to liberate the man under the conditions which obtained was highly commendable. This opinion, we are sure, will be shared not only by the miners, but also by the profession which Dr. McKellar has honoured.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Atholway, Westrand, London; W. Telephone, 651.* (2) GENERAL SECRETARY and BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London; telephone, 2630.* (3) MEDICAL SECRETARY, *Medicera, Westrand, London; telephone, 2631.* (4) ADDRESS of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

BUMBLE BEES.

INQUIRER writes: I recently noticed hundreds of "bumble bees" (the one with the two yellow stripes, one on thorax, the other on body) scattered on the ground deep under a lime tree in full flower, but the bodies (thorax) of nearly all had been hollowed out and the contents removed. In some cases their heads were off, but the abdomen and contents seemed untouched. Upon the branches of this lime and also in adjoining trees and on a tennis net, were numerous and attempting to fly about birds (*Muscicapa oriolina*), continually on the wing and picking flies whilst in the air. Were these hundreds of bumble bees the victims of inebriation from the honey of the lime tree flowers or were they destroyed whilst feeding by the birds? Is this an observed phenomenon?

ANSWERS.

SHOULD SURGEONS WITH INFECTIVE THROAT LESIONS OPERATE?

COLONEL JOHN SMYTH, I.M.S.—A surgeon with a primary or secondary syphilitic lesion in the mouth or pharynx is not justified in operating or attending cases of confinement, even if he wears a mask. A man with active tuberculous ulcers on his tonsils would doubtless feel absolutely incapable of attempting such a task. The infective activity of tubercle in the air passages varies greatly in different cases. In cases of lupus it is so slight as to be practically negligible. In the case of milary tuberculosis it is so active as to be dangerous.

HARE-LIP.

DR. J. E. MIDDLEMISS (Leeds) writes: The first of "R's" queries can be definitely answered in the negative. The types of deformity which are associated with neuropathic inheritance and which are recognized as stigmata of degenerativeness include hare-lip or cleft palate. Fregdoff, in discussing the malformations of the palate associated with amentia, says: "Cleft palate appears to be on quite a different footing, and it is doubtful if this condition and its common associate, hare-lip, can be regarded as real stigmata of degeneracy. It is but rarely met with in amentia. Langdon Down finding it only in 0.5 per cent., and Ireland in 1 per cent., of idiots; whilst I have examined 1,971 feeble-minded children without meeting a single instance. These proportions do not differ materially from the normal, for Grenzer (quoted by Talbot) found 9 cases on examining 14,466 presumably normal children. I have seen many instances of cleft palate and imperforate anal whatever." Questions 2 and 3 are partly answered by the above. The probability of similar abnormalities in subsequent births would appear to depend on the ordinary laws of chance. Even the double occurrence of hare-lip, however, does not imply the probability of other developmental anomalies. The type of malformation which is likely to recur, and which depends on hereditary causes, is that which is associated with some degree of mental defect, of which in this case there is no question.

LETTERS, NOTES, ETC.

ERRATUM.

IN the paragraph headed "Plague," in the last issue of the JOURNAL (p. 276, col. 1, line 21 from foot of page, for "5 per cent." read "0.5 per cent.")

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NOTE.—It is against the rules of the Post Office to receive posts from letters addressed either in initials or numbers.

TREATMENT OF GUNSHOT WOUNDS BY EXCISION AND PRIMARY SUTURE.

By COLONEL H. M. W. GRAY, A.M.S.(T.O.),
CONSULTING SURGEON, BRITISH EXPEDITIONARY FORCE.

THE number of cases of gunshot wounds to which treatment by excision and primary suture is applicable affords ample justification for attempting to make the method more widely known and popular.

I began this method of treatment of certain lacerated "furrow" wounds in November, 1914, and was so impressed by its utility that I have since then urged that it should be carried out whenever possible.

The advantages claimed for its use are:

1. Healing by first intention is assured in the vast majority of properly selected cases.
2. Much time is thereby saved. Some wounds, which would otherwise require months to heal, are soundly united in the course of ten to fourteen days. The soldier is thus available for duty again at a much earlier date.
3. The amount of attention required to be given by the medical officers and nursing sisters, etc., is greatly reduced.
4. Much pain is avoided.
5. The amount of dressings required is reduced to a minimum, and in this way expense is lessened.
6. Complications which may arise from the presence of a septic wound are avoided.
7. A more sightly scar is obtained.
8. Because of the absence of contraction which would accompany formation of a large cicatrix, there is less impairment of function in the part concerned.
9. In the case of head injuries, excision of the wound, especially in some, apparently trivial, injuries, provides a means of ascertaining, with greater certainty than by any other method, whether depressed fracture or injury to the brain coexists.

Healing by first intention may be procured in practically all cases in which the surfaces of the new wound can be brought into accurate approximation without much tension. In rare cases, when the wound is deep, approximation in the depth has to be dispensed with and drains are introduced for a short period—until one is assured that aseptic healing will occur. In some cases it is necessary to adjust and fix the parts of the body adjacent to the sutured wound so that the fullest relaxation is secured.

The mere length of a wound is no bar to operation. Some very long wounds have been excised. A missile may inflict what resembles an incised wound, but, by dividing the tissues at right angles to the line of their greatest tension, may, owing to the contractility of these tissues, cause a large gaping wound. In such cases there will be little tension when sutures are inserted and tied, if too great a mass has not to be excised. One can test roughly what the amount of such tension will be by attempting to push the surfaces of the wound together.

It is not necessary to wait until the wound is surgically clean—in fact, in most cases the sooner the excision is made the better. The wound will probably be soundly healed in a shorter time than it will take to clean. During the "cleaning" process the adjacent parts become so softened that sutures do not hold well. Only when a large "bank" of inflamed tissue surrounds the wound is immediate excision inadvisable on account of the septic condition of the wound. In such cases it is probable that organisms have penetrated to a considerable depth, and will cause trouble when the tissues invaded by them are subjected to the pressure of sutures. By vigorous "salting" (hypertonic treatment) such wounds are usually rendered suitable for excision in twenty-four to forty-eight hours.

Other contraindications are the presence of marked pocketing in the wound and the exposure of vascular or nerve trunks in the depth or of bone which it is inadvisable or impossible to remove.

In any case excision of the soiled edges of skin and of the superficial connective tissue and muscle may be done with advantage. The healing process in the wound as a

whole is thereby accelerated. Certain bony prominences—such as a vertebral spine or the edge of the acromion process—may be capable of removal with the other infected tissues.

The presence of pocketing in a wound is very important. If part of such a pocket, or, indeed, if any septic focus be left, the operation will probably prove a failure. The technique is therefore very important. The operation can usually be done under infiltration anaesthesia of the neighbouring parts. It is well to add plenty of adrenalin to the anaesthetic solution, so that haemorrhage during the operation is avoided. Accurate haemostasis is important for success. The parts around are shaved and disinfected very thoroughly. The wound is wiped out, dried, and packed with gauze.

For disinfecting purposes in these cases I favour the use of very strong iodine solution (5 to 10 per cent. in spirit or ether). This is painted thoroughly into every part of the wound and over the surrounding skin for a considerable area. It has the effect of drying the surface of the wound in a remarkable manner. The strong iodine is wiped off the skin with spirit or ether at the end of the operation.

The skin close to each extremity of the wound is caught up by tissue forceps or a loop of thread, and slight traction is made in a direction away from the centre of the wound at an angle of about 45 degrees with the sound skin. The whole wound is then cut away *en masse* (skin, flesh, and, if necessary, bone) at a distance of about one-third to half an inch from the raw surface. Care must be taken that pockets or general surfaces of the wound are not cut into during this procedure. Bony prominences are removed along with the soft parts by dividing them with bone-pliers, gouge-forceps, or chisel.

If the wound is deep, it is sometimes of advantage to insert the finger into the wound as a guide to where the tissues must be divided.

A very sharp scalpel is invaluable. Cutting out the wound in pieces makes success precarious.

The new wound surfaces should now be washed with saline solution and packed with gauze, and the surrounding skin wiped free of blood or discharge.

Fresh towels, fresh instruments, and, if the wound has been handled, fresh gloves should now be used. The wound should be closed by wide sutures which undererr on its floor so that no dead spaces are left. It may be necessary to suture in layers. If so, the suture of each layer should include some of the tissue of the deeper layer. The skin should be accurately approximated by a few fine sutures. Further relaxation sutures are not often necessary.

The following dressing should then be applied. The line of sutures and the adjacent skin for several inches should be painted with a wound varnish, of which mastic, dissolved in some rapidly evaporating solvent, forms the important part (40 to 50 per cent.). When the varnish has become "sticky" (after one and a half to two minutes), a covering of gauze, at least two layers thick, should be stretched tightly and smoothly over the sticky area, gently patted down, and cotton-wool and bandages applied fairly firmly. If it is desired to inspect the wound at any time, after removing the bandage and wool, the top layer, or layers, of gauze should be peeled off by traction at right angles to the surface, the layer next the skin and wound being at the same time retained by the other hand. Perfectly satisfactory inspection can be made through the single layer of gauze. The loose edges of the gauze should be neatly trimmed.

In many cases no further dressing is required until the stitches are to be removed. The final layer of gauze is then peeled off.

If fine catgut sutures have been used for the skin, it is often found that the knots come away with the layer of gauze, the deeper parts having been digested. A fresh application of the mastic varnish and gauze should then be made and left until the wound is firmly healed.

The varnish should on no account be painted over the gauze after it has been applied, otherwise the gauze cannot be peeled off as described.

The varnish and gauze dressing is important for success. It is the best I know. It gives wide support, relieves tension, and prevents any dragging on the stitches. These factors are of great value in preventing stitch abscess.

ON THE USE OF CERTAIN ANTISEPTIC SUBSTANCES IN THE TREATMENT OF INFECTED WOUNDS.

By H. D. DAKIN, D.Sc., F.I.C.,
THE HERTZ LABORATORY, NEW YORK.

In order to make a judicious choice of the antiseptic most likely to give useful results in the treatment of infected wounds many different factors have to be considered in addition to germicidal activity, including the irritating properties of the substances, their toxicity, solubility, ability to penetrate tissues and to be absorbed, and their chemical reactions with proteins and other tissue constituents.

The killing of bacteria by ordinary antiseptic substances is essentially a chemical reaction between the antiseptic on the one hand and the proteins and other cell constituents of the micro-organism on the other. The destruction by antiseptics of bacteria suspended in water is easily effected, because no proteins are present in the mixture other than those derived from the micro-organism. The destruction by antiseptics of bacteria mixed with blood serum, pus, and other exudate is much more difficult because the antiseptic acts not only on the micro-organisms but on other protein substances as well. Therefore, in judging of the antiseptic action of a substance suitable for the treatment of wounds, it is essential that its germicidal action be tested against micro-organisms mixed with blood serum or similar substances, and not simply tested against bacteria suspended in water.

The germicidal activity of all known antiseptics is greatly reduced by the presence of blood serum or similar substances, and in some cases this reduction is so great that the compound loses all practical antiseptic value.

The following table contains results which illustrate this enormous reduction in germicidal action by blood serum in the case of several common antiseptics. I am greatly indebted to my colleague, Dr. Maurice Daufresne, for all the bacteriological results referred to in this communication.

Antiseptic.	Without Blood Serum.	With Blood Serum.
Phenol	1: 250- 1: 500+	1: 50- 1: 100+
Salicylic acid	1: 2,500- 1: 5,000+	1: 100- 1: 250+
Hydrogen peroxide ...	1: 3,500- 1: 8,000+	1: 1,700- 1: 2,000+
Iodine	1: 103,000- 1: 3,000,000+	1: 1,000- 1: 2,500+
Mercuric chloride ..	1: 5,000,000- 1: 10,000,000+	1: 25,000- 1: 50,000+
Silver nitrate	1: 1,000,000- 1: 10,000,000+	1: 10,000- 1: 25,000+
Sodium hypochlorite...	1: 500,000- 1: 1,000,000+	1: 1,500- 1: 2,000+
Benzene sodium sul- phochloramide	1: 500,000- 1: 1,000,000+	1: 1,000- 1: 2,000+
Paraldehyde sodium sulphochloramide	1: 750,000- 1: 1,500,000+	1: 2,000- 1: 3,000+
A acetylchloramine- dichlorobenzene	1: 500,000- 1: 1,000,000+	1: 2,500- 1: 5,000+

The figures indicate the concentration of antiseptic necessary to sterilize one drop of a fresh culture of *Staphylococcus aureus* in a total volume of 5 c.c.m acting for two hours. + indicates growth; - indicates complete sterilization.

But in choosing a suitable antiseptic many other factors than germicidal action need to be considered. Mercuric chloride, which among the substances referred to in the table shows the highest germicidal action, is probably the least useful and most objectionable as an antiseptic for the treatment of infected wounds. It may be of use to consider some of the limitations of the commonly used substances referred to in the above table.

The work described in this communication was carried out in Laboratories at Compiègne supported by the Rockefeller Institute for Medical Research attached to Hospital 23 of the French Army. For cordial co-operation in the preparation of a large number of chloramines and other substances, upon which a detailed report will be published later, I am indebted to my former teacher, Professor J. B. Cohen, F.R.S., of the University of Leeds, and to Dr. J. Kenyon, who was appointed by the British Medical Research Committee.

Phenol is characterized by very low germicidal power, especially when acting in the presence of serum. When used in sufficiently high concentration for germicidal efficiency it is decidedly destructive of healthy tissue.

Hydrogen peroxide gives encouraging results when tested against bacteria in the test tube, but when used on wounds the substance has little germicidal action, for it is decomposed with the greatest ease by the enzyme catalase present in all tissues and in the blood cells. Hence its action can only be exerted during a trifling interval of time. The mechanical detergent action connected with the rapid disengagement of oxygen gas on infected surfaces is probably of greater value than any antiseptic action exerted by the hydrogen peroxide.

An interesting experiment related to me by Professor E. K. Dunham may be quoted here. A rabbit which had received an intravenous injection of the Welch bacillus (*B. aerogenes capsulatus* or *B. perfringens*) was killed, and the infected liver was removed and carefully sectioned. It was found that cubes of the infected liver only 1 mm. in size could be immersed in and incubated with hydrogen peroxide of moderate concentration without destruction of the micro-organisms.

Hydrogen peroxide, as regards its antiseptic action, must be regarded as of slight value, even against anaerobic organisms.

Mercuric chloride readily loses most of its antiseptic action in presence of many tissue constituents, and, as is well known, is irritating even in dilute solution. It is useless for the sterilization of pus when employed at any reasonable concentration.

Silver nitrate is of greater value than mercuric chloride, but when used in sufficiently high concentration is irritating. Many tissue constituents inhibit its action markedly. The photo-sensitiveness of the silver compounds formed is objectionable.

Iodine, which has proved so valuable for the disinfection of skin, has given much less satisfactory results when used for deep wounds owing to protein coagulation and irritation of the tissues. The penetrating power of iodine is slight, and wounds which have been freely treated with it are apt to cicatrize more slowly than others.

Sodium hypochlorite has high germicidal action, and has many other desirable properties. But sodium hypochlorite as ordinarily prepared is of extremely variable composition, contains free alkali and sometimes free chlorine, and is consequently irritating when applied to wounds. By a simple process, which will now be described, it has been possible to render the hypochlorites much less irritating while retaining their antiseptic action unchanged.

PRINCIPLES INVOLVED IN THE PREPARATION OF THE HYPOCHLORITE SOLUTION.

Solutions of sodium hypochlorite always contain free alkali even when prepared with the greatest care. A so-called "neutral" solution of sodium hypochlorite has an alkaline reaction. This is due not only to free alkali which may remain from the process of preparation, but also to the fact that the hypochlorite in solution undergoes hydrolytic dissociation giving free sodium hydroxide and hypochlorous acid.



The extent of this dissociation has been measured by Dnyk, and quantitatively it is very considerable. The irritating action of ordinary hypochlorites is largely due to this formation of free alkali. The extent of this hydrolytic dissociation increases with dilution, so that practically hypochlorites cannot be effectively rendered non-irritating by simply reducing the concentration, for a point is soon reached at which germicidal action is impaired while the irritating properties of the solution persist. In addition to the above sources of free alkali, it must not be forgotten that alkali may be liberated by the action of sodium hypochlorite on proteins, a reaction in which the chlorine of the hypochlorite is attached to nitrogen in the proteins, as will be shown later.

Now it is well known that certain fluids, such as blood and some other body fluids, also contain artificial salt solutions containing mixture of salts of polybasic acids—for example, phosphoric acid—are able to retain their essential neutrality even after the addition of limited quantities of acid or alkali. This is due to the fact that the addition of acid or alkali simply changes the relative

proportion of two or more salts of the polybasic acid present in the solution.

Starting with this idea, and employing the feeble polybasic acid, boric acid, it has been possible to prepare a simple hypochlorite mixture which maintains approximate neutrality under all conditions, is practically non-irritating, and which, when properly applied, has given most encouraging results in the antiseptic treatment of wounds. It must be understood that the insignificant antiseptic action of boric acid has nothing to do with the employment of this acid; nor is the boric acid employed for the purpose of liberating hypochlorous acid, as in Lumière's or Lorrain Smith's preparations.

The principle of the preparation is as follows: Chloride of lime (bleaching powder) is decomposed with a solution of sodium carbonate and the filtered solution containing sodium hypochlorite together with a slight excess of alkali is mixed with boric acid in such quantity that the solution is acid to phenolphthalein suspended in water but still alkaline to litmus. The resultant solution contains a balanced mixture of hypochlorite and polyborates of sodium with small amounts of free hypochlorous and boric acids. Thus the irritating action of free caustic alkali is avoided, for even if momentarily formed it would be at once neutralized by the boric acid or acid borates present in the solution.

Preparation of Solutions.

The preparation of a solution of suitable concentration for direct application, containing 0.5 to 0.6 per cent. of sodium hypochlorite, may be carried out very simply as follows:

One hundred and forty grams of dry sodium carbonate (Na₂CO₃), or 400 grams of the crystallized salt (washing soda), is dissolved in 10 litres of tap water, and 200 grams of chloride of lime (chlorinated lime) of good quality is added. The mixture is well shaken, and, after half an hour, the clear liquid is siphoned off from the precipitate of calcium carbonate and filtered through a plug of cotton; 40 grams of boric acid are added to the clear filtrate, and the resulting solution is ready for use. A slight additional precipitate of calcium salts may slowly occur, but it is of no significance. The solution should not be kept longer than one week. *The boric acid must not be added to the mixture before filtering, but afterwards.*

A stronger solution may be prepared by decomposing chloride of lime with sodium carbonate in the proportion of 150 grams of the former to 105 grams of the latter dissolved in a litre of water. The mixture is filtered and a measured portion of it (20 c.c.m.) is rapidly titrated with a boric acid solution of known strength (51 grams per litre), using phenolphthalein suspended in water as indicator, in order to determine the amount of solid boric acid to be added to the rest of the filtrate. An excess of boric acid should be avoided, so that it is best to add slightly less than the calculated amount. An ordinary alcoholic solution of phenolphthalein cannot be used as indicator, as the alcohol is at once attacked.

The concentrated solution thus prepared contains about 4 per cent. of sodium hypochlorite, and should be mixed with six parts of water before use. It can be kept for a month without serious decomposition. Such a solution is now prepared by Poaleuc Frères, 123, Boulevard St. Germain, Paris, but it can easily be made at a negligible cost by any competent chemist, and I hope that it may be so made generally.

APPLICATION AND RESULTS.

To obtain the best results it is essential to commence the antiseptic treatment of the wound at the earliest moment possible, and to bring fresh quantities of the antiseptic solution in contact with all parts of the wound as frequently as possible for a considerable period of time. This is naturally a difficult problem, requiring different methods for various types of wound. The methods of applying the solution which have been found useful at Compiègne will be described by Dr. Carrel. But to give some idea of the quantities of solution employed it may be mentioned that 5 to 10 c.c.m. may be introduced every two hours by means of rubber tubes into small wounds, using a pipette or syringe, while for the irrigation of such wounds as fractured femurs, accompanied by much destruction of tissue, as much as 1, or even 2, litres a day may be employed. The dilute solution, prepared as described, may

be used in large quantities for the continued irrigation or instillation of wounds for more than a week without producing visible irritation. It is extremely rare for slight irritation of the skin to occur, and this may be guarded against by the application of vaseline to the skin adjacent to the wound. As a wet dressing the solution may be used almost indefinitely. A few comparative tests on similar surface wounds do not indicate that cicatrization is delayed, even by its continued use.

The solution has the valuable property of assisting in the rapid dissolution of necrosed tissue, this being doubtless due to the ability of hypochlorites to attack the (NH) groups present in proteins with formation of soluble products. It has a certain haemostatic action as well but is actively haemolytic, and should not be injected intravenously.

It is difficult in a printed communication to produce simple convincing evidence of the usefulness of an antiseptic. Records of a few individual cases treated with brilliant results are, of course, of no great value, for many infected wounds do well with a minimum amount of treatment, but the clinical results obtained during six months' use of the solution by a number of observers in different hospitals warrant the belief that the solution is of genuine value. By far the most striking results are seen in ambulances, where treatment can be commenced a few hours after the wound has been received. Among these cases the proportion of cases which at no time show a significant rise in temperature and in which healing without suppuration occurs is very large. In many cases it has been possible to make comparative tests, with and without antiseptic, on similar wounds with striking results. Records obtained by means of serial coloured photographs of the gradual changes in wounds of the most varied kind under different conditions show definite differences in favour of the solution, and in no case has any objectionable after-effect been traced to the action of the antiseptic. It should be stated that most of the cases treated with the antiseptic were kept under observation for several weeks until discharged as convalescent. This is, of course, important for judging of the ultimate value of the treatment.

An idea of the antiseptic properties of the solution may be gathered from the following figures: Staphylococci suspended in water are killed in two hours at a concentration of hypochlorite between 1 : 500,000 and 1 : 1,000,000, while in the presence of serum the necessary concentration is between 1 : 1,500 and 1 : 2,000. Streptococci are more readily killed, while pyocyanus suspended in water is killed in two hours at a concentration between 1 : 100,000 and 1 : 1,000,000, while in serum between 1 : 2,500 and 1 : 5,000 is necessary.

Hypochlorites are extremely active substances chemically, and they should not be used in conjunction with other antiseptics nor with alcohol or ether. Wounds which have been previously treated with much iodine may take on a dark colour, due to the re-liberation of iodine, but this is of no importance.

Many other preparations of hypochlorites have been employed at various times by different workers. The more commonly recommended preparations are the ordinary alkaline solutions of the hypochlorites of sodium, potassium (eau de Javelle), or calcium; while mixtures of powdered chloride of lime with boric acid have been employed by Vincent, Lumière, and by Lorrain Smith and others. It is believed that the solution previously described, when properly applied to all parts of the wound, gives better results than can possibly be obtained from powdered preparations of partially soluble materials. The local production of hypochlorites, hypochlorous acid, or chlorine in high concentration, such as results from the use of the powdered mixture, is much more dangerous for healthy tissue than is the continued application of a weak neutral solution of sodium hypochlorite. Generally speaking, our experiments with powdered substances have given much less good clinical results than have aqueous solutions. It is true, however, that aqueous solutions need more care for their successful application, for it is essential that they reach every part of the infected area, and that the antiseptic should be renewed from time to time.

MODE OF ACTION OF HYPOCHLORITES.

When a solution of a hypochlorite or of free hypochlorous acid acts upon organic substances containing the

=NH group the first reaction almost always consists in the replacement of the hydrogen by chlorine with formation of substances of the group known as chloramines. All protein substances contain an abundance of these groups, and they readily react with hypochlorites:



The antiseptic action of hypochlorites doubtless depends upon reactions of this type. It was therefore interesting to examine many different varieties of the large group of chloramines in order to study their antiseptic actions. In this work I have enjoyed the co-operation of Professor J. B. Cohen of the University of Leeds.

In the first place, it may be stated that all substances containing the =NCl group were found to be strongly antiseptic, and some of them will probably be found to have practical value. Proteins, such as blood serum, egg white, casein, etc., when treated with hypochlorites, give products of high antiseptic value, and undoubtedly compounds of this type are formed *in situ* when wounds are treated with hypochlorites. This is doubtless an advantage, as in this way a certain antiseptic action may be expected to persist even after the free hypochlorite has disappeared.

Substances such as acetanilide when treated with hypochlorous acid under appropriate conditions, carefully studied by Chattaway, give chloramines—for example, acetylchloraminodichlorobenzene—which are sparingly soluble in water, but which may be dissolved in vaseline or lanoline. Although the germicidal power of these compounds is very high indeed, the action on infected wounds of strong solutions of them in vaseline or lanoline was not markedly superior to that of plain vaseline. It appears that, generally speaking, active germicidal action can hardly be hoped for from sparingly soluble antiseptics mixed with fatty substances. Anaerobic organisms can readily grow under the fatty film covering the surface of the infected area.

On the other hand, certain aromatic chloramines which form soluble sodium salts have given most encouraging clinical results. The best of these compounds are the benzene or paratoluene sodium sulphochloramides, both of which have been described by Chattaway.



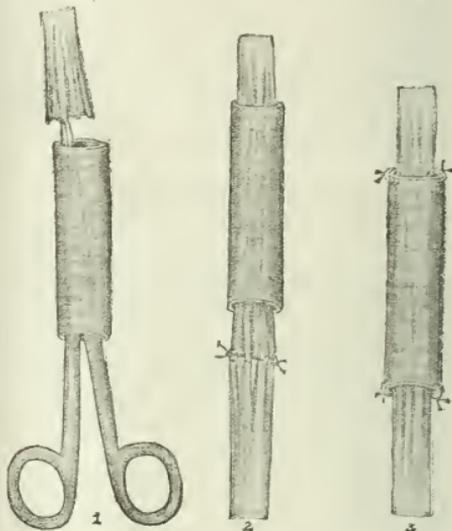
These substances are extremely powerful antiseptics, are practically non-irritating, and can be used in much higher concentration than can the hypochlorites. A 2 to 4 per cent. solution may be conveniently employed. In general, the action of these substances is similar to that of the hypochlorites, but more powerfully antiseptic. They have, however, no special solvent action on necrosed tissue, this being doubtless due to the fact that the active chlorine in these compounds is already attached to nitrogen. While the number of cases thus treated with these antiseptics is smaller than those treated with the hypochlorite mixture, excellent results have been obtained in a number of badly infected wounds, notably compound fractures of the femur. It appears probable that these chloramines, which are relatively easily prepared at low cost, and which have the advantage of being stable solids, may be found useful for other purposes than for the treatment of infected wounds. Their possible applications will be the subject of further study.

Benzene sodium sulphochloramide kills staphylococci suspended in water in two hours at a concentration of 1:500,000, and the toluene derivative kills at 1:1,000,000. In the presence of serum the necessary concentrations are about 1:1,500 and 1:2,500 respectively. *Bacillus pyocyaneus*, *B. typhosus*, and *B. coli* are slightly more resistant than staphylococci, while *B. aerogenes capsulatus* and streptococci are more readily killed. The concentrations refer to the weight of the crystallized salts. It will be seen that the molecular concentration of toluene sodium sulphochloramide necessary to kill staphylococci in the presence of serum is only about one-fifth of the correspondingly active molecular concentration of sodium hypochlorite.

ON THE USE OF A SLEEVE OF VEIN IN NERVE SUTURE.

By ANDREW FULLERTON, M.Ch., F.R.C.S. (IREL.),
COLONEL (TEMPORARY) A.M.S.; CONSULTING SURGEON TO THE
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ROYAL VICTORIA HOSPITAL; SURGEON, ULSTER
VOLUNTEER FORCE HOSPITAL.

DURING the present war many cases of nerve injury have been recorded. The injuries are produced for the most part by rifle bullets, fragments of shell, and shrapnel. Primary suture is frequently out of the question, and the wounds are allowed to heal without any attempt being made to suture the divided nerves. Later, secondary suture is required, and often the divided ends have to be



sought for in a large amount of scar tissue. It is essential in cases of this sort to protect the junction so as to avoid ingrowth of scar tissue between the nerve ends, and consequent failure of the operation. To prevent this various substances have been used, including decalcified bone tubes, gelatine tubes, animal's artery, paraffin wax, Cargile membrane,* and human vein. Sherven (*Injuries of Nerves*) prefers chlorinized Cargile membrane.

For some years I have been using portions of vein in the manner here illustrated. The most suitable vein for nerves of the upper extremity—as, for instance, the musculo-spiral, the median, and the ulnar—is the basilic vein at a spot between its commencement and the point at which it pierces the deep fascia of the upper arm. A segment of the vein about 1½ in. or 2 in. in length is excised and threaded on a sinus forceps as in Fig. 1. One end of the nerve is then caught by the forceps, and the sleeve pulled over as in Fig. 2. The ends of the nerve are then freshened with a sharp scalpel and sutured with fine catgut. When the suture is complete the sleeve is pulled over the junction, as in Fig. 3, and fastened to the nerve sheath by a few points of suture. The vein thus applied is intended to form an aseptic sheath for the nerve, to keep the ends in secure apposition, to direct the growth of the new axis cylinders, and to prevent the ingrowth of scar tissue from the outside. Any vein of suitable size will, of course, do, and in the lower extremity a portion of the internal or external saphenous will probably be the most convenient.

The sleeve must be pulled over the first nerve end before trimming so as to avoid damage to the freshly cut end.

Possibly this method has been in use by others, but I have not seen it used or described up to the present.

* Peritoneum of the ox.

THE TREATMENT OF GUNSHOT FRACTURES OF THE LEG WITH POSTERIOR WOUNDS.

By CHARLES A. MORTON.

PROFESSOR OF SURGERY, UNIVERSITY OF BRISTOL; SENIOR SURGEON IN THE GENERAL HOSPITAL; MAJOR R.A.M.C.(R.F.).

IN THE BRITISH MEDICAL JOURNAL for July 10th there is a description by Captain Barber of a splint for use in cases of compound fracture of the leg with posterior wounds, which induces me to place on record another form of splint I have been using for a case of this kind.

The difficulty, as Captain Barber says, is to fix the fracture and yet not to block wounds on the posterior aspect of the leg. In a case of gunshot fracture, with perhaps great comminution and a flail-like limb, the splint which Captain Barber describes would not, I think, give adequate support to the leg. The slings which he uses, he says are supplementary, and he relies mainly on extension. Extension from around the lower part of the leg, just above the ankle, is a very painful thing. I had a fracture of my own leg with great displacement, and although I knew the value which such extension would have, I was not able to bear the pressure over the malleoli. I doubt if the extension as used in Captain Barber's splint is really continuous extension; it seems to me only fixation. Unless the traction is made with an elastic band, or weight extension, it is not continuous extension. Moreover, the extension at the upper part of the leg is not required; the patient's body, if the foot of the bed is raised, is always sufficient counter-extension. But the "extension" in Captain Barber's splint does not seem to me to provide adequate support for the fracture. The fractured ends would tend to fall down into the space beneath the leg, and the support of the leg here with slings seems to be the really essential thing. Another objection to Captain Barber's splint seems to me to be the piece of wood under the bed. Rarely will a heel stand any pressure.

When, at the end of May, a patient was admitted to the military hospital under my care with a flail-like leg, profusely suppurating, the result of great comminution of both bones about their middle from gunshot wound, with several wounds not only on the anterior but also on the

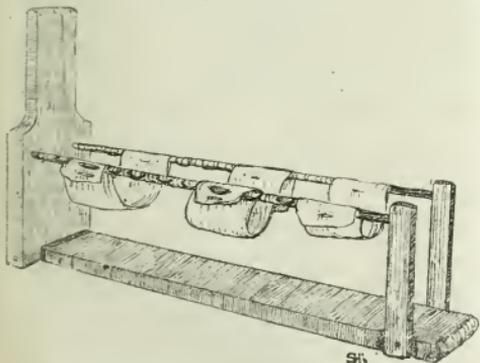


Fig. 1.

posterior surface in the lower half of the leg, I planned the splint for its support which I will now describe (Fig. 1).

It consists of a back splint of wood covered with some waterproof material, with a foot-piece. At the two upper corners of the back splint two pieces of wood are fixed, and from these to the foot-piece a rod of metal passes on each

side, and from these rods the leg is suspended as shown in Fig. 2, the knee being fixed by a bandage. I find it a great advantage to have small metal loops along the bar to fix the slings and prevent their slipping up or down the bar. The slings are, I think, best made of battiste, which is better than jaconet for the purpose, as it is waterproof on both sides. In some parts of the leg the sling may be carried straight across, but when the leg is somewhat round in form, as at the upper and lower parts of the calf, they should lie obliquely, so as to fit the convex surface. If injurious pressure seems to be exercised by any sling a pneumatic pad may be placed between it and the limb, and for this purpose I have found Barnes's bags, which were at one time used by obstetricians for dilating the cervix, very useful. When there is great oedema of the leg, the narrower slings will sink into the oedema, or rather, they prevent the oedema from forming where they press, and it occurs above and below, and the sling seems to be cutting into the leg, but this is only apparent. When treating ordinary Pott's fracture in civil practice, in cases with great displacement of the foot backwards, I have sometimes tried to prevent the dropping

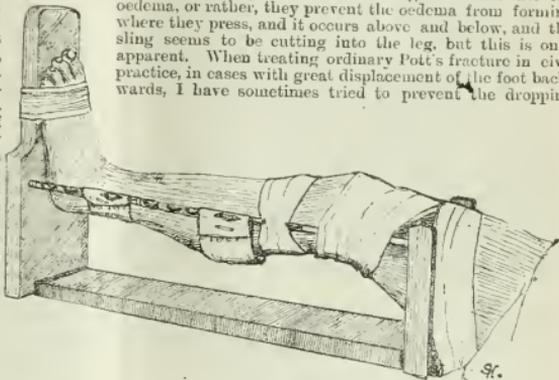


Fig. 2.

back of the heel by a sling arrangement supported by an attachment to the top of the foot-piece. In some cases I have found this answer very well, but I have seen it cause sloughing of the heel, just as pressure with a pad under it is apt to do. When I put up this gunshot fracture on the special splint, I tried a sling under the heel, but it caused sloughing and had to be abandoned. Possibly a sling with a pneumatic pad on it might not cause any injurious pressure there. On this special form of splint the leg is quite firmly fixed, and yet free drainage from the posterior wounds can be secured. For continuous irrigation such a splint would be particularly useful, as a shallow metal receptacle with an outlet pipe could be so conveniently placed beneath the suspended limb. In my case such continuous irrigation has not been required, as by frequent syringing of lotion through the wound, from front to back of the leg, free drainage has been maintained. There has not been any serious pyrexia. But the arrangement has been very convenient for this process, as a shallow receptacle could so readily be placed beneath the leg. In a case of compound fracture of the leg requiring continuous irrigation, even though this form of splint may not be required because there are posterior wounds, yet it may be found more convenient than the usual arrangement of mackintoshes to carry off the fluid.

THE American Medical Association will hold its sixty-seventh annual session at Detroit, June 12th to 16th, 1916.

THE Mansion House Committee of the Captain Scott Memorial Fund is about to erect a bronze bas-relief in St. Paul's Cathedral, bearing the following inscription, written by Earl Curzon of Kedleston: "In memory of Captain Robert Falcon Scott, C.V.O., R.N., Dr. Edward Adrian Wilson, Captain Lawrence E. G. Oates, Lieutenant Henry R. Bowers, and Petty Officer Edgar Evans, who died on their return journey from the South Pole in February and March, 1912. Indefatigable of purpose, steadfast in courage, resolute in endurance in the face of unparalleled misfortune. Their bodies are lost in the Antarctic ice. But the memory of their deeds is an everlasting monument."

ON THE EXTRACTION OF FOREIGN BODIES.

BY

J. R. CALDWELL, CAPTAIN R.A.M.C.

SINCE the commencement of the present war the number of so-called new methods of localizing foreign bodies lodged in the tissues of the human frame has been enormous. Obviously such an expenditure of energy in the planning of these was a response to some weakness in those systems in existence previous to the present struggle. The localization of projectiles has in these days been forced into a position of prominence under the pressure of work entailed in the examination of large numbers of wounded men. Of paramount importance in work of this nature is the question of speed. Complex work entailing the taking of several radiographs, or involving the use of complicated measuring instruments, must go by the board. Simplicity is an essential, as work may have to be done under the most adverse conditions, and any ordinary apparatus should be sufficient at a pinch with which to do good work. Many methods have been evolved; indeed, there is scarcely a radiographer of experience who has not thought out for himself a method of localization, and yet on the operating table vexing failures may occur. It matters not what method is employed, complex or simple, when it comes to the actual extraction of projectiles from the tissues and from accessible situations defeat is still a possible termination of a search.

The rock bottom principle of localization is practically the same in all systems; the main difference lies in the mode of application. Diagram I represents, say, a section

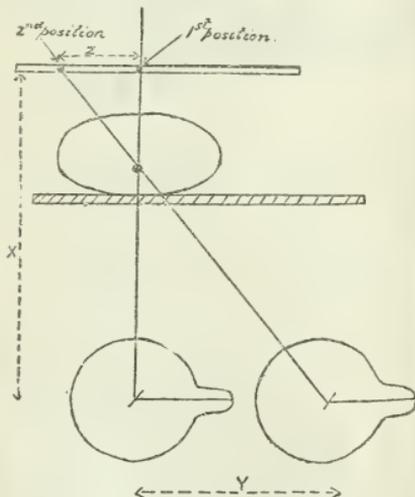


Fig. 1.—Scheme of general arrangement (see text).

of a patient lying on a couch. The x -ray tube is in position under the table, while above is the screen. The essential of localization resolves itself into a geometrical calculation—we know the distance of the anticathode of the tube from the surface of the patient's body. We shift the position of the tube a known distance, and we note the apparent distance traversed by the foreign body on the screen. Given these three measurements, it is obvious that the extent of the movement of the shadow on the screen will depend absolutely on the depth of the foreign body. The nearer the projectile is to the screen the less will be its apparent movement. As has been said, the modifications in the method of application are innumerable. Most of those of recent introduction make for greater speed, but the fundamental principle underlying is the same in all. The radiographer fancies his duty finished when he is able to state that below a certain mark on the patient's skin, at a certain depth will be found the foreign

body in question. The value of such information has been overrated. Unhappily when the surgeon has hunted down a foreign body he may verify his radiographer's findings to a millimetre, yet, before the commencement of the operation, the information given could at the most give the slenderest help as to the anatomical situation of the foreign body. The unknown variations in thickness of the tissues overlying the muscles, and in the muscles themselves, and moreover the variation brought about by the inflammatory reaction around the new body, render the most accurate localization of but the slightest assistance. It has been suggested that an atlas of frozen transverse sections of the human trunk and limbs might provide information on which to base the data supplied by the radiographer, and so to furnish us with the ideal and anatomical localization, but the sources of error are most obvious, and render this but of little help. Another important source of error in the extraction of projectiles is the difficulty of repeating exactly on the operating table the conditions which obtained when the localization was made. The surgeon is told that vertically below a certain mark on the skin at a certain depth he will find the foreign body in question. It is at once obvious that the slightest change in position of the patient may produce a deviation from the vertical path and so lead astray. Open to criticism also is the custom of marking the skin, as, after the preliminary toilet, there may be little left of the guiding point. Moreover, when the case is a multiple one and the surgeon is faced with the removal of perhaps half a dozen pieces of shell, his difficulties are enormously magnified. An anatomical localization, then, seems an almost unattainable ideal, as, unfortunately, stereography, which is the nearest approach we can have to this, is often erroneous and misleading. Moreover, the taking and developing of two plates takes time, and the help of these should only be employed as accessory in the extraction of projectiles from very difficult and dangerous situations.

To have speed in this class of work we must approach the subject from a somewhat different point of view. Why should we still grope in the dark when we can so readily work in the light? In war work the operating table and the x -ray table should be combined. The operating theatre and the x -ray room must be in one as the x -ray theatre.

During the past few months, as surgeon radiographer for two *clais* hospitals, one French and one Belgian, I have been permitted to treat on the x -ray operating table over 350 cases involving the removal of foreign bodies from the tissues. Shell, shrapnel, bullet, and hand grenade have been removed with a facility and speed which grew with experience, but in no case from the very first in which an attempt was made has a failure been recorded. Moreover, many of these were multiple (as many as thirteen pieces of shell have been removed from one patient), and many were old and healed and showed the scars of previous fruitless search. The beginning was necessarily small and the technique now employed was evolved step by step, difficulties being met as they arose, until ultimately practically all cases of foreign bodies became the property of the x -ray theatre.

The apparatus employed is of the simplest description and was supplied by Mr. A. Dean, of London. The table is of the ordinary type with a large tube box underneath giving transverse and longitudinal movements. The top used for operations is of thin well-polished wood, and an extension in the form of a flap is attached to one end to accommodate the patient when dealing with the lower limbs. The high tension wires approach the tube box from the opposite end that operations may be performed from both sides of the table.

A troublesome question was the lighting of the theatre, as the strong light necessary for dissections interferes with that visual acuity so essential in x -ray work. The difficulty has been met by using an old automobile headlight above the table. With a powerful condenser this concentrates the light only on the field of operation, while the remainder of the room is in comparative darkness. A blue glass in the lamp still further improves the light for x -ray purposes, and does not strain or tire the eyes, while still giving sufficient light for minute dissection.

It is rarely necessary for the anaesthetic to be administered for any lengthy period in the dark, but in the

event of such a necessity arising the anaesthetist is equipped with a small pocket lamp also giving a blue light. This permits him to examine his patient without interfering with the screening.

The protection of the surgeon from the harmful effects of the x ray is of the utmost importance. The tube box is entirely encased in lead 3 mm. thick with the exception of the opening above for the passage of the acting rays. Additional protection is afforded by the use of a leaden screen of ample dimensions, and of the same thickness as that covering the tube box. This should be hung on to the front of the table, between the box and the operator, and should be freely movable along the length of the table, and easily detachable to give ready access to the tube. Operations are always performed with the smallest diaphragm possible, and hence it becomes feasible, with care, to keep the hands out of the direct line of fire, but to afford still further protection lead plates 3 mm. in thickness and with circular openings in the centre varying in diameter from 1 in. to 4 in. are used. These serve to cut off stray rays, and being readily sterilizable can be laid in the field of operation in a manner which will be described later. Long slightly curved Spencer Wells forceps are used in extraction, the curve involving the handle only, forceps which have a rectangular bend being more difficult of control. It is usual here for two pairs of gloves to be worn during an operation on the x ray table, an outer thick pair such as are worn by housemaids, and an inner thin pair of the ordinary type. The outer pair can be removed on the completion of the actual extraction, or to permit of delicate work.

Each case on admission is subjected to a preliminary radioscopic examination, and if a foreign body is present its position is determined roughly by parallax. Advantage is taken of any neighbouring bony structure, the position of which is fixed and known, and the relative rates of apparent movement of the bone and the projectile on shifting the source of illumination are studied with the help of the screen. A brief glance at Fig. 2 will show

and also the most suitable position for the patient at the actual operation. When it is possible to cut vertically down on the foreign body—that is to say, when it can be approached by a route which is at right angles to the screen—there is no difficulty as a rule, and the operation is a matter of a few minutes, but such a method of approach is not always feasible, for on the x-ray operating table you cannot put your patient into all the positions permissible on the ordinary table. In operating, for example, on the upper and outer aspect of the thigh, the patient must lie on his back or face in order that the opposite thigh may not come in the way and interfere with the screen. If a bullet were situated in such a position, the procedure of turning the patient on his side is impossible, as the screen could not for obvious reasons be employed. In such a case the patient must be placed on his back, and the forceps must approach the foreign body in a plane parallel to that of the screen. How, then, are we to find the most suitable site for the incision in this type of case? The method I adopt is that of prodding the part from above downwards in a plane parallel to that of the screen. When the point of maximum excursion of the foreign body is reached, this is noted and used as the site for the incision (if not forbidden for anatomical reasons). The method, though apparently somewhat rough, is very accurate, and a little experience will soon indicate the types of cases to which it is applicable; but, briefly, they are the lateral aspects of the trunk and neck, the axilla, and the upper parts of the thigh. In the great majority of cases no further localization is necessary, but in dangerous situations stereographs are useful accessories. Methods giving detailed measurements are never employed here.

At the operation the care of the apparatus and switch turning is in the hands of a trained orderly, while the screen is in charge of a second. The patient is anaesthetized, and the part is prepared in the usual fashion. The sterilization of the skin should be wide, and when one of the extremities is involved the entire circumference should be made ready. Mackintosh sheeting should not be used, as it is too opaque, but the table should be covered with thin jaconet. The towels are then applied, and over the now cleaned and prepared area is laid the screen towel. This is of sufficient size to cover completely the under surface of the screen with a margin all round of about 2 inches. The screen orderly pushes the tube box into the vicinity of the part involved and lays the screen on the towel. This is now clipped all round and securely fastened on with Diffenbach's bulldog forceps. When the screen is laid on the part the rays are turned on and the lights off and the foreign body is located. The tube box is manipulated by the orderly until the projectile is in the centre of the illuminated field, using always the smallest diaphragm possible. Over the apparent position of the foreign body on the skin the point of a pair of long forceps is now laid and the lights are turned on. The incision is made as near to this point as possible and the skin, superficial and deep fasciae are divided. One of the sterilized lead plates, previously described, is placed over the part, the circular opening surrounding the incision, and keeping the hands in the shadow of the plate under the rays, closed forceps are pushed down on the projectile. This is grasped, but, before extracting, the light is turned on and, if the case be a septic one, the track is well opened up to facilitate drainage and, above all, to permit of the removal of "wardrobe." Should, however, the part affected contain delicate structures, the operation should merely be controlled and guided by occasional reference to the screen. Where it is not possible to cut vertically down on the foreign body, but where we are forced to approach it in a plane parallel to the screen, or nearly so, the sterile lead shield is placed on the table and under the part in such a way as to direct the pencil of almost parallel rays on to the foreign body. The prodding manoeuvre is now repeated, the site of the incision determined and made as before. When the forceps have been introduced it is very useful to make a slight movement of the tube and to note the relative rates of apparent movement of the foreign body and the forceps point. The information to be gleaned from this simple manoeuvre is often very helpful, and is explained by reference to Fig. 2, if in imagination we substitute for the bone a forceps point.

The removal of foreign bodies in septic cases greatly

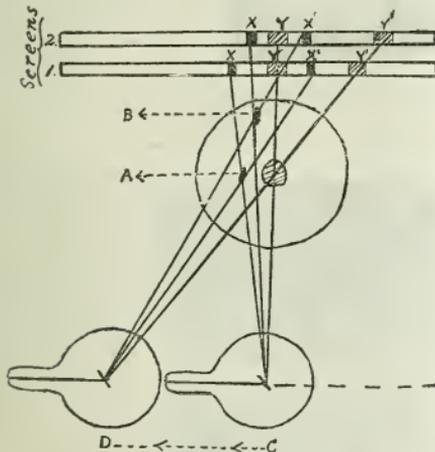


Fig. 2.—The diagram represents, say, a section of a thigh with two foreign bodies, one, A, in the same lateral plane as the bone, the other, B, anterior to it. Two screens, for the sake of simplicity, are shown. On moving the tube from c to D the foreign body A apparently moves the same distance as the bone ($x-x' = y-y'$) (screen 1). The foreign body B makes a smaller apparent movement ($x-x' < y-y'$) (screen 2).

that if a foreign body is in the same lateral plane as the shaft of some long bone, its rate of apparent movement upon shifting the source of illumination will be similar to that of the bone. A foreign body anterior to the bone will move less, and when under the skin will scarcely move at all. On the other hand, when the projectile is situated in a plane posterior to that of the bone the conditions are the opposite of those just described. At this preliminary examination one determines the site of the skin incision

promotes healing, for it is usually possible at the same time to take away fragments of cloth, which are such a potent cause of prolonged suppuration. The adoption of such a method as that described makes for such speed and such certainty of success that the more routine removal of all projectiles of any size should be the rule. Moreover, the man in the trenches can never understand that a piece of shell left in his leg is anything but an unmixed evil.

Thus he ponders, he worries, and ultimately its presence becomes a source of irritation to him. It may cause him real pain, or it may be imaginary or assumed, but in any case it interferes with the proper discharge of his duties. Unless there are contra-indicating factors present, the rule should be to remove all foreign bodies of any size from accessible situations, and as soon as possible after the infliction of the wound.

OPEN-AIR TREATMENT FOR WOUNDS.

A SIMPLE AND INEXPENSIVE FORM OF OPEN-AIR WARD, AS USED AT THE V.A.D. HOSPITAL, HENLEY-IN-ARDEN.

BY

W. ERNEST NELSON, M.A.CANTAB., M.R.C.S., L.R.C.P.,
MEDICAL DIRECTOR, WARWICKSHIRE BRANCH, BRITISH RED
CROSS SOCIETY.

During the present war open-air treatment has played a large part in the cure of wounded soldiers, and any medical man who has had charge of wounded knows what excellent results can be obtained by this method, especially in the more serious kinds of suppurating wounds and in cases of general infection.

I submit this short account of an open-air ward because I think it may be of interest to your readers and also because it has one or two features which may specially commend it.

The ward was built for use at the V.A.D. Hospital, Henley-in-Arden, of which hospital I am Commandant and Medical Officer, and is specially adapted for such hospitals, as it has the merit of being cheap and at the same time efficient.

This particular ward has accommodation for eight beds, though I have had as many as nine beds in it at one time, but buildings on these lines to take two or three beds, or twenty or thirty.

The chief features which I claim for this particular form of building are as follows:

1. It is open to the air on both sides, the ends only being closed in. Most open-air wards that I have seen are closed in on three sides. The protecting screens, at the back of the bed-heads, seen on the right hand side of the view of the interior, are 4 ft. high, and afford ample protection from draught. The left hand side is open down to the ground, except for an open balustrading. Thus there is a free current of air continually passing over the heads of the patients as they lie in bed, and yet they do not feel any draught.

2. The deep sloping eaves are set at such an angle that the rain cannot drive in, even on the most windy and rainy days. During the past month of July, in which we have not had a single day without rain and have had some of the most severe thunderstorms I have ever seen, the interior of this ward has always remained dry and the patients have suffered no inconvenience from wind or rain.

3. If it is desired to close in one side completely, this is done by a system of spare screens, which either fit into grooves provided or are hinged on to the already existing screens at the back of the beds, and are then thrown upwards and bolted to the wall plate or roof. In this way either side of the ward, or both, can be entirely or partially shut in.

4. It is easily built, the materials being wood and asbestos sheeting, the latter being cheaper than wood, besides having the additional merit of being fireproof. The roof is of match-boarding, covered with rubberoid. The floor is constructed of boards, tongued and grooved, so that no draught can come through. The whole structure is raised some twelve inches from the ground on small brick current of air under the time does not kill the necessary to erect such a building on a lawn or in a field.

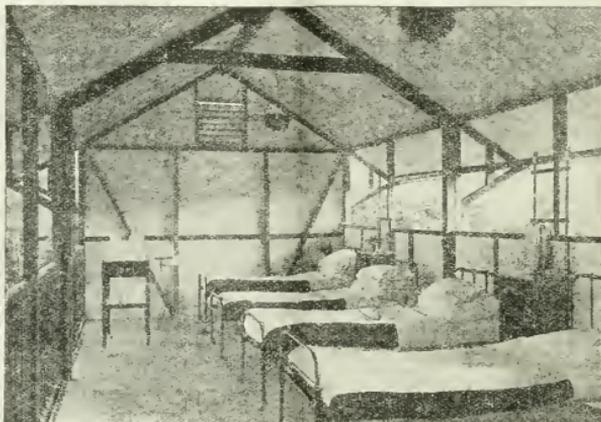
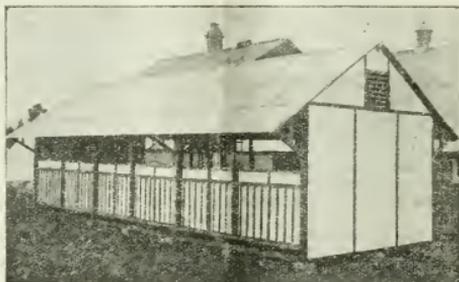
5. It is quickly and easily erected. This particular building was put up complete in four days—ten days from the date of the order being given.

6. It is easily connected with the main building of the hospital by a covered way, so that nurses and patients can pass to and fro in any weather.

I shall be pleased to give further details to anyone interested in the subject, or these can be obtained direct from the architects, Messrs. Osborne,

Pemberton and White, 40, Bennetts Hill, Birmingham.

THE late Mr. Arthur Rich Saunders, M.B., of Victoria Park, Dover, formerly President of the Jamaica Medical Council and Board of Examination, left estate valued at £15,117.



THE PUBLIC HEALTH WORK OF THE BRITISH MEDICAL ASSOCIATION.

BEING THE PRESIDENTIAL ADDRESS DELIVERED TO THE
WORCESTERSHIRE AND HEREFORDSHIRE BRANCH OF
THE BRITISH MEDICAL ASSOCIATION.

BY

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DISTRICTS.

THE President of the Worcestershire and Herefordshire Branch may be justifiably proud of recalling that the British Medical Association came into being at Worcester, and that his presidential address is delivered to the lineal professional descendants of those who listened to the first address of Sir Charles (then Dr.) Hastings, the outcome of which was the formation, with a membership of 140, of an Association whose members now number some 25,000, and wields a power and possesses an influence that are at once the envy and the admiration of many similar organizations.

The honour of presiding over the deliberations of this Branch is one which cannot fail to be gratifying to any one who is chosen by you to occupy the position. It is peculiarly so to me, because more than twenty of my thirty years of professional life and activities have been spent exclusively in the public health service. For this reason my thanks are specially due to you, not alone from myself, but also on behalf of medical officers of health generally. I hope, indeed, that I shall not be thought guilty of any personal ingratitude when I say that I felt, and felt with pride and satisfaction, that your choice last year of President was intended to be a testimony to the confidence and good feeling which exists, and which I have at all times striven to foster, between the general practitioners of this country and medical officers of health. I like to think also that, while honouring me, you desired to pay tribute to the Society of Medical Officers of Health, with which I have been closely associated officially for many years, and the presidential badge of which I have now the honour and gratification of wearing.

Among the purposes and objects of the new Association outlined by Charles Hastings at Worcester in 1832 was the "investigation of endemic and epidemic disease." The transactions of the Association from that day to this give ample evidence that there has been no neglect of this object not only in its earlier days but in later years, when public health became so specialized that other bodies for the discussion and elucidation of sanitary problems were established—the Epidemiological Society in 1855 and the Society of Medical Officers of Health in 1856. While the public health historian would naturally go to the records of these two societies for reliable information, he would be unable to fulfil his task faithfully and completely if he neglected to explore the pages of the *BRITISH MEDICAL JOURNAL* or failed to make himself familiar with the papers and discussions on public health matters that have been included from time to time in the proceedings of the great annual meetings or of the Branch meetings of the Association.

Quite apart, however, from the assistance that has been rendered by the Association to the scientific side of public health invaluable help has been given medico-politically to medical officers of health. Adequate remuneration, security of tenure of office, and superannuation for medical officers of health, have all long been planks in the policy of the Association, and no one is more qualified than I am to testify, as I do most heartily, to the untiring labours on our behalf of the Association committees, of its officials and editorial staff, in connexion with these three important questions. A successful stand has been made against inadequate salaries, while year after year bills have been introduced into Parliament, at the instigation and at the cost of the Association, having for their object the provision of superannuation allowances for medical officers of health and a reasonable security for these officials against capricious dismissal at the hands of the electing authorities. For years the Government of the day was deaf to all appeals for what seemed to those who had closely studied the question bare justice to an important body of public officers, but the persistent efforts of the Association

and the Society of Medical Officers of Health, backed up as they were by the *BRITISH MEDICAL JOURNAL*, by the *Lancet*, and by the *Medical Officer*, have at last borne fruit, for the principle of superannuation has been admitted and an order of the Local Government Board is, I understand, to be promulgated, which will ensure that all whole-time medical officers appointed in the future in the English and Welsh provinces will hold office on the same terms as their colleagues elsewhere in the British Isles—that is to say, dismissal by a local authority will only be effective after receiving the approval and sanction of the Local Government Board.

This success could not have been achieved had there not been the most cordial and generous co-operation between the Society of Medical Officers of Health representing the public health service, and the British Medical Association representing the general practitioners of the country. The attitude of the Association testifies to the long views that are taken by those who guide its policy. Medical officers of health constitute only about 6 per cent. of the members of the Association, and it might well have been thought that our interests were of too little importance to be considered, but, as I have endeavoured to show, quite the contrary has been the case.

Although the Association and the society have been and are the friendliest of allies it is almost inevitable that on occasion there should be some friction between individual members of the two bodies. This usually arises not from any mean or despicable motive, but rather because the general practitioner, on the one hand, is anxious to safeguard the interests of his patients, while the medical officer of health is zealous, sometimes perhaps over-zealous, for the welfare of the community. In this connexion I will refer to what is perhaps the commonest cause of misunderstanding between the private practitioner and the public officer. In the "investigation of endemic and epidemic disease" it is absolutely essential that the investigator should have precise and accurate knowledge of the existence of such disease, and as regards a large number of these diseases the general practitioner is required by law to send certain information to the medical officer of health, who is thus enabled to carry out his investigations. The primary object of those investigations is the prevention of the spread of the disease in question; and if the medical officer of health is not satisfied that all due precautions are being taken to that end, he is required under the terms of his appointment to advise those competent to act as to the remedial measures that appear to him desirable to take. There are still a few medical officers of health who seem to consider that they cannot make complete investigations without actually seeing the patient—a course which in my view is not only quite unnecessary but is reprehensible. The views of the Local Government Board on this point are very precise, for in a memorandum issued by the Board in 1910 it was stated that

A medical officer of health will bear in mind that the examination of patients in their own homes can be made only with the consent of the patient or of those in charge of the patient. If a medical practitioner is in attendance his co-operation should always be sought.

My own practice has always been never to see a patient who is being attended by a doctor unless the latter is present or his consent has been obtained. If this were made a rule by all medical officers of health, the number of cases of misunderstanding and irritation that now occasionally arise would be considerably reduced. A still further reduction would take place if the diagnosis of the practitioner were always loyally accepted, exceptions only being made after consultation and opportunity given to the practitioner to revise his opinion.

If the relations between the general practitioner and the medical officer of health are to be such as to produce the best results to the community generally, each must realize that the other has difficulties of his own to contend with. Due allowance must be made for those difficulties. Above all we must beware of the mischief that is so often made through the patient or his friends misinterpreting a casual remark. It is a good working rule never to believe a hearsay statement that is detrimental to a professional colleague. If you are attending a scarlet fever patient, and on your second visit are told that the medical officer of health has been to the house and has said that the case is not one of scarlet fever, do not believe it. The medical

officer of health, on his part, should not believe a repeated conversation attributing improper conduct to him. More harm is done by these tales than is generally imagined.

It is now my privilege and pleasure to invite my successor to take my place. My year of office has been in a period in the history of our nation unexampled. The thoughts of all of us have been absorbed in the terrible conflict in which we are engaged, and we have all done our best to shorten it and to lessen its horrors. Dr. Wilkinson is known to us all as a practitioner of high repute, and we feel that in electing him to the presidential chair we are conferring an honour that has been well earned. Among the members of the public health service he occupies an honoured position, and it is a special pleasure to me to introduce as my successor another medical officer of health. I can wish nothing better.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

VACCINE TREATMENT OF GONORRHOEA.

ANY method of treatment which will shorten the period of detention in hospital of men suffering from gonorrhoea is worthy of full trial, and, if found beneficial, of being recorded.

Of 33 cases admitted into hospital with acute gonorrhoea, all were treated with gonococcus vaccine, and were discharged cured after an average detention of 13½ days each. No case was marked cured until there had been an interval of sometimes four and in other cases of five consecutive days since the appearance of the last sign of discharge, including gleet. This gives an average of about nine days during which alone there were manifestations of active gonorrhoea.

The method of treatment I adopted was the following: On the morning after admission a dose of *mistura alba* was given, the patient placed on a milk diet, and rest in bed enjoined. An injection into the buttock of 1 c.cm. of gonococcus vaccine (Burroughs, Wellcome, and Co.), 200 million strength, was given, and the man directed to wash out the urethra three or four times daily with a weak solution of potassium permanganate. There was generally a slight rise of temperature in the evening (never higher than 99.9°) with slight headache. On the following morning the discharge was usually said to be heavier, lessening, however, during the day and being less again the next morning. Forty-eight hours after the first injection of vaccine a second dose was given, this time of 1,000 million strength, the same routine followed, and unless the discharge showed symptoms of marked diminution and of approximation to gleet, in two or three days afterwards a third injection of 1,000 million was given, a fourth being rarely necessary. When the discharge had become clear the patient was allowed to be up in the ward; all exercise, however, was forbidden.

Noteworthy points about the washing out of the urethra are that it was effected by gravity and through a No. 8 catheter, which was passed well down the urethra so that the whole of the canal should be cleansed, this being done under the supervision of an orderly, to ensure thoroughness. In some of the cases a valuable adjunct, suggested by Colonel Butt, was used. The patient was placed and kept for some time in a hot bath, and whilst there in a recumbent position the urethra was thoroughly washed out. These cases were not selected, but in each the discharge was purulent and had been present from one week up to several months—ten months in one case which had been treated by electric and other methods to no purpose. In the latter case, too, gonococcus vaccine had been tried and had failed, but the maximum dose was only 40 million. Gonococcus vaccine is not a very stable preparation and failure in some cases may be due to this cause; there is no doubt also that the strains vary in potency, but I cannot help thinking that failures are mostly due to insufficient doses being employed, a too extended interval between each injection, and the lack, in addition, of thoroughly cleansing the urethra several times daily. Except *mistura alba*, no medicine was given.

W. G. BRETT, Lieutenant R.A.M.C.

TYPHOID FEVER WITH SUPPURATING OVARIAN CYST.

THE patient, a woman aged 22 years, unmarried, was admitted into hospital on May 12th, 1915, with a preliminary diagnosis of typhoid fever.

She had not had any illness up to four months previously, when she had a cough and was "feverish"; since then she had had amenorrhoea. In January, 1915, she was inoculated once against typhoid fever. Shortly afterwards she was wounded in the left shoulder by shrapnel, but the wound healed quickly.

The illness for which she was admitted had begun four weeks previously with diarrhoea and abdominal pain. She was feverish and was bleeding from the nose, but had no headache. When she was admitted she was well nourished, but looked flushed and feverish; the temperature was 100.8° F. and the pulse 120. Her tongue was coated with a thick white fur, but was moist. The abdomen looked full, and was very tender and rigid, especially so in the right iliac fossa. On palpation a large, firm, smooth swelling was felt extending from above the symphysis pubis to the umbilicus; it was almost central, but was inclined slightly to the right. The swelling was dull upon percussion, and there was no fluctuation. A catheter was passed; only two ounces of highly-coloured urine were withdrawn, and the swelling persisted.

Upon vaginal examination the cervix was found to be pushed far over to the left side, and the uterus was behind the tumour and to the left of it. The tumour appeared to be distinctly to the right of the middle line, and was very tense. There were no breast changes, and the other organs appeared to be normal. A blood culture proved to be negative.

The patient's condition remained much the same, with fever and a rapid pulse, until May 16th, when she seemed to get worse; the temperature rose to 102.2° F., and she started vomiting. It was decided to operate, and on May 17th laparotomy was performed by Colonel S. Guise-Moore under ether given by the open method. A large unilocular ovarian cyst was found; this originated from the left ovary, and its pedicle formed a continuation of the left broad ligament. There were some adhesions to the pelvic wall. The cyst was removed, leaving the ovary behind.

The cyst contained about two pints of a grumous semi-purulent fluid, from which the *Bacillus typhosus* of Eberth was obtained in pure culture.

At 7 p.m. the patient was very feeble; the pulse was 140, and the temperature 100.8° F. A pint of saline solution was given by the rectum, and a hypodermic injection of digitalin $\frac{3}{16}$ grain and strychnine $\frac{1}{16}$ grain was given every four hours. She had a fair night, without much pain, and on May 18th was better, the temperature being 98.6° and the pulse 120. There was no vomiting. A slight haemorrhagic vaginal discharge was noticed, and persisted for two days.

She made a rapid and uneventful recovery.

H. G. C. MOLD, Lieutenant R.A.M.C. (S.R.).

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

NORTH STAFFORDSHIRE INFIRMARY.

ARTERIO-VEINOSUS ANEURYSM OF POPILITEAL VESELS.

(By ERNEST CONNELL, L.R.C.P. and S.I.)

PRIVATE A. J., Belgian soldier, received a bullet wound on October 28th, 1914. The point of entry was two inches above the internal condyle of the left femur, and the exit over the middle of the popliteal space. He was admitted suffering from acute pneumonia and arterio-venous aneurysm of the popliteal vessels.

One month later he was transferred to the surgical side under Mr. Hartley's charge. He complained of pain and swelling in the left knee and leg, and of "music in his leg." A pulsating swelling was felt in the popliteal space, and the limb below was bluish. A marked thrill was felt, and a loud musical bruit could be heard over the

swelling. No pulsation could be made out in the tibial arteries. On applying pressure over the superficial femoral artery the pulsation, thrill, and bruit disappeared.

Operation.

On June 4th, 1915, Mr. Hartley, after the application of a tourniquet, opened the popliteal space by a median incision. The popliteal nerves and their branches were carefully retracted and preserved. The aneurysmal sac, about the size of a small hen's egg, was then dissected out. Next the artery was ligatured with silk, proximal to the sac, which was then incised, dark clotted blood being squeezed out. The four large openings of the vessels were easily found in the sac. A closed pair of Spencer Wells artery forceps was carefully inserted into the artery distal to the sac, which was thus readily defined and ligatured. The opening into the sac was closed by a continuous suture of fine catgut, and the suture line invested by a continuous Lembert suture of fine silk. On releasing the tourniquet the vein became enormously distended, and free oozing was seen, but in a few seconds the vein became much smaller, and the oozing so slight that no points needed ligature. A drainage tube was, however, inserted, and retained for five days, the rest of the wound being closed. A back-splint was applied, the limb raised, and kept warm.

On the day after operation the patient complained of severe pain in the leg, but otherwise recovery was uneventful. He was kept recumbent for three weeks and then went home, very pleased that the "German band" in his knee had ceased its music.

I am indebted to Mr. Hartley for kind permission to publish this case.

Reviews.

A HISTORY OF THE HOHENZOLLERN.

DR. CABANÈS, well known by his researches in the bypaths of history, especially in its relations to medicine, has written the history of the Hohenzollerns¹ with the object of throwing light on the mentality of its present representative. The name occurs for the first time in the eleventh century, but the dynasty was really founded by the Great Elector, Frederick William, who reigned from 1640 to 1688. In his proclamation to his people he called himself Margrave of Brandenburg, Arch-Chancellor and Elector of the Holy Roman Empire, Duke in Prussia, Prince of the Pomeranians and the Vandals, Burgrave of Nuremberg, and so forth—a "silly stately style" recalling the enumeration of the titles of Lord Talbot by Sir William Lucy in the first part of *King Henry VI*. At the revocation of the Edict of Nantes, the Great Elector received some 10,000 French refugees, who brought with them arts and manufactures into a country which had previously been little more than a barren waste inhabited by a half savage population. Their intellectual activity as lawyers, physicians, engineers, and architects greatly helped the future development of Prussia. The Great Elector died at the age of 67 at Potsdam, leaving a son by his first wife. This was Frederick, who first assumed the title of King of Prussia, putting the royal crown on his head with his own hand. Ceremonies were the chief occupation of his life. Such was his love of theatrical display that it is recorded that his chief regret, when he died in 1713, was that he could not see his own funeral. He was succeeded by Frederick William I, who for English readers lives in fading colours in the pages of Carlyle and Macaulay. He ruled his subjects and his family with the brutality of a Prussian sergeant, and on one occasion he was with difficulty prevented from putting his son to death with his own hands. Though his stinginess made him a byword throughout Europe, he spent huge sums in kidnapping tall men wherever they were to be found. These he enlisted in his guards, and he tried, as Dr. Johnson says, to propagate procreancy by laying hands on all the big women he could find, and marrying them by force to his gigantic soldiers. The result, however, was disappointing. With age his

savage temper became ever more irritable; he had attacks of epilepsy and actual mania, though to the end there was generally a method in his madness. After him came Frederick the Great, a man of high intelligence, but without moral principle. He did much for the greatness of Prussia, but it was by unscrupulous trickery and downright robbery. He had no regard for agreements, oaths, treaties, or diplomatic "scraps of paper" of any kind. His policy, cynically avowed, was that there was no tribunal before which kings could be tried, and that they had the right to take what they could. He was, in fact, like the freebooter who lived by

The good old rule, the simple plan
That he should take who has the power
And he should keep who can.

His intellectual power preserved him from the worst eccentricities of his father, but he had much in common with him, though he concealed his native brutality under a veneer of culture. He was mean to the degree of miserliness. His temper was imperious and irritable to the point of ferocity; he was fond of cruel practical jokes and ingenious in devising means of annoying and wounding the feelings of those about him. Yet, like many persons who are unkind or indifferent to their fellow creatures, he was fond of his dogs; he always had the animals about him and allowed them every liberty. Probably to show his contempt for mankind, he directed in his will that he was to be buried among them. It is impossible, however, to deny him some of the qualities of greatness. To the very end he persisted in directing every department of his Government. His devotion to work seems to have been largely due to his desire to distract his mind from melancholy, and his incessant scribbling and verse, which otherwise might be regarded as a form of mania, may be ascribed to the same cause. He said that for him these things took the place of drink.

Frederick was succeeded by his nephew, Frederick William, a superstitious visionary, during whose reign Germany was overrun by *Illuminati*, freemasons, and mystics, who sought for the philosopher's stone and plotted the overthrow of kings and priests. Cabanès gives an account of the initiation of candidates, but a fuller description of these fantastic ceremonies will be found in the Abbé Baruel's history of secret societies and in George Sand's *Comtesse de Rudolstadt*. The King is said to have attended some of these initiations in disguise, and the excitement caused in him by the calling up of the spirits of the dead is said to have contributed to his death, which took place in 1797. His successor, Frederick William III, was a man of great simplicity but of weak will, whose wife, Queen Louise, a very beautiful and charming woman, tried in vain to conquer Napoleon after the defeat of Prussia in 1806.

Frederick William III died of influenza in 1840 and was succeeded by Frederick William IV, who is said to have declared that he would never allow a "scrap of paper"—that is to say, a constitution—to stand between him and his people. His idea was to unite feudalism with absolute monarchy. The troubles of 1848 seem to have been too much for his reason, and during the last ten years of his life he was mad. He was succeeded by William I, who was proclaimed German Emperor during the war of 1870-71. He was an honest man, who had the wisdom to leave the management of affairs to Bismarck and Moltke. The chief business of his life seems to have been to change his uniform several times a day.

Frederick III, father of the reigning Kaiser, was a man of simple tastes and straightforward character, who had nothing in him of the mountebank or the swaggering Prussian. Had his life been spared the development of Germany would probably not have followed a course that made her a constant menace to her neighbours, and the world would not now be struggling against her devastating ambition.

Of the present Kaiser, Cabanès says he is an actor clad in the Imperial purple, constantly striving to keep himself in the limelight and posing for the admiration of the world. One can imagine him when the time comes for him to leave the stage of life, sighing with Nero *Qualis artifex pereo!*

Dr. Cabanès has traced the origin and rise of the Hohenzollerns with a careful choice of detail which brings out clearly the evolution of the race and the means by

¹ *Foite d'Empereur. Une Dynastie de Dégénéris. Guillaume II jugé par la Science.* Par le Dr. Cabanès. Paris: A. Michel. 1915. (Cr. 8vo, pp. 460; 63 illustrations. Fr. 3.50.)

which, beginning as "wee bit German lairdies," to quote a Jacobite song, they have reached their present place among the rulers of the earth. He is to be congratulated on having produced a book which is a contribution to historical literature at once solid and readable. It is illustrated by sixty portraits and other figures, and there is an appendix by M. Rougement in which he analyses the peculiarities of the Kaiser's handwriting.

ROSE AND CARLESS'S MANUAL OF SURGERY.

It is a remarkable tribute to the vitality of a textbook that with unflinching regularity since its first issue a new edition has been called for every three years. We have already, in noticing the previous edition of ROSE AND CARLESS'S *Surgery*, indicated our opinion that it ranks easily amongst the best textbooks of surgery in the language, and we see no reason to alter that opinion after contemplating the newest issue. In the preface to the eighth edition Professor Carless lamented the loss of his co-worker, Professor Rose; in the preface to this, even greater oppression of spirit and soreness of heart are reflected when he considers the war and all its losses. The changes in the book are only those necessary to keep it quite up to date, bearing in mind its double purpose to instruct students and to help practitioners. Cautious pronouncements on the achievements of salvarsan and radium, a chapter on modern methods of treatment by physical agencies like heat, light, and electricity, and some illustrations are new features. The book is no bigger than formerly. We hope the publishers will always keep its size within the limits of a single volume easy to handle and convenient for reference. From the bibliographical point of view the publishers have left nothing undone in clearness of type, aptness of illustration, and security of binding, which permits the book to lie flat open at any page. Men who have found their familiarity for this book grow into affection will gladly welcome their old friend after its triennial rejuvenation; while those who do not yet know it will speedily learn to treasure it for its real worth.

INFECTIOUS DISEASES.

The volume by Dr. J. A. KOLMER, of Philadelphia, entitled *A Practical Textbook of Infection, Immunity, and Specific Therapy*,³ is an amplification in permanent form of a course of instruction given during the past few years to students and post-graduates in the medical school of the University of Pennsylvania.

The aim of the writer, as stated in the preface, has been threefold: (1) To give to practitioners and students a concise account of the manner in which the body may become infected, and the method, in turn, by which it serves to protect itself against infection, and to describe the practical application of this knowledge to the diagnosis, prevention, and treatment of disease; (2) to give physicians and others engaged in laboratory work a guide to the various immunologic methods; (3) to outline a laboratory course in experimental infection and immunity for medical students and others.

The work is divided into five parts. In the first the writer describes simple methods for preparing capillary pipettes and similar laboratory apparatus, the various methods for obtaining human and animal blood, the technique of animal inoculation, the methods for effecting active immunization of animals, and the methods for preservation of serums.

In the second part the principles of infection are discussed, and an account given of the production of disease by the formation and action of exogenous and endogenous toxins, bacterial proteins, mechanical blocking of vessels, and formation of pomeanes.

The third part, which constitutes the largest and most important portion of the work, deals with the principles of immunity and special immunologic technique, and contains a full description in their historical, theoretical, and practical aspects of opsonins, vaccines, antitoxins, ferments

and antiferments, agglutinins, precipitins, cytolysis, bacteriolysis, haemolysis, complement fixation reactions, cytotoxicity, the relation of colloids and lipoids to immunity, and anaphylaxis. Three chapters, containing more than a hundred pages, are devoted to the important subject of complement fixation reactions. The Wassermann reaction and its modifications are described in detail, and an account given of complement fixation in other diseases, such as gonococcus infections, glanders, typhoid fever, tuberculosis, cancer, and echinococcus disease.

In the fourth part, which deals with applied immunity in the prophylaxis, diagnosis, and treatment of disease, the writer first exposes the relation of anaphylaxis to infection and immunity, and describes the various anaphylactic or allergic reactions, such as the tuberculin tests, the lectin reaction, the mallein reaction, and allergic reactions in other diseases. In the following chapters of the fourth part the prophylactic and therapeutic use of vaccines and serums and chemotherapy are discussed.

The fifth part, which may be regarded as an appendix, is a laboratory course consisting of sixty exercises, and is based upon the course given by the author in the Laboratory of Experimental Pathology at the University of Pennsylvania, and in the laboratories of the Philadelphia Polyclinic and College for Graduates in Medicine. In many of the experiments the exact technique of a given test is described, thus rendering a separate book unnecessary. Each of the exercises is followed by a number of questions, the answers to which are to be found in the body of the work.

Dr. Kolmer is to be warmly congratulated on his achievement. The work is well up to date, and maintains a high standard throughout. The clearness of description, wealth of detail, and mastery of the literature make the book a most valuable work of reference, which should be consulted not only by the laboratory worker, but by all who take an intelligent interest in the problems of modern medicine.

GERMANY'S FOOD PROBLEM.

In his preface to the English version of *Die deutsche Volkernahrung und der englische Aushungersplan* Dr. RUSSELL WELLS, the translator, explains that it has been issued because "it was thought that there was no better way of bringing before the English public the facts of the case as seen through German eyes." The original is the work of Professor PAUL ELTZBACHER, assisted by a committee of fifteen Berlin professors and experts, and from the eminence of its authors, as well as the fact that many of the economic measures advocated in its pages have already been enforced in Germany, it may safely be assumed that in this volume we have the official textbook on which the German Government and people are acting in their endeavour to defeat the so-called "English starvation scheme." *Germany's Food: Can it Last?*⁴ is the title of the translated version, and those who read it with care and attention will be in almost as good a position to answer this vital question as any German could have been at the time when the original was issued.

The writers assume the success of our endeavour to prevent the importation of all foodstuffs or fodder into Germany, and, by an elaborate estimate of the available resources and possibilities of increased production, as well as of diminished and reformed consumption, endeavour to demonstrate the ability of the German nation to provide for itself under war conditions for an indefinite time. The consumption of food in Germany during the two years preceding the war is taken as the basis of comparison, but is held to have been considerably in excess of physiological requirements, especially in regard to its protein constituents, where the danger of shortage is considered to be greatest. In 1912 and 1913 Germany is said to have consumed annually 2½ million tons (116 grams a man a day) of protein food. The authors believe that Germany can manage, if need be, with rather more than 1½ million tons (80 grams a man a day), of which the unrefined internal resources of the country will provide nearly all. But by adopting the suggestions of the authors, those resources can, they assert, be so

³ *Rose and Carless's Manual of Surgery for Students and Practitioners*. Revised by A. Carless, M.B., M.S. Lond., F.R.C.S. Ninth edition. University Series. London: H. K. Lewis, Tinsdale and Cox. 1914. (Demy 8vo, pp. 1428; 16 plates, 629 figures. 2s. net.)

⁴ *A Practical Textbook of Infection, Immunity, and Specific Therapy, with Special Reference to Immunologic Technique*. By John A. Kolmer. With an introduction by Allen J. Smith, with 145 illustrations, 45 in colour by Edwin P. Faber. Philadelphia and London: W. B. Saunders Company, 1915. (Roy. 8vo, pp. 829; 25s. net.)

⁴ *Germany's Food: Can it Last? Germany's Food, and England's Plan to Starve her out. A Study by German experts*. Edited by Professor Paul Eltzbacher of Berlin. English version, edited by R. Russell Wells, M.D., F.R.C. With a critical introduction by A. D. Waller, M.D., LL.D., F.R.S. London: University of London Press, 1915. (Demy 8vo, pp. 263. 2s. net.)

improved as to provide rather more than two million tons of protein food (102 grams a man a day). In calorimetric values the case appears more favourable, the ante-bellum consumption being 50.42 billion calories, the essential minimum estimated at 56.75 billion, the unreformed production 67.68, and the possible production 81.25 billion. Hence—to quote Professor Waller's introduction—"in this account given by the Berlin professors of the measures by which the so-called 'hunger war' of Great Britain against Germany can be defeated, the hypothetical conclusion is drawn that if measures of economy are adopted Germany cannot be starved out."

As a specimen of forethought, zeal, and industry the book is remarkable, but the impression left on most minds will perhaps be that it amounts to an attempt to calculate the incalculable.

NOTES ON BOOKS.

At a time like the present, when both the medical and the nursing professions are being strained to the utmost of their powers, it is obvious that a considerable proportion of the younger workers must depend more upon books and lectures for elementary teaching than upon personal tuition. Hence such works as Dr. F. J. SMITH'S little book on *Domestic Hygiene for Nurses*,² of which a second edition has recently appeared, may serve a useful purpose. The writer has evidently formed a high opinion of the intelligence of the average probationer, and to the more highly educated among them his chemical and physical definitions may appeal, but the ordinary girl who "takes up nursing" may find it difficult to form a mental conception of a molecule, and will perhaps be content to recognize boiling water when she sees it cease to bubble without troubling her head as to the nature of the physical phenomena. Apart from a tendency to overburden his teaching with explanation, the writer supplies a vast deal of useful information, dividing his work into two parts, dealing first with the chemical and physical properties of matter, heat, light, air, and water, and afterwards with the practical application of the knowledge thus imparted. The use of clothing as a regulator of body heat, the management of ventilation, and the fallacies which often lead to its mismanagement, the intelligent employment of light, and many other such matters which a nurse should know, are passed in review, and discussed in a pleasant colloquial style.

Aids to Tropical Medicine,³ by GILBERT E. BROOKE, M.A., L.R.C.P., has now reached a second edition. New chapters on three-day fever, verrauga peruviana, snake bite, disinfectants, fleas, flies, mosquitos, and rats add to the usefulness of the work. The articles are arranged alphabetically, as in the former edition. A number of mistakes to spelling have crept into the text, which is especially unfortunate in a manual primarily intended for students—*in* example, *hystolytica* is spelt "hystolittion," *Vedder's* name is spelt as "Kedder," B. G. Z. Brooke, M.A. Camb., L.R.C.P. Edin., D.P.H., F.R.G.S., etc. Second edition. Students' Aid Series, London: Baillière, Tindall, and Cox. 1915. (Fcap. 8vo, pp. 232; 31 figures. Paper 3s. net, cloth 3s. 6d. net.)

² *Domestic Hygiene for Nurses, with so much of Chemistry and Physics as are necessary to the Reasonable Understanding thereof*, by F. J. Smith, M.D., F.R.C.P. Second edition. London: J. and A. Churchill, Ltd. (Cr. 8vo, pp. 172; 20 figures. 2s. 6d. net.)
³ *Aids to Tropical Medicine*, by G. E. Brooke, M.A. Camb., L.R.C.P. Edin., D.P.H., F.R.G.S., etc. Second edition. Students' Aid Series, London: Baillière, Tindall, and Cox. 1915. (Fcap. 8vo, pp. 232; 31 figures. Paper 3s. net, cloth 3s. 6d. net.)

MEDICINAL AND DIETETIC ARTICLES.

Hydrous Wool Fat.

AMONG the various ointments of which supplies were drawn principally or entirely from Germany before the war, one was lanolin or wool fat; the latter has been in a shortage of this valuable ointment base. British manufacturers have turned their attention to supplying the deficiency, and we have received from Messrs. Corbyn, Stacey, and Co., Ltd.

(673, Commercial Road, London, E.), a sample of hydrous wool fat of their own preparation. This has the familiar light yellow appearance; the sample contained 20 per cent. of water, which is rather below the proportion given in the *British Pharmacopoeia*, and had an acid value of 7.9; the latter figure is well within the limits of the *B.P.* test, which represents an acid value of 14, although it would not have passed the much more stringent requirements of the *British Pharmacopoeia* of 1898. While it would be too much to say that the product is in all respects equal to the German article which it is to replace, it appears to be quite satisfactory for use.

MEDICAL AND SURGICAL APPLIANCES.

Needle for Muscle and Fascia.

MR. C. HAMILTON WHITEFORD (Plymouth) writes: A few years ago Messrs. Allen and Hanbury made, at my request, a needle for muscle and fascia, which I have found most useful. The needle is 4½ in., round-bodied, with a Paterson eye and a Moynilhan 5 circle curve. There are two sizes, the stouter being the more suitable for general work. The needle is used without a holder, and to any one who has not actually used it gives a suggestion of clumsiness which is apparent rather than real.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee (on August 10th) nineteen cases were considered, and £144 was granted to seventeen of the applicants. The following is a summary of the cases relieved:

Daughter, aged 56, of M.R.C.S.Eng. who practised at London, Halifax, and Manchester. Has earned a living as housekeeper until recently. Health broken down, so requires a rest. Voted £5, and referred to the Guild.

Widow, aged 62, of M.R.C.S.Eng. who died in 1887, and had practised at Ambleside. Until the war commenced she had managed to earn a living by teaching and taking in boarders, mainly from France who came to learn English. Since the war has scarcely earned anything, and is in great difficulties. Voted £10.

M.R.C.S. and P. Edin., aged 64, who practised in the Midlands. In the thirties and scarcely able to practise. Two sons who assisted in the upkeep of the house joined the army, and one has been killed and the other dangerously wounded. The applicant badly wants a short holiday. Voted £5.

Widow, aged 57, of L.R.C.P. and S. Edin. who practised at Walsall. Husband, who died in 1902, left no provision for his widow and two daughters, both of whom are training for the teaching profession. Applicant's only income is about £20 from literary work and £20 from a relative. Relieved nine times, £94. Voted £12 in twelve instalments.

Daughter, aged 65, of M.R.C.S.Eng. who practised at Liverpool. Lost all her income in consequence of an Australian bank failure. Is a confirmed invalid and practically bedridden. With the help given by the Fund and several friends applicant just manages. Relieved twice, £24. Voted £12 in twelve instalments.

Widow, aged 70, of M.R.C.S.Eng. who practised in East London. Left totally unprovided for at husband's death in 1913. Has five children, three of whom are married, and with the other two unable to help. Has a small pension from another society, and relatives help a little. Relieved twice, £24. Voted £12 in twelve instalments.

Widow, aged 66, of L.R.C.P. and S. Glas. who practised at Heaton, and died in 1899. Was left totally unprovided for at husband's death, with six children. The two eldest now married and unable to assist. One son and one daughter working, and earn 20s. per week between them. Applicant endeavours to increase her income by taking lodgers, but this is very precarious. Relieved thirteen times, £154. Voted £12 in twelve instalments.

Widow, aged 43, of L.R.C.P. and S. Glas. who practised at Flessmere Fort, and died in 1910. Applicant was left practically unprovided for with seven children, aged 5 to 19. Only certain income £45 per year, and sister helps to pay the rent. The eldest daughter hopes to obtain work soon as a teacher. Relieved three times, £36. Voted £12 in twelve instalments.

Daughter, aged 58, of M.D., M.R.C.S.Eng. who practised at Wyndham. Income was invested by a guardian who appropriated all the capital and left the applicant destitute. Only income £13 a year from a relative. Not strong enough to work. Relieved seven times, £35. Voted £5.

Daughter, aged 77, of M.R.C.S.Eng. who practised at Bungay. Only income a small annuity purchased by friend, and owing to the increased cost of food, and having recently to remove to another lodging, requires a little help. Relieved some years ago, twice, £23. Voted £5.

Widow, aged 73, of L.R.C.P. and S. Glas. who practised at Leiston. Has five children, none at present able to help. Has a pension from another charity. Relieved three times, £18. Voted £3.

Widow, aged 60, of I.S.A.Lond. who practised at Rotherhithe, and died in 1897, leaving the applicant with eight

children, seven of whom are now married, and unable to assist. The son at home does all he can, but it is not sufficient to keep both he and his mother. Applicant just recovering from a severe illness. Relieved eight times, £120, the last several years ago. Voted £5.

Daughter, aged 65, of M.R.C.S.Eng. who practised at Ford and died in 1901. Applicant left unprovided for, and, owing to ill health and age, unable to work. Only income the amount received from the Fund and the Guild. Relieved eight times, £99. Voted £12 in twelve instalments.

Widow, aged 56, of L.R.C.P. and S.Glass, who practised at Bibbo and Winchcombe, and who died in 1898. Was left with two young boys, since dead, quite unprovided for. Has derived her income from taking in boarders, but, owing to district in which she had established herself having deteriorated and the war, was unable to make the place pay. Had received the chance of a good house in the country, and wanted help for removal expenses. Granted by the Fund £10, the Guild £15, and two other societies assisted to enable the applicant to remove.

Daughter, aged 47, of M.D. St. Andrews. Has recently undergone an operation, and not yet strong enough to work. Earned a living as a school teacher, but all her savings gone in consequence of ill health during the last two years. Father unable to help, as he can scarcely keep himself owing to old age and ill health. Relieved once, £5. Voted £3 with leave to apply later in the year.

Daughter, aged 59, of M.R.C.S.Eng. who practised in Suffolk. Applicant has continual ill health, and only income derived from letting her furnished cottage and amount given by the Fund. Relieved ten times, £106. Voted £12 in twelve instalments.

Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, II, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild appeals for gifts of secondhand clothing, boots, and shoes in good condition, also household linen. The gifts should be sent to the Secretary, Royal Medical Benevolent Fund Guild, 43, Bolsover Street, W.

PROTECTIVE GOGGLES FOR WORKMEN.

MANY workmen, among them glass-blowers, puddlers, electric welders and forgers, are exposed during their labours to excessive glare and heat; others, including photographic process block makers, work near a source of light rich in violet and ultra-violet rays. Men in the first category—glass-makers and puddlers—are liable to a characteristic type of cataract; those in the second to a painful form of conjunctivitis—"ophthalmia electrica"—which seems to be identical with snow blindness. Sir William Crookes has shown by spectroscopic examination that ultra-violet rays are not emitted from the surface of molten glass, and also that α rays are absent. It is in consequence generally held that bottle-maker's cataract is caused by the infra-red rays, which are present in excess in the light from the glass furnace. Ophthalmia electrica and snow blindness are certainly caused by ultra-violet rays. These do not penetrate beyond the lens, which absorbs them, and fluoresces.

The mercury vapour lamp, and in higher degree the quartz mercury lamp, furnish a light rich in violet and ultra-violet rays, which is strongly actinic. In consequence, these lamps are occasionally chosen for process block making. This lamp is very economical in current, and has the advantage of being a diffused source of light, which in this respect approximates daylight and only throws a slight shadow. For these reasons it is used for factory lighting. The arc lamp, and especially the iron arc, is only second to the mercury lamp as regards wealth of ultra-violet radiation. In electric welding the iron carbon arc exposes the welder to the evil effect of these rays.

It is obvious that the choice of suitable goggles for a workman presents a complicated problem which must be solved by a scientific consideration of the physical characteristics of the light to which he is exposed. For some purposes we require a glass which will exclude heat and glare; for others the elimination of ultra-violet radiation is demanded. A great deal of work has been done in investigating the matter, with the object of producing glass which will effectively filter out any desired rays. Mr. Lackeisch, the physicist to the Hecla Research Laboratory of the National Lamp Works of the General Electric Company at Cleveland, Ohio, published about a year ago an account of his researches in this field. He examined

with the spectroscope various specimens of glass, using a variety of sources of light, including the iron arc. In many trades, such as electric welding, it is necessary to exclude ultra-violet rays from the eye and simultaneously to reduce the glare to a safe degree. By so doing the welder is shielded from conjunctivitis and from glare blindness, which, typically in "eclipse blindness," is characterized by a positive central scotoma—scotoma heliclipticum. As a general solution of this problem, Lackeisch proposes to combine a yellow-green glass totally absorbing ultra-violet rays with a shade of smoked neutral glass sufficiently dense to reduce the brilliancy of the light to a safe degree. Euphos glass has a great reputation as an ultra-violet filter, and was used by Shackleton and Amundsen in their Antarctic expeditions. Lackeisch found that euphos glass transmitted a large amount of ultra-violet rays. Amber glass is an effective filter of these radiations, but it modifies colour perception to such an extent that men who have to temper steel by quenching when it exhibits a certain hue are deceived, and are therefore unable to wear this glass. Lackeisch found that a glass called "Akopos" was the most satisfactory specimen that he examined—a greenish-yellow glass, it absorbs ultra-violet rays almost completely, and, combined with neutral glass, is eminently suitable for welders and temperers. We have, however, tried in vain to obtain a specimen of akopos for the use of a cinema operator who suffered from glare conjunctivitis, although application was made to the largest firm in America. Akopos seems to be a scientific curiosity.

Fortunately the researches of Sir William Crookes have given us a glass which is very satisfactory as a filter of noxious light. He conducted a series of laborious experiments primarily, we believe, to discover a glass which would prevent bottle-makers' cataract, by absorbing the infra-red rays. His work is published in *The Philosophical Transactions*, vol. 214, Series A, 1914. In order to examine the question of heat absorption, he passed the light through a plate of biolite and received the heat rays upon a special thermometer and a radiometer balance. The metals—cerium, chromium, cobalt, copper, iron, lead, manganese, neodymium, nickel, praseodymium, and uranium—were in turn incorporated with a soda flux, and the resulting glass examined. Cerium was found to be valuable, affording a colourless glass with a high power of absorbing ultra violet rays. Ultimately a series of glasses were obtained whose characteristics were classified under the heads: Infra-red absorbing power, impermeability to ultra-violet rays, and power of light transmission. From these specimens it ought to be possible to choose a glass suitable for any form of goggles. Science has solved the problem, but it seems that hitherto, as has so often happened in other instances, the product of science seems to have been rendered of little practical utility by commercialism. Only two types of the Crookes's glass are manufactured. So far as we have been able to ascertain practically the whole output of an English firm which utilizes the formula of a British scientist has been secured by an American company, which controls the output, places it in the hands of the wholesale optical trade, which in turn hands it to the retailers.

However this may be, the actual position in this country is to-day, or was very recently, that the final price of Crookes's glass is so high that it is not used for goggles for workmen. A second even more vital objection is that neither variety is nearly dark enough for most of the trades which demand goggles. A double glass would be necessary—a neutral to exclude glare, and a Crookes's to absorb the ultra-violet rays. The ordinary blue or neutral glasses used in most factories are made in France, and cost eightpence a pair. A goggle made of Crookes's glass with a neutral glass mounted in the same frame would cost about eight shillings. These spectacles do not last long; in electric welding they are rapidly covered with metal particles, which appear on both sides of the glass—in fact, they bombard a glass used behind them. It is quite obvious that a satisfactory goggle can be produced, but that it is not "a commercial proposition." The labours of Sir William Crookes, which might have conferred benefit upon thousands of workmen, have only produced a glass which is useful for those like draughtsmen, who work long hours by electric light, and can afford to buy spectacles which exclude ultra-violet rays.

British Medical Journal.

SATURDAY, AUGUST 28TH 1915.

THE MENTALITY OF THE KAISER.

A QUESTION much debated at the present time is the mentality of the Kaiser. There are some who have won the right to be regarded as authorities of the mind who have not hesitated to express the opinion that he is definitely insane. This is not a novel view. Long ago a German scholar discovered many points of resemblance between him and Caligula; and in the *North American Review* for October, 1904, the well-known psychologist, Dr. McLane Hamilton, wrote that in the history of the Hohenzollerns "it is not difficult to find a distinct insane trace which in times more remote found expression in cruelty, oppression, and unmistakable insanity of other kinds, or in recent times by a mental degeneration which is strikingly exemplified in the present German Sovereign." "His childhood and youth," it is added, "were characterized by peculiarities of conduct that may safely be said to be psychopathic, while his early manhood was punctuated with frequent instances of decidedly insane behaviour which have become more conspicuous and continuous." In a further article which appeared in the same *Review* for June of the present year Dr. McLane Hamilton repeats the opinion expressed in his previous paper, and declares the Kaiser to be "a menace to the world, for the reason that he not only has shown the exceedingly bad judgement that belongs to those who are mentally inferior, but has delusive ideas of grandeur and consequent power of persecution and conspiracy." His enmity towards England is said to be especially unbounded and morbid. Dr. Hamilton concludes with the following prophecy: "In these civilized days theatrical display and the warlike methods of Attila, 'the scourge of God,' may for a time succeed, but when a madman directs the conduct of war, it can only end in defeat."

Another distinguished American psychologist, Dr. Morton Prince, has devoted a book to a study of the sentiments and obsessions of the Kaiser.¹ He finds the secret of his psychosis in a fear of democracy because of the danger with which it threatens himself and his house. This, he says, is a subconscious phobia that "induces a defence reaction of an intensely emotional character, which aims to direct his activities in a direction that will protect him against the danger of democracy." For this he relies upon his soldiers, whom upon a famous occasion he called upon to be prepared at his command to shoot down their parents and brothers in the street.

Elsewhere in this issue of the *BRITISH MEDICAL JOURNAL* there appears a review of a history of the Hohenzollerns by Dr. Cabanès, one of the subtitles of which is "A Dynasty of Degenerates." In presenting this work to the Académie de Médecine, Professor Landouzy, dean of the Paris Faculty, expressed a strong conviction that the Kaiser is suffering from the mental degeneracy which is the fate of men invested with sovereign power, whose will no man disputes and no law controls.

For our own part we feel that we are not in a position to express so positive an opinion on the mental state of the German Emperor. Although the literature that has gathered about his name would form a considerable library, we place little reliance on the gossip of courtiers, which is either flattery inspired by flunkeyism or malicious misjudgement. The facts are too few to warrant a definite verdict on the mentality of the Kaiser, and such information as we have comes from doubtful or tainted sources. But there is enough in his megalomaniac proclamations about his "destructive sword," and his alliance with the "old God" of the Prussians, to justify us in pronouncing him a man of abnormal mind. History, which has been described as philosophy teaching by examples, shows the effects of the "degeneration of the neurone" in the members of families of what Othello calls "men of royal siege"; this is illustrated by the decadence of the Caesars. We do not altogether agree with Dr. Cabanès in regarding the Hohenzollerns as a "dynasty of degenerates." Although there have been among them remarkable instances of eccentricity and even distinct mental aberration, there have, on the other hand, been examples, such as William I and Frederick III, of perfect sanity, though neither exhibited any conspicuous intellectual power.

William II has a superficial brilliancy which was entirely lacking in his two immediate predecessors, but his pretensions to universal knowledge and especially to artistic skill, have made him a laughing stock among his own countrymen. A picture which he called "The Yellow Peril," and which he sent to the Czar at the beginning of the war in the Far East, is said to be suggestive of insane art. He has excited the indignation of the sculptors and architects of Germany by tampering with their designs and plans. But such eccentricities do not justify us in calling a man insane. All that can be said is that in the Kaiser are exhibited some of the evil consequences of unrestrained power wielded by hands incapable of guarding the forces which the doctrine of "the right divine of kings to govern wrong" has by the accident of an accident placed in them. Human nature at its best cannot resist the demoralizing effect of absolute power; and a man of mediocre intellect necessarily falls a prey to exaggerated ambition when his own conceit and the intoxicating incense of a nation which bows the knee before him makes him fancy himself a demigod. Never before in the world's history has the truth of the words of Horace, *Quidquid delirant reges plectuntur Achivi* received a more terrible proof than in the present war. But it is one of the miseries of our human lot that the madness of kings which sends millions of men to death for the gratification of their lust of dominion does not come within the category of certifiable insanity.

RESEARCH IN ANTISEPTICS.

IN an article published under this heading a fortnight ago (p. 261) the results of the research into the antiseptic action of hypochlorous acid and its application to the treatment of wounds, conducted by Professor Lorrain Smith and his colleagues in Edinburgh, were briefly reviewed, and some account was given of a similar research carried out by Dr. H. D. Dakin of the Herter Laboratory, New York, who has been working in the laboratories supported by the Rockefeller Institute in connexion with the French Military Hospital at Compiègne, to which Dr. Carrel is surgeon. We are glad now to have the opportunity

¹ *The Psychology of the Kaiser*, By Morton Prince, LL.D. 2s. 6d. net. Fisher Cowin.

of publishing (at p. 318) a paper written for this JOURNAL by Dr. H. D. Dakin on the use of certain antiseptic substances in the treatment of infected wounds. It will be read with great interest, not only because it contains a full account of the method of preparation and use of the hypochlorite solution described, but also because it gives an indication of the direction in which antiseptics still more efficient and convenient may be sought.

When a solution of a hypochlorite, or free hypochlorous acid, acts upon organic substances containing the $-NH$ group, the first reaction almost always consists in the replacement of hydrogen by chlorine with the formation of substances of the group known as chloramines. Dr. Dakin considers that the antiseptic action of hypochlorites depends upon reactions of this kind. Proteins, such as blood serum, egg white, and casein, when treated with hypochlorites give products of high antiseptic value, and there seems to be no doubt that compounds of this type are formed in wounds treated with hypochlorites. In this way a certain antiseptic action may be expected to persist even after the free hypochlorite has disappeared.

The general considerations indicated above led to the conclusion that it would be well worth while to examine different varieties of the large group of chloramines, and in this work Dr. Dakin has had the co-operation of Professor J. B. Cohen, of the University of Leeds. Certain aromatic chloramines which form soluble sodium salts have already given most encouraging clinical results. It has been ascertained that both benzene-sodium-sulphochloramide and paratoluene-sodium-sulphochloramide are extremely powerful antiseptics. They are practically non-irritating, and can be used in much higher concentration than the hypochlorites. They are relatively easily prepared at low cost and have the advantage of being stable solids. In general their action is similar to that of hypochlorites, but more powerfully antiseptic. The molecular concentration of paratoluene-sodium-sulphochloramide necessary to kill staphylococci in the presence of serum is only about one-fifth of the correspondingly active molecular concentration of sodium hypochlorite. The number of cases thus far treated with these chloramide antiseptics is smaller than those treated with the hypochlorite mixture, but excellent results have, Dr. Dakin states, been obtained in a number of badly infected wounds.

As a practical point, it may be interesting to add that Dr. Carrel is, we learn, using a simple device for introducing hypochlorite solution or other solutions into the depth of a wound. It is not applicable to suppurating wounds, but it has been found very advantageous in wounds that have not become infected or have been efficiently sterilized; if supuration occurs the use of the appliance must at once be abandoned. It consists of a length of about eight inches of red rubber tubing of small calibre (about one-eighth of an inch internal diameter); one end is closed by a thread, and in its neighbourhood for about two or three inches small apertures are cut. The tube is then surrounded by a single layer of bath towelling four or five inches in length, which is firmly attached to the lower end, and stitched around the tube so as to form a sheath. The tube with its covering is inserted into the depth of the wound, and the solution is introduced (every two hours by day and two or three times during the night) into the wound through a syringe inserted into the free end of the tube. A considerable number of tubes may be used if necessary. The results of this treatment have, we are informed, been very satisfactory in suitable cases.

PAUL EHRLICH.

By the death of Professor Ehrlich Germany loses her most distinguished man of science, and the science of chemotherapy its founder and most able exponent. Professor Ehrlich was trained, some forty years ago, to be a medical practitioner, but, although he served for seven years as chief assistant at the Berlin clinic of Professor Frerichs, it had been apparent from the outset of his career that his natural bent was towards chemistry, and particularly towards the chemistry of the processes of life, rather than towards the practice of medicine. Even in his schoolboy days he appears to have been engaged in speculations as to the importance of oxidation in the animal body. The subject proposed for his leaving essay when he was in the highest class at the Breslau Magdaleneum was "Life considered as a dream." We are told that his essay described life and mental activity as normal processes of oxidation, and dreams as the results of a peculiar oxidation causing phosphorescence of the brain. Naturally such an essay was returned with the mark "non satis"; the idea that underlay it, however, was sound, and found a fuller and more reasonable expression in his book on the oxygen requirement of the organism, published in 1885. During his university days at Strassburg, where he first took up the study of medicine, he investigated the distribution of the metal lead in the various organs of patients with lead poisoning, employing fuchsin as a staining reagent for the purpose.

Ehrlich's admirers are apt to divide his life-work into four epochs, in accordance with the main problems he set himself to solve. According to this scheme, the first period was occupied with studies in the chemistry of dyeing animal tissues with aniline colours. In the second period, from 1890 to 1899, he was investigating toxins, antitoxins, and the chemistry of immunity to infectious diseases, making great use of his well-known side-chain theory. The third period, from 1899 to 1906, was occupied with the study of haemolysins and malignant disease in rats and mice; in the former he developed the theory of amboceptors with which the side-chain theory was completed. This work, through Bordet and Gengou's previous study of antibodies, led to the discovery of Wassermann's reaction for the diagnosis of syphilitic infection.

From 1906 onwards Ehrlich was occupied with the study of systematic chemotherapy, a science he misnamed "chemotherapy." This, the fourth epoch of his scientific activity, began with the investigation of the action of trypan-red, a highly complex polyazo-dye-stuff, in the cure of trypanosomiasis in the lower animals. This led him on to study the organic compounds of phosphorus, antimony, and arsenic, elements chemically related to the nitrogen to which he attributed much of the curative action of trypan-red. These investigations led, as is well known, to the discovery of salvarsan, or "606," in 1910, neo-salvarsan, or "914," in 1912, and sodium-salvarsan, or "1206a," in 1913.¹ The whole of his work during the last five-and-twenty years may be regarded as based on the leading idea that chemical substances, such as foods, drugs or poisons, only act as such after they have become fixed by chemical union to the cells or protoplasm upon which their specific action is to be exerted. This notion he sententiously summed up in the thesis, *Corpora non agunt nisi fixata*, "Substances act only when combined." His side-chain theory and theory of amboceptors really do nothing more than afford mechanical illustrations or analogues whereby this thesis may be

brought home more vividly to the mind. His hope was that these theories would help in the first steps of the solution of the problem of the constitution of protoplasm. They have left a profound impress upon the recent literature of experimental pathology, using the term in its widest sense.

Nature intended Professor Ehrlich to be a biological chemist. He was always a hard worker, and, as a list of his published works shows, his literary output was enormous. An excellent example of his style will be found in the address in pathology he delivered at the XVIIth International Congress of Medicine, held in London two years ago, printed in the *BRITISH MEDICAL JOURNAL*, 1913, ii, 353.

In this country he has often been reproached, particularly by men of science of the older school, with an undue fondness for speculation and hypothesis. His side-chain theory, too, has been severely criticized as a childish attempt to give mechanical representations of chemical relationships that are too complex for any such method of depiction. Yet his speculations, like his work, should be judged by their results in the last instance, and not by *a priori* considerations as to their value or rationality. We believe it to be generally admitted that his conceptions of the actions and relationships of toxins and antitoxins, fanciful as they may have seemed at first, have proved very useful, and, more important still, have inspired and directed a vast amount of experimental pathological and clinical investigation during the last ten or fifteen years. The great scope and value of the fundamental researches resulting in the discovery of salvarsan and its successors, discoveries due to design and not to accident, are self-evident; the inception of the methods of experimental chemotherapy and their execution have both been due to Ehrlich. As a hard worker constantly in touch with the realities of experiment in the laboratory, he was able to check the indications of his many theories by the results of his own experiments and those of his many collaborators. His was an original mind, and he had the common sense to see that theory and practice should go hand in hand. The loss which science has suffered by his death is great. It is notorious that in Germany the professors are servants of the State, and therefore political propagandists at need. Ehrlich was no exception to the rule, and accordingly subscribed his name a few months ago to a notorious declaration of faith made by ninety-three German men of science. The fact is an unfortunate illustration of the intellectual prostitution to which a rigorous system of State service leads.

THE WAR EMERGENCY.

At the meeting of the War Emergency Committee on August 25th it was reported that it had recently been brought to the notice of the Scottish Emergency Committee that statements were in circulation which seriously interfered with the success of the effort to provide the necessary medical men for the army. The Convener, therefore, at the request of the Committee, wrote to the Director-General detailing the statements which were being made, and asking an official reply which could be used to controvert them. The statements were that the needs of the Army Medical Department were exaggerated, that the War Office had already as many medical men as were required, and that offers of service had been declined. The reply authorized by the Director-General may be summarized as follows: To outfit the new armies and to supply reinforcements for six months, it is estimated that at least 2,500 more medical men of military age (that is, under forty) will be required. During the last six months temporary commissions have been granted in

every case where the applicant was prepared to fulfil all the conditions of the contract for service. In some cases where the offer of service was accompanied by restrictive conditions it was not possible to accept it. No official in the medical branch of the War Office has ever told any one that more medical men are not required. Indeed, it has been found necessary to make special provision to bring medical men from Canada, Australia, and New Zealand. It is specially incumbent on every young doctor who is physically fit to offer himself for military service. All will be needed, and practically all will have an opportunity of serving with the troops overseas. The duty of the older men is to set free the younger men by arranging to carry on their practices for them in their absence, or by engaging for home service. Any medical man preventing or dissuading his colleagues from assisting the medical service of the army during the war is doing a serious disservice to the empire. These being the facts, the Committee feels confident that now that all doubts as to the needs are cleared away, the response from every part of the country will be such as the country expects. The question of the representation of Ireland was considered, and it was resolved to recommend that a War Emergency Committee should be formed in Ireland on the same lines as the Scottish War Emergency Committee, and that it should nominate a member to be co-opted on the Central War Emergency Committee. The Committee resolved to ask the Director-General to instruct the Deputy and Assistant Directors of Medical Services not to accept or retain for work in military hospitals at home medical practitioners of military age who are physically fit, but to encourage them to accept commissions in the R.A.M.C. The Committee also resolved to call the attention of the governing bodies of civil hospitals to the importance of relieving from their hospital duties those junior members of their resident and consulting staffs eligible for commissions in the R.A.M.C., and to communicate with the British Hospitals Association to the same effect.

ENDOWMENT OF A LECTURESHIP IN PATHOLOGY AT GUY'S HOSPITAL.

The trustees and executors of the will of the late Sir William Dunn, Bt., an Alderman of the City of London, have handed to the Governors for, and on behalf of, Guy's Hospital Medical School £25,000 new War Loan $4\frac{1}{2}$ per cent. fully-paid stock for the purpose of endowing a lectureship in pathology in the medical school, to be called the Sir William Dunn Lectureship in Pathology. Rather more than two years ago Mr. A. J. Balfour opened the new buildings of the Medical School of Guy's Hospital. The new buildings consist of three main blocks. In the first accommodation is provided for the departments of physiology, chemistry, and physics, and include the Willis Library, the Gordon Museum, and administrative offices. The second block—a building of five stories—is occupied by the departments of pathology and pharmacology. The whole of this building is devoted to teaching and research, the routine pathological work of the hospital being carried on by other workers in a separate laboratory at the expense of the hospital. The third part of the new buildings affords accommodation for the dental school. In addition, the old department of anatomy was rebuilt and extended to provide for the teaching of operative surgery, and the department of biology was enlarged and refitted. The whole work of rebuilding and extension occupied many years, and has cost approximately £100,000. Of this sum, a great part had already been subscribed by the generosity of the Governors and other friends of the school at the time of Mr. Balfour's visit. In appealing for further subscriptions in order to extinguish the debt upon the school buildings and to provide endowment for the school, Mr. Balfour expressed his conviction that a sum of £200,000, which was needed to complete all the improvements desired, would ultimately be obtained. We

learn from the report of the Dean for 1914-15 that Mr. Balfour's appeal has so far met with an encouraging response, and the result has convinced the school that it has been wise in boldly undertaking the heavy expenditure now necessary to support an efficient school of medicine. Last year subscriptions to the amount of £16,800 were received and devoted to the extinction of the debt upon the buildings, and during the present year a further sum of £5,600 has been received for the same purpose. The bequests made to the school during the year include a legacy by the late Mr. Targett, at the time of his death lecturer on midwifery and diseases of women, the income from which fund is to be devoted to the expenses of upkeep in the pathological department; and an anonymous donation of £500 to the Medical School Research Fund. The Medical School of Guy's Hospital believes that the separation of its finances from those of the hospital, as demanded by the King Edward's Hospital Fund for London, has been a distinct advantage. It has removed from the minds of generous donors any confusion that may have existed as to the respective parts played by the hospital and by the Medical School, and has thus assisted them to recognize the paramount importance of providing buildings, equipment and staff, for the teaching of medicine and for the progress of research.

THE WHITE MAN IN THE TROPICS.

ALTHOUGH there are many who still deny that the white man can ever establish himself permanently in the tropics, Sir Patrick Manson believes that successful colonization in hot climates is a matter of acquisition of knowledge as to the conditions of healthy life and of the practical application of that knowledge. The problem is largely one of the discovery of efficient means of protection against the many microscopic enemies which almost seem to resent the invasion of the tropics by the white man. The poisons injected by these organisms vary in their nature and composition, but to all of them in general may be applied almost literally the description of the "Iperous distilment" poured into the ears of Hamlet's father:

whose effect
Holds such an enmity with blood of man,
That swift as quicksilver it courses through
The natural gates and alleys of the body,
And with a sudden vigour it doth posset
And curd, like eager droppings into milk,
The thin and wholesome blood.

Less than a quarter of a century ago no systematic attempt was made to fight these scourges, and men went to the tropics in a fatalistic spirit that led them to gamble their lives against the too likely chance of disease and death. Now all this is changed, and many vigorous campaigns are being conducted for the sanitary reclamation of the tropics. Already much has been done, notably in the prevention of malaria, a disease which has made waste some of the fairest and most fertile parts of the earth, and which has caused the ruin of flourishing states. Of its devastating effects the most terrible example is seen in the decay of ancient Greece. We need only recall here the chief triumphs of modern science in the domain of tropical medicine. The most conspicuous of these has been the banishment of yellow fever from Havana, and the sanitary cleansing of Panama where yellow fever, malaria, dysentery, and other diseases had defeated the enterprise and skill of the French engineers, who would doubtless, but for these scourges, have succeeded in making a canal through the isthmus. The French effort was baffled by the conditions which at that time made the Panama zone a most active breeding ground of the germs of tropical disease: That the Americans succeeded where the French failed is due to the progress of medical science and the application of the knowledge gained by research under the direction of General William C. Gorgas, a man who combines in a rare degree scientific resourcefulness with the power of organizing victory as a leader of men. It is with much

gratification, therefore, that we see from a report of an address delivered by him in Cincinnati, which appears in the *Boston Medical and Surgical Journal* of August 5th, that he shares the view we have often expressed as to the possibility of the white man establishing himself in the tropics. His opinion carries such weight that we quote it in full: "The real scope of tropical sanitation, which has been almost entirely developed within the last fifteen or twenty years, I believe, will extend far beyond our work at Panama. Everywhere in the tropics, to which the United States has gone in the past fifteen years, it has been shown that the white man can live and exist in good health. This has occurred in the Philippines, in Cuba, and in Panama, but the demonstration has been most prominent and spectacular at Panama, and therefore has attracted there the greatest world-wide attention. Here among our large force of labourers we had for ten years some ten thousand Americans—men, women, and children. Most of these American men did hard manual labour, exposed to the sun, rain and weather conditions day in and day out, yet during that time their health remained perfectly good, just as good as if they were working at home. The same remark as to health would apply to the four thousand women and children who lived at Panama with their husbands and fathers. Both the women and children remained in as good condition as they would have been had they lived in the United States. This condition at Panama, I think, will be generally received as a demonstration that the white man can live and thrive in the tropics. The amount of wealth which can be produced in the tropics for a given amount of labour is so much larger than that which can be produced in the temperate zone by the same amount of labour that the attraction for the white man to emigrate to the tropics will be very great, when it is appreciated that he can be made safe as to his health conditions at a small expense. When the great valleys of the Amazon and of the Congo are occupied by a white population more food will be produced in these regions than is now produced in all the rest of the inhabited world."

DEFECTIVE ADMINISTRATION OF THE SERVICE FOR THE FRENCH WOUNDED.

THE debate in the French Chamber on the military medical administration was resumed on August 20th, when the reply of the Minister of War, M. Millerand, was heard. Before this, however, Dr. Navarre resumed his interrupted speech, and criticized in particular the organization of the service of hospital trains and motor ambulances. Dr. Boussenet, who had served for six months in the medical department at the front, complained that the motor ambulances were not directly under the control of the medical authorities, and hinted that of the 480 motor ambulances now supplied not all were properly utilized, owing to a failure to co-ordinate the needs at the front with those at the base. He complained also that the services of surgeons with operating experience were wanted. Another speaker, M. Fernand Merlin, said that the medical service was too much in the hands of officials, and that the proper work of physicians and surgeons was interfered with. M. Millerand made a vigorous defence, but was frequently interrupted. He said that the war broke out at a time when the medical service was being transformed, but asserted that the difficulties thus created had now been overcome. One hundred and ten hospital trains had, he said, been organized since August, 1914, and every army corps had 45 motor ambulances; altogether the medical service had from 1,800 to 1,900 motor vehicles. At the outbreak of war only about one-tenth of the 15,000 medical officers necessary were immediately available, but the distribution of the medical and surgical personnel had now been reorganized, so that the allocation of individuals according to their particular personal experience had been greatly improved. We may

recall at this point that three new Under Secretaries of State for War have recently been appointed: one of these—M. Godart—is Under Secretary for Health, that is to say, for medical administration, and M. Millerand took credit for having, at the suggestion of the new Under Secretary, displaced the medical director, who has been placed in charge of medical stores. M. Godart did not consider that both an under secretary and a director were needed. While we do not presume to say whether in the particular circumstances this was or was not a wise course, we are confident that the principle is wrong. The true principle is the autonomy of the medical service within its own sphere. The less non-medical Ministers responsible to Parliament meddle with professional details the better will it be for the health of the army, for the wounded man, and for the efficiency of the medical service. The debate was not concluded, and it was arranged that, for the first time for forty-four years, the Chamber should meet *in camera*. So far as the whole incident is a political attack upon M. Millerand and the Ministry of War it is not a subject for comment here, but, as we have indicated, there is a principle involved for which we had to fight hard in this country. The result of according proper recognition and proper authority to medical officers has been, as this war has shown, most happy, and we venture to think that the example of this country may be worthy of the study of our neighbours at this time.

A PUFF IN A PENCIL.

It is a characteristic of that common type of humanity which Renan called *l'homme sensuel moyen* that he finds a subtle pleasure in getting something for nothing. To this instinct the commercial tout directs his dainty devices with a success which encourages him to fresh efforts of invention. Doctors are favourite objects of this variety of the piscatorial art, and, till experience makes them wary, their innocence is often apt to be led astray. Could anything be less free from any appearance of guile than the harmless necessary pencil which nearly all of us keep in constant use? And as there is no article more easily lost or mislaid, is it not pleasant that so indispensable an instrument should come to us, as it were, from the skies? especially when it is "unique," and sent to us by benevolent persons who say "it has been specially produced to our design by the first makers in the country." And when we are further assured that "the stones of the seals are particularly beautiful by reason of their deep faceting, brilliancy, and rich colouring, but the durability of the pencil is its chief point," who in the first glory of possession of such a gem of art but must feel a glow of satisfaction that his profession, which brings him so little remuneration in the ordinary way, should be the means of procuring him such gifts? But alas!

Medio de fonte leporum
Surgit amari aliquid.

On reading the letter accompanying the offer we find that the gift is not a token of gratitude for services rendered or a recognition of our general social merits, but a shrewd anticipation of favours to come. The "unique" pencil is, in fact, intended as a lure to induce the practitioner to order a "delicate leaf edge-tea," which is declared to be free from the evil effects on the digestion of other teas. It is almost needless to add that a sample of the tea is offered, and, to make things easy for the busiest doctor—if it be assumed to be possible that there is any such unacquainted with its virtues—a "request form" is enclosed. We had occasion some years ago (BRITISH MEDICAL JOURNAL, July 15th, 1907, page 106) to refer to another form of puffing its wares adopted by the firm which offers the "unique" pencil now dangled before the eyes of the profession. We said then that

commercial enterprise might, when not dishonest, be allowed the use of methods of advertising which are forbidden to members of a profession. The vendors of any special brand of tea which they may believe to be superior to others have a right to say so. But we do not think they are wise to try to induce doctors by the bait of gifts to help them in pushing their goods. We say, further, that any doctor who allows himself by the gift of a pencil case, however "unique," to be made to figure as a tout for a tea company will have only himself to thank should suspicion be aroused in the mind of an uncharitable public.

CHOLERA IN CENTRAL EUROPE.

A QUARANTINE notice issued from Lloyds on August 24th quotes a Foreign Office statement that cholera is reported to be prevalent at numerous districts in Germany, and also in Riga and Petrograd. In Germany, Reuter reports that the disease is most severe in Silesia, but has also occurred in the districts of Wiesbaden, Berlin, Breslau, and Frankfort. The statistics published in the monthly *Bulletin* for July of the Office Internationale d'Hygiène Publique indicates that the disease has been in existence both in Austria and in Hungary for the last year at least. The returns for the period from September 23rd to December 26th, 1914, showed 3,633 cases and 932 deaths in Austria. During the period from December 27th, 1914, to June 12th, 1915, there were in Galicia 389 cases and 104 deaths, in Silesia 366 cases and 58 deaths, in Croatia 774 cases and 263 deaths, and in Bosnia-Herzegovina 360 cases with 145 deaths. In Hungary, from January 11th to June 13th, 782 cases with 282 deaths were recorded; but Reuter's representative, telegraphing from Zurich on August 23rd, states that 565 cases with 310 deaths occurred between August 2nd and 8th.

ADVERTISEMENTS, which seemed to convey the sanction and approval of the St. John Ambulance Association, of a secret remedy named Phosferine, appeared last week in several newspapers. The attention of the St. John Ambulance Association was called to the matter. Action was immediately taken, and the St. John Ambulance Association has, we are informed, received an assurance that the advertisement will be withdrawn.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE WEEK'S SUBSCRIPTIONS.

THE following additional subscriptions to the Fund have been received by Dr. Des Voeux:

Thirty-eight List.

G. H. K.	£ s. d.	Channel Islands Divi-	£ s. d.
Dr. Barrs (collected by)—	1 0 0	sion, B.M.A. (per Dr.	
Dr. Taylor	0 10 6	Hon. Sec.)—	
Dr. Sykes	1 1 0	H. Draper Bishop,	
Mr. S. W. Daw	2 2 0	Dr. Carruthers	0 5 0
Dr. Gordon Black	1 1 0	Dr. Bishop	0 10 0
Dr. Teusset	1 1 0	Dr. Wallace	0 5 0
Dr. Moorhouse	1 1 0	Dr. Bullock	0 10 0
Dr. Thomas	0 10 0	Dr. Gibson	0 5 0
Dr. S. M. Salaman	1 0 0	Dr. Bisson	0 5 0
		Dr. Bostock	0 5 0

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE General Council of the Rhône has voted a sum of £2,000 for the fitting up of large departmental buildings at Alix for use as a hospital for tuberculous soldiers. The sanatorium is in a hilly region amid pinewoods which have never felt the touch of the axe. It will receive men who have become tuberculous during the war and within six months of its cessation.

THE WAR.

WAR HOSPITALS IN DEVON.

VOLUNTARY AID ORGANIZATION.

Information which has reached us during the last few years as to the work of the Voluntary Aid Organization in Devonshire, and during the last few months as to its work in the present emergency, produced the impression that it was being very well done, and it therefore seemed desirable to get some first hand information on the spot.

We may say at once that the results are very remarkable, and that if they are equalled or approached in excellence elsewhere, it can only have been through a similar combination of foresight and executive ability.

The story is all the more interesting because it is an example of women's work and is an achievement of which all women may well be proud. The county director is Mr. J. S. C. Davis, but he has wisely left by far the greater part of the work to the deputy county director, Miss Buller, daughter of the late Sir Redvers Buller, and her staff officer, Miss Davy, daughter of Dr. Henry Davy of Exeter. They have been ably assisted in the organization of the movement and in administration by many willing workers. The following are the departments of the head quarters staff, with the officers in charge:

Quartermaster-General's Department and Accommodation of Nurses: Mrs. Mortimer, Miss Templeton, Miss Wallis.

Census-ariat: Mrs. Phillpotts, Miss Kay, Miss Hare.

Medical and Surgical Stores: Miss Thomas, Miss Dalzell, Miss Walsh.

Hospital Personnel and Reserve: Miss Jepson.

Hospitals Registry, Furloughs, etc.: Miss Newlyn, Miss de la Pasture.

Convalescents' Central Registry: Miss Kirk, Miss Threlkell.

Stationery Department: Mr. W. F. Robinson, Miss Bailey.

Inquiry Department: Miss Campbell, Miss Kennell.

Clothing Store: Miss Dave.

Finance Department: Mr. J. Ellett Lake, Mr. J. Campbell.

Central Registry: Mr. H. Lammcraft.

Transport Officer: Mr. J. Bart.

other centres in the county hospitals with varying numbers of beds have been provided. In addition there are many convalescent houses; the number in use is governed by the demand, the arrangements being such that any of the homes can be opened to meet a demand and closed when it has ceased.

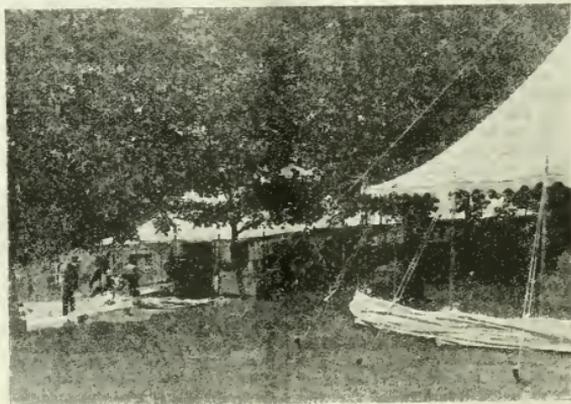
The provision of some 1,400 beds fully equipped and officered and their maintenance in a constant state of efficiency is a very striking result to be achieved wholly by voluntary effort, and its remarkable character is not diminished when it is remembered that the county has within its boundaries the 4th Southern General Hospital (Territorial) at Plymouth, and has contributed from among its civilian medical practitioners its share, and perhaps more than its share, in response to the call of the army for medical officers.

The success has been in large measure due to the foresight which led Devonshire women to organize in pence. As became a county which, since the days of Elizabeth, has always been among the foremost in the defence of these realms, Devon responded to an appeal of Queen Alexandra to women in 1905 by establishing a branch of the British Red Cross Society. This was formed in 1907; precision was given to the movement by the promulgation, two years later, of the War Office scheme for Voluntary Aid Associations, whose primary duty it was to supplement the medical service of the Territorial Force in case of invasion. The scheme proposed separate detachments for men and for women, and circumstances, at any rate in Devon, have caused most of the work to be done by women, although a necessary and important element in the scheme is the provision by the men's detachments of an efficient transport section for stretcher bearing, escort duty, etc.

One secret of the success attained is that it was recognized some years ago that a central staff was necessary to co-ordinate the work of the Voluntary Aid Detachments in the county. A head quarters staff was accordingly established in Exeter, and when the war broke out the machinery was



The Episcopal Modern School for Girls, in which No. II Military Hospital (V.A.) Exeter, is established.



No. II Military Hospital (V.A.) Exeter: The marquees in the grounds.

The co-ordination of all these departments is in the hands of the deputy county director and her staff officer.

Briefly stated, the result of the work in Devon is that 1,394 beds have been provided for wounded and sick in the county. In Exeter itself there are five temporary hospitals and at Torquay a hospital with 100 beds in the town hall and 25 for slighter cases in a private house. In sixteen

ready and all that was necessary so far as head quarters work was concerned, was to enlist more women workers. One conspicuous advantage of this county centralization of Voluntary Aid Organization is that it greatly simplifies administrative work, since all communications with the army medical authorities go through the Voluntary Aid Organization head quarters at

Exeter. Each Voluntary Aid hospital in the county is responsible to Voluntary Aid head quarters in Exeter, which in turn is responsible to the A.D.M.S. Plymouth. The Voluntary Aid head quarters also has charge of the allotment of men leaving hospital to convalescent homes when necessary, and is responsible, under this heading, for the placing of some eighty convalescents a week.

The Voluntary Aid Organization since the outbreak of war has been concerned with the care of wounded and

sick men from the front, who are sent direct from the port of disembarkation to a hospital in Exeter or elsewhere in Devon. The Voluntary Aid head quarters receives information daily as to the number of beds vacant in each hospital; it serves, therefore, as a clearing office both in and out. Here records are kept, the nursing and Voluntary Aid personnel maintained, and through it all stores and appliances are supplied. The whole machinery is working smoothly and efficiently. It appears that the success with which



No. II Military Hospital (V.A.), Exeter: One of the marquees.

the scheme is working is in large measure due to the untiring zeal and energy of the head quarters staff, and more particularly to the very unusual organizing ability possessed by the staff officer.

The magnitude of the work may be gauged by the fact that in Exeter alone 570 beds—more than the establishment of a military general hospital—have been provided in hospitals well equipped and officered without disturbing the work of the civilian county hospital further than that it has been asked, and has consented, to set aside a certain number of beds for ophthalmic cases, so that the Eye Infirmary in Exeter may be free to devote all its space to military cases.

There are five military hospitals in Exeter, as follows:

No. I. The West of England Eye Infirmary.

No. II. In the Episcopal Modern School for Girls.

No. III. In the Children's Home, lent by the Exeter Guardians.

No. IV. A small hospital (32 beds) at Topsham Barracks for troops quartered there.

No. V. In the Women's Hostel and Congregational Church Schools near the Castle.

Nos. I, II, III, and V are independent units as far as the medical and nursing arrangements are concerned, but in administrative respects are practically sections of one hospital, with 535 beds, having a central office administration at head quarters.

Since last October, when the first hospitals were mobilized, to the middle of August, in round numbers 3,500 have been treated in them. The great majority have been sick or wounded from the British forces in France or the Dardanelles, and nearly all have been admitted direct from the place of disembarkation, usually Southampton. The hospitals have also received a certain number of men from the forces at home, including cases requiring operation, amongst the local troops in Exeter and the surrounding districts over a large area.

No. I Hospital.

No. I Military Hospital, Exeter, is established in the West of England Eye Infirmary; it was mobilized on October 4th, and received its first patients on October 7th. Since then, down to the middle of August, 938 patients have been admitted, nearly all direct from overseas. The cases have been for the most part surgical, and 211 major operations and 80 minor have been performed. The medical cases have included some instances of gas

poisoning. There have been 6 deaths—2 from tetanus, 2 from gas gangrene, 1 from embolus following gunshot wound of femur, and 1 from pneumonia.

The building having been designed for hospital purposes, and being amply provided with all the appliances and facilities of a modern hospital, including a well-appointed operating theatre, called for relatively few and minor alterations to fit it for military work. Owing to the special purpose for which it was built, it contains, in addition to

large wards, a number of smaller rooms with one to three beds, which have been found very convenient for special cases and for officers. A certain number of officers and men have received massage and electrical treatment as out-patients. The total number of beds provided is 110.

The medical officer in charge is Mr. A. L. Candler, F.R.C.S., and medical officers attached are Dr. William Gordon, F.R.C.P. (physician), Mr. G. T. Clapp, M.B., and Dr. Mabel Gates, who, in addition to doing general duty, acts as anaesthetist.

No. II Hospital.

No. II Military Hospital, Exeter, established in the Episcopal Modern School for Girls, was mobilized on October 5th, 1914. The first patients were received on October 16th. The building, a photograph of which is reproduced, was well adapted for conversion into a hospital, as it contained several large rooms which make good wards; another room with a north light, designed for art classes, has been converted into an operating theatre which meets all the essential requirements of modern surgery. One of the subjects taught in the schools was cookery, and the hospital is therefore fortunate in



No. II Military Hospital (V.A.), Exeter: Interior of one of the marquees.

having excellent kitchens. In addition two marquees, one containing sixteen and the other twenty-four beds, have been erected in the grounds, and have proved popular both with the medical staff—the up-to-date open-air treatment being remarkably successful—and with the men themselves. Photographs of the marquees are reproduced. The sanitary arrangements of the building were ample, and special latrines have been established for the use of the patients in the marquees. The medical officer in charge is Mr. R. A. Worthington, M.B.Cantab., F.R.C.S.; the other members of the staff are Dr. Henry Andrews, Dr. Solly, and Dr. Lovely (resident medical officer). Altogether 124 beds are provided.

No. III Hospital.

No. III Military Hospital, Exeter, is in the Children's Home, Heavitree Road, lent by the guardians. It was mobilized on October 31st; it provides 100 beds, reserved for medical cases chiefly; special provision is made for the isolation of infectious disorders, such as measles. In addition, arrangements have been made in the grounds for the open-air treatment of suitable cases. Some have been accommodated in a small brick shed open at the front, and used by the school as a playground, others in temporary shelters borrowed from the tuberculosis authority, and formerly used for the open-air treatment of phthisis at home.

This hospital was mobilized primarily to meet the needs of the largely increased garrison in Exeter and the district, and during the winter and spring the accommodation was used to its utmost capacity for this service. Among the diseases treated were pneumonia and cerebro-spinal meningitis. During the summer it has been possible to place the greater number of the beds at the disposal of the Expeditionary Force.

The medical officer in charge is Dr. S. E. Atkins, the medical officers attached are Dr. Henry Davy and Dr. Bingley Pullen.

No. V Hospital.

No. V Military Hospital, established in the College Hostel for Women and Congregational Church

Schools near the Castle, was opened in May, in response to a request from the War Office for a further increase in the accommodation at Exeter. The buildings required more alterations to suit them for their present purpose than in the case of the other hospitals mentioned. These have been ably carried out under the supervision of the medical officer in charge, Mr. Brennan Dyball, M.B., F.R.C.S., and the architect, W. J. Jerman. The other medical officers are: Mr. Marmaduke Shield, Dr. Sanways, Dr. Wilton, Colonel J. Raglan Thomas, M.D., A.M.S. (T.F.), and Dr. Robin, who is resident medical officer. This hospital puts up over 200 beds, of which 177 are contained in seven wards of from 20 to 40 beds each. Of these beds, 100 were ready for use and were filled on May 14th; the remainder were available on June 1st. The number of patients admitted to July 31st was 342. There has been one death (from gas gangrene); the number of operations performed down to July 31st was 71—major 28, minor 43.



The Children's Home, in which No. III Military Hospital (V.A.), Exeter, for medical cases chiefly, is established.

No. II Hospital.

The Military Hospital No. II was organized in February, 1915, by the Voluntary Aid Organization, at the request of the Officer Commanding R.F.A., for troops quartered at Topsham Barracks, where there was an epidemic of influenza and pneumonia. The building was originally used as a storehouse. It has been converted into a hospital of five wards, containing 30 beds.

Special Departments.

In addition to the medical staff of each hospital, certain specialists assist at all the hospitals—for ophthalmic cases Mr. A. C. Roper, for dental cases Mr. J. Ackland, for radiology Dr. J. D. Harris, for pathology and bacteriology Dr. R. V. Solly. The last named does his work in the laboratories of the Devon and Exeter Hospital. In all the hospitals provision for x-ray work has been made or is being installed.

Administration.

At each hospital there is a medical officer in charge, who has supreme control, subject to the head quarters officer, to whom he is directly responsible. Great importance is attached to this point in administration.

Each hospital has a matron and a staff of fully trained nurses in the proportion of seven or eight to each hundred beds. In addition, each hospital has Voluntary Aid assistants, some of whom have had a short

training in the county hospital and act as probationers in the wards; the quartermaster's and steward's departments (that is, equipment, linen, commissariat), the clerical work, and the cooking are also entirely carried on by Voluntary Aid workers. Cleaning and housemaid's work is mainly done by charwomen, and there are in addition orderlies for certain classes of work for which men are considered to be better suited than women.

The duties of the Voluntary Aid nurses are similar to those of the ordinary hospital probationer. The hours of those on day and night duty respectively are from 7.30 a.m. to 9.30 p.m., and from 9.30 p.m. to 8.45 a.m. Many of them have now been working in these hospitals since the date of mobilization, nearly a year ago, and very few indeed have been found unequal to the strain of the work. The trained nurses who supervise them give a most satisfactory account of these probationers and of the standard of efficiency to which they have attained.

Experience has undoubtedly proved that Voluntary Aid nurses are capable of really valuable service, and that the organization of Voluntary Aid has, in fact, provided resources without which the enormous demands made upon the nursing profession at this time could not have been met.

Since, in peace time, the Voluntary Aid nurse has often been the object of criticism it is only

just to realize that, within her limitations, she is performing a service of vital importance to the country.

Of the surgical and medical work done in the temporary military hospitals in Exeter it will suffice now, as we hope to be able to publish fuller particulars shortly, to say that down to the middle of August 3,500 men had been treated in Exeter alone, and that 484 major and 366 minor operations had been performed.

As has been said, practically the whole Voluntary Aid Organization in Devon is administered by women, doubtless for the good reason that the men of Devon are mostly occupied elsewhere. It is a striking illustration of the fact that many of the duties one has been accustomed to associate exclusively with men can be as effectually performed, in emergency, by the other sex.

A NOTE ON "WIND CONTUSIONS" IN WAR.

SURGEON-GENERAL W. F. STEVENSON writes: In the notes on cases seen at the 2nd Eastern General Hospital, Brighton, published in the JOURNAL of August 21st, the writer refers to a class of injury which, in former times, was considered to be due to "the wind of the shot," and points out that, in view of the experiences met with in the present war, my statements with regard to them in the last edition of *Wounds in War* will almost certainly require revision, because men are knocked out by the concussion of the modern high explosive shells without being actually touched by them or their fragments. But really no revision of the conclusions arrived at with regard to the former class of cases need be made; the old "wind contusion" cases are a class quite apart from those now being observed as the results of the bursting of high explosive shells. The former were cases in which the long bones of the limbs were shattered and the solid and hollow viscera of the cavities of the body were ruptured, while, at the same time, no injury—not even an abrasion of the skin—was made to show where any missile had been in contact with it. There was nothing new in the conclusions regarding these cases which I put forward in *Wounds in War*. Baron Larrey's experiences led him to hold similar ones.

The conditions produced on men by the bursting of high explosive shells in their immediate neighbourhood are quite different; they are all due to interference with the

brain and the nerve centres controlling the special senses—concussion of the brain, blindness, deafness, dumbness, and occasionally paralysis, and these symptoms are frequently accompanied by general tremors of the voluntary muscles.

The victims of these explosions are often blown many yards away from their positions, and, if not killed outright at the moment, mostly make good recoveries after a more or less prolonged interval of rest. I have never seen or read of cases of fractured long bones or of rupture of internal viscera due to these explosions, but we all can read in the medical journals of their effects as seen in this war, and some of us can observe them for ourselves in the hospitals at home, and get detailed accounts of the cases from the men suffering from them.

On the other hand, I am glad to see that the writer of the notes agrees with what was published in the *JOURNAL* (October 24th, 1914, p. 701) by me regarding the so-called "explosive wounds," that they are not the results of explosion within the body, but that solid and unbroken bullets may produce these extensive injuries—given high velocity in the missiles, combined with considerable resisting power in the tissues met in the bullet track; these are the two and only essentials necessary for their production.

GERMAN EXPERIENCES OF WAR SURGERY.

VAGARIES OF THE GERMAN RIFLE BULLET.

AS WAS NOTED in the *JOURNAL* a couple of months ago, a vigorous campaign has been conducted against the English rifle bullet in the German press. Many German surgeons have bolstered up the charge that the English bullet is of dum-dum type and has an explosive action by numerous illustrations, including skiagrams, of bones and other structures freely peppered with fragments of lead, nickel, and aluminium. The German lay press has not been slow to follow this lead, and the reproduction of the skiagrams seems to have had a positively hypnotic effect on the German mind. We may add in passing that, in such circumstances, the effects of a skiagram on the minds of laymen seems to be as overwhelming as that of the blessed word "Mesopotamia" on the mind of the pious old woman. One result of this libellous campaign has been the fomentation in the German mind of anger as great, though not as just, as that which is felt in this country with regard to poisonous gases. It is most regrettable that even the medical press of a neutral country has found it consonant with its dignity to reproduce some of these libels against the British bullet. Fortunately a reaction has now set in, and statements have lately appeared in the German medical press to the effect that, not only is the use of dum-dum bullets by the British "a product of the fantasy,"¹ but also that the regular German infantry bullet, which consists of a lead core in a nickel case, may, under certain conditions, have an explosive action indistinguishable from that of a dum-dum bullet.

Flaws in the Casing.

Medizinalrat Dr. August Fischer² has lately recorded the case of a German non-commissioned officer who, with a patrol, had to pass at night through a line of German *Jaegers*, stationed near Rheims. The patrol notified the *Jaegers* that they must not fire on it on its return. In spite of this injunction, the *Jaegers* fired on the returning patrol at a range of about 3 metres. The non-commissioned officer was wounded in the left shoulder, the wound of entry being in the neighbourhood of the coracoid process, and the wound of exit in the back of the upper arm. Both wounds were a little smaller than a mark piece. When the patient was admitted to hospital on September 23rd, eight days after he was wounded, the wound was explored under a general anaesthetic, as there were fever and discharge. The bones forming the shoulder-joint were much shattered, and the Roentgen rays showed a transverse fracture of the humerus, running through the surgical neck. The head of the humerus was broken up into fragments, one of which was in the neighbourhood of the glenoid cavity, while two fragments lay beside the shaft of the bone. A fracture passed obliquely through the glenoid cavity, the normal outline of

which was lost. There was also a fracture of the clavicle in its outer half. There were numerous small fragments of bone scattered throughout the wound, as well as particles of lead. A large piece of lead appeared to have penetrated the humerus. At the wound of entry, and quite near the surface, the outer case of the bullet was found in its entirety, though much torn and distorted. Dr. Fischer points out that in this case the bullet had produced an explosive effect, which would have been attributed to the use of a dum-dum bullet had not the history of the case and the discovery of the nickel casing belonging to a German bullet given the lie to such an assumption. He also argues that the non-commissioned officer's account excludes the possibility of the wound being inflicted by a bullet previously deformed by ricocheting. Evidently the bullet must have broken up on contact with bone, and while the outer casing was left behind in the wound of entry, the scattering fragments of lead must have inflicted further injuries to the bone and soft tissues, and also have made the wound of exit. This kind of wound must not, according to Dr. Fischer, be confused with the wound inflicted at point blank range, when the core and outer casing do not part company. He suggests that an explosion of the bullet, as in his case, can only occur when there is a flaw in the outer casing. But it was obvious in his case that there was no flaw in the point of the bullet. He quotes the observations made in the Balkan wars by Vollbrecht and Wieting Pacla, who found that complete laceration of the outer casing and scattering of the lead core could only occur when the union between the core and the outer casing was imperfect, or the lead core was overheated by its passage through the barrel of a machine gun.

Dr. Karl Kolb³ has reported a somewhat similar case. The patient was a Frenchman, wounded in the left leg. Both the wound of entry and of exit were as large as a hand, the muscles of the calf of the leg were completely ploughed up, and the fibula was shattered. It was thought that the wound of entry was on the outer side of the leg, although it was difficult to distinguish with certainty between the wounds of entry and exit. The bullet was found in the muscles of the calf, and was easily removed. It proved to be a German rifle bullet, the outer casing of which had been torn open and the leaden core flattened. The casing and core had not, however, parted company. On further scrutiny a flaw was found in the outer casing, about 2 mm. from the point. Traced towards the base of the bullet this flaw became wider and wider. About 5 mm. from the point of the bullet the outer casing was completely torn open, revealing the leaden core. Dr. Kolb suggests that the explosive effect of this bullet must have been due to the flaw in the outer casing, which may very likely have been caused by a particle of sand in the barrel of the rifle from which the bullet was discharged.

A case similar to Dr. Fischer's is also recorded by M. Nippe.⁴

Explosive Effect.

At a meeting of military surgeons in Strassburg⁵ Dr. Chiari demonstrated the calvaria of a young man the muzzle of whose rifle was in contact with his left temple when the cartridge, containing a German infantry bullet, was discharged. The bullet perforated the temporal portion of the parietal bone, traversed the left central convolution, and emerged through the left parietal bone. Death occurred three and a half hours later from haemorrhage into the ventricles. The most striking feature of this case was, according to Dr. Chiari, the explosive effect of the bullet on the calvaria, which was broken up into numerous fragments.

WOUNDS OF THE LUNGS TREATED BY ARTIFICIAL PNEUMOTHORAX.

At a meeting of the *Medizinisch-naturwissenschaftliche Gesellschaft in Jena* Dr. Reichmann gave an account of his experiences with artificial pneumothorax in the treatment of wounds of the lungs and pleurae. In one case there was an effusion of cloudy haemorrhagic fluid,

¹ *Berl. klin. Woch.*, No. 26, 1915.

² *Muench. med. Woch.*, No. 41, 1914.

³ *Deut. med. Woch.*, June 10th.

⁴ *Deut. med. Woch.*, June 24th.

¹ *BRITISH MEDICAL JOURNAL*, June 12th, p. 1024.

² *Deut. med. Woch.*, No. 15, 1915.

containing staphylococci, into the pleural cavity. According to 1,000 c.cm. of this fluid were aspirated, and an equal quantity of nitrogen was injected into the pleural cavity. Previous to this operation there had been fever of a remittent type, and the temperature was still 38.5° on the following day, but after this it fell and the patient made a rapid recovery. In a second case there was an interlobar effusion of cloudy fluid in the left side of the chest. Puncture of the chest yielded 50 c.cm. of fluid, which were replaced by an equal quantity of nitrogen. At a second operation the exploring needle encountered much resistance, showing that extensive thickening of the pleura had already taken place. This process was progressive, and was apparently accompanied by the development of a tumour of the lung; and though the patient remained afebrile he did not make a satisfactory recovery. In a third case the patient's general vitality was much reduced by septic fever, complicating a wound of the lung. He also suffered from an extensive bedsore. About 800 c.cm. of purulent fluid, containing streptococci, were aspirated from the pleural cavity, and were replaced by nitrogen. Ten days later there was a reaccumulation of the fluid to the previous level in the chest. The operation was accordingly repeated, and all the fluid was withdrawn. It slowly began to reaccumulate, but in spite of this the patient's general health improved, the bedsore healed, his appetite improved, and there was a gain in weight.

CANADA.

THE HOSPITAL COMMISSION AND CONVALESCENT SOLDIERS.

A HOSPITAL COMMISSION was recently appointed by the Canadian Government to make necessary arrangements for the care of convalescent soldiers on their arrival in this country. The Commission met for the first time on July 20th at the militia head quarters, Ottawa. The Hon. Senator Longbeed presided. The members in attendance were Colonel Sir H. M. Pellatt, Toronto; Mr. Smeaton White, Montreal; Mr. John S. McLennan, Sydney; Lieutenant-Colonel Thomas Walker, St. John, New Brunswick; Mr. F. W. Avery, Ottawa; Mr. C. B. Smith, Montreal; and Major Potter, Acting Director-General of Medical Services. The Deputy Minister of Militia, Surgeon-General Fiset, Lieutenant-Colonel Munnell, of Ottawa, and Lieutenant-Colonel Delaney, of Quebec, were also present. A large number of private houses and other buildings have been offered for convalescent homes, but the uncertainty as to the number of invalided soldiers who will require such accommodation makes it impossible for the Commission to accept all the offers at present. Arrangements are being made to utilize part of the immigration building at Quebec as a distributing hospital. This building, which was recently erected by the Government, lends itself admirably to the purpose. The head quarters of the Commission are at 22, Victoria Street, Ottawa. The office in England of the Director of Medical Service, Canadian Contingent, is in Cecil Chambers, 86, Strand, London, W.C.

No. 5 GENERAL MILITARY HOSPITAL.

This hospital was mobilized at Victoria on July 31st, and is now in camp at Macaulay Plains, Esquimaux, British Columbia. The unit was offered to the Government last April, the offer being made through Major (now Lieutenant-Colonel) Hart, of Victoria; it was accepted early in June, and mobilization was at once commenced. The corps is now up to full strength; it numbers about 176, including 73 nursing sisters. The officers are: *Commanding Officer*: Lieutenant-Colonel E. C. Hart, P.A.D.M.S., Victoria. *Staff*: Lieutenant-Colonel F. C. McTavish, Vancouver; Lieutenant-Colonel Herman Robertson, Victoria; Lieutenant-Colonel Pantou, who is now in France, and will join the hospital overseas; Major H. L. Burris, Kamloops; Major H. S. Monro, Vancouver; Majors F. P. Patterson and A. P. Proctor, Vancouver; and Major Gillies, who is also at the front at the present time. Captains J. A. E. Campbell, W. A. Clarke, H. C. L. Lindsay, H. H. McIntosh, W. B. McKechnie, C. S. McKee, F. J. Nicholson, A. B. Schimbin, of Vancouver; Captains R. L. Miller, W. P. Walker, H. A. Whillans, W. A. Wilson, of Victoria; Captain D. A. Dunbar, of Barnaby; Captain A. C. Frost, of Ladysmith; Captain T. B. Green, of New

Westminster; Captain D. P. Hanington, of Wilmer; Captain D. J. Millard, of North Battleford; Captain L. J. O'Brien, of Nauyasno; Captain J. T. Wall, of Prince Rupert; and Captain Taylor, who is now at the front. The Quartermasters are Captains R. F. Winch, of Vancouver; J. Lewin, of Victoria; L. Jartman, of Victoria, dentist; and the Warrant Officers are Sergeant-Major R. Glass, C.A.M.C., of Victoria, and Sergeant-Major A. Morrison, of Vancouver. Miss F. Wilson, formerly Lady Superintendent of the Winnipeg General Hospital Training School, is acting matron, with Miss Tripp and Miss Campbell, of Victoria, as assistants. Each member of the unit has been inoculated against typhoid, and the rank and file have received careful training in first-aid and stretcher-bearer work in addition to the military course. The corps was inspected on August 2nd by General Lessard, of Winnipeg, who is Inspector-General of the Western Forces.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed.

CAPTAIN K. LEVI, Australian Army Medical Corps, 1st Australian Field Ambulance, killed in Dardanelles, reported in casualty list of August 20th.

Lieutenant P. T. Warren, R.A.M.C.(T.F.), 3rd Welsh Field Ambulance, killed in the Dardanelles, reported in casualty list of August 19th.

Died.

Major Thomas Copland Savage, of the New Zealand Army Medical Corps, died at the New Zealand Military Hospital, Pont Kouba, Egypt, on August 14th, aged 41. He was the second son of the late Warwick Savage, of Burslem, and was educated at University College, London, where he had a distinguished career, gaining the gold medal and exhibition in anatomy in 1898, and the Atkinson Morley scholarship in surgery in 1901, also acting as assistant demonstrator of anatomy. He took the B.R.C.S. and L.R.C.P.Lond. in 1900, the M.B.Lond. in 1900, the B.S. (gold medal) in 1901, and the F.R.C.S. in 1901. After qualifying he acted as clinical assistant for out-patients at University College Hospital, and as clinical assistant at the Royal London Ophthalmic Hospital. He then went to New Zealand and settled at Auckland, where he was honorary surgeon to Auckland General Hospital, consulting surgeon to North Auckland Hospital, and examiner in surgery for the University of New Zealand. When the contingent from New Zealand was raised last year for service in the war, he joined the medical department with the rank of major, and accompanied the force to Egypt.

Wounded.

Lieutenant-Colonel E. V. Gostling, R.A.M.C.(T.F.), 1st East Anglian Field Ambulance, Dardanelles.

Major H. N. Butler, Australian Army Medical Corps, Dardanelles.

Major L. W. Dunlop, 1st Field Ambulance, Australian Army Medical Corps, Dardanelles.

Captain T. R. Ritchie, New Zealand Army Medical Corps, Dardanelles.

Lieutenant J. C. Scimes, Australian Army Medical Corps, Dardanelles.

Lieutenant (temporary) G. Fleming, R.A.M.C., Dardanelles.

Lieutenant (temporary) A. J. O. Wigmore, R.A.M.C., Dardanelles.

Lieutenant (temporary) N. H. Haskins, R.A.M.C., Dardanelles.

H.M.S. Royal Edward.

The transport *Royal Edward*, 11,117 tons, formerly one of the Canadian Grand Trunk liners, running from Avonmouth, Bristol, to Quebec, was torpedoed by a German submarine in the Aegean Sea on August 14th, and sank with great loss of life. She had on board 32 military officers, 1,350 troops, and a ship's complement of 220 officers and crew; total 1,602. The troops consisted of reinforcements for the 29th Division in the Dardanelles and details of the R.A.M.C. Great and regrettable as is the loss of life—about a thousand—this is the first instance of successful attack upon a transport during a war of now over a year's

duration, during which an army larger than Britain had ever before put in the field has been transported overseas. According to the published list there appear to have been ten medical officers on board, of whom two—Lieutenant-Colonel Danber and Major Mowat—are reported as missing, the other eight as saved. The names are as follows:

54th Casualty Clearing Station.—Lieutenant-Colonel J. H. Danber, Major J. Mowat, Captains W. Redpath and F. W. Lewis, Lieutenants R. C. S. Smith, W. J. Deighan, J. Green, Lieutenant and Quartermaster J. W. Price, *1st East Lancashire Field Ambulance.*—Lieutenants W. L. Cockcroft and J. Cowan.

Lieutenant-Colonel John Henry Danber was educated at Middlesex Hospital, where he took an open entrance scholarship, at University College, London, at King's College, London, and at Oxford. He qualified as M.R.C.S. and L.R.C.P. Lond. in 1890, also taking the M.A. Oxon. in 1892, the M.B. and B.Ch. in 1892, the M.R.C.S. Lond. in 1895, and the F.R.C.S. in 1899. He had filled the posts, successively, of surgeon to the Chelsea, Brompton, and Belgrave Dispensary, registrar to the Hospital for Women, anaesthetist to the Royal Hospital for Women and Children, and surgeon to the Hospital for Women, Soho. He was an ex-president of the Westminster Division of the British Medical Association, an F.R.G.S., a Fellow of the Royal Society of Medicine, and a member of the Société Internationale de Chirurgie. He entered the R.A.M.C. (T.F.) as Lieutenant in the Sussex Yeomanry on January 7th, 1903, becoming Captain on January 16th, 1908. The June Army List shows him as Major in the East Anglian Casualty Clearing Station, head quarters Ipswich, from February 25th, 1915.

Major J. Mowat is shown in the same place as Major in the same unit from April 29th, 1915. There are three medical men of this name in the *Medical Register*.

DEATHS AMONG SONS OF MEDICAL MEN.

Alexander, Jack A. E., Lieutenant 12th Battalion Highland Light Infantry, younger son of the late Dr. Alex. Alexander of Wick, killed in France on August 15th, aged 21. He was born at Wick, and educated at George Watson's College, Edinburgh, where he was in the O.T.C. and at Edinburgh University, where he was a student in the Forestry course. He received a commission as Second Lieutenant on September 16th, 1914, and was promoted to Lieutenant last February.

Delépine, H. G. S., Second Lieutenant Duke of Cornwall's Light Infantry, who died on April 17th of wounds received in Northern France on the previous day, was the son of Professor Sheridan Delépine, Professor of Public Health and Bacteriology and Director of the Public Health Laboratory of the University of Manchester. Born in 1888, he entered the University of Manchester in 1907, and after gaining experience in Canada and the United States, he returned to the Manchester University in 1913 to take up the appointment of Junior Instructor in Drawing, and Demonstrator in the Engineering Department of the University. In August, 1914, he was in camp with the O.T.C., and at the outbreak of war immediately volunteered for active service, and subsequently received his commission as Second Lieutenant in the Duke of Cornwall's Light Infantry. After undergoing training at Falmouth he was sent to Northern France in January.

Evanon-Jones, T. A. E., Second Lieutenant 11th Battalion Manchester Regiment, only son of Dr. Evanon-Jones, of Ashdon Old Road, Manchester, killed in the Dardanelles, between August 7th and 11th, aged 19. He got his commission on September 1st, 1914.

Fowler, Theodore Humphrey, Corporal Honourable Artillery Company, who died at the London County Hospital on August 17th, aged 36, was the youngest son of the late Dr. O. H. Fowler, of Newcastle.

Marten, Henry Humphrey, Lieutenant 2nd Battalion Manchester Regiment, younger son of Robert Humphrey Marten, M.D., of Adelaide, South Australia, killed in Flanders on August 13th, aged 21. He was educated at St. Peter's College, Adelaide, at Cheltenham, and at Caius College, Cambridge, where he was in the O.T.C. He got a commission in the 6th Reserve Battalion of the King's Royal Rifle Corps on August 15th, 1914, and was subsequently promoted to Lieutenant and transferred to the Manchesters. He was mentioned in dispatches in June.

Moody-Ward, Richard Guy Torrington, Captain and Adjutant 2nd Battalion Royal Berkshire Regiment, eldest son of the late Dr. Moody-Ward, of Reading, killed in action at Fromelles, March 24th, aged 27. He became Captain on December 11th, 1914.

Porter, Harold J., Lieutenant 5th Battalion Manchester Regiment, whose death occurred in hospital at Alexandria, was the son of Dr. Thomas Porter, of St. Anne's. He received his education at St. Anne's and Manchester University, and was a medical student.

Pringle, Norman Douglas, Captain 6th East Yorkshire Regiment, killed in the Dardanelles, was the youngest son of Dr. H. T. Pringle, J.P., of Ferndown, Dorset, and was educated at Lincoln College, Oxford.

Sawers Scott, Second Lieutenant 2nd Battalion King's Own Scottish Borderers, was killed on April 23rd. He was the son of Dr. Sawers-Scott of Withington, and entered the Manchester University in 1911. He was an active member of the O.T.C., was secretary of the O.T.C. Shooting Club, and a member of the shooting eight. He subsequently gained both A and B certificates and carried off Major Thorburn's Cup for general efficiency. In June of 1915, he was gazetted to the Special Reserve and attached to the 2nd Battalion, King's Own Scottish Borderers; on taking his degree was nominated by the university for a commission in the regular army, being the first student to benefit by this right which the university had recently acquired.

Silcock, Bertram Baber, 2nd Lieutenant 7th Battalion Royal Welsh Fusiliers, younger son of the late A. Quarry Silcock, F.R.C.S., of 52, Harley Street, killed at the Dardanelles on August 10th, aged 23. He was educated at Hurdell's School, Tiverton, and as a medical student at University College Hospital, being captain of the Rugby fifteen both at his school and hospital. He served in the Balkan war as a dresser in the British Red Cross unit with the Greek forces at Salonica, and received from the King of the Hellenes the Cross of Knight of the Order of Our Saviour. When the war began, he joined the hospital ship *Rohilla* as a surgeon-probationer, being subsequently transferred in the same capacity to the *Orli*. In spring he rejoined the Artists Rifles, of which he had previously been a member for four years, got a commission in June, and left for the Dardanelles in July.

Walsh, Geoffrey Fenell, Lieutenant 2nd Battalion, Sherwood Foresters, son of the late Fleet Surgeon Walsh, R.N., H.M.S. *Good Hope*, and Mrs. Walsh, of Szeben-probationer, being subsequently transferred in the same capacity to the *Orli*. In spring he rejoined the Artists Rifles, of which he had previously been a member for four years, got a commission in June, and left for the Dardanelles in July.

Wills, Arthur George, Lieutenant 9th Sherwood Foresters, was the youngest son of the late Lieutenant-Colonel C. S. Wills, C.B., R.A.M.C. He was educated at Charey Hall and at Marlborough College, and had completed his second year at Oriel College, Oxford, in 1914, and was a keen oarsman, and rowed in his college eight in 1913 and 1914, and was in the Oriel boat that won the Thames Challenge Cup at Henley in 1914.

MEDICAL STUDENTS.

Chell, H., Lieutenant 8th Royal Fusiliers, died in Flanders on August 10th, as the result of wounds received in action the previous day. He was the youngest son of the Rev. G. R. and Mrs. Chell of Ealing, and was born in 1889. At the time of obtaining his commission he was a student at St. Mary's Hospital, Paddington.

Snell, P. S., Second Lieutenant 6th Battalion Royal Irish Fusiliers, killed in the Dardanelles, in August, aged 22. He was a Dublin man, educated at Campbell College, and was a medical student at Trinity College, Dublin, and a well-known cricketer. He got his commission on September 29th, 1914.

NOTES.

RED CROSS WORK IN THE DARDANELLES.

A FORTNIGHT ago, in giving some particulars of the British Red Cross work in the Dardanelles, it was stated that Sir Conrauld Thomson, the Chief Commissioner of the Joint Committee of the British Red Cross Society and the St. John Ambulance Brigade in the Mediterranean, had reported that more motor boats were needed to tow barges containing wounded to the hospital ships or transports, and generally for keeping up communication with the shore and to facilitate the Red Cross work in supplying stores to those vessels. The Joint Committee in this country has already been able to procure a twin-screw patrol boat (32 h.p.) for the picket and two motor launches (20 and 45 h.p.) and to dispatch them. Mr. John Masfield, the poet and novelist, whose name will be known to many readers, has provided the money for the picket boat and also for a barge 45 ft. by 12 ft., which has been specially fitted for the transport of wounded. Mr. Masfield has already left for Mudros, where he will take charge of the picket and barge as soon as they arrive. The Joint Committee have also been able to provide two motor launches to serve the Persian Gulf expedition.

The Union des Femmes de France is appealing for help for the soldiers of the Expeditionary Force in the Dardanelles. Its efforts are directed to the supply of necessaries and medical comforts for the sick and wounded in the temporary hospitals; to the development of the organization and working resources and to the increase in the number of the hospitals of the Union in Egypt. Already ten hospitals with a total of 1,074 beds have been established in Alexandria. Hospitals have also been established at Cairo, Port Said, and Ismailia, but the Union is anxious to enlarge the scope of its work in the East.

MOTOR AMBULANCES FOR ITALY.

The British Red Cross Society has presented a fleet of twenty motor ambulances to Italy for the use of the

wounded, and has undertaken to provide for their maintenance. The personnel consists of fifty-five officers, interpreters, medical men, drivers, mechanics and cooks. Nearly all are volunteers, many of them being English University men. The unit, which is under the command of Mr. G. M. Trevelyan, left England on August 20th. The medical staff includes Dr. G. S. Brock, physician to the British Embassy in Rome, and Dr. Dakin, until recently gynaecologist at St. George's Hospital; Mr. Tonks, head of the Slade School of Art, who was formerly a member of the medical profession, will assist the medical officers as assistant surgeon. The funds are being furnished by the British Committee in Aid of the Italian Wounded, of which the British Ambassador in Rome, Sir Rennell Rodd, is president and is acting as Italian agent. The treasurer is Sir Laurence Gomme, whose office is at 38, Conduit Street. The gift has been gratefully accepted by the Italian military authorities.

THE WORK OF THE AMERICAN RED CROSS.

In the *BRITISH MEDICAL JOURNAL* of May 29th there appeared a list of the donations sent by the American Red Cross to Europe for the use of the various belligerents. This information is supplemented in a statement recently issued by Miss Mabel T. Boardman, chairman of the American Red Cross Relief Committee, showing the exact amount and kind of relief sent to the various countries, which was published in the *Boston Medical and Surgical Journal* of August 5th.

The Red Cross sent to the warring countries 367 persons engaged in humanitarian enterprises. Of that number 71 were surgeons and 253 nurses, while 43 were members of the Serbian Sanitary Commission. England, France, Russia, Germany, Austro-Hungary, Serbia, and Belgium each received one or more units, which means one or more complete hospitals, with doctors, nurses, and other attendants, and with all necessary supplies and equipment. The administrative expenses of the huge undertaking amounted to 11,291 dols. (about £2,253), and this has been paid by the Red Cross itself and not taken from the fund contributed for relief.

The report shows that the Red Cross has sent into the war zone almost 1,000,000 lb. of cotton for the hospitals, 882,000 yards of surgical gauze, 65,000 yards of crinoline, 727,000 assorted bandages, 35,000 yards of adhesive plaster, 9,240 stretchers, 10,267 blankets, and other supplies in proportion, and 19 motor ambulances for the Red Cross personnel. There were also 4 army field hospital outfits, 50 army hospital tents, and 35 field medical tents.

Following is a summary of services rendered each belligerent Government:

Austria, 11 shipments, value 97,653 dols.; Belgium, 12 shipments, 96,708 dols.; England, 13 shipments, 87,843 dols.; France, 24 shipments, 216,150 dols.; Germany, 8 shipments, value 182,795 dols.; Italy, 2 shipments, 14,451 dols.; Montenegro, 3 shipments, 15,326 dols.; Poland, 1 shipment, 7,200 dols.; Russia, 9 shipments, 89,613 dols.; Serbia, 8 shipments, 120,867 dols.; Turkey, 2 shipments, 12,556 dols.

The financial statement shows expenditures of 1,450,306 dols. (about £290,621), leaving a balance of 174,818 dols. (about £34,965) on hand, for which the donor Governments are responsible.

The *New York Medical Journal* states that while in all probability the American Red Cross physicians and nurses will be withdrawn from European war hospitals on October 31, American Red Cross funds will still be used in sending medical and surgical supplies to Europe and in aiding the Red Cross societies of the nations at war. The sanitary work in Serbia will be continued.

MILITARY HONOURS.

A special *Gazette* issued on August 25th announces the bestowal of decorations for gallantry and distinguished service in the field. Thirteen officers receive the Companionship of the Distinguished Service Order, and nineteen officers and two warrant officers receive the Military Cross. Among the recipients of the D.S.O. is

Captain Stanley Alwyn Smith, No. 3 Field Ambulance, Canadian Army Medical Corps. For conspicuous gallantry and devotion to duty at Festubert on the night of May 20th, 1915. Captain Smith, with a party of eight men, went out voluntarily to remove the wounded from an orchard whilst under heavy fire, and eventually succeeded in bringing all into safety. Four of the eight men of the rescue party were wounded, and two of these have since died.

Major H. Stedman, R.A.M.C.(T.F.)R., has been nominated a Chevalier of the Belgian Order of Leopold, in recognition of his services to the British Red Cross Ambulance at Calais placed at the disposal of the Belgian army.

SERBIA.

According to the *Medical Record*, the American Red Cross announces that Dr. R. P. Strong, chief of the Inter-

national Health Board at Nish, recently cabled that with £4,000 additional at his disposal he can finally free Serbia from typhus and put the country on a thoroughly sanitary basis. The money has been sent to him, £2,000 of the amount having been given by the Rockefeller Institute and the rest by the Red Cross. The *Boston Medical and Surgical Journal* of August 12th publishes some extracts from letters written by Dr. Strong to his sister, which give an idea of his work in Serbia and Montenegro. He arrived at Nish on April 22nd. A general health board to supervise and unify work throughout the country was organized with the Crown Prince Alexander as president, Sir Ralph Paget as vice president, the chiefs of the French, British, Russian, and American commissions, the chiefs of the Serbian Military and Civil Departments, and a representative of the Serbian Parliament as members, and Dr. Strong as medical director. It began its work at once. Serbia was divided into fourteen sanitary districts. Seven of these were allotted to the English, French, and Russian commissions; the other seven, comprising the southern half of new Serbia, being assigned to America. No accurate information being available as to the distribution of typhus among the civil population, a house-to-house inspection was instituted. Dr. Strong, writing of the Paget Hospital, which he visited on May 1st, notes:

A feature, of which no mention is made in our textbooks of medicine regarding typhus, is the occurrence of gangrene of the toes and sometimes about the nose and mouth. Another striking feature is the condition of the pharynx, a swollen appearance of the mucous membrane being observed in many instances in the early stages of the disease. In fact, the mouth requires frequent cleansing with disinfectants. This is another fact which seems to suggest that the virus may sometimes be thrown out into the air into the immediate vicinity of the patient. The nurses working in the hospital are carefully protected by their uniforms, and they all wear rubber gloves. I understand they have one-piece garments, made together with the stockings, and over these they wear high boots. It is difficult to see how some of them could become infected with these uniforms. Lady Paget wore such a uniform whenever she went near cases, yet she became infected, as did others of the staff of the hospital.

Dr. Strong states that at the beginning of the war Serbia had 400,000 men in the army. When he wrote on May 12th there were 200,000; over 100,000 had died of typhus. At the beginning of the war there were 360 doctors in all Serbia, of whom 121 had died, leaving 239 Serbian doctors for a total population of some 5,000,000. At Kragujevatz on May 14th he went to see Mrs. Stobart's field hospital.

This is in tents and is situated on the outskirts of the town. As it had been raining for three days and most of the tents had no floors, only a thick piece of canvas serving as a floor in some of them, you can imagine the camp was in a very muddy condition. Mrs. Stobart received us in rubber boots and trousers. She apologized for being without her skirt. All her assistants are women doctors and nurses.

The rest of the day was spent in inspecting Serbian hospitals. One of these had 1,000 beds for typhus cases.

The Graupman Engineering and Motor Company, Ltd., Stirling, has sent us an illustration showing a train load of thirty-five large portable steam disinfectors intended for Serbia. In the covering letter it is stated that this "represents part of a contract placed with us by the British War Office and illustrates very forcibly the prompt and drastic measures which the authorities have taken to suppress the spread of infectious disease which has unhappily been so rampant in Serbia."

We are informed by the Wounded Allies Relief Committee that the doctor in charge of the Committee's unit at Kragujevatz states that, by reason of war and pestilence, Serbia has lost half her doctors, while the remaining half is mobilized with the army. In Kragujevatz which has a population of 50,000, there is only one Serbian civil practitioner. The Wounded Allies Union has opened a dispensary in the town. Originally consisting of 100 beds, the unit has been given two extra buildings by the Serbian Government, and now constitutes the 3rd Base Hospital with 600 beds. The last typhus cases were discharged at the end of July, and the entire capacity of the hospital is adapted for the many surgical and medical cases which any new movement of the army must inevitably bring. Contributions will be welcomed by the Honorary Treasurer of the Committee, T. O. Roberts, Manager London County and Westminster Bank, 217, Strand, W.C.

MEDICAL OFFICERS WANTED.

1st North Midland Field Ambulance, R.A.M.C.(T.F.).
Wanted urgently for service overseas (three medical men for commissions; also two others for third line unit. Apply Lieutenant-Colonel Dawson, 2 1st North Midland Field Ambulance, Watford.

3rd Home Counties Field Ambulance.

There are a few vacancies for medical officers in the 3rd Home Counties Field Ambulance, R.A.M.C.(T.). Apply to Commanding Officer, Smith's Lawn Camp, Windsor.

England and Wales.

AUXILIARY HOSPITAL IN CARDIFF.

A VERY successful fête for the benefit of Division No. 1, Glamorgan Branch of the British Red Cross Society, was opened at Roath Park, Cardiff, on August 14th, by the Countess of Plymouth, who said that the funds were required to equip the old Mansion House as an auxiliary hospital to the No. 3 Western General Hospital. Lady Plymouth praised highly the work done by the British Red Cross Society in the war, and, in reply to a vote of thanks, moved by the Lord Mayor of Cardiff, thanked the Glamorgan branch of the society for the great help it had given in the collection she made for Serbia. Mr. Lynn Thomas, C.B., in proposing a vote of thanks to the Parks Committee and to Mr. A. W. Pettigrew for the great assistance he had given to the committee in making the arrangements for the fête, said that, thanks to the hard work of the Countess of Plymouth, the county of Glamorgan had as strong a voluntary aid organization as almost any county in the British Isles. The work done by voluntary aid detachments in the war had exceeded the expectations of even their most sanguine supporters. The programme of the fête included ambulance and nursing competitions, gymnastic displays, and concerts. Music was rendered by the band of the 3rd Battalion of the Welsh Regiment. The ambulance competition, carried out under the supervision of Dr. Sparrow, Commanding No. 1, V.A.D., Lieutenant H. Davies, 5th Welsh, Dr. Howell Rees, J.P., and Dr. F. E. Smith (Lord Mayor-elect), was won by Glamorgan No. 1, V.A.D. (Red Cross), with 123 marks, and No. 75, V.A.D. (St. John), was second with 12½ marks. The nursing competition was won by Penarth Nos. 86 and 108 (Red Cross), under the command of Miss Gatheridge. Much of the success of the fête was due to the hard work of the Ladies' Committee, of which Mrs. Lynn Thomas is chairman and Miss Perry the able honorary secretary. The estimated proceeds of the fête amount to £280.

THE BRITISH ASSOCIATION MEETING IN MANCHESTER.

The arrangements for the coming meeting of the British Association in Manchester are now fairly complete, and in spite of the inevitable gloom cast over the meeting by the war there is every prospect of a successful meeting. In one respect indeed the war may add to the interest, as in so many aspects of the war scientific problems have to be faced which will undoubtedly receive much attention. For the benefit of the members of the association a *Hand-book* has been published by the Manchester University Press and Messrs. Longmans, Green and Co., under the editorship of Mr. H. M. McKechnie, which, while of chief use for visitors, will also prove of permanent interest to Manchester citizens. It commences with a brief historical sketch of Manchester and Salford by Professor Tail, and an account of "Manchester of To-day" by Mr. W. H. Mills. A fairly full account is also given, by Councillor E. D. Simon, of the municipal enterprises of Manchester, including sanitation in all its aspects, methods for the prevention and treatment of disease and the preservation of infant life, the water supply, and so on, while another article by Mr. S. P. Grundy gives some account of the various organizations for social amelioration. Canon Scott has written a most interesting account of the Manchester Cathedral, and Professor Tout a valuable article on the Manchester University in its historical and sociological aspects. Professor Wild is responsible for an article on the medical charities of the district and there are numerous other articles dealing with the literary, dramatic, musical, artistic, and commercial activities of Manchester. The

book also contains some excellent illustrations, including reproductions of some of the Town Hall frescoes of Madox Brown, and an impression of the university by night by Lieutenant Delcigne, who was recently killed in action.

The first general meeting of the association will be held in the Manchester Free Trade Hall on Tuesday, September 7th, when the president-elect, Professor A. Schuster, F.R.S., will deliver his presidential address. The various sectional meetings will commence on Wednesday, September 8th, and will end on Friday, September 10th. On the evening of the Wednesday there will be a reception by the Lord Mayor at the Municipal School of Technology, and arrangements have been made for a number of popular evening lectures not only in Manchester, but in Salford, Bolton, Rochdale, and Oldham. For the convenience of members attending the meetings rooms will be set apart at or near the university for refreshments, and for writing and postal accommodation. The secretaries who have charge of all local arrangements have their offices at 38, Barton Arcade, Manchester.

PROVISION IN SALFORD FOR PANEL PRACTITIONERS
AWAY ON ACTIVE SERVICE.

The difficulties that have occurred in numerous towns throughout the country with regard to the allowances which panel practitioners have agreed to make to their fellow practitioners who are away on active service have in some respects been lessened in Manchester and Salford by the fact that all the money available for the payment of panel doctors is first pooled, and it is thus easy to allot any sum decided on for the absentees. The system adopted as regards insurance practices is, with some differences in detail, the same in Manchester and Salford. In Salford account is first taken of the amount received during the previous year by each man now away with the forces. This is, of course, definitely known, and during his absence with the forces each practitioner will receive 60 per cent. of his previous year's receipts, this payment being made a first charge on the panel pool. Account will, of course, be taken of the fact that the panel fund is now considerably reduced owing to the large number of insured persons who have enlisted, and the 60 per cent. will suffer some reduction in this way just as all the panel doctors will have to suffer on this account. The total panel fund has never been sufficient to pay at the full tariff rate for all the attendances actually rendered and, in order to legalize the deduction to pay the absentees anything, the written consent of each panel practitioner has had to be sought beforehand. With very few exceptions, this consent has been obtained, and the method, on the whole, has worked well. In Manchester, as it happens, the majority of the doctors who have joined the forces have not been among those with the largest insurance practices, and the charge on the pool to pay them the full amount of their previous year's receipts will hardly amount to more than about 5 per cent. of the whole pool. But in Salford it happens that several of those now with the forces had large insurance practices and 60 per cent. of their previous takings amounts to a very large sum. The panel fund in 1915 is estimated to be fully 16 per cent. less than it was in 1913, the pool having fallen from £29,387 to about £24,750 as nearly as can be estimated. This means a great reduction in the income of all the panel practitioners. In addition, to pay to all those away on active service 60 per cent. of their previous takings would have meant a further reduction of the pool to the extent of nearly 10 per cent., and if any other members of the panel joined the forces, the charge on those remaining at home threatened to become unbearable, and it was considered that some limit must be fixed.

A meeting of the Salford panel practitioners was accordingly held last week, and it was decided that in no case should more than a total of 10 per cent. of the pool be allowed for the payment of the absentees. As this amount was already almost reached, and as it was felt that on no account should any obstacle be placed in the way of any other panel practitioner joining the forces, it was decided that the maximum allowance to any one should be £300 for a whole year. With this proviso the 10 per cent. deduction from the pool will, it is believed, suffice to pay 60 per cent. of their previous takings to as many doctors as can be spared consistently with leaving a sufficient

number at home to look after the insured patients in a satisfactory way. From the unanimity of the general meeting it is not anticipated that there will be any difficulty about this scheme. Under the Salford system of payment by attendance, insurance patients may change their doctor whenever they think fit, and this right cannot be interfered with. If the patients of the absentee doctors distributed themselves evenly among all the doctors remaining at home the matter would be plain. But naturally it happens that most of the former patients of the absentee doctors go to the doctor who resides nearest to the surgery of the absentee, while doctors living at a distance get no increase in their patients. This leads to some unfairness, as the reduction of the pool affects all the panel. The meeting was accordingly adjourned for a week in order that some scheme to remedy this inequality might be considered. At the adjourned meeting it was not found possible to remove this difficulty entirely, but in order to minimize it as much as possible it was provided that no allowance should be made to any absentee doctor who makes any arrangement for his patients to go to any particular doctor during his absence.

Scotland.

THE DEMAND FOR A MIDWIVES BILL FOR SCOTLAND.

It was stated a fortnight ago that a memorial was being signed in Scotland asking for the introduction as a Government measure of a Midwives Bill for Scotland. The memorial, which is dated August 19th, has now been presented, and copies have been sent to members of Parliament for Scottish constituencies. The following is the text of the memorial:

Memorial to the Right Honourable H.M. Secretary for Scotland, and to the Right Honourable the Lord President of the H.M. Privy Council.

We, the undersigned, representing the Medical Faculties of the Universities, the Royal Medical Corporations, and the Medical Officers of the Maternity Hospitals in Scotland, desire strongly to urge the importance of the passing without delay of a Midwives Bill for Scotland.

It will be within your recollection that the need for such a measure was unanimously expressed by the medical and nursing professions in Scotland last year: that the private members' bill on the subject (which passed through the House of Lords) was dropped in the House of Commons mainly for want of time at the end of a busy session.

Since then a situation of very grave urgency has arisen out of the war.

A large number of medical practitioners throughout Scotland have been called away for war service. The result of this is that it will be impossible for those practitioners who still remain to overtake all the attendance on midwifery cases that is necessary.

A large amount of midwifery practice will therefore of necessity fall into the hands of midwives and unqualified women. These persons, many of them absolutely untrained, are under no such official or medical supervision as is provided in England.

The situation constitutes, in our opinion, a national emergency, and calls for an immediate remedy, which we believe is only to be found in the enactment of a Midwives Bill for Scotland similar to the bill of last year.

The need for such a bill was already great, independently of the present war conditions. The war has, however, made this need a most pressing one, and it will continue to exist for many years to come owing to the depletion of medical practitioners throughout the country.

In favour of taking immediate action, we would further urge the recent precedent by which the Notification of Births Act was by special legislation made applicable to the whole country in order to meet a national emergency arising out of the war conditions. This measure will fall of its full beneficial effect in Scotland unless it is supplemented by the Midwives Act, for which we desire to plead.

JOHN A. KYNOCN, M.B., F.R.C.P.E., F.R.C.S.E., Professor of Midwifery and Dean of the Faculty of Medicine, University of St. Andrews; Obstetric Physician, Dundee Royal Infirmary.

THOMAS H. BRYCE, M.A., M.D., F.R.F.P.S.Glasg., F.R.S.E., Dean of the Faculty of Medicine, University of Glasgow.

MURDOCH CAMERON, M.D., Regius Professor of Midwifery, University of Glasgow; Obstetric Physician, Royal Maternity Hospital, Glasgow.

JOHN M. MURDOCH, M.D., F.R.F.P.S.Glasg., Professor of Obstetrics and Gynaecology (Murdoch Chair), University of Glasgow; Obstetric Physician, Glasgow Royal Maternity Hospital.

THEODORE SHEPPAN, M.D., F.R.C.S.E., Dean of the Faculty of Medicine, University of Aberdeen.

WILLIAM STEPHENSON, M.D., LL.D., F.R.C.S.E., Emeritus Professor of Midwifery, University of Aberdeen.

R. G. M'KERRON, M.A., M.D., Professor of Midwifery, University of Aberdeen; Physician, Maternity Hospital, Aberdeen.

HARVEY LITTLEJOHN, M.A., B.Sc., M.B., F.R.C.S.E., F.R.S.E., Dean of the Faculty of Medicine, University of Edinburgh.

A. R. SIMPSON, Kt., M.D., LL.D., D.Sc., F.R.C.P.E., F.R.S.E., Emeritus Professor of Midwifery, University of Edinburgh; Consulting Physician, Royal Maternity Hospital, Edinburgh.

J. HALLIDAY COOCH, Kt., M.D., F.R.C.P.E., F.R.C.S.E., F.R.S.E., Professor of Midwifery, University of Edinburgh; Physician, Royal Maternity Hospital, Edinburgh; President of the Edinburgh Obstetrical Society.

A. H. FREELAND, BAUCHOP, M.A., B.Sc., M.D., LL.D., F.R.S.E., President of the Royal College of Physicians, Edinburgh.

JAMES ROSSIGNON, M.D., President of the Royal College of Surgeons, Edinburgh; Member of the General Medical Council.

JOHN BARLOW, M.D., F.R.C.S., President of the Royal Faculty of Physicians and Surgeons, Glasgow.

ROBERT JARVINE, M.D., F.R.F.P.S.Glasg., F.R.S.E., Professor of Midwifery, St. Mungo's College, Glasgow, and Dean of the School; Obstetric Physician, Glasgow Royal Maternity Hospital.

D. G. MARSHALL, M.B., Major I.M.S., Dean of the School of Medicine of the Royal College, Edinburgh.

J. W. BALLANTYNE, M.B., F.R.C.P.E., F.R.S.E., Physician, Royal Maternity Hospital, Edinburgh; Lecturer and Examiner on Midwifery, School of Medicine of the Royal College, Edinburgh.

R. C. EVERT, M.A., M.D., Obstetric Physician, Dundee Royal Infirmary.

A. K. CHALMERS, M.D., D.P.H.Camb., F.R.F.P.S.Glasg., Medical Officer of Health for the City of Glasgow.

JAMES HUGH FRINGSON, M.D., F.R.C.P.E., F.R.C.S.E., F.R.S.E., Physician, Royal Maternity Hospital, Edinburgh; Lecturer and Examiner on Midwifery, School of Medicine of the Royal College, Edinburgh.

WILLIAM FORBES, M.A., M.D., F.R.C.P.E., Assistant Physician, Royal Maternity Hospital, Edinburgh.

D. BERRY HART, M.D., F.R.C.P.E., F.R.S.E., Lecturer and Examiner on Midwifery, School of Medicine of the Royal College, Edinburgh.

F. W. N. HAULTAIN, M.D., F.R.C.P.E., Physician, Royal Maternity Hospital, Edinburgh.

E. W. JOHNSON, M.D., M.D., F.R.C.S.E., Assistant to the Professor of Midwifery, University of Edinburgh; Secretary of the Royal Obstetrical Society.

J. LAMOND LACROIX, M.D., F.R.C.P.E., Assistant Physician, Royal Maternity Hospital, Edinburgh.

H. OLIPHANT NICHOLSON, M.D., F.R.C.P.E., Assistant Physician, Royal Maternity Hospital, Edinburgh.

LELLIAN L. RHEE, M.D., F.R.F.P.S.Glasg., Honorary Consulting Physician, Royal Maternity Hospital, Glasgow.

JAMES RITCHIE, M.D., F.R.C.P.E., F.R.C.S.E., Examiner in Midwifery, Royal College of Surgeons, Edinburgh.

C. F. BARBOUR SIMPSON, M.D., F.R.C.P.E., F.R.C.S.E., F.R.S.E., Assistant Physician, Royal Maternity Hospital, Edinburgh; Lecturer and Examiner on Midwifery, School of Medicine of the Royal College, Edinburgh.

A. MAXWELL WILLIAMSON, B.Sc., M.D., Examiner Royal College of Physicians, Edinburgh; Medical Officer of Health for the City of Edinburgh.

MILITARY APPOINTMENT FOR EDINBURGH SURGEON.

It is announced that Mr. Alexis Thomson, Professor of Surgery in the University of Edinburgh, who recently went to France with the rank of Major to take charge of the surgical side of a base hospital, has been appointed a consulting surgeon with the British Expeditionary Force and has been promoted to the rank of Colonel temporary.

Ireland.

THE DUBLIN HOSPITALS.

DURING the last year the Dublin hospitals have passed through a time of considerable stress, many members of the medical and nursing staffs having left to work with the medical branches of the King's forces. Notwithstanding the strain which the loss of their colleagues has put upon those who remained behind to carry on the routine work, the city hospitals have enlarged their obligations by receiving large numbers of wounded soldiers. The Board of Superintendence, in its report to Parliament on those institutions which are in receipt of grants, is generous in its praise. Despite the universal anxiety caused to the managing bodies by the large supplies, for example, as well as drugs and appliances—a high standard of efficiency is reported in every case. Only in one instance is there any qualification—that of the Hardwicke Hospital, which is old and unsuitable in many ways. Even there good work is done in difficult circumstances. The accommodation and equipment, as well as the personal services of managers, staff, and friends, in all the other cases receive

high praise. The Board expresses interest in the open-air treatment which is in practice at Stevens's Hospital. "The patients," "happy, contented, and doing well," are in the open air night and day, with no protection from the weather except what is given by plentiful bedclothes and a lean-to shelter.

POOR LAW MEDICAL OFFICERS WHO HAVE JOINED THE ROYAL ARMY MEDICAL CORPS AND THEIR SUBSTITUTES.

Some of the Irish Poor Law medical officers who have joined the Army Medical Service have recently found considerable difficulty in arranging with boards of guardians for their substitutes. Many boards have given every facility to their Poor Law medical officers to join the Army Medical Service, undertaking to pay them half, and in some cases their full, official salaries and that of their substitutes during their absence. It is to be regretted, however, that a Kerry board of guardians recently refused, not only to pay during his absence the salary, or any portion of it, of one of their medical officers who had received a commission in the R.A.M.C., but refused to appoint the doctor he nominated to discharge his official duties and take charge of his private practice during his absence; the guardians instead appointed, by a majority, a medical certifier under the Insurance Acts. It is understood that, rather than accept the unsuitable arrangement made by the board of guardians, the doctor in question feels that he has no choice but to resign his commission in the R.A.M.C. It has been agreed upon as an ethical rule in the Poor Law medical service in Ireland that no doctor should undertake to discharge the official duties of another except on the invitation of the doctor going on leave, and this custom has been approved of by the Irish Local Government Board, which recommends boards of guardians to appoint the doctor nominated by the Poor Law medical officer seeking leave, so long as the convenience and interests of the sick poor are safeguarded. In the present national crisis the necessity for observing such a rule both by doctors and boards of guardians is all the more urgent, as it means that the doctor appointed will be available to discharge the official duties and attend to the private practice of the doctor joining the R.A.M.C.

In pleasing contrast to this may be mentioned the proceedings of a board of guardians in the west of Ireland, where a guardian, when proposing that one of their medical officers should receive his annual holiday, said that they could not do too much for their medical officers, as all three of them had sons fighting at the front, and in one instance an only son.

MILITARY APPOINTMENT FOR A BELFAST SURGEON.

The many friends of Mr. Andrew Fullerton, M.D., M.Ch., F.R.C.S.I., will be glad to hear of his appointment to the post of consulting surgeon to the army in France, with the rank of colonel in the R.A.M.C. Mr. Fullerton has been one of the workers in the Belfast Medical School, and has been distinguished more especially perhaps in his urological work, but also in general and children's surgery. He is at present surgeon to the Royal Victoria Hospital, surgeon to the Queen Street Hospital for Sick Children and to the Ulster Volunteer Force Hospital, and has been examiner in surgery in the Royal College of Surgeons of Ireland. The profession in Ulster will thoroughly and unanimously endorse the suitability of the appointment, and will with confidence look to Mr. Fullerton to uphold the high traditions of Irish surgery.

LOCAL GOVERNMENT BOARD INQUIRY.

Arising out of a recent Local Government Board inquiry as to an allegation of neglect of duty preferred against Dr. Hart, medical officer of the Killoughy Dispensary District, and medical certifier under the Insurance Act in Ireland for the Killoughy and adjoining districts, the following letter was read from the Local Government Board at the last meeting of the Tullamore Board of Guardians:

The Local Government Board for Ireland have had before them minutes of the proceedings of the board of guardians at their special meeting held on the 13th inst. (July) to consider the Board's letter of the 3rd inst., communicating the result of the recent sworn inquiry into charges preferred against Dr. Hart, medical officer of the Killoughy Dispensary District, in the case of the late Mrs. Gorman, a dispensary

patient. The two final paragraphs of the Board's letter were as follows:

"The Local Government Board, on consideration of the evidence, are of opinion that the charge of drunkenness put forward in this case has fallen through, but they think that Dr. Hart was seriously wanting in his duties towards the patient in abandoning her at a critical time, and that he should have remained in attendance and administered restoratives and requisitioned the assistance of a second doctor, so that if he succeeded in reviving the woman he could then, with the extra professional help, have made further attempts to complete delivery. The Board take a grave view of Dr. Hart's conduct in this case, but before arriving at a final decision, they would be glad to be favoured with an expression of the guardians' opinion on the subject. A special meeting should be summoned to deal with this important matter, and the guardians, when considering it, should also take into account their local knowledge of Dr. Hart's general conduct and attitude toward the sick poor and the manner in which he discharges generally his duties as medical officer."

The guardians' unanimous resolution in reply stated that "the guardians are not in a position to give an opinion on indirect hearsay evidence, and they consider that if any other action is required that the Local Government Board inquire into the matter themselves in the district of Killoughy." The Local Government Board, on a review of the facts, are of opinion that Dr. Hart, by his gross neglect in the case of the late Mrs. Gorman, has forfeited his rights to his position, and they request that the guardians will have the goodness to call on him for his resignation.

J. E. DEVLIN,
Secretary, L.G.B.

KILKENNY BOARD OF GUARDIANS AND THE INSURANCE ACT.

As the result of the unsatisfactory state of medical certification for sickness benefits under the Insurance Act in Ireland, the Kilkenny Board of Guardians passed a resolution calling on the Insurance Commissioners "to dissolve themselves."

WORKHOUSE MEDICAL OFFICERS AND THEIR HOLIDAYS.

As the result of an order made by the Cork Board of Guardians, their workhouse medical officers addressed the following letter to the guardians:

Cork District Hospital,
July 23rd, 1915.

We see by a report of the proceedings of a meeting of the board of guardians held on last Thursday that the guardians have declined to appoint a substitute for a member of the medical staff during his vacation, and have given him vacation provided his duties be performed by other members of the medical staff. We would call the attention of the board to the fact that they have paid for substitutes on our annual holidays for nearly twenty years, and continue to do so for the dispensary medical officer. As we have over a thousand patients under our care, and are liable for duty for the whole twenty-four hours, we regret we are unable to act for each other in the manner suggested, and we ask the board to kindly reconsider this resolution referring to provide a substitute for each of us during vacation.

(Signed) W. ASHLEY CUMMINS, M.D.
J. GIBSON, M.D.
D. MORRISSEY,
JAMES T. O'CONNOR.

After a good deal of discussion the guardians, by a majority of 13, passed a resolution declining to pay their contribution towards the expenses of medical substitutes for their workhouse medical officers when on holidays, and requiring their duties to be discharged, without extra remuneration, by other members of the medical staff. At the same meeting of the guardians a member handed in notice of motion calling on the Local Government Board to dissolve the Cork Board of Guardians and appoint two paid guardians in the interest of the sick poor and the ratepayers.

DUBLIN PUBLIC HEALTH.

At the last fortnightly meeting of the Public Health Committee of the Dublin corporation, Sir Charles Cameron, C.B., reported that the death-rate from all causes in the city during the two weeks ended August 14th was 14.8 per 1,000 persons living, and that this was 3.9 below the mean rate for the corresponding period in the previous ten years. The deaths from the principal infectious diseases, exclusive of tuberculosis, were in the ratio of 2.5 per 1,000, and were 0.5 below the average. In the first quarter of the present year there was a very high death-rate both in the city and in the township and in many English towns. In this period the death-rate in the city was 31.4 per 1,000, and in the township 23.2 per 1,000. In the second quarter, ended

June, 1915, the rate in the city was only 20.8 and in the township 19.0, or only 1.8 less than in the city. In the city the rate from infectious diseases was unusually low, 1.4, whilst in the township it was 1.7. The committee expressed a strong opinion that during the warm weather it was of the utmost importance that there should be a daily removal of the contents of ashbins, specially those of the tenement houses. As this is the season in which the fly peril is most pronounced, it is most desirable that all refuse in which they breed should be promptly removed.

VACCINATION.

At the last meeting of the South Dublin Union the vaccination question was again discussed; it came up on a notice of motion protesting against the carrying out of vaccination, and asking that the board should take no further action in enforcing the vaccination laws in the union. The chairman said that the Local Government Board had already obtained a mandamus against some boards of guardians in the High Courts and compelled them to carry out the Vaccination Acts. The same course would be adopted in regard to the South Dublin Union if the Acts were not enforced, and while he was chairman he would not have that done. One guardian said there were three children in the new Kilmainham ward in "an awful state," due to vaccination. On the motion of the chairman a resolution was unanimously adopted requesting the medical officers in the case of two unsuccessful vaccinations to report direct to the board of guardians.

The Wexford Board of Guardians has decided by 19 votes to 6 to prosecute a number of vaccination defaulters, of whom there are 2,500 in the district.

Sydney.

SECRET REMEDIES.

THE Board of Health has recently been active in prosecuting some firms for selling a patent medicine known as "Vitatadio." Messrs. Elliott Brothers were prosecuted under the provisions of the Pure Food Act for distributing this preparation, as it was claimed by the prosecution that the information set out in a pamphlet descriptive of this preparation was false. The pamphlet stated that "Vitatadio is a great herbal remedy for Bright's disease; it has cured Bright's disease, hydatids, stricture, cancer, consumption, and ringworm, and it will cure the most severe cases of hydatids, tumorous growths, lung trouble, and heart trouble." An analysis carried out by Dr. Cooksey, the Government analyst, showed that the preparation contained alcohol, 11 per cent. by weight (=2.5 per cent. proof spirit); salicylic acid, 0.5 grain to the pint; tannin and vegetable extractives, including gentian, sarsaparilla, and a trace of senna or rhubarb. Evidence was given by Dr. J. Burton Cleland, principal Government microbiologist, by Dr. W. Palmer, the Medical Superintendent of the Waterfall Sanatorium, and Dr. Arthur A. Palmer, the Government Medical Officer, that any preparation compounded in accordance with the analyst's report could not cure Bright's disease, cancer, or hydatids. In defence, the proprietor stated that, as far as he knew, the claims that the preparation had cured the diseases named were true. He maintained that the analysis put forward was incorrect; that the preparation contained some spirit and salicylic acid but no tannin, sarsaparilla, rhubarb, or senna. In addition to the two preservatives named there were only two ingredients: one was a herb known to witness and the other he had purchased in Tasmania. The ingredients cost him 3d. a bottle, and he estimated that the cost of compounding, etc., brought the amount up to 10d. He sold the mixture at 4s. a bottle, and had sold about £6,000 worth last year. The magistrate held that the case against the defendants had been proved and imposed a fine of £10, with 6s. costs.

During the hearing of a case brought against Messrs. Washington H. Soull Pattinson and Co., Ltd., by the Board of Health it was stated that the manufacturer made the preparation at a cost of less than 1s. per bottle, that the defendants obtained it at 4s. and retailed it at 5s. 6d., thereby making a profit of 37½ per cent. on the sale of a

bad article. The defendant firm was fined £10, with 6s. costs.

The Director-General of Public Health of New South Wales has directed attention to a notice appearing in the *Government Gazette* prohibiting the advertisement or sale of the drugs and appliances used in connexion with the treatment of the "Natura Health Company"—namely, Natura capsuled suppositories, the Natura cerate massage, and the Natura herbal tea. According to Section 17 of the Pure Food Act, 1908:

No person shall advertise or sell any food or drug or appliance in contravention of any notification as aforesaid, and no proprietor or manager of a newspaper or other public print shall publish any advertisement prohibited under this section, and no person shall print any such advertisement.

Correspondence.

A-NOCI-ASSOCIATION.

SIR,—Like most people, I supposed this ungainly name, or phrase, was but an extempore use, and was soon to be superseded by some more appropriate and better knit word. But it goes on, and seems to be edging itself into general acceptance. It is holding its ground, I presume, because its author does not take the trouble to improve it. Meanwhile, however, let us not use without modification a term which carries illiteracy on the face of it. The negative of "noci" is, of course, not a-noci but in-noci; this everybody should know. It would be pedantic to say that, in making names, a blend of two languages should never be permitted—for example, certain affixes, such as "itis," having a specific meaning, must be taken into general service. But it is another matter when composing a new term to compose it awry without reason.—I am, etc.,

August 17th.

INNOCCUS.

NOTIFICATION OF BIRTHS.

SIR,—Dr. T. W. H. Garstang, in your issue of August 14th, puts himself right in reference to the actual words of Section 1 (1) of the Notification of Births Act, and I agree that he did tell the Representative Meeting that "a person shall not be liable if he satisfies the court that he had reasonable ground to believe that the notice had been duly given by some other person." Indeed he emphasized this qualification. Further, he insisted that the term "medical practitioner" is not mentioned in the Act; and he urged these considerations apparently for the purpose of minimizing the contention that the Act compelled medical practitioners to reveal information gained while acting in a confidential capacity. The attitude seems a strange one on the part of the Chairman of the Medico-Political Committee of an Association which conducted an active agitation against the measure when it was originally before Parliament, and, however dexterous a verbal defence may be constructed for the argument, there remains the hard fact that practitioners have been summoned and fined for failing to effect notification. It is quite true that the Act does not mention the medical practitioner in so many words, but it puts under a possible penalty "any person in attendance upon the mother, at the time of, or within six hours after, the birth," and in view of this phrase the comment that the term "medical practitioner" is not specifically recited can hardly be regarded, whatever be its forensic worth, as a serious contribution to the discussion.—I am, etc.,

London, W., Aug. 23rd.

C. O. HAWTHORNE.

DE MULTIS REBUS.

Sir Peter Eade.

SIR,—Sir Peter Eade was a fine specimen of the general physician, interested in every department of medicine, and keeping himself abreast of the vanguard of knowledge to the end of a very long life. Though he had not the fine presence of the typical East Anglian, he had the mental characters of the race, and preserved to the last the pleasant East Anglian pronunciation of English, the most grateful to the ear of all varieties of English speech, and with the exception of Welsh-English, which is spoken with the syllabic separation of a foreign tongue, the most

distinctly pronounced. The most notable event of Sir Peter's life has not been mentioned by any of your contributors. He was in the terrible railway accident at Thorpe in 1874, and was one of the few passengers who escaped uninjured. There was but a single line between Norwich and Yarmouth, and owing to the mistake of a telegraph clerk, who was subsequently convicted of manslaughter, two trains were started from the opposite ends at about the same time. As soon as they were started, and were beyond reach—for there were no intermediate signals—it was known that a collision was inevitable, and doctors and appliances were collected in Norwich and sent in a following train. Sir Peter Eade's experience, as he related it to me three or four years afterwards, was that he was sitting in the train reading the newspaper, when he suddenly found himself lying in a meadow by the side of the rails gazing at the wreck of two trains. How he got there he never knew, but supposed he must have been slung out of the window; and, of course, he could only guess how long he had lain there unconscious. He was attended to by that fine surgeon, his friend Mr. Cadge, who, like himself, received all the civic honours that the city of Norwich, once the third city in the kingdom, could bestow.

Pruritus ani.

Ne autor, etc., is a good rule, and it may seem a violation of it if I comment upon Mr. Lockhart-Mummery's paper on pruritus ani; but it is not really a violation of the rule, because one of the matters I hammer on my last is the assignment of causes, on which I have just written a book. Mr. Lockhart-Mummery tells us that some writers put down the cause of pruritus ani as constitutional, others think it is due to enlarged anal papillae, and so forth. I wonder what the writers who call the cause constitutional have in their minds. I should suppose they mean that the cause is not local; that is, that it is not a local lesion or the local application of an irritant. If this is all they mean, surely it would be far better to say so in those words than to use a term like "constitutional"; that may mean anything, from hereditary transmission to a general microbic invasion. The other causes, except that assigned by Mr. Lockhart-Mummery himself, appear to have been assigned, as so many "causes" of disease are, without rhyme or reason, merely as vague speculations, based on no evidence, and of no value except as hypotheses for testing. And from what Mr. Lockhart-Mummery says it appears that they have not been tested, and in that case they ought not to be adhered to. Mr. Lockhart-Mummery does test his own hypothesis, and it stands the test. The result of operations is quite consistent with his hypothesis, and he is entitled to hold it exclusively until another hypothesis is proposed that also is consistent with the facts. There is good evidence in favour of his view, but this evidence is not proof until it is shown to be inconsistent with any other hypothesis. Until then at least it holds the field. May I ask Mr. Lockhart-Mummery—and here I am wandering from my last—if he has considered diet as a possible cause of pruritus ani? I have satisfactorily proved, by valid methods of assigning causes, that some cases of this troublesome complaint are due to a diet of cheese. In cases that I have observed the consumption of cheese is always followed in a few hours by an attack of pruritus; no such attack ever occurs in these persons except after eating cheese; and the severity and duration of the attack are roughly proportional to the amount of cheese consumed. These observations, if they are correct, leave no doubt that the consumption of cheese is a cause of pruritus.

Insanity.

It is difficult for me to find terms to express my acknowledgement of Dr. Cassidy's extremely handsome appreciation of my work. As I read his letter I rubbed my eyes and pinched myself, for I thought I must be reading my own obituary notice. When I say that my medical colleagues ignore my doctrines, I mean those of them who have written on insanity. In the great multitude of publications on this subject that pour from the press there is scarcely one in which any doctrine of mine is mentioned, or in which my name appears in the index or the bibliography. Now, my doctrines may be wrong from top to bottom and from beginning to end, but, whether right or

wrong, they are revolutionary. They propose a complete revolution in our notion of insanity, in our way of contemplating its causes, in our mode of studying it, and in the law applicable to it; and therefore I contend that they are worth notice. They are worth attention. They are worth discussion. At any rate, books which pretend to give a complete account of the present knowledge and doctrine about insanity ought to mention them. But they do not. They ignore them, and treat them as if they had never been published; and they emphasize the omission by glorifying in exaggerated terms every trumpery innovation that is suggested by a German, even if it is only, as most German innovations in insanity are, a change of name. I have received the most handsome acknowledgements of the value of my doctrines from lawyers of eminence, both in this country and in the United States, from psychologists, from doctors who are not members of my speciality, and from members, interested in insanity, of the general public; but, with the exception now of Dr. Cassidy, there is scarcely one member of my own speciality who has made a sign to indicate that he has ever heard of these doctrines of mine, though they have been issued at pretty frequent intervals for the last five-and-thirty years. I do not attribute this prolonged and persistent ignoring of my teaching to any concordant design on the part of my friends the alienists. I attribute it to the fact that they are all drawn from the same intellectual class. Men whose mental constitution is such that they can adopt *locus-holus* such doctrines as those of dementia praecox and psychoanalysis are naturally unable to appreciate such teaching as mine, founded as it is upon rigorous deduction from hard facts. I do not complain that they do not adopt my views; but I think I have a right to complain that they studiously ignore them and treat them as non-existent.

Indian Doctors and Vacant Appointments.

Finally, I wish to endorse Dr. Muthu's plea for the employment of our Indian colleagues in this country. It has been my privilege to have the assistance in my practice of an Indian gentleman, and a more able, assiduous, loyal, and courteous colleague no one could wish to have. He did not remind me, though he might have done so, that his ancestors were cultured gentlemen, possessing a great literature, when mine were naked savages, painted with woad, living in caves and wattle cabins, and making, with flint knives, human sacrifices to savage gods. Our neolithic ancestors were, I am afraid, an uneducated people, but in one respect, at any rate, they were superior to their descendants—they did not idolize German teaching and treat their native teachers with contemptuous neglect.—I am, etc.,

Moorcroft, Parkstone, Dorset,
Aug. 21st.

CHAS. A. MERCIER.

EARLY MEDICAL HISTORY.

Sir,—Overlooking breadth or laxity over medical history in England may satisfy a rough general survey of details or tied examination, but thereby broader views are apt to be misapprehended, if not hidden, by these countless unrelated and tabulated facts from wide sources under tireless tied examination, an example of which is the equally popular and colourless archaeological tracings. There should be some recast or change from this older prescribed overbearing recital and limitation. In fact, I would rather rely upon a proper estimate of what may here be called Historical Sequence. Twenty-one years ago, when I was attending the lectures of the Paris University, there was a chair of many years' foundation in medical history. It was at that time kept a big detail subject; they were studying some of the French and older personal sides biographically. But the lectures would have been enhanced by this equal concordance or sensitization with a running historical sequence and not the single tabulated procession of details.

Dr. Major Greenwood in his late address, after lightly sketching in the rise of the medical practitioner, but more probably a poetic confusion of different types, from the appearance of some one or other type presented in the poetry of Langland and Chaucer, further supposed he could trace them in direct lineage to the Medici of Rome in a hereditary sense, much after the fashion of church dignitaries; however, the latter must be regarded differently, for they stand apart, with fair claim to definite lineage.

If this principle of historical sequence be adjusted, not accepting any looser literary prescription, we shall get, I think, a justness of view. As the *Don-bok* indicates a British or Saxon law, and not only a Roman descent of law, so these different types of doctors could not have descended from one type like the *Medici*. Doubtless *Medici* came over with Caesar's army, and with many subsequent generals during the nearly four hundred years of Roman domination in England. But English *Medicine* does not thereby descend from Rome. The medical families of Rome, if I remember rightly, begot *Medici* in a hereditary sense or custom. Many new *Medici* arose through the apprenticeship of slaves, who when distinguished became freed. But did the Africanus or Numidian Apuleius become Roman because of his training? Pythagoras and then Hippocrates equally certainly influenced medicine, but Rome topographically alone or separately developed the most characteristic Roman hygienic side of the medical art and practice. Europe developed many shades of medical practice, yet they did not descend from Rome simply because of the fathers (Galen and Celsus or the universally read *Flora Medicinarum* of the Salerno school (or university?). Therefore, in England, as elsewhere, the local exercises predicated and formulated the special types of doctors, and the gross or individual embarrasements were evolved out of the various sources of inspiration, all out of the essential medical-historical sequence. Bente force, at any rate in learning, cannot conquer culture. Neither willordes, nor the abominable English thraldom of examinations, nor these particular and stray *Medici* entirely account for the erring or peculiar genius, or the ordinary personnel, or the variety of callings occurring in the English history of medicine: the earlier question of English medical history must be spread to its wider issue. And, considering the early fondness for baths prevalent in Germania and in Rome and elsewhere, the bathmen, equally with the *Medici*, must have tended to spread to Britain and acted as teachers of the practice of medicine and surgery. Small operations and operators were to be seen in the baths. Traced to England, the remains of these baths I have seen unearched at Bath, London, and even at country places like Bignor. The ancient cutters for stone followed both army and peaceful vocations. Again, before the popes forbade them, the monks practised and no doubt taught surgery and medicine. So, narrowing down to the British surgeons, they would certainly have plenty of scope to train in pure surgery and surgical appliances, and not be restricted to phlebotomy and barbary.

In my first volume of *Medical Reform Measures*, 1908, when dealing with the two main channels of English medicine, I gave the concise annals from early to later days of the Royal Colleges of Physicians and Surgeons, and I there laid down, for the first time, this doctrine of the differential status of surgeons, apart from the barbers or barber-surgeons, so often described and relied upon by other writers. Of course, there occurred the subsequent junction with an equally existing Guild of Barber-Surgeons, but I claim it was dictated by the community influence of a larger commercial union, not by the community sense of learning, and that aspect should be recognized. Dr. Major Greenwood interestingly quotes the entry of a surgeon, of one type or other, to the freedom of London. A few years afterwards the records of London, as I showed in my book, acknowledged the more important proof of the full strength of an actual Guild of Surgeons and a Master. Indeed, both of these indications are useful and supporting annotations of my earlier conclusions.—I am, etc.,

H. ELLIOT-BLAKE.

Beer, Devon, Aug. 17th.

INDIAN DOCTORS AND VACANT APPOINTMENTS.

SIR,—Concerning remarks of Sir William Collins at the British Hospitals' Association¹ regarding the prejudice against the employment of Indian and other coloured medical practitioners, my experience is typical of the treatment Indian qualified practitioners get in this country at the hands of responsible people.

I first applied for a house-surgeonship at the Westminster Ophthalmic Hospital; then I applied at the Royal Eye Hospital; Sir William Collins himself supported my

application, but what the result was he has already said in his speech. On applying at the Oxford Eye Hospital I was informed the post had been duly filled, but the original advertisement which I answered is still appearing in the *BRITISH MEDICAL JOURNAL*. Six weeks back I applied at the Birmingham and Midland Eye Hospital; the original advertisement is still appearing; but I have not received any reply to my application. It is a matter of common knowledge that many of my Indian medical friends who expressed their readiness to supply the want of the War Office by their services have been told that their words "British subject" cannot include an Indian because he is not of a "pure European descent." I do not know whether a Spanish or a Swiss naturalized as a British subject could be preferable to an Indian. Is an Indian after all an equal citizen of the British Empire?—I am, etc.,

HOMI KHARAS, M.B., B.S.
London, E.C., Aug. 19th.

THE IMMEDIATE EFFECTS OF THE INHALATION OF CHLORINE GAS.

SIR,—Sir Edward Schäfer's conclusion that administration of chlorine causes no obstruction of the airway is somewhat surprising.

There is, as he points out, little or no previous evidence on the point.

Dr. Cow has, however, recently (*Lancet*, May 29th, 1915), described symptoms from inhalation of chlorine which suggested bronchiolar spasm. Hence it seemed of interest to repeat, with chlorine, observations recently made in this laboratory with the vapour of bromine (*BRITISH MEDICAL JOURNAL*, July 3rd, 1915, and *Proc. Physiol. Soc.*, July 3rd, 1915).

These have been carried out with artificial respiration, by our aspiratory method (*Proc. Physiol. Soc.*, June 7th, 1913, and *Journ. Pharmacol. and Therap.*, v, 1913), and have shown obvious obstruction of the airway which, when "gassing" was not too heavy, yielded to stramonium fumes, and which was therefore in part attributable to spasm of the bronchioles.—We are, etc.,

F. COLLA,
W. L. SYMES.
Physiological Laboratory,
University of London,
Aug. 24th.

FATIGUE DYSPEPSIA.

SIR,—In reference to Dr. Rankin's article on "Fatigue Dyspepsia" (*BRITISH MEDICAL JOURNAL*, June 19th, 1915), I should like to state that these cases can be easily cured by the treatment advocated by Girdle, Hadson, Austin, Fletcher, and many other so-called food faddists—that is, starvation and purging until appetite returns, and then the feeding on what taste demands, and ceasing when appetite and taste are appeased. The diet recommended by Dr. Rankin remains me forcibly of the diet ordered in a case of enteric fever I took over from a civil practitioner during the Boer war. The case was in about the eleventh day of disease. The diet ordered was roast chicken, with extras of beef steak, mutton chop, fish, champagne, and several other things. I inquired if the patient ate all he was ordered, and was informed that his appetite was poor, but it was hoped he would fancy something from amongst the things ordered.

Most of Dr. Rankin's patients appear to be people of sedentary habits. The diet ordered them would be more than enough for people in hard physical training if ordinary carbohydrates were substituted for "Energex" and other proprietary foods. Another thing I do not understand in Dr. Rankin's diet is why fluids are ordered six times a day, as many of the cases are stated to have a more or less pronounced dilatation of the stomach. A man who eats when hungry and chews his food normally rarely has any desire to drink more than once or twice daily, even in the tropics.

Dr. Rankin's disciplinary treatment is vague, especially the exercises. Clearly in these cases the abdominal muscles are at fault; why, then, are not the exercises directed specially towards them?

No mention is made of the correct action of the diaphragm. Any one can throw back the shoulders and expand the chest, but few people can make the diaphragm massage the intestines during ordinary respiration.

I daily see men carrying to Simla anything between 40 and 120 lb. of grass on their backs. The grass is cut about 1,000 ft. down the hillside and carried 7 to 10 miles. These men eat once daily about 1½ lb. whole wheat flour, 2 oz. unrefined sugar, a little salt, chillies, and 1 or 2 oz. clarified butter. They eat meat when they can, but as they support themselves and their families and save money on under Rs. 15 a month, it is difficult for them to buy it except rarely. Military history shows that all the hardest marches and fighting have been done on half or quarter rations. Even beasts know what the medical profession appears not to know—that is, when appetite is appeased, stop eating; when sick, lie down and starve.—I am, etc.,

F. W. COTTON, Major R.A.M.C.

Station Hospital, Jutogh, July 23rd.

THE STANDARD OPAQUE MEAL FOR RADIOGRAPHIC EXAMINATION.

SIR,—I see by the reports of the Royal Society of Medicine, Section of Electro-Therapeutics, in the *JOURNAL* of August 7th, page 219, that a standard meal for radiographic purposes has been recommended.

The recommendations so definitely stated and supported by such eminent signatories should be welcomed, for the instructions will form a good basis for working upon. Personally, I am pleased to note them, for they confirm me in opinions formed during investigations which I carried out and embodied in a thesis sent in March, 1914, to Edinburgh University for the degree of M.D., and which I hope to have published in the *Practitioner* in the near future.

The following are extracts from that thesis:

That a semi-solid, such as porridge or bread and milk, is the most satisfactory medium.

That barium sulphate is the best opaque substance to use.

That I gave the testing meals not earlier than four hours after the previous feed, allowing what I thought an average time for the stomach to become empty.

That the food was given warm so as to obviate any retarding action that a quantity of cold material might have when introduced into a stomach usually accustomed to a warm meal.

That although bismuth gives a deeper shadow than barium if equal weights are used, yet if one and a half to two parts of barium for one part of bismuth are given, then the barium shadow is quite as intense as that produced by bismuth.

That 4 level teaspoonfuls of barium sulphate (that is, fully 5½) in a 6 oz. feed (for children) produce a satisfactory shadow.

—I am, etc.,

LEONARD WILLOX, M.D., Ch.B. Edin.,
D.P.H. Camb.

Gillingham, Kent, Aug. 16th.

Obituary.

PROFESSOR PAUL EHRlich.

DIRECTOR OF THE ROYAL INSTITUTE FOR EXPERIMENTAL THERAPY AND OF THE GEORG-SPEYER-HOUSE FOR EXPERIMENTAL CHEMOTHERAPY, FRANKFORT.

On August 21st it was reported from Amsterdam that Professor Paul Ehrlich, of Frankfort-on-Main, had died suddenly the day before in his laboratory. Of Jewish parentage, he was born on March 14th, 1854, in the small town of Strehlen twenty odd miles south of Breslau, in Silesia. He received his schooling at Strehlen and Breslau; his university studies were begun at Breslau, and continued under Waldeyer at Strassburg, Cohnheim and Leidenhain were also his teachers; among his fellow-students were Professor Welch, of Johns Hopkins Hospital, Baltimore, and Professor Salomonsen, of Copenhagen. He qualified as a practitioner of medicine at Breslau in 1877. Throughout his studies he seemed to have been attracted mainly by the chemical aspects of medicine and pathology; none the less in 1878 he was appointed chief assistant to Professor Frerichs' medical clinic at Berlin, remaining there for seven years. Practical medicine was not Ehrlich's forte, and he was lucky in having a junior colleague able to relieve him of the responsibilities of his position.

At this time he was working at the staining reactions of the tissues and the blood, being the first to employ the rapidly-increasing number of aniline dyes for this purpose on a large scale. These researches incidentally led to the

discovery and characterization of the so-called "mast cells" of the blood. In 1885 he published his first important book, on the oxygen requirement of the organism, in which great use was made of the staining reactions of the various constituents of protoplasm in the interpretation of its constitution and properties; the book also contained a first outline of his side-chain theory. In 1884 Ehrlich became titular professor, and in 1887 Docent (lecturer) at Berlin University. In 1888 he developed signs of phthisis, the result of his experimental work with the tubercle bacillus. His studies were interrupted, and for eighteen months he travelled in Egypt and other countries in search of health, and, thanks to a course of treatment with Koch's newly-discovered tuberculin, found it.

Returning to work at Berlin in 1890, he was made extraordinary professor at the university, and took up the experimental study of toxins and antitoxins. In 1896 he was given the Serum Institute at Steglitz, near Berlin, to work in, but it proved too small for his activities. In 1899 he removed to the larger Royal Institute at Frankfort-on-Main, having been appointed Medical Privy Councillor in 1897. At Frankfort he took up the study of haemolysis with Morgenroth, publishing his important volume containing his collected studies in immunity in 1904. In the same year he was made ordinary honorary professor at Göttingen. Following Jensen of Copenhagen, he set to work on the malignant tumours of mice in 1902, and this line of investigation was pushed on the large scale for several years. In 1906 he moved into the extensive laboratories of the newly built Georg-Speyer-Haus at Frankfort, and here he was still working when he died. From 1906 onwards his attention was given mainly to the newly founded science of chemotherapy, and to practical applications of synthetic chemistry and his own side-chain theory to therapeutics. He devoted himself mainly to the study of the organic compounds of arsenic; he and his fellow-workers discovered (and permitted to be patented) "606," or salvarsan, in 1910; neo-salvarsan (or 914) in 1912; and sodium-salvarsan (or 1206a) in 1913. In 1912-1913 he founded the *Zeitschrift für Chemotherapie*, in conjunction with Kraus and Wassermann; this periodical is devoted to the literature of salvarsan and allied subjects on the one hand, and on the other affords a continuation of Pappenheim's *Folia Serologica*. In 1907 he became Chief Medical Privy Councillor; in 1911 Actual Privy Councillor, with the title Excellency; in 1908 he received a Nobel Prize; and in 1909 a substantial grant from the Rockefeller Institute. In England and America, too, he was not without honour, having been appointed Croonian lecturer and also Harben lecturer; he also delivered a series of Herter lectures at Baltimore. He received honorary degrees and distinctions from universities all over Europe, and was made D.C.L. Oxon. in 1907.

Ehrlich was a man of unceasing intellectual activity. In the concentration of his faculties on the problems of his researches he was absent-minded to a degree rare even among men of science from the days of Archimedes onwards. Between 1877 and 1914 he contributed as many as two hundred and twelve papers and books to the literature of science. During the same period he directly inspired the composition of over four hundred publications by subordinates and workers in his own laboratories. Further, he must be reckoned to have been indirectly responsible for the printing of uncounted thousands of original articles by chemists, clinicians, and experimental pathologists all the world over, whose contributions to the periodicals of science owed their birth to the fruitful conceptions of his brain.

In 1883 he married Hedwig Pinkus, a Silesian lady, who, with her two married daughters, survives him. For several years he lived in his eponymic Paul Ehrlichstrasse at Frankfort-on-Main.

Dr. C. H. BROWNING, Director of the Bland-Sutton Institute of Pathology, Middlesex Hospital, writes:

The death of Ehrlich has deprived the world of one of the greatest minds which have illuminated medical science. It is seldom given to one man by his discoveries to revolutionize the outlook on five or six different departments of knowledge and to open up as many unknown paths along which multitudes of others may make rich

journeys of discovery. Thus, his investigations on the staining of the leucocytes laid the foundation of modern haematology; his observation that methylene blue possesses an elective affinity for nerve endings has been the starting point of a whole school of highly fruitful neurological research; it was Ehrlich who discovered the acid-fast property of the tubercle bacillus and who devised the method of staining this organism which is practically that now in everyday use, and without which, as Koch himself admitted, the demonstration of the organism would have remained an academic accomplishment instead of becoming one of the most valuable diagnostic procedures in medicine. Similarly, by his work on the standardizing of diphtheria antitoxin Ehrlich placed the dosage of anti-serum on a scientific basis, without which von Behring's great discovery would probably have fallen in its wonderful achievement. It is well to recall the earlier work of Ehrlich, because it shows the extraordinary versatility of his mind and the remarkably long period during which he continued to produce results of first-class importance: thus the discovery of the acid-fast character of the tubercle bacillus was published when he was 29 years of age, and the "Oxygen Requirements of the Organism," which contained the germ of his chemotherapy, when he was 31, and before he had attracted the multitude of workers who later sought his laboratories. In his later days, when he was the director of the busy Institute of Experimental Therapy and the Speyer-Haus at Frankfurt, with their numerous assistants, it was occasionally forgotten what the man achieved by himself. Of course, it was true that individual workers unearthed treasures whose existence Ehrlich had not suspected or of whose sterling value he had occasionally to be convinced, but all who were capable of taking an honest and a generous view, knew well that even if Ehrlich did not always foresee the actual nature of the treasure, it was almost invariably he who had discovered the trove.

The writer worked at Frankfurt during the period (1905-7) which immediately preceded the discovery of salvarsan, and being engaged in the biological investigation of a large series of the arsenical preparations which preceded the famous "606," it was his great privilege to be intimately associated with Ehrlich in those themes which were then of all-absorbing interest to him. Ehrlich was in those days, even as earlier, an indefatigable worker, and his mind was the sharp sword which ever turned to wear through the scabbard. Had it not been for the solicitous care of his wife there is little doubt that we should have had to regret his loss still earlier. His knowledge of chemistry, especially in its bearings on biology, was immense; at the same time he possessed a power of concentration which appeared almost uncanny, and which in its capacity for eliminating trifles would quite unfit the average man for the ordinary affairs of life. Ehrlich's writings exhibit a singular felicity of expression; he had a genius for the creation of descriptive phrases, such as his famous *Corpora non agunt nisi fixata*, and this same quality made personal association with him a veritable inspiration and stimulation to fresh effort. He was extremely fond of expressing his ideas symbolically, and the diagrams illustrating his theories on immunity are an example of this; these have probably been taken much too literally, and have produced crude conceptions of the nature of the highly complex class of bodies to which toxins and antitoxins belong, which Ehrlich himself never entertained. Latterly the theories of immunity did not actively interest him, although he was at all times ready to uphold the accuracy of the enormous mass of experimental data on which they were based. It is significant that he did not regard cancer investigation with a very sanguine outlook.

Were I to attempt to characterize in brief the genius of Ehrlich, I should say that it consisted in two striking characteristics—his faculty for escaping the trammels of error in past work, and his capacity for bringing into association as the basis for experiment ideas which purely critical minds would tend to dismiss as fantastic. Having effected a synthesis, he was then pre-eminently able to grasp the essential elements. Ehrlich's power to evade the pitfalls of old error was clearly seen in his researches which led to the elucidation of the constitution of atoxyl: a belief in the accepted view of its composition as an anilide would have

effectually prevented all the further developments which culminated in salvarsan. His synthetic faculty is exhibited by the numerous reactions in pure chemistry with which his name is associated, and his keen gift for analysis is exemplified by his fundamental discoveries on the relationship subsisting between chemical constitution and biological action. This is a time at which it is difficult to see clearly, but one feels sure that the perspective lent by the future will bring into still greater prominence the influence of Paul Ehrlich on the advancement of medicine. It is singular that this man, whose practical contributions to medicine have been so numerous, probably never approached any problem in a utilitarian spirit; pure sciences frequently stand in need of apologists, and Ehrlich's whole career is a striking vindication of the pursuit of knowledge for its own sake. He who seeks finds, and Ehrlich was an inspired secker.

EDWARD LAWRIE, M.B. EDIN.,

LIEUTENANT-COLONEL, I.M.S. (RETIRED).

LIEUTENANT-COLONEL EDWARD LAWRIE, Bengal Medical Service (retired), died at Hove, after a lingering illness of over three months, on August 22nd. He was born on May 17th, 1846, and educated at Edinburgh University, where he took the degrees of M.B. and C.M. in 1867, and at Paris. He also took the diploma of M.R.C.S. in 1867. After acting as house surgeon to Professor Syme in the Royal Infirmary, Edinburgh, he entered the Indian Medical Service as assistant surgeon on March 30th, 1872, became surgeon on July 1st, 1873, surgeon-major on March 30th, 1884, and surgeon lieutenant-colonel on March 30th, 1892. He retired on May 17th, 1901. The *Army List* assigns him no war service. From 1874 to 1879 he was resident surgeon of the Medical College Hospital, Calcutta, acting for some time as Professor of Physiology in the Medical College, in addition to his other duties; from 1879 to 1885 he was professor of surgery in the Lahore Medical College, and from 1885 till his retirement Residency surgeon at Hyderabad, the premier Indian native state, a post which is one of the most important medical appointments in India.

When the hospitals for sick and wounded Indian troops were opened in Brighton in December last, he was appointed anaesthetist, and carried out his duties in the Pavilion and York Place hospitals till the beginning of his fatal illness last May. He was best known, however, for his views on anaesthesia, being an ardent advocate of the claims of chloroform to be the best and safest anaesthetic for general use. His views on the subject were published in a book entitled *Chloroform: A Manual for Students and Practitioners* (1901). It was at his suggestion that the Indian Chloroform Commission of 1889-90, of which H.H. the Nizam of Hyderabad paid the expenses, was appointed; Sir Lauder Brunton went out from England to act as president, and Lieutenant-Colonel Lawrie and the late Surgeon-General Sir Gerald Bomford (then Surgeon-Major) were the members.

Sir LAUDER BRUNTON, Bt., F.R.S., writes:

The death of Colonel Edward Lawrie was to me a great shock, and must have been so likewise to all his friends, for he retained his appearance of youth and his energy to a much greater extent than most of his contemporaries, so that it seems almost impossible to believe that more than fifty years have passed since he and I used to walk in the early mornings to the botanical class in Edinburgh University.

The great characteristic of Lawrie's character was that he was "valiant for the truth." If his zeal for truth sometimes led him to see but one aspect of it, and to be impatient or angry with those who could not see exactly as he did, this was only the result of the excessive truthfulness of his character, a characteristic that led so many of the early Christians to become saints and martyrs. While he was a student and house-surgeon in Edinburgh, Lawrie became thoroughly convinced that the view of his old teacher, Professor Syme, was correct and that chloroform only killed through the respiration and not through the heart. As many people, especially in this country, upheld the opposite view, Lawrie prevailed upon the Nizam to have a series of experiments instituted on monkeys to prove this point.

Without exception these monkeys all died from failure of the respiration. As the result of these experiments did not meet with universal acceptance, Lawrie persuaded the Nizam to have a second Commission to investigate the action of chloroform, and to this, in addition to several men from Hyderabad, he invited the late Surgeon-General Sir Gerald Bomford and myself. The amount of experimental work that we did in three months was so great that it would really have taken a man his whole time for three years to work out all that was shown by the tracings. Even yet the causation of deaths during chloroform anaesthesia has not, I think, been completely ascertained, and I am still disposed to think that shock plays a much greater part than is usually believed, and that most of the deaths occurring during the administration of chloroform occur *in it* but not *from it*. Lawrie's uprightness of character, and freedom from anything mean or petty, gained him the respect not only of the Nizam of Hyderabad, but of all who knew him, and I do not think there is one who can help saying on hearing of his death, "There is another good man gone."

Dr. J. COTTER, Sidney Place, Cork, died unexpectedly at his country residence, Bushmount, Clonakilty, co. Cork, in his 63th year. He received his medical education at Queen's College, Cork, and took the degrees of M.D. and M.Ch. in 1880. Later in his professional career he was appointed lecturer in pathology in Queen's College, Cork, where he was very popular with the students who attended his lectures and practical demonstrations. In 1894 he became a Fellow, by examination, of the Royal College of Surgeons in Ireland. At the time of the foundation of the National University in Ireland, the Queen's College, Cork, became one of the constituent colleges of this university under the name of the University College, Cork; of its governing body Dr. Cotter was made a member. Dr. Cotter was a member of the British and Irish Medical Associations, and President of the latter in 1911. He took an active part in the Insurance Act agitation, and was chairman of the Cork Borough Medical Committee for some years. The attendance at the funeral ceremony was very large, and representative of all classes, particularly of his own profession, amongst whom he was deservedly very popular.

For noble fratrum. Mr. THOMAS BASIL ETHERINGTON-SMITH, Sub-Director-General of Accounts on the Egyptian Ministry of Finance, died at Gezireh, Cairo, on August 20th, of diphtheria. On April 19th, 1913, his brother, Raymond Broadley Etherington-Smith, F.R.C.S. and M.B., Cantab., assistant surgeon to St. Bartholomew's Hospital and warden of its College, died from the results of a poisoned wound. Both brothers were but thirty-six years old at the time of their death. Both were famous oarsmen, as well as men of high intellectual capacity, and they were alike indefatigable in the discharge of their duties. Raymond studied at Trinity College, Cambridge, and "T. B." at Oriel, Oxford. In 1900 "T. B." rowed in the Oxford boat when his brother happened to be one of the rival crew, which gained the victory, and in the succeeding year "T. B." was in the Oxford boat, which on this occasion triumphed by a spirited effort towards the end of the race.

LIEUTENANT-COLONEL JOHN LEES HALL, R.A.M.C. (ret.), died suddenly in London on August 15th. He was born on April 16th, 1855, educated at St. Thomas's, and took the L.S.A. in 1877, the L.R.C.P. Edin. in 1878, and the M.R.C.S. in 1879. After filling the post of house-surgeon of the Hants County Hospital, he entered the army as surgeon on March 6th, 1880, becoming surgeon-major on March 6th, 1892, lieutenant-colonel on March 6th, 1900, and retiring on August 3rd, 1907, and rejoined the army when war broke out from August 12th, 1914. He served in the South African war in 1901-2 as principal medical officer of a general hospital in the Transvaal, and received the Queen's medal with three clasps. He was a Knight of Grace and Honorary Associate of the Order of St. John of Jerusalem.

BRIGADE SURGEON-LIEUTENANT-COLONEL JOSEPH FLEMING, R.A.M.C. (ret.), died at Castlequarter, Inch, on

August 10th. He was educated at Glasgow University, where he took the degree of M.D. in 1863. He held also the diplomas of the L.R.C.S. Edin. (1863) and the F.R.C.S. Edin. (1867). Entering the army as assistant surgeon on March 31st, 1864, he became surgeon on March 1st, 1873, surgeon-major on March 31st, 1876, and retired as brigade surgeon-lieutenant-colonel on March 31st, 1890. He served in the Ashanti war of 1873-4, medal; in the second Afghan war of 1878-80 with the Kuram field force and with the Northern Afghanistan field force, medal; and in the Sudan in 1885, at Suakin, and in the action of Tofrek, when he was mentioned in despatches in the *London Gazette* of August 25th, 1885, and received the Egyptian medal with two clasps and the Khedive's bronze star.

Universities and Colleges.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have been approved in the subject indicated:

SURGERY.—J. L. Hamilton, G. W. Hassall, E. L. Ivens, W. F. Matthews, A. L. Robinson, C. P. C. Sargent, F. Simpson, R. R. H. O. The, A. Traill.
 MEDICINE.—H. M. Arnold, G. T. Baker, B. N. Craig, E. S. Goss, H. L. Hughes, H. S. Jeffries, F. Simpson, R. R. H. O. The, A. Traill.
 FORENSIC MEDICINE.—H. L. Hughes, F. Simpson, R. R. H. O. The, A. Traill.
 MIDWIFERY.—R. M. Gray, E. L. Ivens, S. G. K. Kasiecianski, A. L. Robinson, R. R. H. O. The, R. H. Yolland.
 Section I. Section II.

The diploma of the Society has been granted to Messrs. G. W. Hassall, H. L. Hughes, H. S. Jeffries, W. F. Matthews, A. L. Robinson, F. Simpson, R. R. H. O. The, and A. Traill.

Medical News.

THE late Professor Frederick Howard Marsh, F.R.C.S., Master of Downing College and Professor of Surgery at the University of Cambridge since 1903, who died on June 24th, aged 76, left unsettled property valued at £6,903 gross, with net personality £6,581.

THE Institution of Mining Engineers will, it is announced, present the institution medal for 1914-15 at its twenty-sixth annual general meeting, to be held at Leeds in September, to Dr. John Scott Haldane, F.R.S., of Oxford, in recognition of his investigations on mine air.

THE Czar has conferred on Surgeon W. J. Gerrard, R.N.V.R., the decoration of the Order of St. Anne, Third Class, in recognition of war services. Surgeon Gerrard, who is assistant school medical officer in Aberdeen, graduated M.B. at the University of that city in 1909, and has been serving on board H.M.S. *Imperieuse*.

ON August 18th the freedom of Peterborough was conferred on Dr. Thomas James Walker, J.P., "in recognition of his long and distinguished service to his native city." The ceremony took place in the presence of a large and representative gathering. Dr. Walker was born in Peterborough, and has been in practice there for fifty-five years. His fame is not confined to his native city. He is one of the pioneers of laryngology in this country, and as far back as 1863 contributed to the BRITISH MEDICAL JOURNAL a series of papers on the laryngoscope and its clinical application. Dr. Walker was one of the first who removed a growth from the larynx *per vias naturales*. He was educated at the University of Edinburgh, and graduated M.D. at the University of London in 1861. He was for some time medical tutor and demonstrator of anatomy at Queen's College and assistant physician and pathologist at the Queen's Hospital, Birmingham. He then joined his father-in-practice at Peterborough, and was for many years on the staff of the Peterborough Infirmary, of which he is now consulting surgeon. He enlisted in the Volunteer Corps in 1860, and retired twenty years ago with the rank of Lieutenant-Colonel of the battalion. For his services as a volunteer he was awarded the decoration of V.D. Several of his sons are now serving with the forces. Dr. Walker is the author of a valuable book on the dépot for French prisoners of war at Norman Cross, Huntingdonshire, which was reviewed in the JOURNAL of April 11th, 1914, p. 822. Dr. Walker is the second honorary freeman of Peterborough, the first on whom the distinction was conferred being Mr. Andrew Carnegie, who received it in 1905.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Atology, Westrand, London, W.22, Gerrard, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.*

Queries, answers, and communications relating to subjects in which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

M. L. asks: Was the rise of the death-rate, reported in the quarterly return just published, due to the increase in the cost of living caused by the war, and did it occur mainly in any particular section of the community?

TACHYCARDIA.

"SALOT" asks for any suggestions in the following case. A female patient, aged 41, has been troubled for the last seven years with persistent tachycardia. Rest, bromides, digitalis, and strophanthus have all been tried separately and in combination without result. For the last year noises in the head and sensation of the blood circulating at the top of the head, and throbbing and pulsation of the carotids have been specially distressing. The patient menstruates every three weeks. The pulse tension is low, and there is no albuminuria. At present belladonna is being tried. Is adrenalin of any value in such a case?

ANSWERS.

RECURRENT ERYSIPELAS OF LEG.

DR. GHOFFREY PRICE (Kineton, Warwick) writes: My experience of serum and vaccine treatment of erysipelas has been happy. On the other hand, I have never heard of any serum being used prophylactically, since the effects of any serum being used in a few days. I also doubt if a vaccine would be prophylactic for more than a month or so against erysipelas. I had a case of mild recurrence seven months after a severe attack of erysipelas. I suggest that "C.D." should correct the sins of omission and commission of his patient—as regards cleanliness, exercise, diet, and evacuations, etc.—and inject a vaccine, or Parke Davis's "phylacogen," at the commencement of the attack.

THE HYPODERMIC DOSE OF CODEIN.

MR. LANGFORD MOORE, F.C.S. (Chief Pharmacist to St. Bartholomew's Hospital, London), writes, in reply to "Corpus Vile's" inquiry as to the dose of codein for hypodermic use: My experience may perhaps be helpful. Some few years ago I had occasion to frequently apply this drug in an 8 per cent. aqueous solution of its phosphate salt; the subcutaneous dose of this solution being one cubic centimetre. The clinical effect was due to their profound depressant effect on the sympathetic ganglia, their administration, in a pathological condition, is not unaccompanied with danger; that objectionable feature now appears to be overcome by the use—hypodermically—of eserin sulphate, which, combined with strychnine, while acting on muscle, does not produce such medullary disturbances. The untoward after-effects of codein are central, its elimination is by the rectum, therefore of no pharmacological or clinical importance. If "Corpus Vile" cares to communicate with me I shall be delighted to compare experiences.

LETTERS, NOTES, ETC.

RESEARCH IN ANTISEPTICS.

DR. W. HALE WHITE (London) writes: In your interesting article, "Research in Antiseptics" (BRITISH MEDICAL JOURNAL, August 14th, 1915, p. 262), you state that liquor sodae chlorinatae (B.P.) is practically identical with eau de Labarraque, but the *British Pharmaceutical Codex* (p. 583) states that Labarraque's solution is one-fourth the strength of the B.P. solution. You also state that eau de Javelle is made by treating chlorinated lime with sodium carbonate, but the *British Pharmaceutical Codex* states that it is a solution of chlorinated potash. Both the BRITISH MEDICAL JOURNAL and the *British Pharmaceutical Codex* are being so largely used as antiseptics, that I feel sure that many of your readers will be grateful to you if you would kindly tell them which is correct, the BRITISH MEDICAL JOURNAL or the *British Pharmaceutical Codex*.

* * * The statement that eau de Labarraque is practically identical with liquor sodae chlorinatae (B.P.) was intended to have reference only to its chemical constitution. The "solution officinale d'hypochlorite de soude" of the French

Codex Medicamentarius, for which liquor de Labarraque is given as a synonym, is between four and five times as strong as the B.P. preparation. Although eau de Javelle is a preparation in very common use in France, there seems to be some confusion as to whether it is made with sodium or potassium carbonate. It is not an official preparation, but we understand that when it is prescribed the sodium salt is intended; the potassium salt is unsuitable for application either to wounds or mucous surfaces. We are told that the confusion is probably to be attributed to a trade custom in France by which the solution of caustic soda (*lessive de soude*) used by house-painters is called "potassium." The mode of preparation of the sodium hypochlorite and boric acid solution used at Compiègne is given by Dr. H. D. Dakin in a paper published elsewhere in this issue (page 315). The formula for the similar preparation devised by Professor Lorrain Smith and his colleagues was contained in their paper published in the JOURNAL of July 24th.

SIDELIGHTS ON THE PRACTICE OF MEDICINE FROM ENGLISH LITERATURE.

DR. WM. BRAMWELL (Liverpool) writes: In view of the interesting paper on the above subject by Dr. Major Greenwood, the following extract from Lord Bacon's *New Atlantis* will be interesting as indicating what seems to have been a mediaeval title for the medical officer of health, and will also show that Bacon was not acquainted with prophylaxis against infection, and also with the necessity for quarantine.

My lord would have you know that it is not of pride or greatness that he cometh not aboard your ship; but for that in your answer you declare that you have many sick amongst you, he was wroth by the conservator of health of the city that he should keep at a distance . . . and a while after came the notary to use aboard our ship, holding in his hand a fruit of that country, like an orange . . . which casts a most excellent odour; he used it as it seemeth, for a preservative against infection, . . . and after told us, that the next day . . . we should be sent to, and brought to the Strangers' House.

Whether the designation "conservator of health" was in use at a time when such office was not have been comparatively rare, or whether it is a name of Bacon's numerous original inventions, would be interesting to know. Some philologist, however, in their extremities of refinements, would consider it a more suitable and perhaps a more dignified title than the present one, conveying a far definite meaning, and certainly more concise. "C.H." for instance, would be a better abbreviation than "C.O." though unfortunately at a decided disadvantage with that section of the public whose estimation of a medical man appears to vary with the number of letters attached to his name. Such innovation is therefore not to be thought of. It is interesting to note that what is known as a lazzaretto is referred to by Bacon as the Strangers' House.

EXPLOSION OF A MIXTURE CONTAINING SUGAR.

K. EKHOLO (*Vinska Läckarearskolepets Handlingar*, Malmö, 1915) prescribed the following mixture on April 2nd: B. Codein, phosphoric, 0.04 gram, aq. distill., 7.00 grams, viii. Tokayensis 30.0 grams. The mixture was put into a plain glass bottle, and was not used after April 7th. The bottle, which was corked, and contained about one-third of the original amount, was kept on a table by a window facing north. On April 13th a loud explosion was heard, and on entering the room a nurse found the bottle in a thousand fragments, and she also noticed a curious sound coming from the bottle. The same mixture had been prescribed for many years in the author's hospital without the generation of gas—at any rate, in appreciable quantities. He suggests that on this occasion the sugar in the wine had fermented and given off carbonic acid. It is surprising that the small quantity of sugar present in about 10 grams of Tokay wine should be sufficient to generate enough gas to burst a 100 gram glass bottle.

A CORRECTION.

THE signature to the letter from Lord Kitchener's private secretary, appended to Dr. Halliburton's letter on medical students and the war (JOURNAL, August 21st, p. 312), should have been printed H. J. Creedy.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	0	0
Each additional line	0	3	0
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

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NOTE.—It is against the rules of the Post Office to send postage stamps to the advertiser in initials or numbers.

THE

British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

LONDON: SATURDAY, SEPTEMBER 4TH, 1915.

EDUCATIONAL NUMBER. SESSIONS 1915-1916.

THE PROFESSION OF MEDICINE.

The main object of this issue of the BRITISH MEDICAL JOURNAL is to meet the needs of two classes—those who require information as to the course which must be followed in order to become a legally qualified practitioner of medicine, and those who, having already obtained this position, are doubtful as to what particular part in medicine they should choose as a career.

In this country the conditions with which those who desire to enter the medical profession must comply are regulated by a statutory body known as the General Medical Council, and a statement of its requirements will be found on page 355. The task of examining candidates as to their fitness to practise medicine is left to the universities and to certain corporations in England, Scotland, and Ireland. But the Council takes steps to ensure that the tests imposed do not fall below a certain standard, and that none of these bodies admit to their examinations persons who have not undergone certain definite courses of instruction at one or other of the many recognized medical schools.

Successful candidates at such examinations eventually receive from the body holding them either degrees, in the case of the universities, or diplomas or licences, in the case of the corporations, entitling them to claim that their names shall be inserted in the *Medical Register* kept by the General Medical Council. The difference in the result is, however, no criterion of the comparative difficulty of the examinations undergone, nor yet of the expenditure in time and money demanded by the education necessary to pass them. At one time the holders of diplomas and licences formed the great majority of all medical men, especially in England and Wales, but of recent years universities have greatly multiplied. Consequently so many medical men now hold degrees that, save in exceptional circumstances, the wisest course for a medical student is to aim at a degree, though it may be desirable to take also a diploma or licence.

Apart from the degrees and diplomas and licences, on the strength of which the General Medical Council admits to the *Medical Register*, most of the bodies in question bestow on candidates who have passed

further examinations higher titles, such as "Fellow" and "Doctor of Medicine." It may be said that as a rule they are worth obtaining, though the difficulty of doing so, and the added professional status they confer, vary considerably. There are also a certain number of diplomas in special branches of work, such as public health and tropical medicine, which are superfluous in the case of the great majority of medical men, but either useful or absolutely necessary in the case of those who wish to specialize in the work covered by them.

The expenditure involved in successfully completing a medical curriculum varies so much that no single precise statement on the subject can well be made. Apart from differences in the charges made by different medical schools for instruction, there are differences also in the fees for examination, as well as in those charged for the actual certificates given to successful students, whether these relate to degrees, licences, or diplomas. Besides this, not all medical students, however industrious, get through their examinations with equal facility. Since in any case their professional education must continue for at least five years a period exceeded by the vast majority—and since the cost of living in different parts of the kingdom varies considerably, and personal expenditure varies still more, it can only be said that no one should think of entering the profession of medicine who is unprepared to spend on his medical education a sum of about £1,000.

When once a medical graduate, diplomate, or licentiate has obtained the insertion of his name on the *Medical Register* there are many courses open to him. He can aim at becoming a general practitioner; or at entering one of the Government services at home or abroad; or at specializing in public health or asylum work, or in pure science, or in one or other of the many modern subdivisions of medicine and surgery. Most of these different paths in medicine are considered in some detail elsewhere, but a few observations may here be made as to the first and best of them.

A man becomes a general practitioner either by taking a house and waiting for patients to seek his services, or by entering into partnership with some

already established practitioner. The successful conduct of a private practice entails, however, the possession of a great deal of knowledge other than that acquired at the medical schools, and consequently no man is likely to be accepted as a partner, or to prove successful as an independent practitioner, unless he has first gained experience in private practice as an assistant. The pay of assistants was at one time very small, but of late years has risen to what is quite a respectable figure, when consideration is paid to the fact that most assistants are still more or less *in statu pupillari*. Their average pay before the war was probably between £150 and £250 a year.

The path of those whose ambitions lie in the direction of becoming consultants or specialists is rugged. Their eventual success will depend not only upon their mental attainments and capacity for hard work, but on their possession of the various qualities which help to win for a man the confidence both of his colleagues and of the general public. Moreover, since it is certain that, however well equipped they may be, they will not for many years make as specialists enough to pay their outgoings, this particular path is open only to those who are in possession of sufficient means to maintain themselves for an indeterminate number of years, or who are able, by teaching or in other ways, to make sufficient to defray their expenses.

It is not the purpose of this number to put forward any opinion as to what paths in medicine offer the greatest attractions, whether financial or scientific. Whatever the branch of medical or surgical practice chosen, it must be remembered that the large majority of medical men make but a moderate income. The financial returns of even the most successful practitioners compare but ill with those obtained by persons of equal ability in other walks of life. The Insurance Acts stand for a movement that has done much to convert the general practitioner who is on the panel into a part of a piece of official mechanism, but nothing to maintain or improve the status of the medical profession, unless it be by the increased opportunities for scientific work afforded by the Medical Research Committee established under the Act of 1911. The full effects of the National Insurance scheme on the profession cannot yet be estimated, for, in spite of modification by many hundreds of successive orders, circulars, and regulations, it is still far from having reached any stable form. In consequence, the prospects of members of the medical profession must still be regarded as uncertain so far as they are influenced by the Act.

Of even greater importance may be the influence of the present war upon the medical profession. Its immediate effect is obvious. Three months ago Mr. Tennant stated in the House of Commons that nearly six thousand medical men had been taken out of civil practice by the army alone; it is estimated that the naval and military services of the Crown will withdraw several thousand more medical practitioners from their employment in Great Britain and Ireland. The consequent scarcity of doctors already makes itself felt throughout the country, at a time of year when the demands upon their services are normally at their lowest. When autumn passes into winter and sickness is naturally more prevalent among the civil

population, no doubt this scarcity will be much more severely felt. What of the more distant future? The war has naturally reduced the number of medical students very considerably. Without going into detail, it is possible to sum up this aspect of the matter by quoting Sir Donald MacAlister's estimate, given at the opening of the summer session of the General Medical Council three months ago, that during the next few years the diminution in the number of those qualifying for medical practice will be at the rate of about two hundred and fifty a year. In addition, it is necessary to take into consideration the number of medical men—no small number, alas!—who lay down their lives in the service of their King and country, and will never return home when the war is over. Our reserves of professional men are at no time large, and have been depleted long ago. It requires no great gift of prophecy, therefore, to say with some assurance that, though peace will liberate many medical practitioners from military duty, a distinct numerical shortage of medical men some years after the war has been brought to a successful conclusion may be expected. Will there be patients for them to treat? We believe there will. After the South African war there was more than the average amount of sickness. If history repeats itself, the same thing will occur again at the end of the present war. It is justifiable to cleave to the sunnier side of doubt, and to believe, *pace* Mr. Harold Cox, that this exceptional war will not be followed by a long period of national exhaustion and poverty. It would appear, therefore, that those whose minds turn towards medicine as a profession should not be deterred by the conditions prevailing at the moment from embarking now upon their chosen career. The attractions it will offer after peace has been re-stored may well be greater and do not seem likely to be less than they were before the outbreak of war.

Finally, it should be noted that a quality every medical man should possess is a strong sense of *esprit de corps*. Medicine, like the Church, is a profession which the general public—as also public authorities—persistently regards as being of a semi-philanthropic character. Furthermore, it is a profession whose aims and requirements are very ill understood by persons who have not undergone a medical education, including in that term not only a certain number of years at a medical school, but also a certain number of years passed in the actual practice of medicine. Consequently the interests of the medical profession, both on its financial and scientific sides, are continually being attacked, sometimes openly, sometimes insidiously. For this reason it is absolutely essential that medical men should band themselves together for the common protection of themselves and the profession that they represent, and to this end join the British Medical Association¹ as soon as they have entered their names on the *Medical Register*. For the objects of this body are to promote the progress of medical science and the interests of the medical profession, and its past history shows that it has well fulfilled them.

¹ The ordinary subscription of members resident within the United Kingdom is £2 2s., but as from January 1st, 1915, those admitted within two years from the date of their registration pay only 25s. until the expiration of four years from such registration. Members resident outside the United Kingdom pay 25s. to the parent Association.

THE GENERAL MEDICAL COUNCIL.

The General Medical Council is a body which was called into existence by the first Medical Act of 1858. A certain number of its members are elected by the medical profession, and the rest—who form the great majority—are nominated by Government itself and by the universities and such medical corporations of the United Kingdom as have a statutory right to issue diplomas. Its head quarters are at 299, Oxford Street, and it has branch offices at 54, George Street, Edinburgh, and 35, Dawson Street, Dublin. Its duties are to control the medical and dental professions in the interests of the general public, and to that end to maintain a register of legally qualified practitioners. It is admission to this Register, and not the possession of a medical degree or diploma, that constitutes a person a legally qualified practitioner. The Council is bound to admit to the Register those who hold the degrees or diplomas granted by the bodies represented among its members, but it can prescribe the terms on which those bodies shall grant such diplomas or degrees, and it can erase from the Register the name of any medical man or dentist who has been convicted before a court of law of an ordinary crime or of a serious offence against public morality, or who is proved before the Council itself to have been guilty of certain actions which the Council regards as professionally infamous. Its disciplinary powers are strictly limited to legally qualified practitioners, and it has no control whatever over irregular practitioners of any kind.

An account of the regulations that the Council has drawn up in respect of the education of medical students here follows and should be carefully studied. The primarily important things to note about them are that they entail (1) the production of proof of a certain degree of proficiency in subjects of preliminary or general education; (2) application for registration as a medical student either at the head-quarter office in London or at one of the branch offices in Edinburgh and Dublin, although this latter requirement is not invariably enforced.

PRELIMINARY EDUCATION.

The subjects of which proof of efficient knowledge must be produced by applicants for registration as medical students are as follows:

- (1) *English*: Grammar; paraphrasing; composition; questions on English history and geography.
- (2) *Latin*: Grammar; translation into English from unprescribed Latin books; translation into Latin of a continuous English passage, and of short idiomatic English sentences. In the case of natives of India or other Oriental countries, whose vernacular is other than English, a classical Oriental language may be accepted as equivalent to Latin.
- (3) *Mathematics*: Arithmetic; algebra, including easy quadratic equations; geometry, including the subject matter of Euclid, Books I, II, and III, and simple deductions.
- (4) One of the following subjects:
 - (a) *Greek*: Grammar; translation into English from unprescribed Greek books; translation into Greek of short idiomatic English sentences; or
 - (b) *A modern language*: Grammar; translation into English from unprescribed books; translation of a continuous English passage, and of short idiomatic English sentences.

The Council does not hold an examination itself in these subjects, but expects a candidate to prove his knowledge of them by the production of evidence either that he holds a degree in arts or that he has passed one or other of the tests imposed by various educational bodies which it recognizes for this purpose. Such tests include the matriculations of universities at home and abroad, and the "local examinations" held by the Universities of Oxford and Cambridge, the "leaving" and other examinations held by the Education Departments in Scotland, Ireland, and Wales, as also the examinations of the College of Preceptors and the Educational Institute of Scotland. In regard, however, to nearly all these tests the Council qualifies its acceptance of them by some condition, and these vary so considerably and are so numerous that the leaflet issued by the Council should itself be studied.

REGISTRATION OF MEDICAL STUDENTS.

In addition to showing that he has passed one of these examinations, any person applying for registration as a medical student must (1) produce satisfactory evidence that he has attained the age of 16 years; (2) show that he

has commenced medical study at a university or school of medicine, or at a teaching institution recognized by one of the licensing bodies and approved by the Council. The commencement of professional study will not be reckoned as dating earlier than fifteen days before the date of registration.

Application for registration should be addressed to the Registrar for the division of the United Kingdom in which the applicant is residing—England and Wales, or Scotland, or Ireland. It must be made on a special form, which can be obtained on application at the offices either of the General Medical Council itself or of one of the various licensing bodies and medical schools, and when forwarded it should be accompanied by the certificates as to age and general education.

The regulations with regard to registration apply equally to medical and dental students, with the exception that in the case of the latter pupillage with a registered dental practitioner may be regarded as a commencement of professional study, and that applications for registration should be addressed to the London office only.

PROFESSIONAL EDUCATION.

The rule is that it is only from the date which appears against his name in the *Students' Register* that the medical student's career officially begins; thereafter five years must pass before he can present himself for the final examination for any diploma which entitles its lawful possessor to registration as a qualified medical practitioner under the Medical Acts.

There are, however, certain important exceptions to this rule: thus (1) to meet the circumstances brought about by the dates at which sessions of the medical schools commence and end, the close of the fifth year may be reckoned as occurring at the expiration of fifty-seven months from the date of registration. (2) Graduates in arts or science of any university recognized by the General Medical Council, who have spent a year in the study of physics, chemistry, and biology, and have passed an examination in these subjects for the degrees in question, may be held to have completed the first of the requisite five years. (3) The Council will accept as six months of that year six months passed, subsequent to obtaining a certificate in general education, as a student of chemistry, physics, or biology at any teaching institution recognized by a licensing body and approved by itself. In any case, the period of five years must be one of bona fide study, and during its course education in the following subjects must be pursued and examinations passed:

- (i) Physics, including the Elementary Mechanics of Solids and Fluids, and the rudiments of Heat, Light, and Electricity.
- (ii) Chemistry, including the principles of the science, and the details which bear on the study of medicine.
- (iii) Elementary Biology.
- (iv) Anatomy.
- (v) Physiology.
- (vi) Materia Medica and Pharmacy.
- (vii) Pathology.
- (viii) Pharmacology and Therapeutics.
- (ix) Medicine, including Medical Anatomy and Clinical Medicine.
- (x) Surgery, including Surgical Anatomy and Clinical Surgery.
- (xi) Midwifery, including Diseases peculiar to Women and to Newborn Children.
- (xii) Theory and Practice of Vaccination.
- (xiii) Forensic Medicine.
- (xiv) Hygiene.
- (xv) Mental Disease.
- (xvi) Anaesthetics.

The practical study of Subject (xi) shall not commence until the student has held the offices of Clinical Clerk and Surgical Dresser, and the work done in connexion with it must follow prescribed lines. The Council also expects that study of the Subjects (viii) to (xvi) shall extend over not less than twenty-four months subsequent to success at the examination in Subjects (iv) and (v). It also now recommends licensing bodies to require of candidates at their final examinations evidence of instruction in the administration of anaesthetics and in infectious diseases, and of sedulous attention in hospital wards, out-patient departments, and post-mortem rooms, as clerks and the like.

Wherever the first of the five years is spent, the next three must be passed at one of the schools of medicine recognized by any of the licensing bodies enumerated in the schedule to the Medical Act of 1858. The final or fifth year the Council recommends should be devoted to clinical work at any public hospital or dispensary at home

or abroad which is recognized by any of the licensing bodies.

SPECIAL CONSIDERATIONS.

The requirements of the General Medical Council in respect of the education of those who desire to enter the medical profession have now been given in sufficient detail, but before leaving this part of the subject the steps which the aspirant should take may finally be rehearsed in their due order:

- (1) Pass an examination in arts;
- (2) Enter himself at a medical school or other scientific institution recognized by the Council;
- (3) Get himself registered as a medical student;
- (4) Study for a minimum of five years certain prescribed subjects;
- (5) Meanwhile pass sundry intermediate examinations; and, finally, at the end of the fifth year, one which will entitle him to receive at the hands of a licensing body a legal authority to practise.

The Arts Certificate.—There are, however, other important considerations; thus, it is not a matter of indifference what certificate of proficiency in general education, or arts, the student obtains. The General Medical Council, it is true, will accept any of the large number of tests to which reference has been made, and this, too, is the case with practically all the college corporations in England, Scotland, and Ireland. But all the licensing bodies are not equally accommodating; some of the universities require that their own ordinary matriculation should be passed, others have special matriculation examinations for those wishing to join their medical faculty, and a third and larger number will accept any arts degree and certain matriculation examinations, as well as several other of the tests entered in the Council's list.

The first thing, therefore, the future medical student should, if possible, decide is at what degrees or diplomas he intends to aim, and then find out what arts certificate will be required. If he cannot decide the question in advance, the best course probably would be to matriculate at London University, choosing as two of his optional subjects Latin and one other language, so as to meet the requirements of the General Medical Council with respect to general education. It is a troublesome examination in many respects, but gives a wide choice of subjects, and has the advantage of being accepted as sufficient testimony to general education by a larger number of bodies than is any other analogous examination.

The Minimum Period.—Another point to remember is that the period of five years mentioned is a minimum; a good deal more will almost certainly be required even by the man of good abilities and reasonable industry. Besides these qualities, a student to obtain a registrable qualification in the minimum period of five years, or fifty-seven months, must have a considerable amount of good luck; in other words, he must keep in good health through every term, and never fail at a single examination. Otherwise it is almost inevitable that his career as a student should be prolonged for a greater or smaller number of months beyond the possible minimum. Thus, for instance, a student before presenting himself for any examination has to get what is called "signed up" for the subjects covered by that examination; this means that his teachers have to certify that he has attended the required number of lectures or classes in the subjects in question. If, however, the student happens to be ill during the term when such lectures or classes are taking place, he may miss a sufficient number of them to make it impossible for him to be "signed up." Then, again, should a student fail to satisfy the examiners at some examination, he cannot present himself again for re-examination for at least three months. This fact generally entails further consequences, because, apart from the student's success at the next stage in his career being imperilled by his having to give up some time to restudying the subjects in which he has failed, the Examining Boards in the majority of instances insist upon a definite interval elapsing between a student passing one examination and his presenting himself for that which should follow it. Then, again, many Boards refuse to recognize lectures and classes which have been attended at a date anterior to that at which the student has passed the requisite examination in earlier subjects. Failure at an examination may thus not only mean

deferment of the date of examinations, but deferment of the commencement of the student's study of certain subjects. It is thus exceedingly easy for a student to fail to qualify in five years, and, as a matter of fact, the vast majority of students take very much longer than that period.

Furthermore, in speaking of the minimum period, it is to be remembered that that time is only sufficient to gain a registrable qualification, such as a Bachelorship of Medicine or Surgery or a diploma of one of the Royal Colleges. These are quite sufficient for the purposes of general practice, or for entering the Services, etc., but those who wish to take a higher qualification—for instance, the F.R.C.S. Eng.—must prolong their work for another year or more. So, too, must in some cases they who desire to convert their Bachelorship into an M.D. This may entail further formal examination, but at some universities the M.D. is obtainable on presentation of a thesis when the Bachelor has attained a certain age, and has practised his profession for a certain number of years. However, a student's career proper may be considered, perhaps, to have ended at the time he obtains his first registrable qualification, for while preparing himself for any further tests he can, and usually does, hold some junior appointment which more or less covers his expenses.

The Normal Course.

In conclusion, it may be convenient to sketch the general fashion in which the student will pass his five years or more, but discussion of this need not be prolonged, because once a student has entered at a school, and chosen the degrees or diplomas at which he wishes to aim, the dean of the school will guide his steps in every particular.

Whatever the precise final goal, the path thereto is in all cases identical in broad outline. Practically it is divided into three stages, the conclusion of each being marked by an appropriate examination. In the first stage the student acquires a more or less extensive knowledge of the preliminary sciences—chemistry, physics, and biology; in the second he studies anatomy and physiology; and the third he devotes to the real work of his future life—medicine and surgery and their branches. During each of these stages the student must attend not less than the prescribed number of lectures and classes to ensure getting "signed up" in the subjects of the stage, and also do a very considerable amount of practical work. As for the examinations at the end of the stages, these are known by different titles by different examining bodies, but "preliminary science," "intermediate," and "final" are in common use. Some bodies demand that the student should pass in all the subjects of one stage at one time; others allow the candidate to present himself in each of the subjects separately, thus multiplying the actual number of examinations, but limiting their scope. There are also differences in the requirements of the different licensing bodies as to the length of each stage, but practically all demand that the second shall be longer than the first, and the third not shorter than the second. By the length of the allotted stage the candidate may gauge the comparative importance the licensing body attaches to the subjects within the stage and the difficulty of the tests it will impose, and he may feel certain that the time allotted is none too much.

In any case it should be the aim of the student to get through his first two stages as quickly as his abilities and the regulations will allow; and, as a rule, he should have completed the first stage by the end of his first year, and may hope to complete the second stage not later than the end of his third year. He will then have two years in which to prepare for his final examination, and it will prove a very crowded period, for he has to get into it not only medicine, surgery, and midwifery proper, but many other allied subjects, such as pathology and bacteriology, forensic medicine, gynaecology, and therapeutics. In the first of the final two years he may be able to complete his formal lectures, and thus have the fifth year for entirely practical work and private study; during those two years, too, he will take part in the work of his hospital by holding clerkships and dresserships in the wards and out-patient department for the periods laid down by the licensing bodies. Then, at length, after perhaps a few weeks of special coaching, he will be ready to present himself for his final examination, which the regulations of most bodies

will allow him to divide into two or more parts. The final examination passed in its entirety, he will be able to claim registration as a qualified medical practitioner at the hands of the General Medical Council, and become an independent personage. There is still room for him to continue a student's career if he will, for, apart from the higher qualifications to which reference has been made, it may seem to him worth while to devote time to acquiring greater knowledge of some particular branch of medicine, such as ophthalmology or laryngology, or to undergo the courses of study necessary to obtain a diploma of special proficiency in questions of public health (page 385), or in tropical medicine (page 383). Points such as these, however, the student will be fully capable of deciding for himself when he has reached the stage to which our account has now brought him.

The next matters to be considered, therefore, are the requirements in detail of the different licensing bodies, and what they have to offer in the way of degrees and diplomas.

THE WAR.

The Executive Committee of the Council reports that its recommendations respecting the courses of medical study represent, in general terms, the minimum curriculum that should be required by the various licensing bodies. But it recognizes that during the present national emergency it may be advisable for them to modify or even suspend their regulations. It feels sure, however, that the licensing bodies concerned will recognize the importance, in the public interest, of maintaining unimpaired the present standard of knowledge and skill required of all who seek to be admitted to the status and privilege of registered practitioners. It will therefore be desirable to secure in every instance that the requirements of the minimum curriculum are to be substantially fulfilled. The standard of the qualifying examinations, in other words, is to be maintained.

The English Universities.

THERE are eleven universities in England and Wales, and some account of each of them follows. With one exception they all have fully developed medical faculties. The exception is the University of Wales, whose constituent colleges are those of Aberystwith, Bangor, and Cardiff. It is in a position, however, to grant degrees, and has laid down a six years' curriculum for candidates for the M.B. degree, and it already provides, at the School of Medicine at Cardiff—of which an account will be found at page 376—thorough training in the work of the first three or four years.

UNIVERSITY OF OXFORD.

The professional degrees conferred by this university are those of Bachelor of Medicine (B.M.), Bachelor of Surgery (B.Ch.), Doctor of Medicine (D.M.), and Master of Surgery (M.Ch.). It also grants a diploma in State Medicine and a diploma in Ophthalmology. On receiving the B.M. the candidate is entitled to registration by the General Medical Council. In favourable circumstances this degree and the B.Ch. may be obtained in six or seven years from matriculation. Before receiving either, however, the candidate must have taken a degree in Arts (B.A.), for which three years' residence within the university is necessary. This, however, does not necessarily mean deferment of professional study for that period; for some of the subjects chosen for the final stage of the arts course may be the same as those in which examinations would in any case have to be passed for the medical degrees.

THE B.A. DEGREE.

A candidate may obtain the B.A. degree in either of the following ways:

(a) By passing Responsions (or one of the examinations which are accepted as equivalent), Moderations, a Scripture examination, or, in the event of a candidate objecting, an examination in some substituted book; and the Final Pass School in three subjects, two of which may be the

same as two in the preliminary examinations in natural science.¹

(b) By passing Responsions, an additional subject in Responsions, the Scripture examination, some of the preliminary examinations in the Natural Science School,¹ or the Preliminary Examination and the School of Jurisprudence, or the Honour School of Mathematics in the first public examination; and one of the final honour examinations.

Responsions and the additional subject may be passed before a candidate is a member of the university;² Moderations and Scripture can be passed in or after the second term; the final pass school may be taken any time after Moderations; a final honour school may be taken at the end of the third or within the fourth academical year—that is, twelve or sixteen terms respectively; the preliminary examinations of the Natural Science School may be taken as soon as Responsions have been passed.

PROFESSIONAL DEGREES.

To obtain the B.M., B.Ch. degrees the candidate must first pass in four of the subjects of the Preliminary Examination of the Natural Science School—namely, physics, chemistry, zoology, and botany.

He then has two further examinations to pass—the First M.B. and the Second M.B. These take place twice a year, the first on the Thursday, the second on the Wednesday, of the eighth week of Michaelmas and Trinity terms. Every candidate at the First M.B. is examined in human anatomy and also in physiology and in organic chemistry, unless he has previously taken a first or second class in the two latter subjects in the Natural Science School. Once he has passed this examination he can, on production of certain certificates, be examined as soon as he pleases in pathology, forensic medicine, and hygiene, materia medica, and pharmacology³ (subjects of the second examination), but cannot present himself for the remaining subjects—medicine, surgery, and midwifery—until the twenty-fourth term from the date of his matriculation, and not until a period of at least twenty-two months have elapsed from the date of his passing the first examination, and he must take all the three subjects at one and the same time.

D.M. AND M.Ch. DEGREES.

A Bachelor of Medicine who wishes to proceed to the M.D. must have entered his thirty-ninth term and must present a dissertation for approval by the appointed examiners. If a candidate for the M.Ch., he must have entered his twenty-seventh term and must pass an examination which is held in June.

TEACHING.

The several colleges provide their undergraduate members with tutors for all examinations up to the B.A. degree. In addition, the university provides certain courses of instruction, including lectures, demonstrations, and practical work, which cover all the subjects of the Preliminary Examination and First M.B., and in part those of the Final Examination. For the diploma in State Medicine and the diploma in Ophthalmology certain of the courses can be taken in Oxford.

SCHOLARSHIPS.

The several colleges grant scholarships of £50 a year, tenable for four years, in natural science, chemistry, physics, and biology. Exhibitions of varying value are also awarded in these subjects. Particulars can be obtained on application to the college tutors. A Radcliffe Travelling Fellowship of £200 a year, tenable for three years, is conferred annually; candidates must have taken the B.M. degree. A Philip Walker Studentship in Pathology of £200 a year, tenable for two years, is awarded biennially for the encouragement of research in pathology, as also are the Rolleston Memorial Prize, for research in natural science (including pathology), and the C. Theodore Williams Scholarships in Anatomy and Physiology, and in Pathology, of the value of £50 each, tenable for two years. A Burney Yeo King's College Hospital Scholarship of £50 is awarded annually.

¹ The four subjects of the medical preliminary examinations are four of the subjects in the natural science preliminary, and can be commenced directly after passing Responsions.

² Membership is constituted by matriculation and by becoming either a member of a college or hall, or a non-collegiate student.

³ A candidate who passed in materia medica and pharmacy under the old regulations in the First Examination before April 14th, 1902, is exempt from the examination in materia medica and pharmacology in the second examination.

FEES.

An annual fee of £2 10s. is paid to the university for the first four years, being reduced to £1 when the B.A. has been taken. For the degree the fees are—the B.A., £7 10s.; the B.M. and B.Ch., £14; the D.M., £25; the M.Ch., £12. College fees, varying in amount, are paid for the first four years of membership and in taking degrees. Tuition fees vary from £21 to £30. The minimum annual cost of living during the three university terms may be regarded as not less than £120.

UNIVERSITY OF CAMBRIDGE.

THE professional degrees given by this university are those of Bachelor of Medicine (M.B.) and Bachelor of Surgery (B.C.), which entitle the possessor to admission to the Register by the General Medical Council and the higher degrees of Doctor of Medicine and Master of Surgery. It also grants diplomas in State Medicine and Tropical Medicine to persons who are registered medical practitioners, but not necessarily graduates of the university. A candidate for the M.B., B.C. degrees need not possess a degree in arts; it is sufficient if he has passed the *Previous examination* or some other examination accepted by the university as its equivalent.

PROFESSIONAL EXAMINATIONS.

To obtain the M.B., the candidate must pass three examinations, of which the latter two take place twice a year, in the Michaelmas and Easter terms; those who are finally successful receive the B.C. degree without further examination.

First M.B. or Preliminary Examination in Science.—This comprises (1) chemistry, (2) physics, (3) elementary biology. The parts may be taken together or separately. In either case the candidate before admission to examination must have satisfied the requirements in respect of the *Previous examination*, paid the matriculation fee, and entered on his first or some later term of residence. The examination is held three times a year—in October, December, and June.

Second M.B.—This examination, which cannot be passed until the first examination has been completed, comprises Part I, human anatomy and physiology; Part II, elementary pharmacology, including pharmaceutical chemistry and the elements of general pathology. No one may enter Part II unless he has passed Part I. The candidate must be signed up in both subjects and have dissected for six months.

Third M.B.—This is divided into two parts, to neither of which is the candidate admitted until he has passed the examinations previously mentioned. A candidate for the first part, which deals with surgery and midwifery, must be signed up in these subjects and have completed two years of hospital practice.

Before admission to the second part the candidate must have completed five years of medical study and be duly signed up in all subjects. He must also possess certificates showing that he has fulfilled all the recommendations as well as the requirements of the General Medical Council. The examination consists of principles and practice of physic, pathology, and pharmacology.

Act for the M.B.—Before receiving his degree, a candidate who has been successful at the Final M.B. has to write a thesis. This he reads in public on an assigned day, and is then questioned concerning it and other subjects of medicine by the Regius Professor of Medicine. If approved at this test he is then certified as having "kept the Act" satisfactorily, and in due course receives his degree. Medical degrees may be taken in absence, the candidate sending a thesis to the Regius Professor of Physic, which is laid before the Board.

THE HIGHER DEGREES.

The M.D. degree may be taken by an M.B. of three years' standing, after keeping a further Act and writing a short extempore essay, in which he may deal at his choice with either medicine, physiology, pathology, or State medicine. The M.C. degree may be granted to a candidate who has qualified for the B.C. at least three years previously; he is then examined in pathology, surgery, surgical anatomy, and surgical operations, or submits books or writings of his own which constitute

original and meritorious contributions to the science and art of surgery.

FEES.

In addition to college fees, tutorial fees, and the expenses of living, the following examination fees are payable: First M.B., £4 4s.; Second M.B., £4 4s.; Third M.B., £9 9s. For schedules referring to the examinations, lists of schools recognized by the university, and other information, application should be made to the University Registry.

UNIVERSITY OF LONDON.

UNDER the regulations of the University of London, the degrees obtainable in the Faculty of Medicine are those of Bachelor of Medicine and Surgery, Master of Surgery in two branches, and Doctor of Medicine in six different branches. The university has its own matriculation examination, and this is of so peculiar a kind that candidates should secure and carefully study the booklets relating to it.

In no circumstances is a degree granted to any one in less than three years after the date at which he passed the Matriculation Examination or obtained registration in some other way; and unless they are already registered medical practitioners of a certain age and standing, all students must pass not less than five and a half years in professional study subsequent to matriculation. Four and a half of those years must be passed at one or more of the medical institutions or schools at home or abroad recognized by the university for the purpose; and not less than one school of the university itself.

PROFESSIONAL EXAMINATIONS.

M.B., B.S.—There are three examinations, the two last being subdivided. They are held twice a year.

The First Examination covers inorganic chemistry, general biology, and physics, there being two papers, a practical test, and a possible viva voce test in each subject. The names of successful candidates are placed in alphabetical order, with a note as to any subject in which a candidate has distinguished himself.

The Second Examination, Part I, cannot be passed within six months of the passing of the First Examination. It covers organic and applied chemistry, the candidate's knowledge being tested as in the earlier examination. It is a pass examination, but a mark of distinction may be won.

Candidates for Part II must have passed the First Examination at least eighteen months previously besides having completed Part I of the Second Examination. The subjects are anatomy, physiology, and pharmacology, the tests being written oral and practical. Candidates who fail in one subject may offer themselves for re-examination in that subject alone if the examiners think fit.

No candidate is admitted to the Third M.B., B.S. examination within three academic years from the date of his completing the Second Examination. The subjects are medicine (including therapeutics and mental diseases), pathology, forensic medicine and hygiene, surgery, and midwifery and diseases of women. They may be divided into two groups, one comprising medicine, pathology, forensic medicine and hygiene, and the other surgery and midwifery and diseases of women. Either group may be taken first at the option of the candidate, or the groups may be taken together. Only candidates who show a competent knowledge of all the subjects comprising a group are passed. There is no separate examination held for honours, but in the list of successful candidates the names are divided into an honours list and a pass list, in each of which the names are placed in alphabetical order, and a university medal may be awarded the candidate who has most distinguished himself in the whole examination.

THE HIGHER DEGREES.

M.D.—An examination for the M.D. is held twice yearly—in December and July. Every candidate must have passed the examination for the M.B., B.S., unless he became M.B. before May, 1904. He may present himself for examination in any one of the following branches: (1) Medicine, (2) pathology, (3) mental diseases and psychology, (4) midwifery and diseases of women, (5) State medicine, (6) tropical medicine; and, if he

wishes may pass *abes* in another branch at a subsequent examination.

The period that must elapse between acquiring the M.B. and sitting for the M.D. in any branch varies with the nature of the candidate's previous work between one year and two years, and in all cases evidence must be afforded of special study of the subject chosen, whatever the branch; both written and practical examinations must be passed, though exemptions can be obtained from the former in exceptional circumstances. In each branch the scheme of examination is the same: two papers on its special subject, a paper on an allied subject—for example, medicine in the case of branch (4), pathology in branch (1)—an essay on one of two suggested topics connected with the special subject, and a clinical or other practical test. In any branch of the M.D. Examination a gold medal of the value of £20 may be awarded.

M.S.—The regulations with regard to the Mastership in Surgery are of a corresponding kind, but there are only two branches in which it may be obtained—General Surgery and Dental Surgery.

FEES.

For Matriculation: £2 for each entry. First Examination: £5 for each entry to the whole examination. For re-examination in one subject the fee is £2. Second Examination, Part I: £2 for the first and each subsequent entry. Second Examination, Part II: £8 for each entry to the whole examination. For re-examination in one subject the fee is £4. M.B., B.S. Examination: £10 for each entry to the whole examination, and £5 for examination or re-examination in either group. M.D. and M.S. Examinations: £20, and £10 on re-examination.

THE WAR.

The University of London has made some alterations and additions to the regulations for internal and external students in respect of the war; thus a temporary commission in either the Royal Army Medical Corps or the Royal Naval Medical Service, held during the continuance of the war, will be considered equivalent to an approved appointment.

Clinical service during the continuance of the war for a period of not more than twelve months will similarly be accepted by the University.

UNIVERSITY OF DURHAM.

To its own graduates, who may be of either sex, this university grants the degrees of Bachelor and Doctor of Medicine (M.B. and M.D.) and Bachelor and Master of Surgery (B.S. and M.S.); it also grants special degrees and diplomas in State Medicine, Psychiatry, and Dental Surgery.¹ To become a graduate, however, at the university it is not necessary to pass the major portion of the five years' curriculum within its precincts, or even to commence that period by matriculation. It is sufficient if, before he presents himself for his final examination, the candidate has passed at least one year in study at the University of Durham College of Medicine, including the practice of the Royal Victoria Infirmary in the same city. The earlier examinations may be passed while the student works elsewhere, but not less than a year must elapse between the time that the student satisfies the requirements of the university as regards matriculation and his presenting himself for the Final M.B., B.S. Examination.

MATRICULATION.

The university has its own matriculation examination, but accepts the tests of a considerable number of other educational bodies as a full or partial equivalent. A list may be obtained on application.

PROFESSIONAL EXAMINATIONS.

There are four professional examinations for the M.B., B.S. degrees. They are held twice a year—in March and June. The first deals with elementary anatomy and biology, chemistry, and physics; the second with anatomy and physiology; the third with pathology, elementary bacteriology, medical jurisprudence, public health, materia medica, and pharmacy. At the final M.B., B.S., the candidate is examined in medicine and clinical and psycho-

logical medicine; surgery and clinical surgery; midwifery and diseases of women and children; clinical and practical gynaecology; therapeutics; diseases of the throat, nose and ear; diseases of the skin; and diseases of the eye.

M.D. A Bachelor of Medicine who wishes to proceed to this higher degree must be of at least two years' standing, and satisfy the university that he knows either Greek or German. He then submits a typewritten essay dealing with original work or observations of his own, and is examined in its subject. If the candidate is not an M.B. of the university, he must be a practitioner of fifteen years' standing and submit to special tests.²

B.S.—A candidate for this degree must have passed the examination for the M.B. of the university, and have attended courses on operative surgery and regional anatomy. He must then perform operations on the dead body before the examiners.

M.S.—Candidates for this degree must, like those for the M.D., satisfy the authorities as to their knowledge of Greek or German, and must have been engaged in practice for at least two years subsequent to becoming B.S. Durham. They are submitted to an examination which covers the whole range of surgical knowledge.

FEES.

The following fees are payable: Matriculation or its equivalent, £1 10s.; First, Second, and Third M.B. Examinations, each £5; Final M.B., £10; M.D., B.S., and M.S., £5 for each examination and £6 6s. for each degree. Further information respecting the examinations and degrees may be obtained from Professor Howden, at the University of Durham College of Medicine, Newcastle-on-Tyne.

VICTORIA UNIVERSITY OF MANCHESTER.

This university grants the four ordinary degrees in medicine and surgery, M.B. and Ch.B. and M.D. and Ch.M.; a diploma and a degree (B.Sc.) in public health; a certificate in factory and in school hygiene; a diploma in physiological medicine; and a degree and diploma in dental surgery. Candidates for degrees must pass the special Matriculation Examination prescribed by the Faculty of Medicine (or some equivalent examination accepted in lieu thereof; see the prospectus of the Joint Matriculation Board), and study at the university itself for at least two years of the five years' curriculum, one such year being subsequent to the passing of the First M.B. Examination. The Matriculation Examination comprises (1) Latin, (2) mathematics, (3) the English language, its literature and history; (4) English history; (5) two subjects at choice, one of which must be a language approved by the Joint Board, the other being elementary mechanics, or physics, chemistry, geography, natural history, or botany. It is held in July and September.

PROFESSIONAL EXAMINATIONS.

M.D., Ch.B.—There are four examinations for this degree. They must be passed in proper order, and before admission to them the candidate must be duly certified as having attended in the subjects involved. At all examinations the subjects, or groups of subjects, prescribed can be taken separately or together, as the candidate pleases. The First M.B. is divided into Part I, inorganic chemistry and physics; Part 2, biology (including animal and vegetable morphology, physiology, and laboratory work); Part 3, elementary organic chemistry and bio-chemistry. The parts may be taken separately or together. At the Second M.B. the candidate is examined in anatomy and physiology; at the Third in pathology, hygiene, and pharmacology and therapeutics (including materia medica and practical pharmacy). The Final Examination includes medicine, systematic and clinical (separate papers being given on mental diseases), and diseases of children, surgery (systematic, clinical, and practical, with a separate paper on ophthalmology), obstetrics and gynaecology, and forensic medicine and toxicology.

M.D.—A candidate for this degree must be an M.B. of at least one year's standing. He has a choice between presenting an original dissertation or undergoing a written (practical and clinical) examination in medicine, and a written and practical examination in pathology, and one other subject to be selected by the candidate.

¹ See pp. 282 and 283.

² See p. 282.

Ch.M.—A candidate must have held, since becoming Ch.B., and for not less than six months, an appointment in a public institution affording opportunity for the study of practical surgery, and produce certificates of having attended certain courses of study. The examination comprises the general field of surgery, including ophthalmology and bacteriology.

FEES FOR EXAMINATIONS.

The following fees are payable: Matriculation, £2; on re-admission, £1 10s. Each M.B. examination, £5; on re-admission, after failure, £2. M.D., including the conferring of the degree, £10. Ch.M., £5 each for the examination and degree. Application for further information should be addressed to the Dean of the Medical Faculty.

UNIVERSITY OF BIRMINGHAM.

This university confers the ordinary medical and surgical degrees—M.B., Ch.B., M.D., and Ch.M., and also diplomas and degrees in State medicine and dentistry. It has a plan, too, by which, extending his study to six instead of five years, the M.B., Ch.B. candidate may become a Bachelor in Science as well. Of the five years' curriculum, the first four must be spent, as a rule, at the university itself, the fifth being passed at any approved school or schools. Occasionally, however, the Senate will reduce the period of enforced residence to three years and exempt from the First M.B. those who have passed elsewhere an examination considered to be its equivalent.

All students in the Medical Faculty must either (1) matriculate in mathematics, in chemistry or experimental mechanics, in the English language and literature and history, and in Latin, and one other foreign language; or (2) show that they have passed elsewhere an examination deemed an equivalent. Subject to certain provisos, the following are at present thus regarded:

(a) The Previous Examination of the University of Cambridge if it includes the "additional subjects." (b) Responsons of the University of Oxford, except in mathematics. (c) The Matriculation Examination of a recognized university. (d) The Higher Certificate of the Oxford and Cambridge Boards. (e) The Oxford or Cambridge Senior Local Examination.

PROFESSIONAL EXAMINATIONS.

The candidate for the M.B., Ch.B. degrees has five examinations to pass. In the second and final examinations the candidate must pass in all the prescribed subjects or undergo the whole examination again.

First M.B.—This deals with chemistry, physics, and elementary biology; it may be passed before the student commences residence at the university, provided the regulations as to matriculation have been met.

Second M.B.—This deals with anatomy and physiology, and the student must pass in both simultaneously.

Third M.B.—This deals with general pathology and bacteriology, materia medica, and practical pharmacy.

Fourth M.B.—This takes place at the end of the fourth year, the subjects being forensic medicine, toxicology, public health, therapeutics and special pathology.

Final M.B.—This comprises medicine, surgery, midwifery and diseases of women, ophthalmology, and mental diseases. The candidate, in addition to more ordinary certificates, must be prepared with a certificate of having acted as a *post-mortem* clerk for three months, and received special instruction in anaesthetics and clinical instruction in diseases peculiar to women, asylum ward work, and ophthalmology. In respect to the latter he must show that he has learnt refraction work. He also has to present to the examiners reports drawn up by himself on six gynaecological cases, and certificates drawn up by himself regarding four actual cases of luecy, and notes respecting two others.

M.D.—An ordinary candidate for this degree must be an M.B., Ch.B. of not less than one year's standing. He presents an original thesis for approval, and then passes a general examination in the principles and practice of medicine. From the latter the Board of Examiners may exempt a candidate whose thesis is of exceptional merit. The regulations respecting the Ch.M. are of the same general character. Subject to certain requirements as regards special research or other post-graduate study, graduates of other universities may obtain the M.D. and Ch.M. in the same way as the holders of the Birmingham M.B., Ch.B.

FEES.

The fee for matriculation is £2, and that for each of the first four professional examinations the same amount; M.B., Ch.B. degree fee, £8; M.D. and Ch.M. examination, £10 each. For further particulars application should be made to the Dean of the Medical Faculty.

UNIVERSITY OF LEEDS.

The degrees granted in the Medical Faculty of this university are Bachelor of Medicine, Bachelor of Surgery (M.B. and Ch.B.), and Bachelor of Dental Surgery (B.Ch.D.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), and Master of Dental Surgery (M.Ch.D.). It also gives diplomas in public health, psychology, and in dental surgery.

Candidates for the M.B. must have attended courses of instruction approved by the university for not less than five years, two at least of such years having been passed in the university subsequently to the date of passing the first examination. They must also have matriculated by satisfying the examiners in (1) English (language or literature); (2) English history; (3) mathematics; (4) three of the following, one of which must be a language: (a) Latin, (b) Greek, (c) French, (d) German, (e) some other modern language approved by the Board, (f) either mechanics or physics, (g) chemistry, (h) geography, (i) natural history. Exemption from the examination may be granted to applicants holding certificates of having passed examinations of a standard deemed by the Matriculation Board to be at least equal to the Board's examination.

PROFESSIONAL EXAMINATIONS.

The examinations for the M.B., Ch.B. number three. The first deals with (1) physics and chemistry, (2) biology. In each subject laboratory work is included, but the two parts can be taken separately. For neither can the candidate present himself until after matriculation, and at least two or three terms' approved work in the respective subjects indicated.

Second M.B.—This may be taken in two parts, (a) anatomy and physiology, including practical work; (b) materia medica and pharmacy, including actual compounding of drugs. The candidate's certificates must show, among other things, that he has dissected during at least five terms.

Final M.B.—This may be divided into three parts. The first part, pathology and bacteriology, may be taken at the end of the tenth term; the second part, forensic medicine and public health, and the third part, medicine, surgery, and obstetrics, cannot be taken before the end of the fifth year; and before being admitted to the examination in its subjects the candidate, in addition to ordinary certificates, must produce proof that he has done both intern and extern maternity work, and received clinical instruction in gynaecology, in diseases of the eye, skin, or larynx, and in the administration of anaesthetics. This division covers all branches of surgery, medicine (including mental diseases and diseases of children), and obstetrics and gynaecology. Passages for translation from French and German are included in the papers on medicine. First and second class honours may be obtained in this division.

M.D.—A candidate for this degree must be an M.B., Ch.B. of at least one year's standing. He presents a dissertation embodying the results of personal observation or original research, and, if this is approved, passes an examination which consists in the writing of an extempore essay, and answering questions on the history of medicine and the subject of his dissertation.

Ch.M.—The candidate for this degree must have been admitted to the M.B., Ch.B. not less than a year previously, and during that time must have held for at least six months a surgical appointment in a public institution affording full opportunity for the study of practical surgery. In addition, he must have attended certain special courses, including one on ophthalmology and one on bacteriology; he is then examined in the subject of surgery in all its branches.

FEES.

The matriculation fee is £2, and on re-admission £1 10s. For each of the other examinations £5, and £2 on re-

admission. On conferment of the degree of Ch.M. £5 is payable, the same remark applying to the M.D. degree.

UNIVERSITY OF LIVERPOOL.

This university, besides granting degrees in medicine (M.B. and M.D.) and in surgery (Ch.B. and Ch.M.), gives a degree in dental surgery (B.D.S.), a degree in hygiene (M.H.), and degrees in veterinary science (B.V.Sc. and M.V.Sc.). Diplomas are awarded in dental surgery (L.D.S.), tropical medicine (D.T.M.), public health (D.P.H.), veterinary science (D.V.H.), and in several single subjects.

MATRICULATION.

The Matriculation Examination is governed by the Joint Matriculation Board, 24, Dover Street, Manchester, which accepts under certain conditions the tests of several other bodies as its equivalent. These include the Matriculation of London University, the Senior Local Examination of Oxford and Cambridge, the Higher Certificate of the Joint Oxford and Cambridge Board, Responsions of the University of Oxford, the Previous Examination of the University of Cambridge, the Leaving Certificate of the Scottish Education Department, and the Senior Certificate of the Central Welsh Board. Of the five years' curriculum, not less than two must be passed in the university itself, one such year being subsequent to the date of passing the First M.B. Examination.

PROFESSIONAL EXAMINATIONS.

Candidates for the M.B., Ch.B. degrees have three examinations to pass, the first including (1) chemistry, inorganic, organic, and physical; (2) biology, including zoology and botany; (3) physics. Section 2 may be taken alone or in conjunction with Sections 1 and 3.

Second M.B.—This test covers (a) (1) anatomy, (2) physiology, including physiological chemistry and histology; and (b) (3) materia medica and pharmacy, (4) pharmacology. Candidates may present themselves in (a) and (b) separately.

Final M.B.—This examination deals with six subjects, which may be taken altogether or divided into three parts: (1) General pathology, morbid anatomy, and bacteriology; (2) therapeutics; (3) forensic medicine, toxicology, and public health; (4) obstetrics and diseases of women; (5) surgery, systematic and clinical, including mental diseases and diseases of children.

M.D. and Ch.M.—Candidates for these degrees must have received the M.B. and Ch.B. at least a year previously. The M.D. candidate submits for approval a dissertation covering original work, the M.Ch. candidate undergoing an examination in all subjects of surgery, including ophthalmology. Other information concerning the diplomas of this university and its medical school will be found on page 375.

FELLOWSHIPS, SCHOLARSHIPS, AND EXHIBITIONS.

The university awards Fellowships annually to students of distinguished merit, as follows:

1 Alexander Fellowship in Pathology and Bacteriology, value £100 and tenable for one year. 2 Ethel Boyce Fellowship in Gynaecology, value £100 and tenable for one year, open to fully qualified medical students of either sex. 3 John W. Garratt International Fellowship in Bacteriology, value £100 and tenable for one year. 4 Robert Gee Fellowship in Human Anatomy, value £100 and tenable for one year. 5 Holt Fellowships in Physiology and Pathology, two in number, value £100 each and tenable for one year. 6 Johnstone Memorial Fellowship in Bio-Chemistry, value £100 and tenable for one year. 7 Thelwell Thomas Fellowship in Surgical Pathology, value £100 and tenable for one year.

There are, in addition, scholarships and exhibitions open to medical students.

UNIVERSITY OF SHEFFIELD.

The degrees of this university (M.B., Ch.B., and M.D. and Ch.M.) and the diploma in public health are open to candidates of either sex. Candidates for a degree must have matriculated in the university or have passed such other examination as may be recognized for this purpose.

PROFESSIONAL EXAMINATIONS.

A candidate for the degrees of M.B., Ch.B. must produce

certificates that he will have attained the age of 21 years by the day of graduation; that he has pursued the courses of study required by the university regulations during a period of not less than five years subsequently to the date of his matriculation, three of such years at least having been passed in the university, one at least being subsequent to the passing of the first examination. He or she has eventually to pass the following examinations in due order:

First Examination.—The subjects are chemistry, physics, and biology. The intermediate examination in science—chemistry, physics, and biology—will, on payment of the required additional fee, be accepted instead of this examination. Candidates on presenting themselves for this examination are required to furnish certificates of having attended for not less than one year approved courses of instruction, after matriculation, in (i) chemistry, inorganic and organic; (ii) physics; (iii) biology.

Second Examination.—The subjects are anatomy and physiology. The candidate must have completed the third winter session of professional study, must have passed the First Examination, and must have attended (1) lectures on anatomy, and dissections during five terms; (2) lectures on physiology during four terms; practical, experimental, and chemical physiology during four terms, and histology during one term.

Third Examination.—The subjects are pathology and pharmacology. Candidates must have completed the fourth year of medical study and completed the requisite courses in these subjects, including *post-mortem* clerkship for three months.

Final Examination.—The subjects are medicine (including forensic medicine, public health, mental diseases, and diseases of children), surgery, obstetrics and gynaecology. Candidates must satisfy the examiners in all subjects at the same examination. Candidates must have completed the fifth year of study.

M.D.—Candidates for the degree of Doctor of Medicine must have passed the examination for the degrees of M.B., Ch.B. at least one year previously, must present a thesis embodying observations in some subject approved by the Professor of Medicine, and must pass an examination in the principles and practice of medicine.

Ch.M.—Candidates for the degree of Master of Surgery must have passed the examination for the degrees of M.B., Ch.B. at least one year previously, and must, since taking the degrees of M.B., Ch.B., have held for not less than six months a surgical appointment in a public hospital or other public institution affording full opportunity for the study of practical surgery. The subjects of examination are systematic, clinical, and operative surgery, surgical anatomy, surgical pathology, and bacteriology.

Other information concerning this university will be found in the section devoted to Provincial Medical Schools.

UNIVERSITY OF BRISTOL.

The university grants the following degrees: In medicine and surgery, M.B. and Ch.B., M.D., Ch.M. (the M.D. may be taken in State medicine); in dental surgery, B.D.S., M.D.S. Diplomas in public health (D.P.H.) and dental surgery (L.D.S.) are also granted. Candidates for degrees must pass the Matriculation Examination (or some equivalent examination accepted in lieu thereof; see the Regulations for Matriculation), and study at the university itself for at least three years of the five and a half years' curriculum, two such years being subsequent to the passing of the Second M.B. Examination. The Matriculation Examination comprises (1) Latin, (2) mathematics, (3) English grammar and composition, (4, 5) two subjects at choice, one of which must be a foreign language. It is held in July and September. The winter session opens on October 1st, 1915.

PROFESSIONAL EXAMINATIONS.

M.B., Ch.B.—There are three examinations for this degree. They must be passed in proper order, and before admission to them the candidate must be duly certified as having attended in the subjects involved. The First M.B. comprises chemistry, physics, botany, and zoology. The Second M.B. comprises organic chemistry, elementary anatomy (Part I), advanced anatomy, physiology (Part II).

The two groups may be taken separately or together. The Final Examination includes materia medica and pharmacy, pharmacology and therapeutics, general pathology, morbid anatomy and bacteriology (Part I), special pathology, forensic medicine, toxicology and public health, obstetrics (including diseases of women), surgery (systematic, clinical, practical, and operative), medicine (systematic, clinical, and practical), including mental diseases (Part II). The two groups may be taken separately or together. At the option of the candidate, forensic medicine and toxicology may be taken either with Group I or Group II. First or second class honours may be obtained by a candidate whose work is deemed of sufficient merit, but cannot be awarded to one who has recorded against him a failure at any examination after the First M.B.

M.D.—A candidate for this degree must be an M.B. and Ch.B. of at least two years' standing. He has a choice between presenting an original dissertation, undergoing a general examination in medicine (including medical anatomy, medical pathology and bacteriology, systematic and clinical medicine), or passing an examination in State medicine.

Ch.M.—A candidate must have attended, since becoming M.B., Ch.B., and for not less than two years, a public institution affording opportunity for the study of practical surgery, and produce certificates to that effect; the candidate shall be required to pass a general examination in surgery (including surgical anatomy, surgical pathology and bacteriology, operative and clinical surgery), and to present a dissertation in some department of surgery. He must be of two years' standing as an M.B., Ch.B.

Applications for other information should be addressed to the Dean of the Medical Faculty.

DENTAL DEPARTMENT.

The university grants the degrees of Bachelor and Master in Dental Surgery (B.D.S., M.D.S., and a Diploma in Dental Surgery entitling to the letters L.D.S.). The courses of the University are available equally for these qualifications and for those of other licensing bodies. Both courses are open to men and women alike.

UNIVERSITY OF WALES.

The statutes of the University of Wales provide for a Faculty of Medicine and for the granting by it of the following degrees: Bachelor in Medicine (M.B.), Bachelor in Surgery (B.Ch.), Master in Surgery (M.Ch.), and Doctor in Medicine (M.D.).

A candidate for the M.B., Ch.B. cannot be admitted to examination until the completion of not less than six academic years subsequent to matriculation in the university, and of these years at least three must have been passed as a student in one of the constituent colleges of the university. He must also hold an Arts or Science degree of the University of Wales, or of some other university approved for this purpose. Some of the courses of study pursued for a B.Sc. or B.A. degree may be counted as part of the courses required for the degrees in the Medical Faculty.

The courses for the M.B., Ch.B. are divided into two sections, of which the first include the preliminary subjects—physics, chemistry, botany, zoology; and the ancillary subjects—organic chemistry, human anatomy, and physiology. Study of the preliminary subjects must extend over at least one academic year, study of the ancillary subjects must extend over at least two academic years, and, excepting organic chemistry, cannot be commenced until all the preliminary courses have been completed; hence the first section of the course must occupy not less than three years. The second section includes courses in pathology, bacteriology, pharmacology, medicine, surgery, and obstetrics, and cannot be commenced until the examinations relating to the preliminary and ancillary courses have been passed. Examinations in the earlier subjects are held at the end of each academic year, and in the subjects of the second section each July.

During the continuance of the war clinical service at a medical unit of the forces, or at an approved hospital, will be recognized as hospital practice, under certain conditions, for the purpose of the M.B. degree.

English Medical Corporations.

THERE are three medical corporations in England—the Royal College of Physicians, the Royal College of Surgeons, and the Society of Apothecaries of London. The first two combine for certain purposes to form what is known as the "Conjoint Board." Details concerning this body, its component colleges, and the third licensing body here follow.

THE CONJOINT BOARD.

This body deals with the qualifications of all candidates for the Licence of the Royal College of Physicians of London and for the Membership of the Royal College of Surgeons of England. It prescribes for them certain periods of study, and recommends those who satisfy it for the licence and diploma of Membership respectively. The successful candidate is then entitled to admission to the *Medical Register* as an M.R.C.S. Eng., L.R.C.P. Lond. It performs the same task in connexion with diplomas in State medicine and tropical diseases jointly issued by the two colleges in question. It obliges all candidates to pass one of a large number of examinations which it considers satisfactory tests of general education, and thereafter to pass five years in professional study at a recognized medical school, allowing, however, six months to be spent at any institution which may be recognized by the Board as giving efficient education in chemistry and physics. A list of such institutions, as also of the tests accepted in regard to general education, can be obtained from the Secretary of the Board at Examination Hall, Queen Square, Bloomsbury, W.C.

PROFESSIONAL EXAMINATIONS.

There are three examinations for the Conjoint diploma, or M.R.C.S., L.R.C.P., which are commonly known as First Conjoint, Second Conjoint, and Final.

First Conjoint.—This examination is in four parts: (1) Chemistry, (2) physics, (3) elementary biology) (4) practical pharmacy.

A candidate must present himself for examination in Parts I and II together until he has reached the required standard to pass in both, or in one of these parts, but he will not be allowed to pass in one part unless he obtains at the same time half the number of marks required to pass in the other part. A candidate may take Parts III and IV separately, or he may present himself for the whole examination at one time.

Before admission to either part the candidate must show that he has undergone certain courses of theoretical and practical instruction, but these courses need not be completed within one year, nor need they run concurrently, and they may be commenced or attended before the candidate passes the required preliminary examination in general education. A candidate referred in any part or parts will not be admitted to re-examination for three months. If referred in chemistry, physics, or biology, he must produce evidence of further instruction. Those who are already graduates in medicine, or who have passed an examination in the same subjects before a university board for a degree in medicine, may obtain exemption from re-examination in those subjects at this examination.

Second Conjoint.—This examination deals with anatomy and physiology, and both subjects must be passed at the same time. A candidate must have attended at a recognized medical school lectures on anatomy, physiology and a course of practical physiology and histology, and have dissected for twelve months during the ordinary sessions. The study of anatomy and physiology before passing in two of the first three parts of the first examination is not recognized. If rejected, a candidate, before being admitted to re-examination, must continue his studies at a recognized medical school for not less than three months.

Final Conjoint.—This examination consists of three parts: Part I, medicine, including medical anatomy, pathology, practical pharmacy, therapeutics, forensic medicine, and public health; Part II, surgery, including pathology, surgical anatomy, and the use of surgical appliances; Part III, midwifery and gynecology. The examination may be passed at one time or in each part

¹ Candidates who have previously passed in practical pharmacy will not be re-examined in that subject at the Third Examination.

separately. Evidence of attendance at courses of instruction in the subjects of the three parts must be produced, and also of having conducted twenty labours. A candidate will be admissible to Parts I, II, and III of the Third or Final Examination at the expiration of two years (twenty-four months) from the date of passing the Second Examination, and on production of the required certificates of study, provided that the examination is not completed before the expiration of five years (five winter and five summer sessions) from the date of passing the Preliminary Examination. A rejected candidate must produce evidence of further instruction during three months.

NOTE.—A person holding a Colonial, Indian, or foreign qualification which entitles him to practise in the country where such qualification has been obtained is, after a course of study and examination equivalent to those required by the Regulations of the two Royal Colleges, admissible to the Second and Third or Final Examinations without any interval. Members of an English, Scottish, or Irish university are under certain conditions eligible for admission to the Third or Final Examination two years after passing at their university the subjects included in the First and Second Examinations of the Board.

A member of an Indian, Colonial, or foreign university recognized for the purpose, who shall have passed examinations at his university for the degree of Doctor or Bachelor of Medicine or Surgery in the subjects of the First and Second Examinations of the Conjoint Board, will be eligible for admission to the Third or Final Examination two years after passing in the said subjects.

No special conditions relating to the war have been laid down, beyond allowing candidates to take midwifery before the completion of the fifth year of study. The committee of management, however, are willing to consider special cases where it has been difficult to fulfil certain details of the curriculum, so long as the two main regulations of the requirements are fulfilled—namely, the full curriculum of five years, and an interval of two years between the Second and Final Examinations.

FEEs.

First examination, £10 10s. Re-examinations, Parts I and II, £3 3s.; Parts III and IV, each £2 2s. Second examination, £10 10s. Re-examination, £6 6s. Third examination, £21. Re-examination, Part I, medicine, £5 5s.; practical pharmacy, £2 2s. Part II, surgery, £5 5s. Part III, midwifery and diseases of women, £3 3s. Members of an English, Scottish, or Irish university, £5 5s. For the diplomas, £36 15s.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

This College has three grades—its Licentiates, its Members, and its Fellows. The Licence is only issued through the Conjoint Board, as already stated, unless the candidate commenced professional studies before October, 1884. Its Membership is only granted to those who have passed the final examinations for the Licence; or those who are registered practitioners and graduates of a recognized university; in any case they must be persons over 25 years of age, who do not practise in partnership, dispense medicines, or engage in trade. Candidates are examined in pathology and the practice of physic, partly in writing and partly viva voce. Those under 40 are also examined in Latin, and either Greek, French, or German. The examination fee is £6 6s., the Membership fee being £42, or the difference between that sum and what the candidate has already paid if a Licentiate. The body of Fellows is maintained by election from among the Members.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

This College has two grades—Members and Fellows. The Members are admitted as stated in the section dealing with the Conjoint Board. The Fellowship is granted after examination to persons at least 25 years of age who have been engaged in professional studies for six years. There are two examinations—the first in anatomy and physiology, which may be passed after the third winter session; the second, chiefly directed to surgery, which may be passed after six years of professional study. Candidates must pass the Final Examination of the Examining Board in England and be admitted Members of the College before admission to the Second Examination for the Fellowship, except in the case of graduates in medicine and surgery of not less than four years' standing of universities recognized by the College for the purpose, who are required to attend for one year the surgical

practice of a general hospital recognized by the College after obtaining their degrees. The College also issues a diploma in dentistry.

Fees.—At first examination: £5 5s. At second examination: £12 12s. Diploma fee: Members, £3 3s.; non-members, £13 13s.

SOCIETY OF APOTHECARIES OF LONDON.

This body confers a registrable diploma in medicine, surgery, and midwifery, now known as the L.M.S.S.A., on those successful at the following examinations:

Primary Examination.—This is divided into two parts, of which Part I includes elementary biology, chemistry, chemical physics, practical chemistry, pharmacy. Part II includes anatomy, physiology, and histology, and cannot be passed before the completion of twelve months' practical anatomy with demonstrations. The subjects cannot be taken separately, except in the event of the candidate having previously passed in one. Candidates will be excused any or all the subjects of the primary examination on producing evidence that they have passed equivalent examinations before an examining body recognized by the Society. Candidates referred in anatomy will be required to produce evidence of further work in the dissecting room before being admitted to re-examination.

Final Examination.—This is divided into two sections, the first of which is subdivided into three parts. Part I includes the principles and practice of surgery, surgical pathology, operative manipulation, surgical anatomy, instruments and appliances. Part II includes: (a) The principles and practice of medicine (including therapeutics, pharmacology, and prescriptions), pathology, and morbid histology; (b) forensic medicine, hygiene, theory and practice of vaccination, and mental diseases. Part III includes midwifery, gynaecology, and diseases of newborn children, obstetric instruments and appliances. A candidate for any part of Section I must have passed not less than three winter sessions and two summer sessions at one or more of the medical schools recognized by the Society. Section 2 consists of clinical surgery and clinical medicine and medical anatomy, and a candidate before appearing at it must have completed five years of medical study.

FEEs.

Primary examinations, £5 5s.; final, £15 15s. Further information may be obtained from the Secretary, Court of Examiners, Apothecaries' Hall, Blackfriars, E.C.

The Scottish Universities.

There are in Scotland four universities, each of them possessing a faculty of medicine, and having the right to confer degrees which admit the holder to the *Medical Register*. In essential points the regulations in their medical faculties for undergraduates are on all-fours with one another, so that an account can be given of all of them together.

The universities in question are those of Edinburgh, Glasgow, Aberdeen, and St. Andrews, and in point of standing and repute it is not easy to differentiate between them. What provision each of the cities in which these universities are situated makes for the education of medical students will be found in the section on Medical Schools in Scotland; here it need merely be said that degrees in medicine from Scotland as a whole have always enjoyed an excellent repute.

The degrees granted in medicine and surgery to candidates of either sex are four in number—Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.). The two former are not obtainable one apart from the other. Besides these degrees a diploma in tropical medicine and hygiene is obtainable from the University of Edinburgh, as also a diploma in psychiatry. As for public health, registrable degrees in this subject are granted both by the University of Edinburgh and that of Glasgow, while diplomas in public health may be obtained from the universities of St. Andrews and Aberdeen. Information as to these will be found in the appropriate sections

dealing respectively with preventive medicine and tropical medicine.

MATRICULATION.

There is a special matriculation examination for medical students, the subjects being English, Latin, elementary mathematics, and either Greek or French or German. Candidates are required to pass in all these subjects either at one or at not more than two examinations, but they can present themselves as often as they please. A large number of corresponding tests held by other bodies are accepted as the equivalent of this examination.

PROFESSIONAL EDUCATION.

The regulations comply in all respects with the requirements and recommendations of the General Medical Council, and in addition necessitate definite study for stated periods of diseases of children, of the larynx, ear and nose, of the skin, of ophthalmology, and of mental diseases. In respect of the various courses certificates must be obtained showing that the student has not only attended the courses regularly, but has duly performed the work of the class. Out of the necessary five years of medical study, not less than two must be spent at the university whose degrees the student hopes to obtain, and the balance at any place officially recognized for such purpose. In each academic year there are two sessions—one lasting from the beginning of October to the middle of March, and the other from the middle of April to the end of June.

PROFESSIONAL EXAMINATIONS.

The distinctive feature of the Scottish curriculum is that, though nominally there are only four examinations, each of these may be, and habitually is, split up by the student into sections. Hence, a student may complete some stage of his career during the course of nearly every session. Thus, by the end of the first winter session the student may get rid of physics and chemistry. At the end of the first summer session he can finish with botany and zoology, and with anatomy and physiology at the end of the second. Practical materia medica may be taken at any period of examination after the necessary course of instruction has been attended. Pathology and materia medica he will pass at the end of the third year, and so on, until the final examination in midwifery, surgery and medicine, and the corresponding clinical subjects at the end of the fifth year of study. At each examination the candidate may pass "with distinction," and a record is kept of the merit displayed, so that, when the time comes for the candidate to graduate, one who has done well throughout can be declared as graduating with first or second class honours. A further point in the system is that the student's own teachers commonly take some part in his examination.

Of the four examinations, the first deals with physics, botany, zoology, and chemistry; the second with anatomy and physiology; the third with materia medica and pathology; the fourth with medicine and surgery (clinical and systematic), midwifery, forensic medicine and public health, and clinical gynaecology. The first three examinations are held three times a year; the final twice a year.

Exemption from the first professional examination can be obtained by candidates who have passed a degree examination in its subjects at any recognized university. When a candidate presents himself for an examination in several of its parts, but is not successful in all of them, he is credited at the next examination with those subjects in which he has previously been approved.

THE HIGHER DEGREES.

It is open to those who are already M.B., Ch.B., to proceed either to the M.D. or the Ch.M. A candidate for the former must have been engaged for not less than one year at work in the medical wards of a hospital, or in scientific research in a recognized laboratory, or in the Naval or Military Medical Services, or have been at least two years in general practice, and he must be 24 years of age. He has to write a thesis on any subject not exclusively surgical, and is examined in clinical medicine and in some one or other of its special departments. The regulations for candidates for the Ch.M. are of a corresponding character, a period of surgical work in a hospital or elsewhere being substituted for medical work, and his thesis being on a surgical rather than a medical subject. He is

examined in surgical anatomy, clinical surgery, operative surgery, and in some of the special departments of surgery.

FEES.

It is estimated that the class, examination and other fees for the M.B., Ch.B. come altogether to £150, the separate examination fees included in this calculation being as follows:

	£	s.	d.
Preliminary Examination ...	...	0	10
First Professional ...	...	6	6
Second Professional ...	...	5	0
Third Professional ...	...	4	0
Finals ...	...	7	0

Re-entry in any subject in which the candidate has failed entails a fresh payment of £1 ls. Candidates for the M.D. and Ch.M. pay £15 15s., and on re-entry £5 5s.

More detailed information with regard to the University of Edinburgh can be obtained from the *Medical Programme*, price 2d., which is published by Mr. Thiu, 55, South Bridge, Edinburgh, or on application to the Dean of the Faculty of Medicine. Similar information about Glasgow should be sought from the Assistant Clerk, Matriculation Office, Glasgow. With regard to Aberdeen, application may be made to the Secretary of the Medical Faculty, Marischal College. In respect of St. Andrews information can be obtained either from the Secretary of the University or, alternatively, the Secretary of the United College, St. Andrews, or the Secretary of University College, Dundee, these being the two constituent colleges of the University of St. Andrews.

Finally, it should be mentioned that, in connexion with all the Scottish universities, including St. Andrews, there are valuable bursaries and scholarships, some information as to which will be found in the article on Medical Schools.

Owing to the war, special final examinations may be held for such students as have fulfilled the requirements of the curriculum of the General Medical Council.

The Scottish Corporations.

THERE are three medical corporations in Scotland—the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow. Their licences can be separately obtained only by persons who are already in possession of a recognized qualification—in surgery in the case of the College of Physicians, and in medicine in the case of the College of Surgeons and the Faculty of Physicians and Surgeons of Glasgow. All others must submit to the examinations held by the Conjoint Board which the three corporations have combined to form. Details concerning this Board and its component colleges follow. The conditions on which their higher qualifications are granted will be found set forth separately in connexion with each corporation.

THE CONJOINT BOARD IN SCOTLAND.

THIS body has charge of all questions connected with candidates for the Conjoint Licences of the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow. Those finally approved by it are entitled to registration and to the initials denoting the Licences of the three bodies concerned—namely, L.R.C.P. Edin., L.R.C.S. Edin., and L.R.F.P.S. Glasg. The Board requires all candidates to comply with the regulations of the General Medical Council as set forth on page 355. It has an arts examination of its own, but is prepared to accept in its place any of the other educational tests approved by the General Medical Council.

PROFESSIONAL CURRICULUM.

Subsequent to registration as a medical student, the candidate must pass not less than five years in medical study, each comprising a winter and a summer session. The Board does not exact that candidates shall pursue their study at any particular place, and is prepared to accept certificates of having attended the necessary courses from any recognized medical school.

Its examinations are four in number, each of them being held six times every year—four times in Edinburgh and twice in Glasgow; and it is open to candidates to present themselves for examination at either place. The first examination deals with physics, chemistry, and elementary biology; the second with anatomy and physiology, including histology; the third with pathology and materia medica, including pharmacy; and the final with (1) medicine, including therapeutics, medical anatomy, and clinical medicine; (2) surgery, including surgical anatomy, clinical surgery, and diseases and injuries of the eyes; (3) midwifery and diseases of women and of newborn children; (4) medical jurisprudence and hygiene. Candidates may also be examined on diseases of children, diseases of the ear and throat, insanity, vaccination, etc.

These examinations must be passed in due order, and before admission to any of them the candidate must supply certificates showing that he has completed the due periods of study of their subjects. He can present himself in any single subject of the first three examinations. As regards the final examination, a candidate can present himself in medical jurisprudence and hygiene at any time after completion of the third examination and of his study of these subjects; but in medicine, surgery, and midwifery he cannot present himself until the completion of five years' study, and he must take them all simultaneously. A candidate who takes up several subjects of an examination or the whole of the subjects at one time, but fails in some of them, is credited at the next examination with those subjects in which he has been approved.

Part or entire exemption from the three first examinations may be granted to those who have already passed before other bodies examinations deemed by the Board equivalent to its own; but all candidates for the conjoint licence must sit for the final examination, and at no examination can a candidate present himself within three months of his rejection by some other licensing body.

FEES.

It is estimated that the total cost of lectures and fees for the conjoint licence is about £152. The separate examination fees are as follows: First, Second, and Third Professional, £5 each; Final, £15. On re-entry for any of the first three examinations £3, and on re-entry for the Final, £5. If the re-entry is only in one or two subjects, the fees are smaller.

Information concerning this Board should be sought either from Mr. D. L. Eadie, 50, George Square, Edinburgh, or from Mr. Walter Hurst, Faculty Hall, 242, St. Vincent Street, Glasgow.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THIS College has two grades—its Licence and its Fellowship. Licentiates may be of either sex, but for the Fellowship women are not eligible. As an original qualification the Licence is only granted after fulfilment of the regulations of the Conjoint Board, but as an additional qualification can be obtained by those already possessed of a registrable qualification in medicine. In this case the candidate has to pass a written, oral, and clinical examination in surgery and surgical anatomy, and may be asked to operate on the dead body. The fee is £15 15s., of which £10 10s. is returned to unsuccessful candidates. On due cause being shown, a special examination may be granted, the fee being £20, of which £10 is returned to a candidate if he is not approved.

Candidates for the Fellowship must be not less than 25 years of age, and have been in practice subsequent to registration for at least two years, and must hold either a surgical degree from a university recognized for that purpose by the College, or an approved diploma obtained as the result of an examination which includes surgery as well as medicine. Candidates are examined in surgery, including clinical and operative surgery, surgical anatomy, and one other subject which they may choose from among the following: Ophthalmology, laryngology including aural and nasal surgery, dental surgery, advanced midwifery with obstetric surgery, gynaecology, surgical pathology and operative surgery, and advanced anatomy. The examination is written, oral, and clinical or practical. A candidate who desires to be examined must give one month's notice, his application for admission being supported

by two Fellows of the College, one of whom must be resident in Edinburgh, or, in default, by testimonials obtained specially for the purpose.

Licentiates of the College pay £35, and others £45. For further information application should be made to the Clerk of the College, Mr. D. L. Eadie, 50, George Square, Edinburgh.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

THIS College has three grades—Licentiate, Membership, and Fellowship; to the two latter women are not admissible. The regulations applying to candidates for the Licentiate have already been generally indicated. If desirous of receiving it apart from those of the other two corporations, they must be holders of a surgical qualification recognized by the College, and must pass an examination corresponding to the medical part of the Final Examination of the Conjoint Board, and conditioned in the same way, and also an examination in materia medica. The fee for examination is 15 guineas, a special examination being obtainable on due cause being shown, and on payment of 5 guineas extra. Ordinary examinations take place monthly on the first Wednesday, except in September and October. A candidate for the Membership must be either a Licentiate of a Royal College of Physicians or a graduate in medicine of a British or Irish university, and in either case not less than 24 years of age. He is examined in medicine and therapeutics, and in one further subject at his choice. This may be either (a) one of the departments of medicine specially professed; (b) psychology; (c) general pathology and morbid anatomy; (d) medical jurisprudence; (e) public health; (f) midwifery; (g) gynaecology; (h) diseases of children; or (i) tropical medicine. Licentiates of the College pay £21, others £36 15s. The examination is held quarterly, and application for admission to it must be made a month previous to its date. For the Fellowship, the candidate must have been a member of the College for at least three years, and, if accepted, pays fees amounting altogether to a little less than £65. Any further details required can be obtained on application to the Secretary of the College.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

THIS body possesses two classes—Licentiates and Fellows. The regulations applying to the former correspond with those respecting candidates for the Licence of the Royal College of Surgeons of Edinburgh. Candidates for the single Licence are examined in surgery (including clinical surgery and surgical anatomy). The fee is £15 15s., and examinations are held quarterly. Candidates for the Fellowship must be qualified medical men of not less than two years' standing and 24 years of age. Candidates approved at this examination are then eligible for election as Fellows. The Faculty can also elect two Fellows annually without previously submitting them to examination, provided they "have highly distinguished themselves in medical science or practice." They must be of not less than ten years' standing and 40 years of age. Further information can be obtained from Mr. A. Duncan, B.A., LL.D., Faculty Hall, St. Vincent Street, Glasgow.

The Irish Universities.

THERE are three universities in Ireland, and each of them has a medical faculty. These are the University of Dublin, usually known as Trinity College, Dublin, the Queen's University of Belfast, and the National University of Ireland. The two former teach students, examine them, and grant or withhold degrees accordingly; while the third is by way of being an academic body only, inasmuch as its practical work is divided up among three constituent colleges, situated, one at Cork, another at Galway, and the third in Dublin. The regulations of all these universities in respect of medical degrees are given in the following sections; while specific information as to the arrangements for the education of medical students made at each of them will be found in the section relating to Irish Medical Schools.

UNIVERSITY OF DUBLIN.

This university, better known, perhaps, as Trinity College, Dublin, grants two degrees in medicine (M.B. and M.D.), two in surgery (B.Ch. and M.Ch.), two in midwifery (B.A.O. and M.A.O.), and diplomas in the same subjects and in public health. It also confers two degrees in dentistry. Its degrees it grants only to those who, besides having passed the Professional Examination, have graduated in arts.

PROFESSIONAL EXAMINATIONS.

A candidate for the Final Examination for the M.B., B.Ch., and B.A.O. degrees must be a matriculated student of at least five years' standing, and though he need not have taken his degree in arts before admission to the Professional Examination, he cannot take his medical degrees until he has been admitted a B.A. At least three years of the five years' medical curriculum must be pursued at the School of Physic of the university. The examinations which students must pass are the Preliminary Scientific, the Intermediate Medical, and the Final, and of course before admission to any of them he must be duly signed up as regards study in the subjects involved.

Preliminary Scientific.—This covers (a) chemistry and physics, (b) botany and zoology; the two divisions may be taken together or at different times.

Intermediate Medical.—This is divided into two parts: (a) Anatomy, physiology, and histology; (b) applied anatomy and applied physiology. The two parts may be taken separately, but in each part all subjects must be passed at one time.

Final Examination.—Part I: Hygiene and medical jurisprudence, pathology, materia medica, and therapeutics. Part II: (a) Midwifery, gynaecology (clinical, paper, and viva voce); (b) medicine, clinical medicine, and mental diseases; (c) surgery in all branches, including clinical ophthalmology. The three sections of Part II may be taken separately or together. In either case the full curriculum must have been completed, and the final cannot be taken before the end of the fifth year.

M.D.—The candidate must have passed all the qualifying examinations in medicine, surgery, and midwifery, and have taken, or have been qualified to take, the degree of B.A. three years previously. He must read a thesis before the Regius Professor of Physic.

M.Ch.—The candidate must be a B.Ch. of not less than three years' standing, and have been engaged in practice for two years. Graduates of ten years' standing may be given a special examination.

M.A.O.—The candidate must have passed the qualifying examination in medicine, surgery, and midwifery. The examination is specially directed to obstetrics and practical gynaecology.

For the university diplomas mentioned the candidate must have completed two years in arts and five in medical studies. The examination and courses required are the same as for the degrees.

FEES.

Matriculation, 5s.; M.B., B.Ch., B.A.O., £17; M.D., £13; M.Ch., £11; M.A.O., £5; L.M., L.Ch., L.A.O., £11. Further information may be obtained from the Registrar of the School of Physic, Trinity College, Dublin.

QUEEN'S UNIVERSITY, BELFAST.

The degrees granted by the Medical Faculty of this university are as follows: Bachelor of Medicine (M.B.), Bachelor of Surgery (B.Ch.), Bachelor of Obstetrics (B.A.O.), Doctor of Medicine (M.D.), Master of Surgery (M.Ch.), Master of Obstetrics (M.A.O.). The university also confers a diploma in public health. The first three degrees mentioned serve as a qualification for admission to the *Medical Register*, and are not granted separately. In addition to matriculating and passing his professional examinations a candidate for these degrees must have passed three of the regulation five years as a student at the Belfast School of Medicine.

PROFESSIONAL EXAMINATIONS.

The examinations for the M.B., B.Ch., B.A.O. are four in number. The first deals with: (1) Inorganic, organic, and practical chemistry, (2) experimental and practical physics, (3) botany and practical botany, (4) zoology and practical zoology. It is divided into two parts, of which

botany and zoology form one. The Second Examination covers anatomy and physiology, and may be taken at the end of the second year of the student's career. The Third Examination includes: (1) Pathology, (2) materia medica, pharmacology and therapeutics, (3) medical jurisprudence, and (4) hygiene. To be valid a certificate in regard to the study of the subjects of this examination must show that the work has been done after the First Examination has been passed.

The Final Examination includes: (1) Medicine, (2) surgery, (3) midwifery, (4) ophthalmology, and otiology. The student may pass in all subjects at once at the end of his fifth year, or he may divide the examination into two parts—namely, (1) systematic, (2) clinical, practical, and oral. The first part may be taken at the end of the fourth year, but for the second part the candidate may not present himself until the end of his fifth year. No certificate in regard to the study of the subjects of this examination will be valid unless the work was done subsequent to passing in all the subjects of the Second Examination.

THE HIGHER DEGREES.

Candidates for the degree of Doctor of Medicine must be graduates in medicine of at least three years' standing, unless they hold also a degree of the university in arts or science. In that case a standing of two academic years will suffice. Moreover, candidates must be able to show that the interval has been passed in the pursuit of such courses of study or practical work as may be prescribed. The degree may be conferred either (a) after a formal examination, or (b) in recognition of the merits of a thesis or of some piece of original study or research carried out by the candidate, followed by an oral or other examination in its subject. When an ordinary examination is imposed it will include (1) a written paper on the principles and practice of medicine, (2) a commentary on a selected clinical case, (3) a clinical and viva voce examination, and (4) a written paper and clinical or practical and viva voce examination on a subject chosen from the following list: (1) Human anatomy, including embryology, (2) physiology, (3) pathology, (4) pharmacology and therapeutics, (5) sanitary science and public health, (6) forensic medicine and toxicology, (7) mental diseases. The regulations for the degrees of M.Ch. and M.A.O. are of the same general nature.

NATIONAL UNIVERSITY OF IRELAND.

The National University of Ireland carries on most of its educational work through three constituent colleges—one in Dublin, one in Cork, and one in Galway. Each of these provides a full medical curriculum, and all candidates for the medical degrees of the university must pass three of their five years of study at one or other of them. These years do not count except after matriculation or recognition as a student of the Medical Faculty obtained in some other fashion. The candidates at each constituent college are examined thereat by the university, and a common standard of education is secured by all courses of instruction and the regulations concerning them having to be approved by the Senate, after considering report thereon from the Board of Studies of the University. In addition to the ordinary degrees in medicine and surgery, the university grants those of Bachelor and Master of Obstetrics, Bachelor and Doctor of Science in Public Health, and Bachelor and Master in Dental Surgery, as well as diplomas in Public Health and in Mental Diseases.

PROFESSIONAL EXAMINATIONS.

There are four examinations. The first, which should be passed at the end of the first year, includes Part A (chemistry and physics) and Part B (botany and zoology), which parts candidates may take separately or together. At the end of the second year they should pass in anatomy and physiology; and at the end of the third year in pathology, materia medica and therapeutics, hygiene and public health, forensic medicine, and toxicology. The final examination is divided into three parts, each of which may be taken separately—namely, (a) Medicine, including mental diseases; (b) surgery, including ophthalmology and otiology; (c) midwifery and gynaecology.

The higher degrees are obtainable either by examination or on presentation of an approved work, but in each case not less than three years must have elapsed since the candidate acquired the corresponding degree of Bachelor. Further information as to the constituent colleges will be found in the section relating to Irish Medical Schools.

The Irish Corporations.

There are three licensing bodies other than the Medical Faculties of Universities, and, just as in London, there are two Royal Colleges of Physicians and Surgeons and an Apothecaries' Hall. The similarity is still more complete, for in Ireland also the two colleges have formed a Conjoint Board, as in London, which is responsible for the recommendation of candidates to the two bodies for their respective licences. The Apothecaries' Hall gives its Licence separately.

THE CONJOINT BOARD IN IRELAND.

This body requires of candidates the passage either of its own preliminary examination in the subjects of general education or proof that the candidate has passed one of the tests accepted by the General Medical Council.

PROFESSIONAL EXAMINATIONS.

There are four professional examinations, the first of which cannot be passed earlier than the end of the first winter session, nor the fourth before the conclusion of full five years of medical study, and before being admitted to any of them the candidate must show that he has studied the different subjects in practice and theory for the requisite periods, certificates to this effect being accepted from the authorities of most of the recognized medical schools at home and abroad. The first and second examinations deal respectively with (a) chemistry and physics, and (b) biology; and (a) anatomy, and (b) physiology and histology. All parts of these examinations, as also of the following one, which deals with (a) pathology, (b) materia medica, pharmacy, and therapeutics, (c) public health and forensic medicine, may be taken separately.

Final Examination.—This is divided into three divisions, which cannot be completed until at least four years have passed in medical studies other than those for the first examination, and five years, at least, since the beginning of the curriculum. The divisions are (a) medicine, including fevers, mental diseases, and diseases of children; (b) surgery, including ophthalmic and operative surgery; (c) midwifery, including diseases of women and newborn children, and the theory and practice of vaccination. Candidates are recommended to present themselves in all the subjects of the Final Examination at one time, but a candidate at or after the end of the fourth year may present himself in any one of the divisions (a), (b), or (c), provided he has completed his curriculum as far as concerns the division in which he presents himself.

Fees.—Preliminary Examination, £2 2s.; re-examination, £1 1s. First Professional Examination, £15 15s.; Second, £10 10s.; Third, £9 9s.; Final, £6 6s.; re-examination fee is £2 2s. for each division.

Further information can be obtained from Mr. Alfred Miller, Secretary of the Committee of Management, Royal College of Surgeons, 123, St. Stephen's Green, Dublin.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

Those whose names already appear on the *Medical Register* can obtain the separate Licence in Medicine of this College, and its Licence in Midwifery. In either case an examination has to be passed in the subjects indicated, questions on midwifery, hygiene, and jurisprudence being included in the examination for the Licence in Medicine. For the Licence in Midwifery practitioners of over five years' standing are exempted from examination by printed questions. The other grades of the College are Members and Fellows. The former are admitted after an examination which is open to all university graduates in medicine and Licentiates in medicine of Royal Colleges of Physicians, and deals with the general subjects of medicine. Fellows are selected, by vote, from among the Members.

Fees.—For the Licence in Medicine, 15 guineas; for the Licence in Midwifery, 5 guineas; or 16 guineas for both if they are taken within an interval of a month. Special examinations cost in each case 5 guineas extra. For the Membership, 20 guineas to a Licentiate of the College; 35 guineas to others; a special examination costing 10 guineas extra. The Fellowship £35, in addition to stamp duty, £25. Information as to special examinations and other points can be obtained from the Registrar, the Royal College of Physicians, Kildare Street, Dublin.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

This body, besides granting a Licence in Surgery, admits those possessed of registrable surgical qualifications to its Fellowship under certain conditions. Its Licence is usually granted conjointly with that of the College of Physicians, but it is given separately to holders of a registrable qualification in medicine, provided that the College is satisfied that adequate courses of study have been pursued, and provided its own provisional examination is passed. This examination is held on its behalf by the Conjoint Board, and is identical with the ordinary surgical portion of the examinations imposed by that body.

The Fellowship.—Candidates for the Fellowship must pass two examinations, of which the first is in anatomy (including dissections), physiology, and histology; and the second in surgery (including surgical anatomy) and pathology. Both examinations are partly written, partly practical, and partly viva voce; while the final examination includes the performance of operations. All subjects of either examination must be passed at one time, and to neither can a candidate be admitted who has been rejected in any of its subjects by any other licensing body within three months. Candidates are not admitted to the Primary Examination except on evidence that they have already passed an examination in anatomy, physiology, and histology, held by some university or other body whose degrees or licences entitle the holder to admission to the *Register*; if, however, the candidate is a person whose name is on the Colonial or foreign medical *Register*, at the discretion of the Council. Candidates for the Final Examination must be over 25 years of age, produce a certificate of general good conduct signed by two or more Fellows of the College, and, if successful, must make a declaration before admission to the effect that they do not conduct dispensing practices, and will not do so as long as they are Fellows.

Fees.—Candidates for the Licence pay 5 guineas for examination, which sum, if they pass, is counted as part of the fee payable on admission to the Licence, this being 25 guineas. Candidates for the Fellowship pay 5 guineas for each examination, the total of 10 guineas being reckoned as part of the fee payable on admission to the Fellowship. That fee is 25 guineas in the case of those who are already Licentiates, and 40 guineas in the case of others.

APOTHECARIES' HALL OF IRELAND.

A DIPLOMA is granted by this Hall which entitles the holder to be registered as a practitioner of medicine, surgery, and midwifery, and confers also the privileges of an apothecary. Two periods of dissection, each not less than six months, must be included, and twenty-seven months of hospital attendance, or its equivalent. Three professional examinations have to be passed; they are held three times a year. The Primary Examination deals with biology, physics, and chemistry, practical and theoretical; the Intermediate Examination is in practical anatomy and physiology, and histology and materia medica. A candidate who has passed tests in any of the subjects of these examinations before another licensing body is exempt from further examination in such subjects. The Intermediate Examination, Part II, consists of pathology, medical jurisprudence, and hygiene. The Final Examination deals with medicine, surgery, midwifery, and pharmacy. The Hall's own examination in all these subjects must be passed. Women candidates are eligible.

Fees.—Primary Examination, £4 4s.; Intermediate Examination, £8 8s.; Final Examination, £12 12s.; Final alone, when the others have been passed elsewhere, £15. Application for other information should be made to the Registrar, 40, Mary Street, Dublin.

MEDICAL SCHOOLS AND COLLEGES.

LONDON.

APART from post-graduate and other special schools, the medical schools of London number as many as fourteen, including in the count two institutions which provide education only in the preliminary and intermediate subjects, under the title of "university centres."

Little guidance can be given in these columns as to choice of one school rather than another, for such choice must depend largely on personal factors. In a general way, however, it may be said that while to the student to-day it may, perhaps, be almost a matter of indifference to what school he belongs, there is often in after-life a certain advantage in having been an alumnus at one of the more celebrated schools. On the other hand, at the smaller schools more opportunities, perhaps, present themselves to the average man for obtaining student appointments, and especially the coveted posts of house-physician and house-surgeon.

Information as to the fees at the different schools, and the scholarships, prizes, and junior appointments which they offer, will be found in the following pages, and should be carefully studied by those who have no personal reason for preferring one to the other. The courses which they provide are fundamentally the same, and in all of them the arrangements made are such as to meet the requirements of students of every class—of those who are aiming at the diplomas of the Conjoint Board or the Apothecaries' Society not less than of those who have London or other university degrees in view. At all, too, as has been said, special facilities are offered to men who have commenced their professional education at the older universities, Oxford and Cambridge. Apart from these facts, the only point to which attention can usefully be directed is that on personal inquiry and investigation reason may perhaps be found for regarding the teaching accommodation and general arrangements for students at some schools as superior to those at others.

ST. BARTHOLOMEW'S.

THIS institution fills one side of Smithfield and Giltspur Street, sharing with the Post Office buildings a large island of ground separated practically from all other buildings; it is on the edge of the City, and easily reached from all parts of London. The hospital contains 750 beds. Extensive new buildings, opened in July, 1907, occupy part of the ground acquired from the old Bluecoat School, and these materially enhance the attractions of the hospital as a place of medical study. The medical school buildings, including the library and the chemical, physical, biological, and physiological laboratories, and anatomical department have now at their side a very large building, which includes club rooms for the Students' Union, a writing room, luncheon and dining halls, new quarters for the resident staff, and an out-patient department and accommodation for special departments of such large size as to be unsurpassed by any hospital in the kingdom. During the year 1909 a second block of new buildings was completed. These form the pathological department, and include, in addition to a new and extensive *post-mortem* room, large and well-equipped laboratories for clinical pathology, pathological histology, bacteriology, and chemical pathology, altogether forming the most complete pathological department in the country. Within the precincts of the hospital also there is a residential college for a large number of students. The Students' Union owns, moreover, grounds of some 10 acres in extent for recreative purposes at Winchmore Hill, which is easily accessible from the hospital.

Special classes are held for students preparing for the Preliminary Scientific and other examinations for the M.B., M.D. of the Universities of London, Oxford, and Cambridge, and for the higher surgical degrees at the same universities, including the M.Ch.Oxon., M.C.Cantab., M.S.Lond., and F.R.C.S.Eng. Special laboratory instruction for the D.P.H. of Cambridge, Oxford, Durham, and London is also given.

Appointments. Clinical clerks to the physicians and to the physician-accoucheur, and dressers to the surgeons and in the casualty department, are chosen from the students; clerks and dressers are also selected from the students to attend in the out-patient rooms, in the special

departments (Ophthalmic, Orthopaedic, Gynaecological, Laryngological, Aural, Dermatological, Electrical, and Dental), and in the *post-mortem* room. Chief assistants and clinical assistants are selected from qualified men appointed yearly to help in the general medical, surgical, and in the special departments. Ten house-physicians and ten house-surgeons are appointed annually. During their first six months of office they act as "Junior" house-physicians and house-surgeons, and receive a salary of £25 a year. During their second six months they become "Senior" house-physicians and house-surgeons, and are provided with rooms by the hospital authorities, and receive a salary of £80 a year. A resident midwifery assistant, an ophthalmic house-surgeon, and a house-surgeon for diseases of the throat, nose, and ear are appointed every six months, and are provided with rooms and receive a salary of £80 a year. Two assistant anaesthetists are appointed annually, and receive salaries of £120 and £100 a year respectively. An extern midwifery assistant is appointed every three months, and receives a salary of £80 a year.

Scholarships.—Five entrance scholarships are annually awarded after an examination held in September. The subjects of examination and conditions of eligibility for these scholarships are: (1) Two scholarships, value £75 each, in not fewer than two nor more than three of the following subjects—Chemistry, Physics, Botany, Zoology, Physiology, and Anatomy, limited to students under 25 years of age who have not entered on the medical or surgical practice of any London medical school. (2) One scholarship, value £50, in not fewer than three of the following subjects—Chemistry, Physics, Botany, Zoology, and Physiology, limited to students under 21 years of age who have not entered on the medical or surgical practice of any London medical school. (3) The entrance scholarship in Arts, of the value of £100, will be given in Latin and mathematics, with one other language—Greek, French, or German. (4) The Jeaffreson Exhibition in Mathematics, Latin, and one other language—Greek, French, or German—and of the value of £50. The value of the scholarships and prizes is over £1,000 annually.

Further information and a handbook can be obtained on application to the Dean of the Medical School, St. Bartholomew's Hospital.

CHARING CROSS.

THIS school, with its hospital, is situated in the very centre of London, and courses of instruction are specially designed to meet the requirements for the University of London degrees, the diplomas of the Royal Colleges, and the final studies of other universities. The hospital, with its convalescent home at Limpsfield, contains 300 beds. Between 2,500 and 3,000 cases pass through its wards each year, and some 24,000 out-patients and casualties are treated. There are special departments for work of all classes.

The school has an arrangement whereby its students can carry out their work in the primary and intermediate portions of their studies in the laboratories of the University of London (King's College), which are situated within a few minutes' walk of the hospital. This enables its students to get the best university education from a large professional and teaching staff in their earlier studies, while still allowing them to take advantage of their own school for social and collegiate purposes.

A large laboratory, capable of accommodating up to 100 students, is available for general pathological work, demonstrations, and research, and systematic demonstrations covering the whole range of pathology are arranged daily throughout each session between 10 a.m. and 5 p.m. Good departments are also available for other final subjects of bacteriology, chemical pathology, materia medica, toxicology, public health, and operative surgery, and also for research work by post-graduates. Some of these serve King's College as its "University Laboratories of Public Health and Bacteriology."

The museum contains over 4,000 specimens, and has received a notable collection of over 800 gynaecological specimens, "The Cutlbert Lockyer Collection," from one of the members of its hospital and school staff.

The library contains the latest editions of the usual textbooks and the chief medical periodicals. The Students' Club Union includes reading and smoking rooms, cloak-room, refreshment room, and adds greatly to the social comfort of the students.

Appointments.—Demonstratorships and assistant demonstratorships are open to students of the school. Medical,

surgical, and obstetric registrars to the hospital are appointed annually. Six house-physicians, six house-surgeons, and two resident obstetric officers are appointed each year after competitive examination. They are provided with board and residence in the hospital. Clinical clerks and dressers are appointed in the general and special departments of the hospital, and every student holds in turn the post of pathological assistant and assists at the autopsies, and on the completion of his clinical appointments takes up the duty for three months of pathological clerk in the clinical laboratory. Special facilities are offered for students and post-graduates desiring to take up particular classes or work in the wards and special departments of the hospital for longer or shorter periods.

Fees.—Sessional payments of 17 guineas for the winter session and 8 guineas for the summer session for London University and other university students, and 15 guineas and 7 guineas respectively for Conjoint Board students, with an entrance fee of 10 guineas; or a total composition fee for five and a half years' tuition of 120 guineas in the case of London University students, and of 100 guineas for five years' tuition for the Conjoint Board students. The above fees are inclusive, with the exception of vaccination, dispensing, and fever hospital attendance, which have to be taken outside the school.

All information desired may be had of the Acting Dean (Dr. W. J. Fenton), the Medical School, Charing Cross Hospital, London, W.C.

ST. GEORGE'S

This school is at Hyde Park Corner, and is carried on in connexion with St. George's Hospital, an institution having a service of 436 beds, of which 100 are at the convalescent hospital founded by Atkinson Morley at Wimbledon. It provides for the instruction of its students in the preliminary and intermediate subjects of the curriculum at the teaching centres of London University established at King's College and University College. The school at Hyde Park Corner is devoted entirely to the teaching of clinical subjects, great attention being paid by the members of the staff to individual teaching. A number of special courses are given, in which the requirements of university and all other examinations receive careful attention.

The St. George's Hospital Club consists of an amalgamation club, with smoking and luncheon rooms on the hospital premises, and other students' clubs, with an athletic ground at Wimbledon. Students have the advantage of a well-filled library of medical and scientific books. A register of accredited apartments, and a list of medical men and others willing to receive St. George's men as boarders, may be seen on application to the Dean.

Appointments.—Dresserships to the surgeons and clinical clerkships to the physicians are open without fee to all students of the hospital. There is a large number of resident appointments, which may be held for six, twelve, or eighteen months, and are open without fee to every perpetual student of the hospital, and are made strictly in accordance with the merits of the candidates. Besides this, after the student has held a house appointment, the following are, among others, open to him: Medical registrarship at £200 per annum; surgical registrarship at £200 per annum; assistant curatorship of the museum at £100 per annum; obstetric assistantship, resident, at £50 per annum; the post of resident anaesthetist at £100 per annum; the post of senior anaesthetist at £50 per annum; the posts (2) of junior anaesthetists, each at £30 per annum.

Scholarships.—Two university entrance scholarships in anatomy and physiology 70 guineas and £50 are awarded at the commencement of each winter session. The William Brown Exhibition of the value of £112 per annum (tenable for 100 years) is awarded by examination to a perpetual pupil of the hospital every second year. The William Brown Exhibition of £42 (tenable for three years) is awarded by examination to a perpetual pupil of the hospital every third year. Other prizes to the value of £200 are awarded annually to the students of the hospital.

Fees.—First year (preliminary science or first conjoint) £26 5s., or £21, according to course. Second and third years, £63 in two equal instalments. For the course of clinical study, in the fourth and subsequent years, entrance fee, £10 10s.; annual composition fee, £31 10s.

No entrance fee is payable by St. George's students who have studied at King's and University Colleges.

Further information may be obtained from the Dean of the Medical School.

GUY'S

The hospital contains 644 beds in constant occupation, an additional 27 beds having been recently opened. Thirty-three beds are set apart for diseases of the eye, and 40 for the most urgent and interesting medical cases, which form the subjects of the weekly clinical lectures. There is a special ward of 32 beds for the reception of cases of diseases of women and for cases of difficult labour. Beds are also allotted to the throat and ear departments, to the orthopaedic department, and to the department for the treatment of diseases of the genito-urinary system.

The medical college fronts the east gate of the hospital, providing accommodation for 60 resident students. This contains a dining-hall, reading-rooms, a library of general literature, and a gymnasium for the use of the residents and of the members of the Clubs Union. The athletic ground at Honor Oak Park is reached from the hospital in twenty minutes. The Gordon Museum of Pathology, the Wills Library, the newly built Departments of Chemistry, Physics, Pathology, and Pharmacology, and the school buildings in general, afford unrivalled opportunities for a liberal education and for research. Special classes are held for the First and Second Examinations for Medical Degrees of the University of London and for the first F.R.C.S. Eng. Special teaching is provided to meet the requirements of the universities of London, Oxford, and Cambridge in general pathology and pharmacology.

Appointments.—All appointments are given to students without extra payment, and according to the merits of the candidates, as determined by a committee of the medical staff. Sixteen out-patient officers, 8 house-physicians, 20 assistant house-surgeons, 8 house-surgeons, 2 ophthalmic house-surgeons, and 9 resident obstetric assistants are appointed annually. The house-physicians and house-surgeons, obstetric residents, and ophthalmic house-surgeons hold office for six months each, and receive free board and lodging in the college. Every student is provided with rooms and commons in the hospital during the period of his "take in" as dresser. In addition to the clerkships and dresserships in the medical and surgical wards, students are appointed to the posts of clinical assistant, dresser, or clerk in the special departments of ophthalmology, laryngology, gynaecology, diseases of children, diseases of the nervous system, dermatology, otology, electricity, anaesthetics, and dentistry. More than 150 additional appointments have been added to the list of those annually open to students of the hospital, the majority of them being in the special departments.

Scholarships, Prizes, etc. The following entrance scholarships are awarded annually in the month of September: A Junior Scholarship in Arts, Classics, Mathematics, and Modern Languages, and Science, of the value of £20, £10, and £50, open to candidates under 21 years of age. B. Senior or University Scholarships of the value of £75 and £35, open to candidates under 25 years of age, who have completed their study of Anatomy and Physiology. Subjects, any two of the following: Anatomy, Physiology, Pharmacology, General Pathology, Organic Chemistry. Junior prizes for general medicine and Science, of the value of £20, £10, and £50. Michael Harris prize for Anatomy, £10. Banks-Cox Scholarship for Physiology, £15 for three years; Woolbridge Memorial prize for Physiology, £10; Beagney prize for Pathology, £31; Treasurer's gold medal in Medicine, Treasurer's gold medal in Surgery, and the Golding-Bird gold medal and scholarship for Veterinary £20 are awarded annually after competitive examination. The Gray Studentship in Pathology and the Beagney Scholarship in Materia Medica of the annual value of £150 and £31 10s. respectively, are awarded without examination to enable research to be carried on in these subjects. An Arthur Durlam Travelling Scholarship of £100 is awarded triennially. The Douglas Research Studentship in Pathology, value £30 per annum, is awarded without examination.

Fees.—An annual composition fee is paid by all students until a registrable qualification is obtained. Further information may be obtained from the Dean of the Medical School.

KING'S COLLEGE HOSPITAL.

The medical school carried on in connexion with this institution, at Denmark Hill, deals, as do the sister institutions at Westminster and University College Hospitals,

with the advanced or final subjects of the medical curriculum. The arrangements for education in these subjects are very complete. The new and up-to-date hospital contains over 600 beds, many of which are given up to the 4th London General Hospital (T.F.). There are special departments for diseases of women and children, nervous diseases, ophthalmology, otology, laryngology, dermatology, dental surgery, etc.; pathological and vaccine departments are also included.

Appointments.—Sixteen resident medical and surgical officers are appointed yearly, as well as dressers and clerks in the wards, out-patient departments, *post-mortem* room, and special departments. Each of the special departments has several clinical assistants, and there are six registrars, most of whom receive salaries. There is also a Union Club, which combines athletics, music, and other societies connected with the school, and provides also a common room.

Fees.—The composition fee is 70 guineas if paid in one sum, or 72 guineas in two instalments (one of 40 guineas at entrance and the other of 32 guineas at the commencement of the second year).

The prospectus of the school can be obtained on application to its Secretary, S. C. Ramer, M.A.Cantab., King's College Hospital, Denmark Hill, S.E.

THE LONDON.

This hospital (which contains 922 beds) and its medical college and dental school are in the Mile End Road, Whitechapel. All the departments are modern, and adapted for the teaching of all subjects in the curriculum. Special classes for the first and second M.B.Lond., the primary and final Fellowships, and other examinations are held. A residential hostel on hospital ground has been opened for the convenience of students who wish to live near the wards and casualty departments. The athletic ground is at Highams Park, and is open to all members of the Clubs Union.

Appointments.—The salary appointments open to students are those of medical registrar (3), surgical registrar (3), obstetric registrar, registrar in the ear, nose, and throat department (2), medical, surgical, and obstetric tutors; senior dressers to out-patients; clinical assistants in the medical, surgical, ophthalmic, aurial, light and skin, orthopaedic, and electrical departments. There are 2 resident accoucheurs, 6 resident house-physicians, and 9 resident house-surgeons, 7 receiving-room officers, 2 emergency officers, 1 assistant director of Pathological Institute, and 3 pathological assistants, also paid and unpaid clinical assistants in the various special departments. In addition there are numerous assistantships, clerkships, and dresserships in the various departments.

Scholarships and Prizes.—The following is a list of scholarships and prizes: At Entrance: Price Scholarship in Science, £100; in Anatomy and Physiology, £2 10s.; Entrance Scholarship in Science, £30; Epsom Scholarship, £126; Buxton Scholarship in Arts, £31 10s. After Entrance: Anatomy and Physiology Scholarship, £25; Letheby Prizes, £25; Prizes in Clinical Medicine, Surgery, and Obstetrics, £20 each; Duckworth Nelson Prize, £10; Hutchinson Prize, £40; Sutton Prize, £20; Sir Andrew Clark Prize, £26; Anderson Prizes, £9; Dressers' Prizes, £40; Practical Anatomy Prizes, £10; Wynne Baxter Prize, £5 5s.; Harold Luk Prize in Dental Surgery, £5 5s.; Prize in Dental Microscopy, £5. The London Hospital Medical College and the Fitz Ann Alston Medical Research Funds amount to over £21,000.

Fees.—Full course, entrance fee, 15 or 20 guineas, according to examinations passed; annual fee 30 guineas. Full information may be obtained from the Dean at the London Hospital Medical College, Mile End, E.

ST. MARY'S.

This school and its hospital are situated in Praed Street, in the neighbourhood of the residential districts of Paddington, Bayswater, and North Kensington, and are thus especially convenient to students who wish to reside in the immediate vicinity. A register of approved lodgings is kept in the office of the Medical School.

The athletic ground at Park Royal, Acton, is easily accessible from the Medical School. It is seven acres in area, and provides ample accommodation for the various athletic clubs; the pavilion is large and well equipped.

The hospital contains 305 beds, of which 31 are devoted to treatment by therapeutic inoculation.

The Medical School provides complete courses in the preliminary and intermediate subjects of the curriculum which are recognized by the University of London as approved courses for internal students. Students may join in October, January, or April.

The departments of biology, chemistry, anatomy, physiology, and pathology are under the direction of full-time lecturers, and special courses are provided twice yearly for the Primary F.R.C.S. In addition, special tuition is provided for the Intermediate and Final Examinations of the universities of Oxford, Cambridge, and London, and for the Final F.R.C.S.

All clinical appointments in the hospital are free to students of the school, the term of office in each case being of four months' duration, and the resident medical officers are chosen by competitive examination. Six house-physicians, six house-surgeons, four obstetric officers, and two resident medical officers to the inoculation wards are appointed each year, and receive board and residence in the hospital. A large number of salaried appointments are open annually to qualified students, including those of medical registrar, surgical registrar, casualty physician, casualty house-surgeon, resident assistant anaesthetist, assistant curator, together with several demonstratorships. In the inoculation department there are nine assistantships, the salaries of which amount to £1,600 per annum.

Scholarships.—There are Entrance Scholarships in Natural Science: one of £100, one of £50, one of £25, and two University Scholarships of £32 10s. awarded annually by competitive examination in September.

Fees.—The composition fee for students is £140 if paid in one sum, or £145 if paid in four instalments. University students who have completed their examinations in anatomy and physiology are admitted on payment of a composition fee of 65 guineas (£68 5s.) paid in one sum, or 70 guineas (£75 10s.) if paid in two annual instalments. A system of annual fees is also in operation for students who prefer it. Separate courses of lectures, laboratory work, or hospital practice may be taken.

The School Calendar and full information can be obtained from the Secretary, St. Mary's Hospital Medical School, Paddington, W.

THE MIDDLESEX.

The school and hospital are in Mortimer Street, W., close to Oxford Circus, Goudge Street, and Portland Road stations. There is a residential college for a limited number of students overlooking the hospital garden, a gymnasium within the precincts of the hospital, and an athletic ground within easy distance at Park Royal. The hospital contains 440 beds, including a wing containing 90 beds for patients suffering from cancer, and special cancer investigation laboratories, which offer unrivalled opportunities for the study of this disease, both in its clinical and pathological aspects. In connexion with the investigation laboratories there are several valuable scholarships awarded.

There are special wards for maternity and gynaecological cases, and for diseases of children and of the skin and eye.

The Bland-Sutton Institute of Pathology is under the charge of a director. The institute includes a pathological and anatomical museum, a lecture theatre, large pathological and public health laboratories, and smaller rooms for original investigation. Bacteriological, chemical, and microscopical examinations of material from the wards, operating theatres, and out-patient departments are carried out in the laboratories. Senior students are eligible for clerkships in the laboratories of the institute, and every facility is given for original investigation.

In the electro-therapeutical department special attention is given to the treatment of lupus and cancer by the x ray, and opportunities are afforded to students wishing to become acquainted with the use of the apparatus employed in this method of treatment. An electro-cardiographic department has also been established.

Appointments.—Twenty-two resident appointments are open annually for competition among students of the hospital. The officers reside and board in the residential college free of expense. Two casualty medical and two casualty surgical officers, and two resident officers to the special departments, are appointed annually. Eight house-surgeons are appointed every year at intervals of

two months, after examination; six house-physicians are also appointed annually at similar intervals. An obstetric and gynaecological house-surgeon is appointed every six months. In the out-patient departments the appointments are: clerk and dresser to the physicians and surgeons to out-patients; clerk in the departments for diseases of the skin and nervous diseases; dresser to the department for diseases of women, to the ophthalmic surgeon, to the throat and ear department, and to the dental surgeon. Extern midwifery clerks and *post-mortem* clerks are also appointed. The appointments are so arranged that every student may, during his course, hold all the out-patient and in-patient clerkships and dresserships. Students must have held an out-patient clerkship and dressership before being eligible to hold in-patient clerkships or dresserships. No student can be appointed to any of these offices until he has passed the second examination of the Examining Board in England or its equivalent. Non-resident qualified clinical assistants are appointed in the Medical, Surgical, Skin, Neurological, Ophthalmic, Throat and Ear, Odontological, Children's, and Electro-therapeutical Out-patient departments.

Scholarships.—Three Entrance Scholarships, value £100, £50, and £25 respectively, are open to students commencing their medical studies in April or October, 1915. An annual Entrance Scholarship, of the value of £50, is open to students of the universities of Oxford and Cambridge who have completed the curriculum for, or passed the examinations in, anatomy and physiology. The examination for these scholarships will take place on September 20th, 21st, and 22nd. Application for admission must be made on or before September 11th. Students joining the school in the previous April are eligible. The Eraser Lucas Scholarship, value £126, is annually awarded on the nomination of the head master to a pupil of Epsom College who has passed the first examination for medical degrees (Preliminary Scientific Examination). There is also a scholarship, value £50, awarded annually to students from New Zealand. In addition to the Entrance Scholarships, there are a number of other valuable scholarships, prizes, and exhibitions open to students of the hospital, including the Brodrip Scholarships, value £50 and £40; Lyell Gold Medal and Scholarship, value £55 5s.; Freeman Scholarship, value £30; John Murray Gold Medal and Scholarship, value £25; Helly Clinical Prize, value £25; Leopold Hudson Prize, value 11 guineas; and the Second Year's Exhibition, value 10 guineas.

Fees.—The composition fee for students taking the University of London degree is 145 guineas, or by five equal annual instalments of £32 11s. For those who have passed the first examination for medical degrees the fee is £120 guineas, or by four equal annual instalments of £34 2s. 6d. Students taking the Conjoint Board diplomas pay 135 guineas, or by five equal annual instalments of £30 9s. Students who have passed the First Professional Examination pay 115 guineas, or by four equal annual instalments of £32 16s. 3d. For members of universities and others who have completed their anatomical and physiological studies the fee is 70 guineas, or by three equal annual instalments of £26 5s.

Further information may be obtained on application to the Dean.

ST. THOMAS'S.

This school, and the hospital in connexion with which it works, is situated in Lambeth, the joint buildings on the Thames facing the Houses of Parliament, and forming one of the well-known architectural features of London.

The school buildings, which are separated from the hospital by a quadrangle, comprise lecture theatres, laboratories, and class-rooms well adapted for the modern teaching of large bodies of students in the subjects of the medical curriculum. A splendid library and reading-room and a complete museum are open to all students from 9 a.m. to 5 p.m., on Saturdays to 2 p.m. The Students' Club premises contain a dining room and smoking and reading room supplied with daily and illustrated weekly papers, and a gymnasium. Good meals are obtainable at a moderate tariff. The Terrace affords facilities for exercise and recreation. A cloak-room with lockers, and a lavatory with bath-rooms, are in the main school building. Students are thus able to spend the whole day at the school. The sports ground of more than nine acres in extent is at Chiswick. It can be reached in forty minutes from the hospital; it is admirably adapted for football, cricket, lawn tennis, and athletic sports.

The hospital proper contains 604 beds, and temporary huts erected in the quadrangles afford accommodation for 336 additional patients. In addition to the ordinary provisions of a great hospital there are connected with the out-patient department physicians' and surgeons' rooms provided with ample sitting accommodation, so that large numbers of students are enabled to follow closely the practice and teaching of the out-patient staff. There is a full complement of special departments, and connected with the hospital a special tuberculosis department gives opportunity for instruction of students. There is a clinical theatre, centrally situated, so as to facilitate the illustration of lectures by patients from the wards and out-patient room; it is arranged also for lantern demonstrations. The maternity ward, containing 20 beds, gives students full facilities for maternity training, under supervision, within the precincts of the hospital. This obviates any necessity for supplementary instruction elsewhere, and fully prepares the student for the extern maternity practice of the hospital district. The revised regulations of the examining bodies can thus be fully complied with.

Appointments.—All hospital appointments are open to students without charge. A resident assistant physician and a resident assistant surgeon are appointed annually at a salary of £150 each, with board and lodging. Two hospital registrars, at an annual salary of £150 each, are appointed yearly. The tenure of these offices may be renewed for a term not exceeding two years. An obstetric tutor and registrar is appointed each year at an annual salary of £50. Eight resident casualty officers and anaesthetists are appointed every six months. Four house-physicians, four house-surgeons, two obstetric house-physicians, two ophthalmic house-surgeons, and eight clinical assistants in the special departments are appointed every three months, and hold office for six months if recommended for re-election. Two research assistants (bacteriological and chemical) are paid £200 per annum each. Clinical clerkships and dresserships to the in-patient and out-patient departments are available to the number of 400 each year.

Scholarships.—There are five entrance scholarships: Two in Arts, giving one year's free tuition; one of £150 and one of £60, in Chemistry, Physics, and Biology; for students who have not received instruction in Anatomy or Physiology; one of £50 in any two of the following subjects: Anatomy, Physiology, or Chemistry, for students who have completed their examinations in Anatomy and Physiology, for a medical degree in any of the universities of the United Kingdom, and have not entered as students in any London medical school. Valuable scholarships, prizes, and medals are open for competition throughout the whole career of a student, including a Fellowship of £100 given by the Salters' Company for research in Pharmacology, and the Louis Jenner Research Scholarship of the annual value of £60 for Pathological research.

Fees.—The entrance fee for second year's students is 20 guineas; for third year's students 10 guineas. The annual composition fee is 30 guineas. For Preliminary Science students the fee is 15 guineas. The fees cover all tutorial classes given by the school teachers, and there are no extra charges made for materials required in practical courses. Special courses of instruction are given for various examinations, and a register of lodgings is kept at the school. A list of medical practitioners, clergymen, and others who receive students is also available. Further information may be obtained from the Secretary of the School, St. Thomas's Hospital, Albert Embankment, S.E.

UNIVERSITY COLLEGE HOSPITAL.

The school, which forms part of the Corporation of University College Hospital, is in immediate proximity to the hospital in University Street and opposite University College. It comprises departments of medicine and clinical medicine, surgery and clinical surgery, midwifery and gynaecology, pathology including morbid anatomy, clinical pathology and bacteriology, cardiology, forensic medicine, mental physiology and mental diseases, dental surgery, practical pharmacy, and other departments for the study of special diseases, such as those of the eye, skin, ear, and throat, and for instruction in anaesthetics, electro-therapeutics, and skiagraphy. The Hospital and School have acquired the National Dental Hospital and College as their Dental Departments, thus providing every facility for the study of dental subjects.

The school thus provides the final course of study for the degrees of the universities of London, Oxford, Cambridge, and Durham, and for the diplomas of the Royal Colleges of Physicians and Surgeons in Medicine and Dental Surgery, and the Licence of the Society of Apothecaries. Special bacteriological classes are also held in preparation for the various diplomas of public health. Each department is also equipped for more advanced work, and provides facilities for research.

A student may enter the medical school at the commencement of his career, in which case he will pursue his preliminary and intermediate studies at the University of London, University College, and his final studies in the school. He may also enter the school for the final studies after having completed his preliminary and intermediate studies at any recognized university or school.

Scholarships.—The following scholarships and prizes are open to competition: Two Entrance Exhibitions of 80 guineas each, awarded after a competitive examination in anatomy and physiology; Graham Scholarship in pathology of a sum not exceeding £200 per annum; the Atkinson Morley Scholarship of £45 a year for three years, awarded after examination in the theory and practice of surgery; the Atchison Scholarship of £25 a year for two years for general proficiency in medical studies; Magrath Clinical Scholarship, value about £100; the Phillitt Exhibition in pathology of £30; Graham Gold Medal for research work; four Fellowes Medals in clinical medicine; Liston Medals in clinical surgery; the Bruce Medal in pathology and surgery; two Tuke Medals in pathology, and the Erichsen Prize for practical surgery.

Appointments.—All the appointments at the hospital are reserved for students of the school, the dresserships and clerkships being open, of course, to those who have still to qualify. The qualified appointments, in addition to a number of posts as house-physicians and house-surgeons and obstetric assistants, include the appointments of resident medical officer, surgical registrars, obstetric registrar, casualty medical officers, casualty surgical officers, assistant in ear, nose, and throat departments, assistant in ophthalmic department, registrar in anaesthetic department, and deputy anaesthetist.

Fees.—The fee for the full course of final studies at the school is 80 guineas if paid in one sum, or 82 guineas if paid in two instalments.

WESTMINSTER.

This school, with its hospital, situated in Broad Sanctuary, opposite Westminster Abbey, provides for the education of its students in the preliminary and intermediate subjects of the University of London at King's College. The rest of the work is done in the school buildings near the hospital, which contains upwards of 200 beds, and affords most ample facilities for instruction in all branches of medicine and surgery.

Appointments.—A medical and surgical registrar are appointed annually, each with a salary of £50. Two house-physicians, three house-surgeons, one assistant house-physician, one assistant house-surgeon, and a resident obstetric assistant are appointed after examination, and are provided with rooms and commons, except the assistant house-physician and the assistant house-surgeon, who are provided with commons only. The assistant house-physician after three months' service becomes house-physician for a further period of six months, and the assistant house-surgeon, after two months' service, becomes house-surgeon for a further period of six months. Clinical assistants to the assistant physicians and assistant surgeons, and to the officers in charge of special departments, are appointed from among qualified students. Every student must perform the duties of out-patient dresser for four months, and afterwards hold the office of in-patient dresser for four months. He is also required to serve two terms of four months each as medical clinical clerk to in-patient physician and one term as gynaecological clinical clerk. Two pathological clerks are appointed every four months to assist in the *post-mortem* room. No student is eligible as an in-patient dresser or clinical clerk until he has passed the Second Examination of the Conjoint Board, or an equivalent examination. Clerks and dressers in the special departments of hospital practice are periodically appointed. So far as vacancies permit, students of other hospitals are admitted to in-patients' dresserships or clerkships.

Scholarships.—The following scholarships are offered for competition during the year 1915-16. In the summer session two natural science scholarships, £60 and £30, and one in Arts, £60. In the winter session two scholarships in anatomy and physiology, £50 each. In the spring two scholarships in anatomy and physiology, £50 each.

Fees.—The annual composition fee is 25 guineas, and an entrance fee of 15 guineas is payable by every student, including scholars. Under certain conditions 10 guineas of the entrance fee is returnable on qualification. Special terms are given to the sons of medical men. These fees include subscriptions for membership of the Clubs Union.

Further information can be obtained on application to the Dean at the Westminster Hospital Medical School, Caxton Street, Westminster, S.W.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.

This school is carried on at 8, Hunter Street, Brunswick Square, in connexion with the Royal Free Hospital, and it is, like all the other London schools which have so far been mentioned, one of the constituent schools of the Medical Faculty of London University. The new school buildings, among the best of their kind, were completed in 1900 at a cost, with equipment, of over £35,000. The laboratories are large and well lighted, and are fully equipped for the first and second medical examination courses of the University of London. A large library and common room are provided for the use of the students, and sets of chambers to accommodate sixteen students. An additional block is in course of construction, which will contain extensions of the Anatomical, Physiological, Chemical, and Physical Departments, with laboratories for advanced students and research in these subjects. A Pathological Research laboratory will also be provided.

The hospital has 184 beds, all of which are available for clinical instruction. A new block has recently been completed, containing a Maternity Department, with a lying-in ward of 8 beds, new and enlarged students' quarters, a new Out-patients' Department, with special operating theatre, and departments for massage, electrical and x-ray work, dentistry, and casualty. There are also separate departments for gynaecology and obstetrics, and diseases of the eye, ear, and skin. Instruction is given in anaesthetics, bacteriology, etc., in addition to the ordinary clinical lectures and demonstrations and tutorial classes. Students attend the practice of one of the fever hospitals of the Metropolitan Asylums Board, and receive special instruction in lunacy at Bethlem Hospital; they are also admitted to the practice of a number of special hospitals.

The work of the school includes preparation for the M.B., B.S. Lond., the diplomas of the Royal Colleges of England and of the Conjoint Boards of Scotland and Ireland, and the Society of Apothecaries, London; also for the greater part of the course required by the University of Durham and the other universities of England which admit women to their degrees, and the University of Glasgow; also for the medical school and general hospital course for dental students.

Appointments.—Qualified students of the school can obtain appointments as house-physicians and house-surgeons, obstetric assistants, surgical and medical registrars, anaesthetists, medical electrician, skinographer, curators of the school and hospital museums, and clinical assistants and demonstrators in various subjects.

Scholarships.—The Isabel Thorne Entrance Scholarship value £30, the St. Dunstan's Medical Exhibition value £60 a year for three years, extendible to five years, and the Mabel Sharran-Crawford Scholarship value £20 a year for four years, are offered for competition in each year. The Bostock Scholarship, value £50 a year for two or four years, is awarded by the Reid Trustees on the result of an examination held in May by the University of London. The holder of the scholarship must enter the London School of Medicine for Women. The Agnes Guthrie Bursary for Dental Students, value £50, is awarded each year. The Ellen Walker Bursary of £25 for two years is awarded each year to a student beginning her fourth year of study. The John Byron Bursary of £20 a year for two years, the Helen Prideman Prize of £40, the Mabel Webb Research Scholarship of £30 for two years, the Fanny Butler Scholarship of £14 10s. a year for four years, together with many other scholarships and prizes, are offered on sundry conditions. Various missionary societies also offer scholarships on certain conditions, and assist ladies who wish to go to India and other countries as medical missionaries.

Fees.—A University of London and diplomas of Royal Colleges of England course for the first medical examination, £25; course for second and third, £135; course after the second medical examination, £90. Composition fee for course of study for other qualifications, £140. Further information can be obtained from the Secretary.

KING'S COLLEGE.

SINCE the incorporation of King's College in the University of London, the instruction given to medical students is carried out there in the classes of the Faculty of Science (Medical Division), and deals only with the subjects of the preliminary and intermediate parts of the curriculum. King's College Hospital (see p. 369) is now a separate institution, and the studies for the final examinations only are carried out there.

A special class for the Matriculation Examination is also held.

There is a large athletic ground at Wormwood Scrubs, managed by the Students' Union Society.

Scholarships.—The entrance scholarships are: 1. Two to four Warnford Scholarships, each £25 for four years; subjects—mathematics, classics, divinity. 2. One Sambrooke Exhibition of £25 for two years, open; subjects of examination—mathematics, elementary physics, inorganic chemistry, botany, and biology. The holders of the preceding awards must proceed to King's College Hospital. 3. Babbeth Scholarship, value £20, in July, for the best student of the first year. 4. Second year's scholarship, value £20, for the best student of the second year.

Fees.—Information as to fees can be obtained from the Dean of the Medical Division of the Faculty of Science at the College (Professor W. D. Halliburton, M.D., F.R.C.P., L.L.D., F.R.S.).

Information as to scholarships and subjects of examination can be obtained from the Secretary of the College.

UNIVERSITY COLLEGE.

THIS institution, one of the principal component parts of the University of London, possesses a Faculty of Medical Sciences whose work covers all the subjects included in the group commonly known as the preliminary medical sciences—namely, physics, chemistry, botany, and zoology; and also the intermediate medical sciences—namely, anatomy, physiology, and pharmacology. The Department of Hygiene and Public Health prepares for the diplomas in public health of the Royal Colleges and of the various universities. Research work is undertaken in all the above-named departments, as well as in pathological chemistry, the work of which is entirely post-graduate. It undertakes the education of students in all the subjects mentioned, leaving them free to complete their education in the strictly professional subjects—medicine, surgery, and the like—at any one of the recognized schools of advanced medical studies. The work is somewhat differently arranged, accordingly as whether the student has in view the degrees of the University of London or the diplomas of the Royal Colleges. In either case the whole work to be done is divided into courses devised to meet the requirements of different examinations, and students can join the College for any of them. The general arrangements for the benefit of students include membership of the Union Society, with its gymnasium and athletic ground. There is also a collegiate residence for about forty students at Ealing.

Scholarships.—The scholarships and exhibitions obtainable include the Bucknill Scholarship, value 135 guineas, in chemistry, physics, botany, and zoology (the successful student must complete his work at University College Hospital Medical School), and two entrance exhibitions on the same subject, each of the value of 55 guineas.

Fees.—The fees for the courses covering the work of the First Examination for medical degrees of the University of London, and in both parts of the Second Examination, amount to 84 guineas. The fees for the courses covering the corresponding examinations held by the Conjoint Board in England come together to 79 guineas. These fees may be divided into payments for the different courses which it may be desired to take out, but do not cover tuition for more than a stated period.

A handbook specially relating to this faculty may be obtained on application to the Provost of University College.

THE PROVINCES.

THERE are in England and Wales, not counting London, ten medical schools, each, with one exception, supplying instruction in the full medical curriculum. Accounts of them here follow, these being placed more or less roughly in the order of their foundation. In several cases there is appended information concerning other hospitals than those directly connected with the school in question; such hospitals, officially and unofficially, play a part in the education which the students of the school receive, and in any case serve as places of additional or post-graduate study.

OXFORD AND CAMBRIDGE.

BOTH at Oxford and Cambridge there are medical schools which furnish unsurpassed opportunities for obtaining a good knowledge of the preliminary sciences and of anatomy, physiology, and pathology. The laboratories are excellently equipped, and the teaching staffs most distinguished. Both schools provide a full medical curriculum, and there is no essential reason why the student should not complete his career at either of them, but this is not commonly done. The local hospitals are comparatively small, so the authorities encourage the students, so soon as they have completed the earlier examinations, to join some London school, and thus spend the time of their preparation for the final examination in a city where the opportunities for gaining clinical knowledge are greater and more varied.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.

THIS, the Medical School of the Faculty of Medicine of the University of Durham, is in the neighbouring city, Newcastle-on-Tyne. Its classes and lectures are arranged to meet the requirements of the university in all the degrees which the latter grants, and also those of the other examining bodies. The students do their work in the preliminary sciences at Armstrong College, also part of the university, and their clinical work in the new *Royal Victoria Infirmary*, an institution with over 400 beds and special accommodation for the benefit of students. In a new wing of the school itself there are the departments of bacteriology and physiology. There are also in this wing a gymnasium and a set of rooms for the use of the Students' Union.

Appointments.—Assistant demonstrators of anatomy and prosectors for the professor of anatomy, assistant physiologists, pathological assistants, assistants to the dental surgeon, and assistants in the eye department, throat and ear department, and department for skin diseases, are elected annually. Four times in the year clinical clerks and dressers are appointed for three months.

Scholarships.—A University of Durham Scholarship, value £100, for proficiency in arts, open annually at the beginning of the winter session to intending students. The Pear Scholarship, value £150, for proficiency in arts (when vacant). The Dickinson Memorial Scholarship, interest of £400, with a gold medal, for medicine, surgery, midwifery, and pathology, open to perpetual students in their fifth year. The Gilloch Scholarship, interest of £400 annually, for anatomy, physiology, and chemistry, for students at the end of their second year. The Charlton Memorial Scholarship, interest of £700 annually, open to full students entered for the class of medicine, at the end of their fourth or fifth winter. The Gibb Scholarship, interest of £500 annually, for pathology, at the end of summer session. Gibson Prize, interest of £25, for midwifery. Gutterston Wood Prize, interest of £250, for psychological medicine. The Goyder Memorial Scholarship, proceeds of £35; subjects: Clinical medicine and clinical surgery. Luke Armstrong Memorial Scholarship, proceeds of £680, for best essay in some subject in comparative pathology. The Stephen Scott Scholarship in Surgery, interest on £1,000 annually. The Heath Scholarship in Surgery, interest on £4,000, awarded every other year. First award in 1896.

Fees.—The composition fee for lectures at the college is 80 guineas. Composition fee for hospital practice 35 guineas, plus £2 2s. yearly for three years payable to Committee of Royal Victoria Infirmary. Other information should be sought from the Secretary of the School at Newcastle.

Other Hospitals. The Hospital for Sick Children and the Infirmary for Diseases of the Eye throw open their various departments to students.

BIRMINGHAM.

THE school in this city is carried on by the Medical Faculty of the University of Birmingham, its students

having an adequate number of good laboratories, classrooms, and other necessaries devoted to their use by the university. The clinical work is done at the General and Queen's Hospitals, which are amalgamated for this purpose. Together they have upwards of 500 beds for medical, surgical, and special cases, and with an array of special departments of all kinds, including one for lying-in women. Clinical instruction is given in the wards and out-patient and special departments daily, and formal clinical lectures delivered weekly throughout the winter and summer sessions. Special tutorial classes are also held alike for the degrees of Birmingham and some other universities and for the diplomas of Corporations.

Appointments.—The large number of appointments open to past or other students include the following:—At the General Hospital: 1 resident medical officer, salary £100 a year; 1 resident surgical officer, salary £100 a year; 1 resident pathologist, salary £50 a year; 2 non-resident casualty assistant physicians, salary £50 a year; 3 non-resident surgical casualty officers, salary £50 a year; 2 non-resident anaesthetists, salary £50 a year; 4 house-surgeons, office tenable for nine months, £50 a year; 1 house-surgeon to the gynaecological and 1 to the ophthalmic and aural departments, each tenable for six months, £50 a year; 3 house-physicians, post tenable for six months, £50 a year; 1 resident medical officer at the Jaffray Branch Hospital, salary £150 a year; 1 resident assistant at the Jaffray Branch Hospital, tenable for three months. At the Queen's Hospital: 3 house-physicians and 3 house-surgeons (post vacant in January and April); 1 obstetric and ophthalmic house-surgeon (post vacant in April and October). These appointments are tenable for six months. Salaries at the rate of £80 per annum, with board, lodging, and washing. One resident dresser, tenable for three months; candidates must previously have attended their lectures, etc., and need not be qualified. At the Maternity Hospital: 1 house-surgeon, salary £50 a year. At the City Work-house and Worlhouse Infirmary: 5 resident medical officers. At the Birmingham General and Branch Dispensaries: 12 resident surgeons. At the Birmingham Lunatic Asylums: 5 assistant medical officers. At the City Fever Hospitals: 3 assistant medical officers. At the Children's Hospital: 1 resident surgical officer, 1 resident medical officer. At the Birmingham and Midland Eye Hospital: 4 resident surgeons. At the Orthopaedic and Spinal Hospital: 2 clinical assistants (non-resident). At the Ear and Throat Hospital: 1 house-surgeon, £70 a year; 4 clinical assistants (non-resident). There are also 4 non-resident Poor Law appointments in the gift of the Board of Guardians.

Scholarships.—There are numerous money and other awards for students of sufficient merit, among them being the following: The Walter Myers Travelling Studentship of £150; the Sands-Cox Scholarship of £42 (an entrance scholarship in the Faculty of Medicine, awarded on matriculation marks); four Queen's Scholarships of £100s. each, awarded annually at the first, second, third, fourth, and final university examinations respectively; one or more Sydenham Scholarships, allotted on entrance to students who are the sons of deceased medical men. The Ingleby Scholarship of £10 for proficiency in midwifery and diseases of women. There is also an entrance scholarship of £37 10s. for students proceeding to a degree in dental surgery. University Clinical Board Prizes are awarded annually as follows: Senior Medical Prize, Gold Medal; Senior Surgical Prize, Gold Medal; Midwifery Prize, Gold Medal; Junior Medical Prize, Silver Medal; Junior Surgical Prize, Silver Medal.

Fees.—The composition fee for university classes is £85. This covers all the work required for the degrees of Birmingham and some other universities, and for the ordinary qualifications of licensing corporations, but not the additional courses required for the Fellowship of the Royal College of Surgeons of England, the diploma and degrees of the university in State medicine and some other special work. The total cost for the five years' curriculum, including hospital and examination fees, is estimated at £158 2s. 6d. Other information should be sought from the Dean of the Medical Faculty.

MANCHESTER.

The staff of the Medical School in this city constitutes the Medical Faculty of the Victoria University, all the arrangements for the instruction of students, both in their earlier and their later studies, being of an elaborate nature.

The clinical work of the undergraduate is done chiefly in connexion with the Royal Infirmary, an institution which itself contains about 592 beds, and has associated with it a large convalescent home and the Royal Lunatic Asylum at Cheadle. Instruction in practical gynaecology and midwifery is given at the Royal Infirmary and the St. Mary's Hospitals.

Appointments.—The following are among the appointments open to past and present students of this school in connexion with its arrangements for clinical tuition: A surgical registrar, at £75 per annum; a pathological registrar, at £100 per annum; a medical registrar, at £75 per annum; a surgical tutor, at £30 per annum; a director of the clinical laboratory, at £250 per annum, and 1 assistant director, at £75; 3 assistant medical officers and 3 assistant surgical officers, each at £35 per annum; 1 assistant surgical officer, Aural department, at £35 per annum; 5 anaesthetists, at £50 per annum each; 1 medical officer for skiagraphy and electricity, £100 per annum; 1 medical officer for home patients, one year, £150 per annum; 1 resident medical officer, one year, £150 per annum; ditto, at Cheadle, one year, £150 per annum; 1 resident surgical officer, one year, £150 per annum; 2 resident medical officers for Central Branch, £100 per annum; 1 accident room house-surgeon, six months, £100 per annum; 1 assistant medical officer at the Convalescent Hospital at Cheadle, appointed every six months, at a salary of £80 per annum; 8 senior and 8 junior house-surgeons and 10 house-physicians, appointed during the year for a term of six months. Resident officers are appointed to the Gynaecological, the Eye, and the Ear and Throat departments every six months. Four or more clinical clerks are attached to each physician and assistant physician, and 4 or more dressers to each surgeon and assistant surgeon, to the Gynaecological surgical and assistant Gynaecological surgeon, to the Ophthalmic surgeon, and to the surgeon for the Ear and Throat department, and 4 or more clerks to the Pathologist, 2 clerks to the Director of the Clinical Laboratory, and a number of clerks, not exceeding 6, are appointed to assist the medical officer for home patients. Accident-room dressers are appointed every three months, 3 senior dressers and 12 or more junior dressers.

Entrance and other Scholarships.—The following are among the scholarships obtainable by students of the school: Rogers and Seaton Scholarships in Arts (in alternate years), £40 per annum, tenable for two years. Two Dalton (entrance) Scholarships in Mathematics, tenable for two years, value £40, one being awarded annually, except in such years as a Cartwright Scholarship is awarded. Cartwright Scholarship, £35 per annum, tenable for three years. Three Hulme Scholarships, tenable for three years, of £35, one being awarded annually for proficiency in subjects of general education. Two James Gaskill Scholarships of £35, tenable for two years, one being awarded annually for proficiency in the branches of Mechanics and Chemistry. A Dora Muir Scholarship, £30 per annum, tenable for three years, and open to the competition of women students only. This is awarded triennially; next competition in May, 1917. Sir J. P. Kay-Shuttleworth Scholarship, £30 per annum, tenable for three years, open to the competition of scholars from Sedbergh School, Giggleswick School, and Burnley Grammar School. Subjects: Mathematics, Chemistry, and Mechanics. Dreschfeld Memorial Scholarship, value £50, tenable for one year and awarded triennially on the results of the Entrance Examination (next award in 1916). A Theodores Modern Languages Exhibition, £20, awarded annually. Two Dauntess Medical Scholarships, value £45 and £35, tenable for one year, for candidates who have not commenced the second year of study leading to a medical qualification. Subjects: Zoology, Botany, and Chemistry. Two Entrance Scholarships in Medicine, value £100, awarded annually for proficiency in Arts or Science respectively. Two Research Fellowships in Public Health of £50 each, awarded annually. Tom Jones Exhibition in Anatomy, £25, offered annually. Robert Platt Physiological Exhibition, value £15 each, offered annually. Robert Platt Physiological Scholarship of £50, tenable for two years. A Robert Platt Zoological and Botanical Scholarship, £50. A Leech Fellowship of £100 for original research after graduation. A Graduate Scholarship in Medicine: One of £25, tenable for one year, awarded annually for proficiency shown at Final M.B., B.S. Examination. Doherty Surgical Prize, value £15, awarded annually at graduation. The Tom Jones Memorial Surgical Scholarship, value £100, tenable for one year, awarded usually triennially; next award in September, 1916. The Turner Medical Scholarship, value £20, awarded annually for proficiency in certain subjects of the Final M.B., B.S. Examination. The John Henry Agnew Scholarship of £30, awarded annually for proficiency in the Diseases of Children. The Bradley Memorial Scholarship in Clinical Surgery of £20. The Ashby Memorial Scholarship, tenable for one year (£100), for research in the

Diseases of Children; offered biennially; next award, 1916. Sidney Renshaw Exhibition in Physiology; One, offered annually. The details and regulations of the Dickinson Scholarships: 1 for Anatomy, 2 for Pathology, 3 Research Scholarship in Surgery, and 4 Travelling Scholarship in Medicine will be announced later.

Fees.—The composition fee for the university course in medicine is 70 guineas, payable in three instalments of 30, 20, and 20 guineas, but this sum does not include the fee to cover the work required for the First M.B. Examination. This is £25, payable in one sum. A prospectus and further information about the school and scholarships may be obtained on application to the Registrar.

Clinical Work.—The Royal Eye Hospital, the Manchester Northern Hospital for Women and Children, the well-known Hospital for Children at Peadlebury, and St. Mary's Hospital for Diseases of Women and Children all make arrangements for the instruction of students.

LIVERPOOL.

THE Medical School of this city is part of the university, and, owing to the enlightened liberality of several men of wealth, is exceptionally well provided with special laboratories, as well as with ordinary spacious and well-equipped class-rooms and laboratories for the instruction of students proceeding to medical degrees and diplomas in special and ordinary subjects. All the laboratories and other rooms are situated close to one another and intercommunicate, together forming large blocks of buildings. The work of students throughout all stages of their career is arranged upon very satisfactory lines, and the teaching hospitals, of which an account is given below, have amalgamated to form the clinical school of the university.

Appointments.—The nature of the appointments open to past and other students at this school will be gathered from the account which follows of the hospitals forming its clinical department.

Scholarships.—The awards made each year to successful students total over £1,000. They include the following: Two Holt Fellowships, one in Pathology, the other in Physiology; a Robert Gee Fellowship in Anatomy; an Alexander Fellowship for Research in Pathology and Bacteriology; a Johnston Colonial Fellowship in Pathology, Bacteriology, and Bio-Chemistry; a John W. Garrett International Fellowship in Bacteriology; a Johnston Colonial Fellowship in Bio-Chemistry; an Ethel Boyce Fellowship in Gynaecology; and a Thelwall Thomas Fellowship in Surgical Pathology, all of the value of £100; a University Scholarship of £25, awarded on the results of the Second M.B. Examinations; a Scholarship in Mechanical Dentistry of £20; two Lyon Jones Scholarships, of the annual value of £21 each for two years, one for the junior and the other for the senior student; the Derby Exhibition of £15; the Clinical School Exhibition of £15; the Torr Gold Medal in Anatomy; the George Holt Medal in Physiology; the Kantack Medal in Pathology; the Robert Gee Prize of £5 5s. in Children's Diseases; two Robert Gee Entrance Scholarships, each of the value of £25 per annum for two years; Orthodontia Prizes, Senior £3 3s., Junior £1 1s.; Dental Operating Prizes, Senior £4 4s., Junior £2 2s.; Aclis's Prize in Dental Surgery, value £2 2s.; and other Entrance Scholarships.

Fees.—Information as to the fees paid for the courses of instruction provided by the schools should be sought from the Dean of the Medical Faculty.

The Clinical School.

As many as 9 hospitals have combined to form the clinical school of the university, these being: The Royal Infirmary, the David Lewis Northern Hospital, the Royal Southern Hospital, the Stanley Hospital, the Infirmary for Children, the Hospital for Women, the Eye and Ear Infirmary, St. Paul's Eye Hospital, and St. George's Hospital for Diseases of the Skin. Between them they provide over 1,200 beds.

LEEDS.

THE School of Medicine—which is open to both male and female students—in this city forms the teaching centre of the Medical Faculty of the University of Leeds, and is situated in immediate proximity to the General Infirmary, where students sufficiently advanced receive their clinical instruction. The buildings were opened in 1894, and contain excellent dissecting rooms, several well-arranged laboratories for physiology, pathology, and bacteriology, three lecture theatres, and several similar class-rooms. In addition there are a library and reading room and two museums, one being devoted to pathology and the other

to anatomy. The comfort of the students is secured by common rooms and refectory in which they can take meals. It is estimated by the authorities that the approximate cost of medical education to a student in this university is £195, plus, of course, the expenses of living during the five years covered by the curriculum. The General Infirmary has over 420 beds in constant use, and includes gynaecological and ophthalmic wards and a large out-patient department. The Ida and Robert Arthington Semi-convalescent Hospitals, Cookridge, attached to the infirmary, has over 80 beds. The West Riding Lunatic Asylum at Wakefield is also open for the study of mental diseases. Students can, in addition, attend the practice of the Leeds Public Dispensary (where the practical instruction in dental subjects is also given), the City Fever Hospitals (100 beds), the Hospital for Women and Children, and the Leeds Maternity Hospital.

Appointments.—One senior anaesthetist, £50; 7 assistants, £25 each; medical and surgical tutor, at £125 each per annum; 1 resident medical and 1 surgical officer, each at £150 per annum; 1 casualty officer, at £125 per annum; 1 resident ophthalmic officer, at £100 per annum; 1 resident aural officer, at £100 per annum; 1 resident obstetric officer, at £50 (attached to the gynaecological ward and an extensive external maternity department); 1 ophthalmic house-surgeon, at £50 per annum; 3 house-physicians, each holding office for six months, and 4 house-surgeons, holding office for six months. Surgical dressers are appointed every six months; physicians' clerks, ophthalmic and aural dressers, gynaecological ward clerks, gynaecological out-patient clerks, maternity clerks, assistant physicians' clerks, dermatological clerks, and assistant surgeons' dressers, dressers in the casualty room, post-mortem clerks, and laboratory assistants every three months. A clinical pathologist (£300 per annum), together with an assistant clinical pathologist (£150), has charge of the pathological laboratory. A resident medical officer (honorary, £50) is also appointed every six months for the Ida Semi-convalescent Hospital. Appointments are also open to students at the Leeds Public Dispensary (1 senior and 4 junior resident medical officers, with salaries commencing at £80), at the Hospital for Women (2 house-surgeons, at £50 per annum, and 2 anaesthetists, £20), and at the West Riding Asylums.

Scholarships.—The university awards annually a scholarship on the results of the July Matriculation Examination in the form of a free admission to the lectures and classes given in the university, which are covered by the composition fee. The infirmary also awards a scholarship on the results of the first examination, of the value of 40 guineas, in the form of a free admission to the clinical teaching of the infirmary.

Fees.—The fee for a complete course for the First M.B. is £37 11s.; the composition fee for the course for the second and third examinations is £73 2s. 6d. (for students who have passed the second examination, £48 16s. 6d.), and for the clinical work at the infirmary, £42.

Further information can be obtained from the Dean and Clinical Subdean, School of Medicine, Leeds.

SHEFFIELD.

In this city the Medical School is one of the departments of the university, being conducted and controlled by its Medical Faculty, and occupying practically the entire north wing of the quadrangle of the university buildings overlooking Weston Park. The laboratories and lecture rooms connected with the subjects of the first and second examinations—namely, chemistry, physics, biology, anatomy, and physiology—are, both as regards structural arrangements and scientific equipment, on the most modern and complete lines. No expense has been spared in the matter of apparatus for teaching or research work, and the facilities for practical study in these subjects are as excellent as all the other arrangements of the school.

For students of pathology and bacteriology there are laboratories replete with everything necessary for the most advanced work, and a large pathological museum, which is open daily. In addition, there is a museum devoted to materia medica specimens, and a large library and reading room. There are a number of recreation, athletic, and other societies, all under the management of an annually elected students' representative council, and large and comfortable common rooms both for men and women students. In the university buildings there is a refectory open to all students of the school, and a university journal,

Morcanus, edited by a joint committee of the staff and students, is published each term. The ordinary clinical work of the school is done at the Royal Infirmary and Royal Hospital, which have amalgamated for the purpose of clinical instruction, and provide over 500 beds for the treatment of medical, surgical, and special cases, including diseases of the eye.

In addition, the Royal Infirmary has special departments for the treatment of diseases of the skin and ear, with beds assigned to them; whilst at the Royal Hospital there are special out-patient departments for diseases of the throat, ear, skin, orthopaedics, and mental diseases. The medical and surgical staffs attend daily, and give clinical instruction in the wards and out-patient rooms. Clinical lectures in medicine and surgery are given weekly. Instruction in the practical administration of anaesthetics is given at either institution by the anaesthetists, and the *post-mortem* examinations at both institutions are in charge of the Professor of Pathology, and afford ample material for study of this subject. Students also have the advantage of being able to attend the practice of the Jessop Hospital for Diseases of Women, while special courses on fever are given at the City Fever Hospital, and on mental diseases at the South Yorkshire Asylum.

Appointments.—The following appointments are open to all students who have passed their examinations in anatomy and physiology: (1) Casualty dresserships, (2) surgical dresserships, (3) medical clerkships, (4) pathological clerkships, (5) ophthalmic clerkships, (6) clerk to the skin department, etc. Except in the case of casualty dressers, these appointments are made for three months, commencing on the first day of October, January, April, and July. The casualty dresserships last two months, beginning on the first of any month. All students are required to hold them, and to have attended the tutorial classes for casualty dressers, before being eligible for any other of the above appointments.

Scholarships.—Entrance Medical Scholarship, value from £122 to £130, open to both sexes. Two Town Trustees' Scholarships, each of the value of £50, tenable for three years, for boys or girls under the age of 19 years who have been educated in a Sheffield secondary school for a period not less than two years immediately preceding the examination. Four Town Trustees' Scholarships, value £50, for boys or girls under 19 years of age, educated in any school in Sheffield, secondary or otherwise. Town Trustees' Fellowship, value £75, tenable for one year. Mechanics' Institute Fellowship, value £50 (with remission of fees), tenable for one year, and renewable for a second year. The Frederick Clifford Scholarship, value about £50, tenable for two years. Kaye Scholarship, for proficiency in anatomy and physiology, value £22 10s. Gold and bronze medals are also awarded for proficiency in various subjects.

Fees.—The composition fee of £80, payable in three instalments, covers attendance on all the courses of lectures and practical classes, except pharmacy, required for a degree course in the university, or for the ordinary qualifications in medicine and surgery of the Examining Boards. It does not include hospital practice, the fee for which is £49 17s. 6d., payable in three instalments.

BRISTOL.

The school is carried on by the Faculty of Medicine of the university, and provides full instruction for all its degrees and diplomas. The allied hospitals (Bristol Royal Infirmary and Bristol General Hospital) have between them 470 beds and extensive out-patient departments, special clinics for diseases of women and children, and those of the eye, throat, and ear, in addition to arrangements for dental work and large outdoor maternity departments. At each of these institutions there are well-arranged pathological departments, comprising large pathological museums, *post-mortem* rooms, and laboratories for morbid anatomy. There are also laboratories for work in clinical pathology, bacteriology, and cytology, in which special instruction is given in these subjects. Departments are provided and well equipped for *x-ray* work, both for diagnosis and treatment, the various forms of electrical treatment, including high-frequency currents, electric baths, Finson light treatment, and massage.

The students of the school have also the advantage of attending the practice of the Royal Hospital for Sick Children and Women, containing 108 beds, and that of the Bristol Eye Hospital, with 40 beds. The total number of beds available for clinical instruction is therefore upwards

of 600. Excellent facilities are thus afforded to students for obtaining a wide and thorough acquaintance with all branches of medical and surgical work. Each student has the opportunity of personally studying a large number of cases and acquiring practical skill in diagnosis and treatment. All classes are open to women.

Appointments.—(1) Undergraduate: Clinical clerkships, dresserships, also ophthalmic, obstetric, and pathological clerkships, are tenable at the Bristol Royal Infirmary and the Bristol General Hospital. In these institutions the dressers reside in rotation free of charge. (2) Post-graduate:—At the Bristol Royal Infirmary: Four house-surgeons, £100 each per annum; 2 house-physicians, £100; resident obstetric and ophthalmic house-surgeon, £100; throat, nose, and ear house-surgeon, £100; dental house-surgeon, £100. All these appointments are made for twelve months. From the resident officers a senior resident officer is appointed at an additional salary of £30. At the Bristol General Hospital: Senior house-surgeon, £150 per annum; casualty house-surgeon, £100 per annum, if another resident appointment has been previously held; two house-physicians, £80 per annum; house-surgeon, £80 per annum, obstetric house-surgeon, £80 per annum; dental house-surgeon, £200 per annum. All these appointments are for six months, except those of senior house-surgeon and dental house-surgeon, which are for two years.

Scholarships.—The following are among the scholarships and other awards open to students of the school: Two Martin Memorial Pathological Scholarships, of £10 each; the Tibbits Memorial Prize, value 9 guineas, for proficiency in practical surgery; the Committee's Gold and Silver Medals for fifth-year students for general proficiency; the Augustin Richiardi Prize, value 7 guineas, for proficiency in anatomy; the Henry Clark Prize, value 11 guineas, for general proficiency; the Crosby Leonard Prize, value 7 guineas, for proficiency in surgery; the Suple Surgical Prize, a gold medal and 7 guineas; the Suple Medical Prize, a gold medal and 7 guineas; the Henry Marshall Prize, value £12, for dressers; the H. M. Clarke Scholarship, value £15, for proficiency in surgery; the Sanders Scholarship, value £22 10s., for general proficiency.

Fees.—The fee for all the courses required for the medical curriculum, including hospital practice, is 135 guineas.

CARDIFF.

The school in this city is carried on by the University College of South Wales and Monmouthshire, and devotes itself at present principally to training students during the first three or four years of the medical curriculum, all classes being open to women students. The courses of instruction given are recognized by all licensing bodies in Great Britain, and after passing the tests corresponding to the first three years of the curriculum, the student can complete his course, for whatever degree he is aiming at, in London or elsewhere. Besides this, there is an arrangement with the Management Committee of the infirmary by which students at the school can take advantage of the opportunities for acquiring experience afforded in the wards of this large, well-ordered hospital. Hence many students, especially from Wales and Monmouthshire, find it convenient to avail themselves of the advantages of being able to pursue the earlier part of their medical curriculum near home. They can also obtain instruction in vaccination and in the administration of anaesthetics, and with a little additional work can qualify for the B.Sc. degree of the University of Wales. This degree includes the subjects which comprise the first three years of a medical student's curriculum, and it (or the B.A.) is a compulsory degree for those students who propose to sit for the M.B., Ch.B. of the University of Wales. There is also a department of public health, in which all the work for diplomas in State medicine, whether for the University of Wales or other Examining Boards, can be done. A Chair of Pathology and Bacteriology has been established. It is hoped that before long a complete Welsh National School of Medicine will be established at Cardiff, owing to the munificent offer of Sir William James Thomas to erect and present to the college a school of preventive medicine and medical school buildings, in addition to the Physiological Laboratory he has already provided.

Post-graduate vacation courses are carried on in association with the Cardiff Infirmary.

Scholarships.—There is a considerable number of scholarships connected with the college, and open to students of the School of Medicine, information as to which can be obtained on application.

Fees.—The composition fee for the three years' courses required for students proceeding to the M.B.Lond. is £63; that for the two years' courses for students proceeding to a diploma of the licensing corporations being £41 10s. The composition fee for D.P.H. classes is £30. Further information may be obtained on application to the Dean of the Faculty of Medicine.

SCOTLAND.

As will be gathered from the following paragraphs, the facilities for acquiring a medical education in Scotland are very ample, whether the student be proceeding to a university degree or to a diploma. To the descriptions of its different medical centres is in some cases added an account of hospitals which either play an official part in the education given to students as yet unqualified or offer valuable opportunities for post-graduation work.

ABERDEEN.

The school is conducted by the Faculty of Medicine. This comprises twelve chairs, from which instruction is given in all the main branches of medical science—namely, botany, zoology, physics, chemistry, anatomy, physiology, materia medica, pathology, forensic medicine, surgery, medicine, and midwifery. Courses of instruction in Public Health and in Tropical Medicine are conducted by lecturers appointed by the University Court. Special opportunities for practical instruction are afforded in the laboratories and museums attached to these departments.

Clinical instruction is obtained in the Royal Infirmary (accommodating 270 patients), the Royal Lunatic Asylum (900 patients), the Sick Children's Hospital (85 patients), the City Fever Hospital (250 patients), the General Dispensary, Maternity, and Vaccine Institution (10,000 out-patients annually), and the Ophthalmic Institution (1,600 patients annually). Courses of practical instruction are given in diseases of children at the Sick Children's Hospital; in fevers at the City Fever Hospital; in insanity at the Royal Asylum; in diseases of ear, nose, and throat at the Infirmary and Dispensary; in diseases of the eye at the Infirmary and Eye Institution; in diseases of the skin at the Royal Infirmary.

Bursaries.—Scholarships and Fellowships, to the number of fifty and of the annual value of £1,180, may be held by students of medicine in this university. They range from £8 to £100 per annum, and are tenable in most cases for two or three years.

Fees.—The fee for each university course is, as a general rule £4 4s.; and for a second attendance, £3 3s. An inclusive fee of 90 guineas is now payable, covering the necessary instruction within the university. Matriculation fee, both sessions, £1 1s.; summer session alone, 10s. 6d. Royal Infirmary, perpetual fee, £10; or, first year, £5 10s.; second year £5. The winter session begins on October 14th.

EDINBURGH.

THERE are three Schools of Medicine: the School of the University, the School of Medicine of the Royal Colleges, Edinburgh, and the Edinburgh School of Medicine for Women.

THE UNIVERSITY SCHOOL.—This school, in addition to other resources of the university, has the following means of affording practical instruction: Royal Botanic Garden, Herbarium, and Museum; Zoological Laboratory and Museum of Science and Art; Physical Laboratory; Chemical Laboratories; Dissecting Room, Bone Room, and Anatomical Museum; Physiological Laboratory; Medical Jurisprudence Laboratories; John Usher Institute of Public Health; Materia Medica Museum and Laboratory; *Post-mortem* Department of the Royal Infirmary and University Pathological and Bacteriological Laboratory; Tutorial Classes of Practice of Physic, of Clinical Medicine, and Clinical Surgery, Surgery, and Midwifery; and the practice of the hospital mentioned on the following page.

Fees.—The sessional fee for zoology, botany, chemistry, anatomy lectures, physiology, pathology, materia medica, medical jurisprudence, surgery, medicine, midwifery and gynaecology, clinical surgery (winter), clinical medicine (winter), is £4 4s. each. Second course £3 5s. Third free. A perpetual ticket taken at the beginning of the first year

is £6 6s. Physics, practical chemistry, advanced practical physiology, practical pathology, practical anatomy (winter), operative surgery, obstetric operations, practical materia medica, including pharmacy, pathological bacteriology, experimental pharmacology, vertebrate morphology and comparative embryology, are £3 5s. Clinical surgery, £2 2s. per term. Clinical medicine, first term, £3 13s. 6d.; subsequent terms, £2 2s. No perpetual ticket in these subjects. Practical botany (besides garden fee of 5s.), elementary practical zoology, practical physiology (experimental), practical physiology (histological), practical botany (advanced), practical zoology (advanced), practical anatomy (summer), anthropology, anatomy demonstrations, diseases of children, diseases of the eye, diseases of the larynx, ear, and nose; diseases of tropical climates, clinical instruction on diseases of the skin, regional anatomy, physiological chemistry, invertebrate zoology, organic chemistry, mental diseases, £2 2s. Applied anatomy (medical and surgical), £1 1s. Vaccination, £1 1s.

Scholarships.—There is a very large number of funds for the assistance of students by means of bursaries, scholarships, exhibitions, and money awards from the beginning to the end of their undergraduate career. In addition there are funds which help those who have taken a first degree in medicine and surgery to continue at work as research students. The value of these awards, and the conditions attaching to them, are so varied that those interested should consult the prospectus of the school itself. No other university is in a better, even if in as good, a position to smooth the financial path of earnest students.

THE SCHOOL OF MEDICINE OF THE ROYAL COLLEGES.—This school is composed of lecturers licensed by the Royal College of Physicians and the Royal College of Surgeons, and also recognized by the university through their *licentia docendi*; for the sake of convenience they lecture in separate buildings near to the Royal Infirmary, but form a single corporate body governed by a board consisting of five members elected by the Royal College of Physicians, of five members elected by the Royal College of Surgeons, and of five members elected by the lecturers in the school. This board, with the assistance of the standing committees of the school, supervises the whole management, and especially the maintenance of the efficiency and discipline of the school. The different buildings at present utilized for the purposes of lecturing are the following: (1) Surgeons' Hall, Nicolson Street; (2) New School, Bristo Street; (3) Nicolson Square; (4) Marshall Street; and other places. The teaching is similar to that of the Scottish universities, and the students receive similar certificates at the close of each session. The courses on the special subjects not included in the curriculum of the Examining Boards are also conducted by teachers specially qualified in each branch, and have for the last quarter of a century formed a special feature of the school. The fees payable for class and other instruction, and including the sums payable on admission to the examination of the Conjoint Board for the triple qualification, amount to about £120. The Calendar, giving full information regarding classes and fees, can be obtained gratis on application to the Dean of the School, 11, Bristo Place, Edinburgh.

THE EDINBURGH SCHOOL OF MEDICINE FOR WOMEN.—The Edinburgh School of Medicine for Women provides all the classes required for a complete curriculum. The classes qualify for the university degree in medicine, for the diploma of the Royal Colleges, and for the triple qualification. The lecturers of the school are specially recognized by the Court of Edinburgh University for the education of women who propose taking the degree in medicine of the University of Edinburgh. Most of the classes are held in Surgeons' Hall. The office of the school and a sitting-room and other conveniences are provided in the same building for the use of the women students. The clinical instruction of the students is conducted in the wards of the Royal Infirmary specially set apart for the purpose, in the Royal Hospital for Sick Children, in the City Hospital for Infectious Diseases, at Bangour Asylum, and at the various public dispensaries. The fees and the regulations as to the course of study are the same as for pupils at the School for Male Students. Further particulars are obtainable from the Secretary of the School, Surgeons' Hall, Edinburgh.

Clinical Work.

A large number of institutions take part in the clinical instruction of students attending the Edinburgh schools, the more important of them being the Edinburgh Royal Infirmary; the Royal Victoria Hospital for Consumption; the Royal Edinburgh Hospital for Sick Children; the Edinburgh Eye, Ear, and Throat Infirmary; the Edinburgh Royal Maternity and Simpson Memorial Hospital; the Edinburgh City Hospital for Infectious Diseases at Colinton Mains; the Royal Mental Hospital, Morningside; and the District Asylum at Bangour Village. Taken together these institutions furnish some 3,000 beds.

GLASGOW.

THERE are five medical schools in this city: the two schools of the university, one of which (Queen Margaret College) is for women students; St. Mungo's College (the school of the Royal Infirmary), Anderson's College, and the Western Medical School.

THE UNIVERSITY SCHOOL FOR MEN.—The whole course of study required for graduation (M.B., Ch.B.) at the University of Glasgow can be taken here. Besides ample provision for lectures there is practical and clinical work at the hospitals, and practical courses are conducted in the laboratories of the following departments: Surgery, Pathology, Public Health, Pharmacology, Physiology, Anatomy, Chemistry, Zoology, Physics, and Botany; the Botanic Garden and the Hunterian Museum (Zoology and Pathology) are also open to students. New buildings and equipments have been provided for botany, for practical anatomy, for operative surgery, as well as for pathology; the very large additions made a few years ago to the Chemical Laboratory rendered it one of the most extensive in Scotland. The class-rooms and laboratories for the departments of Physics, Physiology, Pharmacology and Materia Medica, and Medical Jurisprudence and Public Health, are also of recent erection, and are elaborately equipped. Four additional chairs of Medicine, Surgery, Obstetrics, and Pathology have been recently established, the Professors being specially attached to the Royal Infirmary; and a number of University Lectureships in Clinical Medicine, Clinical Surgery, Venereal Diseases, Laryngology, Dermatology, Otolaryngology, and Psychological Medicine have been founded there. The university, in short, has made great and successful efforts to extend and improve the accommodation of the medical departments, to strengthen the teaching staff, and to encourage post-graduate and research work. Three very extensive general hospitals in the city afford exceptional opportunities for clinical instruction—namely, the Western Infirmary (600 beds), near the university, to which the Regius Professors are attached; the Royal Infirmary (630 beds); and the Victoria Infirmary (260 beds); while the Royal Asylum (460 beds), the Royal Hospital for Sick Children (200 beds), the Maternity Hospital (34 beds), the Glasgow Eye Infirmary (100 beds), the Ophthalmic Institution (35 beds), the fever hospitals at Belvidere (680 beds) and Ruchill (540 beds), and other institutions afford facilities for the practical study of special branches. During the present year (1915) special qualifying examinations in Medicine, Surgery, and Midwifery have been held, in order that candidates who had completed their full curriculum might be enabled to graduate without delay. Nearly all the successful candidates have received commissions in the R.A.M.C.

Bursaries.—Bursaries confined to the Medical Faculty amount in annual value to about £1,000, while bursaries in any faculty, amounting to about the same annual sum, may be held by students of medicine, a number of both sets being open to women. Several valuable scholarships may be held by medical students who have graduated in Arts. Some of the bursaries are described below.

Fees.—The matriculation fee for each year is £1 1s. In most cases the fee for each university class is £4 4s., but in some cases it is £3 3s. For hospital attendance students pay an entrance fee of £10 10s. at the Western Infirmary, with an additional fee of £3 3s. for each winter and £2 2s. for each summer clinical course; at the Royal Infirmary the fees are somewhat similar. The university fee for the four professional examinations is £23 2s. (£6 6s. each for the first and second examinations, and £5 5s. each for the third and fourth). For the whole curriculum the fees

for matriculation, class attendance, hospital attendance, and professional examinations amount to £150.

For further information apply to the Registrar, Glasgow University.

Bursaries.—The following bursaries are open to under-graduates of both sexes: The Gibson Bursary, annual value £36, tenable for four years. This is open to medical students who are preparing for service as medical missionaries in connexion with the Church of Scotland, and will be awarded to the eligible candidate who has gained the highest number of marks in the First Professional Examination. One Logan Bursary, annual value £16, tenable for four years; appointment by the Senate. The Mackintosh Mental Science Bursary in medicine, of the value of £31, is awarded annually to the student of either sex attending the class of insanity who stands first in an examination of the subject; the bursar to continue the practical study of the subject to the satisfaction of the Faculty of Medicine. The Gardiner Bursary, annual value £14, tenable for two years, will be awarded after the autumn professional examination to the candidate who has passed in physiology at the Second Professional Examination, and whose aggregate of marks in that subject and in chemistry and physics of the First Professional Examination is the highest. The following are tenable in any faculty: Two Pratt Bursaries (each £20 and tenable for four years); and two Taylor Bursaries (each £10, tenable for four years). Andrew and Bethia Stewart Bursaries (50 each, tenable for three years); candidates must have taken the M.A. degree of Glasgow. There is a special examination. Nine Glasgow Highland Society's Bursaries, for students of Highland descent, of the annual value of £25, and tenable for five years; two vacant each year. The Carnegie Trust for the Universities of Scotland is empowered to pay the whole or part of the university ordinary class fees of students of Scottish birth or extraction, under conditions given in the *University Calendar*. The Dobbie Smith Gold Medal is awarded for the best essay on a prescribed subject within the science of botany. The Brunton Memorial Prize of £10 is awarded annually to the most distinguished graduate in medicine of the year. The University Commission issued an ordinance to make regulations for the admission of women to certain bursaries, scholarships, and fellowships. Scholarships and fellowships are offered by the Carnegie Trust in science and medicine for post-graduate study. There are also four McCunn Medical Research Scholarships (£100 for one year) for graduates in medicine of the Scottish universities.

QUEEN MARGARET COLLEGE.—In this, the Women's Medical School of the University of Glasgow, the courses of study, degrees, regulations, fees, etc., are the same as for men. Women students have their own buildings, with class-rooms, reading-room, library, etc. They are taught in some classes apart from male students, in others together with them, but in either case have all the rights and privileges of university students. Their clinical studies are taken in the Royal Infirmary, where wards containing 460 beds are available for their use, and in its dispensary; also in the Royal Hospital for Sick Children, the Glasgow Ear Hospital, the Royal Asylum, Gartnavel; the Ophthalmic Institution, the City of Glasgow Fever Hospitals, Belvidere and Ruchill, and the Glasgow Royal Maternity and Women's Hospital.

Scholarship.—The Arthur Scholarship, annual value £20, tenable for three years. Open to competition by medical students of first year at the First Professional Examination in October each year. This scholarship is the gift of Sir Arthur, of Barshaw, and is restricted to women medical students.

Board for Students.—A house of residence for women students, Queen Margaret Hall, is situated near the college. The cost of board and residence is from 17s. 6d. to 25s. 6d. per week, according to accommodation. Full information can be obtained from the Mistress, Queen Margaret College, or from the Warden, Queen Margaret Hall, Bute Gardens, Glasgow.

ST. MUNGO'S COLLEGE.—This is the Medical School of the Royal Infirmary, which is the largest in Glasgow. The Infirmary is situated in Cathedral Square, Castle Street, and has car communication with every part of the city. St. Mungo's College is in the infirmary grounds.

The infirmary has (including the ophthalmic department) over 660 beds, the average number occupied in 1913 being over 600. There are special beds and wards for diseases of women, of the throat, nose, and ear, venereal diseases, burns, and septic cases. In the out-patient department the attendances in 1913 numbered over 180,000. In addition to the large medical and surgical departments, there are departments for special diseases—namely, diseases of women, of the throat and nose, of the ear, of the eye, of the skin, and of the teeth. There is also a fully equipped electrical pavilion, and year by year the latest

and most approved apparatus for diagnosis and treatment is added.

Appointments.—Five house-physicians and ten house-surgeons, who must be fully qualified, are appointed every six months, and board in the hospital free of charge. Clerks and dressers are appointed by the physicians and surgeons. As a large number of cases of acute diseases and accidents of a varied character are received, these appointments are very valuable.

Fees.—The average class fee is £2 2s. The fees for all the lectures, practical classes, and hospital attendance necessary for candidates for the diplomas of the English or Scottish Colleges of Physicians and Surgeons amount to about £70. The classes are open to male and female students.

THE ANDERSON COLLEGE OF MEDICINE.—This school provides education in all subjects of the curriculum both for medical and dental students. The school buildings are situated in Dunbarton Road, immediately to the west of the entrance of the Western Infirmary, within two minutes' walk of that institution and four minutes' walk of the university. The hospital practice and clinical lectures are provided in the Western or Royal Infirmary; pathology in the Western or Royal Infirmary; vaccination and dispensary practice in the Western or Royal Infirmary Dispensary. These classes are recognized by all the licensing corporations in the United Kingdom, and also by the Universities of London, Durham, Glasgow, and Edinburgh (the latter two under certain conditions which are stated in the school Calendar). The courses (lectures and laboratory) in public health are also recognized by the Scottish Licensing Board, Queen's University of Belfast, the Irish Colleges, and the University of Cambridge.

Fees.—The fees for the lectures and practical work required by ordinary students range between 1 and 5 guineas a session. In the Public Health Department the fee for a six months' course is £12 12s. The Carnegie Trust pays the fees of students at Anderson's College on conditions regarding which particulars may be obtained from the Secretary, Carnegie Trust Offices, Edinburgh.

A Calendar will be sent on receipt of a post-card by the Secretary to the Medical Faculty, the Anderson College of Medicine, Glasgow W., who will forward any further information which may be desired.

GLASGOW WESTERN MEDICAL SCHOOL.—This school, which is situated in University Avenue, faces the principal entrance to the university, and is not far from the Western Infirmary. The subjects in which it affords instruction by means of lectures and demonstrations are anatomy, medicine, surgery, ophthalmology, dermatology, midwifery, gynaecology, and diseases of the ear, the throat, and the nose. Some of the classes qualify for the medical degrees of the university, and also for the diplomas of the Scottish Conjoint Board. The fee for most of the subjects is £2 2s. There is no matriculation fee. Further particulars relating to the school can be obtained from its Secretary, Mr. J. N. Morton, 58, Bath Street, Glasgow.

Clinical Work.

The opportunities for obtaining clinical instruction and experience are ample, the following institutions all making arrangements for the benefit of ordinary and post-graduate students: The Royal Infirmary, the Glasgow Western Infirmary, the Glasgow Eye Infirmary, the Royal Hospital for Sick Children, and the Glasgow Hospital for Diseases of the Ear, Nose, and Throat.

ST. ANDREWS AND DUNDEE.

The medical departments in these two teaching centres offer specially for students proceeding to the degrees of the University of St. Andrews, but admit other students as well. In the former city the United College provides education in all subjects of the first two years. In Dundee, University College provides for the needs of students from the beginning to the end of the five years' curriculum. Its buildings are modern, and contain laboratories and work-rooms for anatomy, physiology, materia medica, pathology, ophthalmology, public health, medicine, surgery, and gynaecology. The clinical work of the school is facilitated by various institutions. The class fees are 4 guineas for systematic classes, and 3 guineas for practical classes. The hospital ticket is £1 1s. for three months,

£3 3s. a year, or perpetual £10 in one sum or £10 10s. in instalments. Added up, the fees for the curriculum, exclusive of the examination fees, amount to £136 10s. In connexion with both institutions there are bursaries and scholarships of considerable value, which are awarded after competitive examination. Information as to these can be obtained from the Secretary of the University of St. Andrews. Information regarding the clinical facilities may be obtained from Professor Kynoch, Dean of the Medical Faculty, Medical School, Dundee.

A special Final Examination will be held in October, 1915, in order to facilitate early graduation.

Clinical Work.

Good opportunities for clinical work are afforded by the Dundee Royal Infirmary, the instruction given thereat being recognized for purposes of graduation by all the Scottish universities, the University of London, the University of Cambridge, the National University of Ireland, and by the Royal Colleges of England and Scotland.

IRELAND.

THERE is a choice of six schools for those prosecuting their medical studies in Ireland, and for clinical instruction the choice is equally satisfactory and varied, though the hospitals themselves are comparatively small. Some account of the schools follows:

DUBLIN.

The School of Physic.

This school is in Trinity College, Dublin, and is carried on under the joint auspices of the University of Dublin and of the Royal College of Physicians in Ireland; the King's professors of institutes of medicine (physiology), practice of medicine, materia medica, and midwifery being appointed by the latter. Clinical instruction is given at Sir Patrick Dun's Hospital, and some twelve other metropolitan hospitals and asylums are recognized by the Board. A three weeks' post-graduate course is given each autumn, and covers all departments of medicine and surgery. Information concerning the post-graduate course can be obtained from Dr. Alfred Parsons, 27, Lower Fitzwilliam Street, Dublin.

A special Final Examination will be held on September 13th, 1915, for students who have at least five years' credit for attendance in the school and who are volunteering for active service in connexion with the war.

The Schools of Surgery.

These are schools carried on in Dublin under the supervision and control of the Council of the Royal College of Surgeons. They are formed of the college's own school, combined with two famous old medical schools—Carmichael and Ledwich; they are attached to the college by charter. The buildings contain spacious dissecting rooms, one set apart for lady students, and special pathological, bacteriological, public health, chemical, and pharmaceutical laboratories. Advantage can be taken of the lectures and instruction afforded by students otherwise unconnected with the college.

Prizes.—Among the prizes annually awarded are: The Barker Anatomical Prize (£25 5s.); the Carmichael Scholarship £15; the Mayne Scholarship (£8); the Gold Medal in Surgery, and the Stoney Memorial Gold Medal in Anatomy; class prizes of £2 and £1, accompanied by silver medals, will also be given in each subject.

The next session begins October 15th. A prospectus can be obtained post free on application to Mr. Alfred Miller, Registrar, Royal College of Surgeons, Dublin.

University College.

This is one of the constituent colleges of the National University of Ireland, and at present conducts its work at buildings on St. Stephen's Green, at those formerly occupied by the Cecilia Street School of Medicine, and at the University Buildings in Earlsfort Terrace. Its permanent home is not yet ready. It possesses a good library, and the arrangements for the teaching of medical students from beginning to end of the curriculum are adequate. The teaching staff is numerous, and through it the college is connected with many of the hospitals of the city. Students, however, are allowed to pursue their studies at any of the hospitals recognized for the purpose by the university.

Clinical Work.

There are numerous well-arranged hospitals in and around the city, and almost all of these are recognized for teaching purposes by the Conjoint Board of Ireland, the University of Dublin, the National University of Ireland, and by like bodies elsewhere in the United Kingdom. Among them are the Mater Misericordiae Hospital, with 345 beds; Dr. Stevens's Hospital at Kingsbridge, with 200; Meath Hospital and County Dublin Infirmary, with 160; Mercer's Hospital, close to Trinity College, with 120; the Royal City of Dublin Hospital, with 124; the Adelaide Hospital, with 140; the Royal Victoria Eye and Ear Hospital, with 100 beds; Sir Patrick Dun's, which has a direct connexion with the School of Physic, and the combined institutions formed by the Hardwicke Fever Hospital, the Richmond Surgical Hospital, and the Whitworth Medical Ho-pital, with an aggregate of 230 beds. As for that known as the Rotunda Hospital, this practically consists of two distinct hospitals, and is believed to be the largest combined maternity and gynaecological hospital in the United Kingdom. It receives nearly 5,000 patients every year, and, apart from ordinary out-patient work of a gynaecological order, annually attends approximately 2,000 women at their own homes during their confinement. It possesses residential quarters for students, and, taken as a whole, offers exceptional opportunities for study both to ordinary students and to post graduates of any nationality.

BELFAST.

The Medical School is part of the Faculty of Medicine of Queen's University, Belfast, and provides a complete medical curriculum for all purposes. The laboratories in connexion with the departments of biology, chemistry, physiology, pathology, anatomy, physics, and materia medica are all excellent, and there is a Students' Union which gives students the advantage of dining rooms, reading rooms, a library, and various recreation rooms. Women are eligible as students. Clinical instruction is given at the Royal Victoria Hospital, which was rebuilt a few years ago and has 300 beds, and the Mater Infirmorum Hospital, which has 150 beds. Other hospitals open to the students of the university are: The Maternity Hospital, the Ulster Hospital for Women and Children, the Hospital for Sick Children, the Ophthalmic Hospital; the Benn Ulster Eye, Ear, and Throat Hospital; the Union Infirmary and Fever Hospital; the Fever Hospital, Purdysburn; the District Lunatic Asylum, the Samaritan Hospital, Forster Green Hospital for Diseases of the Chest, and the Belfast Hospital for Skin Diseases.

Scholarships.—(1) 12, of the value of £40 each, are assigned as Entrance Scholarships in the Faculties of Arts, Science, and Medicine, tenable for one year; (2) 16 Professional Scholarships, value from £15 to £40 each; (3) 1 Hutchinson Stewart Scholarship, £12, in mental diseases; (4) 1 Mackay Wilson Travelling Scholarship, £100, awarded triennially; (5) Isabella Tod Memorial Scholarship, tenable for three years, awarded triennially to a woman student; (6) Magrath Clinical Scholarship, awarded annually, value about £12; (7) numerous seasonal prizes. There is also a post-graduate research fund, open to all graduates of not more than three years' standing. Gold medals are awarded at the M.D. examination.

Fees.—The cost of the curriculum intended for students proceeding to the degrees of the Queen's University of Belfast is, approximately, £105. This includes examination fees and a perpetual ticket for attendance at the Royal Victoria Hospital or the Mater Infirmorum Hospital, but not fees for the special hospitals. The course for the Conjoint Board costs about the same amount. A pamphlet containing full information can be obtained on application to the Secretary, Queen's University, Belfast.

UNIVERSITY COLLEGE, CORK.

This institution, formerly known as Queen's College, Cork, is one of the constituent colleges of the new National University. It holds examinations for all the faculties of that university, in addition to continuing the work which it has hitherto performed—namely, that of providing education adapted to the needs of medical students at all stages of their career. Its first aim is to fit students for the degrees of the new university, but students proceeding for the examinations of the Conjoint Boards of England, Scotland, or Ireland, the Society of Apothecaries of London, or the Apothecaries' Hall of Ireland, or London University, can arrange the courses of lectures which they attend, and the order in which they attend them, to

meet the requirements of those bodies. Certificates of attendance at the college courses are also accepted by the University of Cambridge. Clinical instruction is given at the North and South Infirmaries (each 100 beds) and at the Cork Union Hospital (1,200 beds). Students can also attend the Mercy Hospital (60 beds), the County and City of Cork Lying-in Hospital, the Maternity, the Hospital for Diseases of Women and Children, the Fever Hospital, the Ophthalmic and Aural Hospital, and the Eglington Lunatic Asylum. The session extends from October to June inclusive. The college contains laboratories in the departments of biology, chemistry, physiology, pathology, and materia medica and pharmacy, and there are a botanic garden and plant-houses in the grounds.

Scholarships.—Over £4,000 is available annually for scholarships in the college. Particulars as to each of them can be obtained on application to the Registrar.

Fees.—The fees for the lectures and hospital attendances required by the National University of Ireland course, including examination fees, come to about £120. Further information can be found in the college regulations, or obtained on application to the Registrar.

UNIVERSITY COLLEGE, GALWAY.

This institution is one of the constituent colleges of the National University of Ireland, and includes Faculties of Arts, Science, Law, Engineering, Commerce, and Medicine. Candidates for degrees in medicine must reside for three years. For the remaining two years certificates from any recognized medical school are accepted. The college buildings are well lighted and well ventilated, and contain dissecting rooms, an anatomical theatre, and laboratories for the study of physiology, chemistry, physics, and other departments of medical science. For pathology and chemistry new laboratories are now provided. It has good grounds surrounding it, and there are many arrangements, such as a library and an athletic union, for the benefit of those belonging to the Medical Faculty, as well as for students in other departments of the college. The clinical teaching, which is recognized as qualifying not only for the degrees of the National University, but for those of London University and the diplomas of the various colleges in the three kingdoms, is carried on at the Galway County Hospital, the Galway Union Hospital, and the Galway Fever Hospital. The former is a general hospital, and at the two latter students have ample opportunities of studying zymotic and chronic diseases. The Union Hospital has a special ward for diseases of children. The college entrance scholarships number twelve, and range in value from £30 to £25 each. They are open to all students, including those of the Faculty of Medicine. For students in their second, third, and fourth years, two scholarships are in each year reserved for those belonging to the Faculty of Medicine. Further information can be obtained on application to the Registrar.

CLINICAL HOSPITALS IN ENGLAND.

There are a great many hospitals in the United Kingdom which, though not connected with any medical school, open their doors either to those who have yet to become qualified, to those who are doing post-graduation work, or to both. The facilities they offer for gaining practical clinical experience are very great, and should not be overlooked. Their honorary staffs commonly make a point of giving what instruction opportunity offers, and at those which are situated in the larger towns there are often appointments as clinical assistants to be obtained. In addition, they all have to offer, at shorter or longer intervals, appointments in the way of resident medical officerships, house-physicianships, and house-surgeons. These are usually paid offices, which may be held for periods varying from six months to a year. Some of those situated in the great medical centres in the provinces, and in Scotland and Ireland, have already been mentioned in speaking of the medical schools in these localities, but it should be added that there are many other provincial hospitals where admirable work is done, and at which much valuable experience can be gained both by senior and junior students, and by those already admitted to the *Medical Register*. Cases in point are the Royal Infirmary, Bradford; the Royal Sussex County Hospital, Brighton;

the Royal United Hospital, Bath; the Kent and Canterbury Hospital; Derbyshire Royal Infirmary; the Royal Albert Hospital and Eye Infirmary, Devonport; the Royal Devon and Exeter Hospital; the West of England Eye Infirmary, Exeter; the Gloucestershire Royal Infirmary and Eye Institution; the Royal Infirmary, Leicester; the County Hospital, Lincoln; the General Hospital, Northampton; the Norfolk and Norwich Hospital; the General Hospital, Nottingham; the Royal Portsmouth Hospital; the Royal South Hants and Southampton Hospital; the Staffordshire General Infirmary, Stafford; the North Staffordshire Infirmary at Hartshill; the Royal Hants County Hospital, Winchester; the Wolverhampton and Staffordshire General Hospital, and the County Hospital, York. As for hospitals in the metropolis, so many of these play the part of clinical schools that it is worth while to classify them.

General Hospitals.—These include the Dreadnought Hospital at Greenwich, and its annex at the Albert Dock, which form the head quarters of the London School of Clinical Medicine and the London School of Tropical Medicine; the West London Hospital and the Prince of Wales's General Hospital, Tottenham, both of these being described in the article on post-graduate work; the Great Northern Central Hospital, Holway Road, an institution containing 185 beds; and the Temperance Hospital in Hampstead Road.

Children's Hospitals.—There are at least five of these, the leader among them being the Hospital for Sick Children, Great Ormond Street, which has 240 beds. There are also the East London Hospital for Children, Shadwell, with 124 cots; the Queen's Hospital for Children, Bethnal Green, with 134; the Victoria Hospital for Children, Chelsea, with 104; the Belgrave Hospital for Children, which has a considerable out-patient department, but in-patient accommodation for only 40 children; the Paddington Green Children's Hospital, an institution of about the same size; and the Evelina Hospital for Sick Children, Southwark Bridge Road, with 76 beds.

Hospitals for Women.—These include Queen Charlotte's, which specializes in the teaching of midwifery; the Samaritan Hospital for Women, Marylebone Road; the Hospital for Women, Soho Square; the Chelsea Hospital for Women, Fulham Road; and the New Hospital for Women in Easton Road, the latter being in the nature of a general hospital so far as concerns the class of case treated.

Eye Hospitals.—The largest of these is the Moorfields Eye Hospital, City Road, with 138 beds and a very large out-patient department; others are the Royal Westminster Ophthalmic Hospital, near Charing Cross, the Royal Eye Hospital, Southwark, each with about 40 beds; and the Central London Ophthalmic Hospital, Judd Street, W.C., with 28.

Fever Hospitals.—The Metropolitan Asylums Board has under its control a good many institutions for the treatment of the more serious zymotic disorders, and makes special arrangements for the instruction of students in this subject, and grants certificates at the end of the courses. Detailed information should be sought from the Clerk to the Board, Victoria Embankment.

Chest Hospitals.—The largest of these is the Brompton Hospital for Consumption, which has 353 beds and a large sanatorium at Frimley with 150 beds. There is also the City of London Hospital for Diseases of the Chest, Victoria Park, with 175 beds, and the Royal Hospital for Diseases of the Chest, City Road, which has recently reorganized its various departments with the object of better fitting itself to act as a tuberculosis school.

Nose, Throat, and Ear Hospitals.—The institutions which confine their work to disorders of the throat, nose, and ear all make special arrangements for the benefit of scolar and post-graduate students. They are the Metropolitan Ear, Nose, and Throat Hospital, Fitzroy Square; the Royal Ear Hospital, Dean Street; the Central London Throat and Ear Hospital, Gray's Inn Road; and the Hospital for Diseases of the Throat, Golden Square—the latter, which possesses 75 beds, being the largest of the four institutions.

Miscellaneous Special Hospital.—Among these are the Bethlem Royal Hospital, Southwark, which confines its work to the treatment of mental diseases; St. Peter's Hospital for Stone and Urinary Diseases, Henrietta Street,

Covent Garden; St. Mark's Hospital, City Road, which devotes itself to the treatment of diseases of the rectum, including cancer and fistula; St. John's Hospital for Diseases of the Skin, in Leicester Square; the Hospital for Diseases of the Skin, Stamford Street, Blackfriars; and the National Hospital for the Paralyzed and Epileptic, Queen Square, W.C., an institution possessing 200 beds and a world-wide reputation.

Detailed information as to the teaching arrangements of all these institutions may be obtained on application to their secretaries.

MEDICAL EDUCATION OF WOMEN.

WOMEN are admitted to the medical examinations of the following qualifying bodies: All the universities of Great Britain, with the exception of Oxford and Cambridge; the Royal College of Physicians, London, and the Royal College of Surgeons, England; the Society of Apothecaries of London; the Conjoint Colleges of Scotland and of Ireland.

The regulations of each differ considerably, so that it is necessary for a student to decide, before beginning her course, which degree or diploma she will aim at obtaining. The ordinary regulations of the General Medical Council (see page 355) must be observed, and women can pursue their education either at certain schools only open to women, or at ordinary schools where they do their work more or less in common with men students.

The schools which admit women only are the London (Royal Free Hospital) School of Medicine for Women, which is one of the constituent schools of the Medical Faculty of the University of London; the Edinburgh School of Medicine for Women (see page 377), and Queen Margaret College, Glasgow (see page 378). Women are also admitted to the schools of medicine conducted in connexion with the Universities of Dublin, Dundee, Durham, Liverpool, Manchester, Birmingham, Leeds, Sheffield, Bristol, and Aberdeen; St. Mungo's College, Glasgow, the Schools of Surgery of the Royal College of Surgeons in Ireland and of the National University of Ireland in Dublin, Cork, and Galway. Women can also attend classes for the first three years of the medical curriculum at University College, Cardiff.

Year by year the openings for women who adopt a medical career have increased, and the field open to their energies is now wide. Women hold many appointments as resident medical officers in hospitals for women and children all over the country, and are eligible for appointments in some general hospitals, and in a large number of sanatoriums, infirmaries, fever hospitals, and asylums. Many medical women are also engaged in public health and school inspection work.

As regards the London School of Medicine for Women, particulars will be found at p. 372 in the article on London Medical Schools.

DEGREES FOR PRACTITIONERS.

At one time it was almost the universal custom for medical students educated in London not to seek a university degree, and as that custom still prevails to a considerable extent, a very large proportion of medical men in actual practice in England possess diplomas to practise but not degrees in medicine. This is a fact which they sometimes find reason to regret, and to such practitioners the following paragraphs may be of interest. It should be noted that the M.D. degree of the University of Brussels is not registrable when it has been obtained subsequently to June, 1886, but this fact does not lessen its value to those who see any utility in possessing a degree as well as a registrable diploma.

UNIVERSITY OF LONDON.

Registered medical practitioners who have passed the First Examination for medical degrees and the Second Examination for medical degrees, Part I, may proceed to the Second Examination for medical degrees, Part II, and M.B., B.S. Examinations without observing the intervals prescribed by the regulations on producing certificates that they have gone through the required course of study at a school of the university; subject to the proviso that no degree of the university can in any circumstances

be granted by examination to any one in less than three years after passing the Matriculation Examination or after admission by the university of the candidate's right to exemption therefrom.

UNIVERSITY OF DURHAM.

The degree of M.D. is granted by the University of Durham to registered practitioners of not less than fifteen years' standing, who have been qualified and in practice for that period, upon the following conditions without residence: The candidate must be 40 years of age, and must produce a certificate of moral character from three registered medical practitioners. Should he not have passed an examination in arts previously to the professional examination in virtue of which his name was placed on the Register, he is examined in classics and mathematics; if otherwise, he is required to translate into English passages from any one of the following Latin authors: *Cæsar, De Bello Gallico* (first three books), *Virgil, Æneid* (first three books), or *Celsus* (first three books).

Professional Examination.—The candidate must pass an examination in the following subjects: (i) Principles and practice of medicine, including psychological medicine, hygiene, and therapeutics; (ii) principles and practice of surgery; (iii) midwifery and diseases of women and children; (iv) pathology, medical and surgical; (v) anatomy, medical and surgical; (vi) medical jurisprudence and toxicology. The examination is conducted by means of printed papers, clinically, and *viva voce*, at the College of Medicine, Northumberland Road, Newcastle, and in the Royal Victoria Infirmary, Newcastle. The classical portion of the examination may be taken separately from the professional on payment of a portion (£10 10s.) of the full fee.

Foreign and Colonial Practitioners.—Natives of India or the British Colonies are placed on the same footing as natives of Great Britain. Natives of India must produce evidence from an Indian university that they have passed within one year an examination in Latin.

Fees.—The inclusive fee is 50 guineas; if a candidate fail to pass, 20 guineas are retained, but if he present himself again, 40 guineas only are required.

Dates, etc.—The examinations are held twice a year, towards the end of March and of June. Notice, accompanied by the fee and certificates, must be sent to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-on-Tyne, at least twenty-eight days before the commencement of the examination.

UNIVERSITY OF BRUSSELS.

This university grants its M.D. to such foreign candidates as are already duly qualified in medicine and surgery in their own countries, provided they pass the three examinations imposed. These must be passed in due order, but if desired may be passed without any formal interlude, the time covered in the latter case being ten or twelve days. They are *viva voce* examinations, the language used being French. There is, however, an official interpreter present, whose services are at the disposition of candidates; besides this, the examiners commonly speak the English language. At their desire candidates may also undergo written tests on payment of an extra fee of £1 for each test, but such written examination does not exempt them from the *viva voce* examination. There are now over six hundred medical men holding this degree in England and the colonies.

Examinations.—Of the three examinations, the first Doctorate covers general medicine, *materia medica* and pharmacology, general surgery, and the theory of midwifery. The second covers general therapeutics, pathology and morbid anatomy (including microscopy), special and general therapeutics, the special branches of surgery, and mental diseases. The third covers public health, medical jurisprudence, clinical medicine, and surgery, operative surgery (including the performance of some of the commoner operations on the dead subject), ophthalmology, midwifery (including obstetric operations on a model), regional anatomy (with dissection), and bacteriology. The examinations commence on the first Tuesday in November, December, March, and May, and the second Tuesday in June.

Fees.—The fees aggregate to £22; they are paid in advance, but those for any examinations to which a candidate has not been admitted are returned to him.

A rejected candidate may be examined three months later on repayment of the examination fee, provided his second appearance takes place in the course of the same academic year; otherwise the matriculation fee (£8 12s.) must be paid again. Any fee paid includes the right to attend any lectures delivered in connexion with the subjects of the examination to which it relates. Other information can be obtained either from the Secretary of the University, 14, Rue des Solos, Brussels, or from Dr. Arthur Haydon, Honorary Secretary of the Brussels Medical Graduates' Association, 11, Welbeck Street, Cavendish Square.

POST-GRADUATION STUDY.

The value, and in some circumstances even the necessity, of post-graduation study is now so generally recognized that there is no occasion to dilate upon it here. The need for some means of acquiring direct knowledge of the technique of the new branches which are constantly springing up is indeed so generally felt among otherwise experienced practitioners, that several institutions designed solely for their benefit have been at work now for some years. Of these institutions some account follows. Beyond this it need merely be said that in most medical centres it is now exceptional for one or more courses for qualified men not to be held once or more often during the year; that most of the institutions mentioned in the section on Clinical Hospitals make special arrangements for the benefit of qualified men desirous of studying work of the kind undertaken within their wards; and that valuable adjuncts to post-graduation study exist in the shape of the Library of the British Medical Association—one specially rich in recent works—of the libraries of the several universities, and in those of the Royal College of Surgeons of England and the Royal Colleges of Physicians in London and in Edinburgh.

WEST LONDON POST-GRADUATE COLLEGE.

The work of this institution is carried on at the West London Hospital, the first in London to devote its clinical material solely to the instruction of qualified medical men. The college started in 1895, and the present building was opened in 1901; it is provided with lecture, reading, writing, and class rooms, and accommodation of all sorts for the convenience of post-graduate students. In the last five years the yearly entry has averaged over 220.

As for ward work, the students accompany the senior staff on their visits to the wards at 2.30 p.m. daily, and also go round with the resident medical officers in the morning. Out-patient work begins at 2.15 p.m. This department is large, and affords ample facilities for post-graduates to see and examine patients. There are the usual special departments dealing with diseases of the eye, ear, throat, nose, skin, orthopaedics, x-ray work, electro-therapeutics, gynaecology, and mental diseases of children. Post-graduates are appointed to act as clinical assistants for three or six months. There is no charge to members of the college. Practical classes are held in medicine, general practical surgery, gastro-intestinal surgery, surgical diseases of children, analysis of blood and urine, cystoscopy, venereal disease, tropical diseases, retinoscopy, ophthalmic operative surgery, and when material is available, in operative surgery. The size of the classes is limited so as to ensure that each student shall have full opportunities of gaining experience in methods of examination and treatment.

Operations take place at 2 p.m. daily, the surgeons often availing themselves of the assistance of the post-graduates, and in any case making arrangements so that they can readily see what is going on. The anaesthetists give instruction in the administration of different anaesthetics, including spinal analgesia, on the operating days, students being allowed to administer them under supervision, while special classes are held in each session.

The pathological laboratory is in charge of a pathologist who attends every day. In bacteriology and microscopy special instruction is given on three mornings a week, the students working at other times under the general guidance of the pathologist.

Demonstrations are given every day in the morning by the assistant physicians, assistant surgeons, and by the

medical and surgical registrars in practical medicine and surgery. Lectures of a practical kind are given daily (except Saturday and Sunday) at 5 p.m.

The arrangements of the college may be said to be equally suited to those who are preparing themselves for examination for the higher degrees and diplomas, to the needs of officers in the different services on study leave, who attend in large numbers, and to those medical men in ordinary practice who desire to get themselves up to date in general medicine and surgery, or to make a special study of some particular branch of work. The college, it may be noted, is in a residential quarter, and there are plenty of good lodgings in its neighbourhood.

The fees are as follows: Hospital practice, including all ordinary demonstrations and lectures, £1 1s. for one week, £3 3s. for one month, £4 4s. for six weeks, £6 6s. for three months, £10 10s. for six months, £15 15s. for one year, and £30 for a life ticket. Every year in August there is a special vacation class lasting four weeks, for which the fee is £3 3s. 'Three months' instruction in the administration of anaesthetics costs £3 3s. Subscriptions for any course can be taken out from any date. The certificates of the school are recognized by the Admiralty, the War Office, the Colonial Office, the India Office, and the University of London (for higher degrees).

A prospectus concerning the school can be obtained on application to the Dean.

LONDON SCHOOL OF CLINICAL MEDICINE (POST-GRADUATE), DREADNOUGHT HOSPITAL, GREENWICH, S.E.

The school buildings, lecture rooms, operative surgery class-rooms, pathological laboratories, museum, library, etc., are in the Seaman's Hospital at Greenwich. The whole hospital of 250 beds, with its out-patient department, is open to students from 10 a.m. till 5 p.m.

Medical, surgical, and special department in-patient clinics are held every afternoon except Saturday by the senior members of the staff, whilst out-patients are demonstrated daily in the forenoon in the medical, surgical, and special departments by the assistant physicians and assistant surgeons. Operations are performed daily in both the in-patient and out-patient theatres. A series of lectures are delivered each session in the afternoon by specially invited lecturers, Emeritus lecturers, members of the staff of the Dreadnought Hospital, and by members of the staff of the hospitals affiliated to the school. Practical classes are arranged each session in the following subjects: The practice of medicine, diseases of the nervous system, medical diseases of women, medical diseases of children, diseases of the skin, practice of surgery, operative surgery, diseases of the eye; diseases of throat, nose, and ear; surgical diseases of women, midwifery and gynaecology, surgical diseases of children, pathology, clinical pathology, bacteriology, surgical and medical pathology, hygiene and public health; the administration of anaesthetics, skiagraphy, mental diseases.

Two sessions, of five months (October-February) and four months (April-July), are held in each year. The session's work is arranged so as to enable individual students to join the demonstrations, etc., at any time during the session.

Affiliated to the London School of Clinical Medicine for the purposes of extension of the variety of clinical material and teaching are the Royal Waterloo Hospital for Children and Women, the Miller General Hospital, Greenwich, and the Bethlem Royal Hospital for Mental Diseases. These hospitals are directly linked to the Dreadnought both by rail and by tram. The supply of material affords exceptional facilities for practical instruction in operative surgery and in pathology. There is also a wide field for the study of venereal diseases, on which special clinics are given, and there is a department with open-air wards for the treatment of tuberculosis. Every variety of disease may be studied in the wards and out-patient rooms of the Dreadnought Hospital and at the affiliated hospitals. The certificates of the school are recognized by the University of London for the higher degree, the Admiralty and the War Office, the India Office, and the Colonial Office.

Appointments. There are a medical superintendent, surgical and medical registrars, two house-physicians, and two house-surgeons at the Dreadnought Hospital, Greenwich. The pay of these officers varies from £50 to £150.

Full prospectuses, lists of special lectures, and other

particulars can be obtained on application to the Dean at the School.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.

The head quarters of this post-graduate school are situated at the Prince of Wales's General Hospital, which is in the midst of a densely populated North London neighbourhood containing about a quarter of a million inhabitants. It contains 125 beds, and its precise situation is South Tottenham, N., where it is within a few minutes' walk of South Tottenham Station on the Midland Railway, Seven Sisters Station on the Great Eastern Railway, and Tottenham Hale on the Great Eastern main line. It is also readily accessible from Finsbury Park and Hackney by electric tram passing the hospital door, and by corresponding means may be reached easily from Dalston, Edmonton, Hackney, and other parts of North London.

The college is recognized by the Admiralty and the India Office for the purposes of study leave, and by the University of London as a place for advanced study for the M.D. and M.S. degrees; the course of practical teaching of bacteriology is approved by the University of Cambridge for its D.P.H. diploma, and there are ample arrangements for the convenience of men who are thus working, or who are general practitioners desirous of getting themselves into touch with modern methods. There is provided for their use a reading and writing room, and they can obtain afternoon tea and receive telephonic messages; similarly there is a reference and lending library for their benefit, and a museum and pathological laboratory in which they can work. The hospital as a whole certainly affords excellent facilities to qualified medical practitioners who wish to take part for a time in the work of an active general hospital, or to obtain special instruction in the several branches of medicine and surgery, since it is open to them to study diseases of the eye, ear, throat, nose, skin, fevers, children's diseases, psychological medicine, dental surgery, skiagraphy, and the application of electricity in disease, and the administration of anaesthetics. Throughout the sessions into which the year's work is divided, clinics, lectures, and demonstrations are given by members of the teaching staff in the lecture room, in the wards, in the various out-patient departments, and in certain affiliated institutions. Operations are performed every afternoon of the week except Saturday. Special classes are arranged in modern methods of the investigation and treatment of diseases of the lungs and heart, gynaecology, diseases of children; diseases of the throat, nose, and ear; diagnosis of diseases of the nervous system, ophthalmoscopy and refraction, diseases of the skin, abdominal surgery, surgical anatomy, surgery of the urogenital tract, skiagraphy, anaesthetics, bacteriology, clinical pathology, vaccine therapy, pathological chemistry, and medical electricity. In all these classes the numbers are carefully limited, so as to give every member full opportunity for work.

As for fees, these are as follows: One guinea for a three months' course of study in any one department, which may be begun at any time; a fee of 3 guineas admits to the whole practice of the hospital for a similar term (one month, 2 guineas), and a perpetual ticket for the practice of the hospital may be obtained on payment of a fee of 10 guineas.

Additional information about the college and its work can be obtained on application to the Dean of the Post-Graduate College, at the hospital, or at 19A, Cavendish Square, London, W.

TROPICAL MEDICINE.

There are Schools of Tropical Medicine in London and Liverpool, and several examining bodies have instituted diplomas or degrees in the subject. The Colonial Office now expects all nominees for the Colonial Medical Service to pass through one or other of the two schools mentioned before their appointments are confirmed, and commercial firms engaged in tropical enterprise commonly demand from medical applicants for employment corresponding evidence of special knowledge. Information with regard to these schools and diplomas and degrees follows.

DIPLOMAS AND DEGREES.

LONDON UNIVERSITY. Tropical medicine is one of the six branches in which the M.D. degree may be obtained,

the regulations relating to the curriculum and examination corresponding to those applying to the other branches.

LONDON CONJOINT BOARD.—This body grants a diploma in tropical medicine to candidates after an examination usually held in the months of April and July. Ordinary candidates must present evidence of having attended, subsequently to obtaining a registrable qualification in medicine, surgery, and midwifery, (1) practical instruction in bacteriology, parasitology, medical zoology, and haematology, in a laboratory recognized for this purpose during not less than six months; (2) instruction in hygiene applicable to tropical countries; (3) the clinical practice of a hospital recognized for the study of tropical diseases during not less than six months. These conditions may be modified in the case of candidates who have had practical experience in tropical countries deemed likely to have furnished them with the same kind of training. The fee for admission to the examination is £9 9s.

UNIVERSITY OF EDINBURGH.—This university grants a diploma in tropical medicine and hygiene after an examination which is usually held twice a year. It is open to those who are graduates of the university in medicine and surgery, and to registered practitioners who have had experience of tropical diseases in a tropical country, who may be approved by the Senatus on the recommendation of the Faculty of Medicine. In addition to this the candidates must show that they have attended approved courses of instruction in practical bacteriology (including the pathogenic micro-organisms of tropical diseases), in diseases of tropical climates (including the zoological characters and life-history of disease-carrying insects), in tropical hygiene, and in clinical study of tropical diseases. They must possess, too, certificates of efficiency in the conduct of *post-mortem* examinations. The examination is in the four subjects indicated, the fee being £4 4s.

UNIVERSITY OF LIVERPOOL.—A diploma in tropical medicine is given by this university to students who have been through the courses provided by the Liverpool School of Tropical Medicine, and have passed the examination held twice yearly by the university examiners. The examination lasts three days, and consists (1) of three papers dealing with tropical medicine, tropical pathology, and tropical sanitation and entomology respectively; (2) of a clinical examination; and (3) of an oral examination. The results are declared as soon as possible afterwards. Further information can be obtained from the Dean of the Faculty of Medicine, University of Liverpool.

UNIVERSITY OF CAMBRIDGE.—This university grants a diploma in tropical medicine and hygiene to any person whose name has been on the *Medical Register* for not less than a year, provided that he passes the examination of the university in this subject. Previous to admission to the examination he must produce approved evidence that he has studied pathology (including parasitology and bacteriology in relation to tropical diseases), clinical medicine, and surgery, at a hospital for tropical diseases, and hygiene and methods of sanitation applicable to tropical climates.

The examination deals with the following subjects:

1. The methods of pathological and bacteriological investigation. The examination of the blood. The characters, diagnosis, and life-history of animal and vegetable parasites. The examination, chemical and microscopic, of poisonous or contaminated foods and waters.
2. The origin, pathology, propagation, distribution, prevention, symptoms, diagnosis, and treatment of the epidemic, endemic, and other diseases of tropical climates, including malaria, blackwater fever, trypanosomiasis, relapsing fever, dengue, yellow fever, plague, tetanus, beri-beri, dysentery and hepatic abscess, cholera, enteric fever, Malta fever, and specific diarrhoeal affections of the tropics; diseases due to cestode and other worms; filariasis, bilharziasis disease; specific febrile sores, and other cutaneous affections; mycetozoa, ophthalmic affections of the tropics, affections caused by poisonous plants and animals, and by poison weapons; sunstroke.
3. The general effects on health in the tropics of seasons and climate, soil, water, and food. Personal hygiene, acclimatization. Principles of general hygiene, with special reference to food supplies and water supplies, sites, dwellings, drainage, and the disposal of refuse. The sanitation of native quarters, camps, plantations, factories, hospitals, asylums, goals, pilgrim and coole ships. Principles and methods of disinfection.

Examinations are held in January and August each year, and last four days. The fee for the examination and diploma is 9 guineas on admission or readmission. Application for further information should be made to Dr. G. S. Graham-Smith, Pathological Laboratory, Cambridge.

SCHOOLS.

LONDON SCHOOL OF TROPICAL MEDICINE.—This school is under the auspices of the Seamen's Hospital Society. Its buildings, laboratories, museum, library, etc., are within the grounds of the Branch Hospital, Royal Victoria and Albert Dock (Station, Connaught Road, Great Eastern Railway), and excellent opportunities are afforded to students and others who may be desirous of studying diseases incidental to tropical climates before entering the services or going abroad. In the hospitals of the society are to be found cases of tropical disease such as may be met with in actual practice in the tropics. There are three courses in the year, each lasting three months, beginning October 1st, January 15th, and May 1st respectively. The course is so arranged as to equip men for the Cambridge and English Conjoint Board diplomas in tropical medicine. A prospectus and other information can be obtained on application to the Secretary, Seamen's Hospital, Greenwich.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.—This school is affiliated with the University of Liverpool and the Royal Infirmary and Royal Southern Hospitals of Liverpool. Two full courses of instruction are given every year, commencing on January 6th and September 15th, lasting for the term of about thirteen weeks, and followed by the examination for the diploma of tropical medicine given by the University of Liverpool. Each course consists:

- (1) of a systematic series of lectures on tropical medicine and sanitation delivered by the Professor of Tropical Medicine at the university; (2) of systematic lectures and demonstrations on tropical pathology, parasitology, and bacteriology by the Professor of Parasitology and the Lecturer on Parasitology at the university; (3) of similar instruction on medical entomology by the Professor of Medical Entomology and the Lecturer on Entomology at the university; and (4) of clinical lectures and demonstrations delivered at the Royal Infirmary and the Royal Southern Hospitals by the physicians in charge of the tropical ward or the professor.

The instruction given occupies six hours a day for five days a week during the term. Teaching under headings (2) and (3) above is delivered in the laboratory of the school at the university, which contains accommodation for thirty students, with all necessary apparatus, including a well-equipped museum, a class library, and access to the general departmental library. Teaching under heading (4) is given in the tropical ward and the attached clinical laboratories of the Royal Infirmary and the Royal Southern Hospitals on two or three afternoons a week.

In addition to the full courses, an advanced course of practical instruction in tropical pathology and medical entomology, lasting one month, is given every year in June; it is of such a kind as to be very useful to medical men returning from the tropics on short leave. A special course of instruction in entomology, etc., is also given three times a year to officers of the East and West African Colonial Services.

Students of the school who do not care to undertake the examination held by the university at the end of each term for its diplomas in tropical medicine are given a certificate for attendance if the latter has been satisfactory.

It is proposed to institute at an early date a course of instruction in tropical sanitation. Full particulars will be issued as soon as possible.

The new laboratories of the school adjoining the university, which are now completed, have been taken over temporarily by the War Office authorities as a hospital.

Since it was instituted the school has dispatched to the tropics thirty-two scientific expeditions, many of the workers having been taken from among its students. The work done by them has been published in twenty-one special memoirs, with many plates and figures, besides textbooks and numerous articles in the scientific press.

Fees.—The fee for the full course of instruction is £13 13s., with an extra charge of 10s. 6d. for the use of a

microscope if required. The fee for the Diploma Examination is £5 5s., and that for the Advanced Course is £9 4s. Further information about the school may be obtained on application to the Secretary, 10B, Exchange Buildings, Liverpool.

PSYCHOLOGICAL MEDICINE.

The study of mental diseases has long been a necessary part of the ordinary medical curriculum, and mental psychology is one of the branches of medicine which candidates for the M.D. degree of the University of London can take up. In addition diplomas in psychiatry can be obtained from the universities of Edinburgh, Leeds, and Cambridge. The Medico-Psychological Association of Great Britain and Ireland also grants certificates of proficiency after examination and encourage study of psychology and connected subjects by the offer of prizes for competition.

Those who take up psychological medicine as a career work as medical officers either of private mental hospitals, or of county or other public institutions of the same order. In all cases they are resident officers, those in the lower ranks always receiving board and lodging in addition to their salary. As a whole, they fall into three ranks—junior assistant medical officers, senior assistant medical officers, and medical superintendents. The salaries of those belonging to the junior rank have hitherto been in the neighbourhood of £150 a year, and those of senior assistants about £300 a year, but have recently shown some tendency to rise. Medical superintendents, whose pay commonly ranges between £500 and £1,500 a year, are always provided with a house in the grounds of their asylum, and usually draw various allowances.

However, asylum work as a career is by no means growing in favour, and is unlikely to do so until all the public asylums throughout the country have been linked up in such fashion that their officers can be regarded as members of one common service. At present it is quite possible for a man who does excellent work to remain in the lower rank all his life, and this fact, coupled with the desirability of minimizing as far as possible other existing drawbacks to asylum life, has recently led to the starting of a movement for reform; and in this the British Medical Association is co-operating.

PUBLIC HEALTH SERVICES.

The Public Health Service, to use the term in a strict sense, consists of medical officers of health appointed by local public health authorities and holding office under varying conditions of tenure. In addition, there are county medical officers appointed by the county councils. The latter are not, strictly speaking, public health authorities; the duties of their medical officers are somewhat similar to those of other medical officers of health, but include few executive functions. In many of the county boroughs and counties, assistant medical officers of health or assistant county medical officers are appointed, and such appointments may afford stepping stones for promotion to higher offices. The service is, however, not unified throughout the country, and there is no regular system of promotion; appointments are to be obtained only by application to some particular local authority which has advertised a vacancy.

Also upgraded are two other services which have been brought into existence by recent legislation, and whose members are charged with duties which bring them into more or less direct relation with public health authorities or county councils and their officers. The members of the one are called school medical officers, and those of the other tuberculosis officers. Appointments as school medical officer are made by education authorities, while appointments as tuberculosis officer are made in fulfilment of the duties imposed directly on the county councils and the county borough councils, and indirectly on the Insurance Committees by the scheme for the treatment and prevention of tuberculosis which was worked out by the Local Government Board for England in consultation with the Insurance Commissioners.

The Local Government Board for England, it may be noted, employs a staff of medical inspectors in connexion with the performance of its duty as the controlling department of the Government in matters of public health, and the same is true of the corresponding boards in Scotland and Ireland. The medical men forming these staffs are, however, appointed to their position directly by the head of the Local Government Board in each country, and the posts are not open to public competition.

MEDICAL OFFICERS OF HEALTH.

The office of medical officer of health in a county borough—a designation which now includes nearly all the larger towns—is in practice a permanent appointment so long as the incumbent desires to retain it, and is the same by law in administrative counties and metropolitan boroughs. The position of a medical officer of health to an urban or a rural district, or to a combination of districts which have joined together to obtain the services of a whole-time medical officer of health, is much less satisfactory, for his appointment is terminable at the will of the public health authority served by him. This fact tends to militate against the efficiency of the service, and consequently the British Medical Association, in co-operation with some other bodies, has long been endeavouring to induce Parliament to establish security of tenure of office and superannuation for medical officers of health. In view of statements recently made by the Government, security of tenure, at any rate, seems likely soon to be granted. A medical officer of health to a district or combination of districts having 50,000 inhabitants must hold a diploma in public health. The first step which must be taken by any medical man who desires to follow the career of medical officer of health must be therefore to obtain such a diploma.

SCHOOL MEDICAL OFFICERS.

School medical officers are appointed by local education authorities under schemes of medical inspection of school children which must be approved by the Board of Education. Primarily their duty is to detect among the children attending the public elementary schools any physical or mental defect which may retard the education of such children, and to inform their parents of its existence. But practically their duties vary considerably in different areas. This is because most approved schemes of inspection include systems of work which aim at facilitating the task of parents in obtaining for their children the necessary treatment, at checking the results of the latter, and at keeping each defective child under skilled observation both at home and at school until it has passed altogether out of the education authorities' hands. The general object of all schemes alike is to make the inspection imposed by law of benefit not merely to the individual child, but to the community at large, by preventing conditions which lead to the existence of a large proportion of inefficient citizens among the adult population. In short, the work is so far related to that of a medical officer of health that in most areas the senior school medical officer fills both appointments, his work, when necessary, being supplemented by that of whole- or part-time assistants. Whole-time assistants are commonly paid salaries ranging between £250 and £300 a year, the chief attraction of the posts being that they may lead on to appointment as medical officer of health of some large area where the combined salary of medical officer of health and school medical officer will represent a fair income. In view of this consideration, if for no other reason, it is desirable for a prospective whole-time school medical officer to obtain a diploma in public health.

TUBERCULOSIS OFFICERS.

The prescribed duties of tuberculosis officers are to act as advisers to Insurance Committees in connexion with the operation of the sanatorium clauses of the National Insurance Act and to take charge of the work of the tuberculosis dispensary, which is the main unit of the Departmental Committee's scheme. A tuberculosis officer is a whole-time officer; he should have special training in tuberculosis work, and be of suitable age and attainments to command general confidence. At present the number of appointments is small, and the salary generally attached to them is in the neighbourhood of £500 a year.

SANITARY SCIENCE.

In June, 1915, the University of Cambridge issued regulations for the Examinations in Sanitary Science, conducted by the State Medical Syndicate of the University. Two examinations will be held during the year 1916—one in April and one in October. Any person possessing a registered qualification in medicine, surgery, and midwifery may be a candidate, provided that he has satisfied certain demands laid down in the regulations. The examination will consist of two parts, the first having reference to the general principles of sanitary science, the second to State medicine and the applications of pathology and sanitary science. All applications for information respecting these examinations should be addressed to Mr. J. E. Purvis, M.A., The Chemical Laboratory, Pembroke Street, Cambridge.

DIPLOMAS IN PUBLIC HEALTH.

Most of the universities and licensing corporations now grant diplomas in public health to candidates who pass the examinations imposed by them. Since all such tests must conform to the requirements of the General Medical Council, there is considerable similarity in their nature, though they differ not a little in their reputed difficulty. All of them aim at excluding any candidate who does not appear to have a thorough knowledge of his work in theory and in practice, for the regulations of the General Medical Council demand that the granting of a diploma in Sanitary Science, State Medicine, or Public Health shall be proof of the "possession of a distinctively high proficiency, scientific and practical, in all the branches of study which concern the public health." The tests, in short, are supposed to constitute an honour and not a mere pass examination. As regards the special tuition required, it is now easy to obtain this in practically every centre of medical education, and at almost every medical school of any importance. It is desirable to note in this connexion that the chemical and bacteriological examinations for many of the health diplomas are so practical, and the time allowed so short, that unless a candidate—even though familiar with the duties of M.O.H.—has a considerable amount of the manipulative dexterity only to be acquired by ample work in a laboratory, he would not be likely to satisfy the examiners.

The regulations of the General Medical Council require that every candidate (subsequent to obtaining a registrable qualification in medicine and surgery) shall have passed through a stated curriculum in the subjects of sanitary science. This must last not less than nine calendar months, and include four months' study in a laboratory in which chemistry, bacteriology, and the pathology of diseases of animals transmissible to man are taught, six months' practice study of the duties involved by public health administration, and attendance at least twice weekly for three months on the practice of a hospital for infectious diseases, at which instruction is given in methods of administration. These rules do not apply to practitioners registered or entitled to be registered before January 1st, 1890, while that regarding six months' practical study of public health administration is waived in the case of a candidate who has himself been in charge of a sanitary district with a population of not less than 15,000 for a period of not less than three years. The study in question must be passed under the personal supervision of a medical officer possessing certain definite facilities for affording it, these being carefully described in the regulations. The period may be reduced to three months in the case of a candidate who has undergone a corresponding period of study in the public health department of a recognized medical school, or who has been resident medical officer at a hospital for infectious diseases with accommodation for 100 patients for not less than three months. The laboratory study must include at least 240 hours' work, not more than half being devoted to practical chemistry. The examinations imposed by the diploma-granting bodies must extend over not less than four days, one at least being devoted to practical work in the laboratory, and one to practical examination in, and reporting on, subjects within the duties of a medical officer of health, including those of a school medical officer.

The steps which examining bodies take to ascertain the candidate's fitness for a diploma are in all cases much the same, though the order in which the subjects are taken is

not always identical. Every candidate, therefore, should, when he has settled what diploma or degree in State medicine he wishes to obtain, seek the schedule relating to it from the authority concerned. A certain number of the universities grant degrees in the subject as well as diplomas, but only the latter constitute a legal qualification in State medicine.

THE PUBLIC SERVICES.

THE ROYAL NAVY, THE ARMY, AND THE
INDIAN MEDICAL SERVICE.

The medical departments of the Royal Navy, the Army, and the Indian Government normally employ between them some three thousand medical men, and fill vacancies in the ranks of the services thus formed by offering commissions for competition once or more often each year. All candidates must be between the ages of 21 and 28 years, and besides possessing registrable qualifications to practise medicine and surgery in Great Britain and Ireland, must be adjudged by the Medical Boards appointed for the purpose to be physically fit for service before permission is accorded them to compete at the entrance examinations. Special attention is given to a candidate's power of vision; a moderate degree of myopia is not considered a disqualification, provided that it can be corrected by glasses so as to secure adequate vision for the performance of operations, and that no organic disease of the eye exists. Testimony has also to be furnished, or is sought by the authority concerned, with regard to the candidate's moral and general character, and the Secretary of State in each service reserves the right to refuse permission to compete to any candidate he pleases.

In the case of a candidate for the Indian Medical Service, the certificates submitted must include one showing that he has studied in an ophthalmic department for not less than three months, the work including refraction, and candidates for the other two services who have qualified in the Officers' Training Corps, or who have been employed in active service, receive an allowance of marks. In all three services the prospect of a medical officer attaining to the highest administrative grades depends to a large extent on the regulations with regard to compulsory retirement at the age of 55 (if below a certain grade at that age), so there is a distinct advantage in entering them at the earliest possible age.

In peace and apart from climatic conditions the lives of officers in these three services are of a less trying nature than those of civilian practitioners, and in the Royal Army Medical Corps, and still more in the Indian Medical Service, the opportunities for professional work of the highest kind are exceptionally great. In regard to emoluments, the pay in no rank is high, but in all it is sufficiently good to make the possession of private means not absolutely necessary. An officer in the Indian Medical Service, for instance, can retire after seventeen years' service on £300 a year, and after thirty on £700 a year with large additions should he have been employed in certain positions. In the other two services twenty years is the lowest pensionable length of service (the minimum is £365 a year, the maximum £1,125); but from either of them an officer whose record is good can retire while still under 30 years of age with a gratuity of £1,000. In the Indian Medical Service, after working for three years in a military capacity, officers are allowed as a rule to transfer, if they please, to the civil department. Therein they do work not essentially dissimilar from that performed by civilian practitioners in other warm climates, but retain their military titles and are promoted from one grade to another as their service lengthens. It should be added that during the last few years competition for admission to the Navy has been very slight, while that for admission to the Indian Medical Service has greatly fallen. The reason is that the attractions of both services set forth above are to some extent counterbalanced by removable causes of discontent among their members. The nature of these can be learnt from recent issues of the BRITISH MEDICAL JOURNAL.

Candidates for all three services have to fill in printed forms before the question of permitting them to compete

is considered, and copies of these, together with detailed information as to what each service has to offer, can be obtained on application to the Director-General of the Royal Navy, the Secretary of the War Office, and the Military Secretary of the India Office, respectively.

PRISON MEDICAL SERVICE.

Candidates for the medical staff are approved by the Secretary of State for the Home Office on the recommendation of the Prison Commissioners. The Chairman of the Board is Sir Evelyn Ruggles-Brise, K.C.B. Application for employment may be made to the Board on a special form, which can be obtained from the Secretary, Prison Commission, Home Office, London, S.W.

In the smaller prisons the medical officer is usually a local practitioner, but in the larger the members of the medical staff are required to give their whole time to the service.

In the case of those required to give their whole time to the service the appointment in the first instance is to the post of deputy medical officer, and from the seniors of this rank the medical officers are selected as vacancies occur. The deputy medical officers are paid £225 yearly, rising to £400, with unfurnished quarters. The whole-time medical officers are paid £450, rising to £550, with unfurnished quarters. There are twenty deputy medical officers, and nine whole-time and forty-six part-time medical officers. The number of vacancies is never large.

APPOINTMENTS UNDER THE COLONIAL OFFICE.

MEDICAL appointments are from time to time filled up by the Colonial Office in various Crown and other Colonies, and vacancies in the West African Medical Staff are of fairly frequent occurrence. As a rule officers are required on appointment to undergo a three months' course of instruction at the London or Liverpool School of Tropical Medicine, and to obtain a certificate of proficiency before taking up their appointment. In addition to the ordinary medical appointments, vacancies also occasionally occur for which specialists are required—for example, to take charge of a lunatic asylum.

The nominal value of the appointments varies very considerably; but, as a general rule, it will be found on close examination that the rates of pay correspond in real value pretty closely when questions of climate, opportunities for private practice, the cost of living, and the actual work demanded are taken into consideration. The posts to which the lower salaries are attached commonly involve work which can be regarded as merely an adjunct to ordinary private practice, while high pay means either few opportunities for practice, an undesirable climate, or work of a special character demanding high administrative ability. Taken as a whole, all these appointments may be put down as offering their occupant the opportunity of gaining his livelihood, and possibly saving a little money, in a fashion which will test his abilities to the full. Pamphlets relating to the various appointments in its gift are published by the Colonial Office, and copies can be obtained on application by letter to the Assistant Private Secretary, the Colonial Office, Downing Street, S.W.

It may be added that, apart from the Government appointments mentioned, a large number of men find employment as medical officers of mining and other companies carrying on their operations in various parts of the tropics. Much caution should be exercised in accepting these appointments, and those to whom they are offered would find it worth while to read what was said on the subject in our issues for May 25th and August 24th, 1912.

In a pamphlet issued under the authority of the Colonial Secretary in September, 1914, it is pointed out that considerable increases have been made in the salaries and allowances attaching to posts in the different grades of the West African Medical Service. As a result of the war, the Colonial Office has found it very difficult to obtain the services of medical men for the colonies which do not possess responsible Governments and for the Protectorates. The improvements in salaries and allowances came into

effect at the beginning of the present year, and will, it is hoped, render these posts more attractive to the young and well-qualified medical men for whom they are intended.

MEDICAL MISSIONARIES.

To medical men suitably endowed the mission field seems to offer increasing opportunities for interesting work. We find that at the beginning of last year over 450 medical practitioners holding British degrees or diplomas were employed in different parts of the world by missionary societies, and the latter seem to stand in constant need of men and women to fill vacancies as they occur, and also to enable them to take advantage of fresh openings. It is not usually expected, or indeed considered desirable, that a medical missionary should take a position such as would otherwise be occupied by an ordained clergyman or minister, but it is essential that he should be willing to take his share of definite missionary work in any hospital in which he may be placed, and that he should be adequately prepared for this purpose. As for scientific and other qualifications for the work, a medical missionary, apart from being physically capable of sustaining what may prove to be a trying life, should be a thoroughly well-trained physician and surgeon. It is very desirable that he should have held a residential appointment at a general hospital and have a good knowledge more particularly of practical surgery, tropical medicine, and the treatment of eye diseases. Societies from whom useful information on these subjects can be obtained are the London Medical Missionary Association, 49, Highbury New Park, N.W.; the Edinburgh Medical Missionary Association, 56, George Square, Edinburgh; and the Society for Promoting Christian Knowledge, Northumberland Avenue, S.W.

MEDICAL PRACTICE IN BRITISH COLONIES AND FOREIGN COUNTRIES.

MEDICAL Acts have now been passed in almost all places forming part of the British Empire beyond the seas, and registers of duly qualified practitioners are consequently maintained. To these registers medical men educated in the United Kingdom are always admissible merely on payment of a fee, provided they produce evidence that they are of good repute and eligible for registration in the United Kingdom. The only exception to this statement that need be made relates to the Dominion of Canada. Until quite recently each of its provinces acted in medical connexions as an independent State, but in 1913 a Medical Act which established a State examination and a common register for the whole country came partly into operation. It could not come into complete operation until each province had amended its existing Medical Act so as to come into line with the new Act. This step is understood to have now been taken by all of them; but it is not clear how far the reciprocity with the United Kingdom previously accorded by all but Ontario and the three Western provinces has been affected. Consequently, any medical man proposing to practise in Canada should first communicate with the Registrar of the Medical Council of Canada, 180, Cooper Street, Ottawa, stating what degrees or diplomas he holds and the length of the curriculum he has undergone, and asking for information as to the precise steps he must take in order to obtain admission to the Dominion Register.

Italy, Egypt, and the Principality of Monaco are the only foreign States which accord a right to practise in virtue of British degrees and diplomas, though the authorities in Spain occasionally issue a temporary permit in favour of British practitioners, and those of Holland and Greece sometimes exempt British practitioners from portions of the examinations imposed on ordinary candidates for registration. In all other Continental countries a British medical man desiring to exercise his profession therein must pass practically the same examinations as those imposed on natives of the country. The same observation applies to all foreign States in the South American continent, while each of the United States of North America has its own laws and regulations; some of them admit any holder of a degree or diploma to their Register, but the majority require a candidate for registration to submit to an examination.

Dental Surgery.

THE profession of dentistry in this country is on the same footing as that of medicine: that is to say, only those who have complied with certain stipulations laid down by the General Medical Council have a legal right to practise dental surgery. This, unfortunately, by no means implies that the practice of dentistry is confined to legally qualified practitioners, for the Dental Acts offer even less protection to dental surgeons than do the Medical Acts to doctors. An ordinary medical man is within his legal rights if he practises dental surgery, but since owing to his lack of the necessary technical training he could not do so with success, dental surgery is in effect legally practised solely by men of two classes—those who hold a qualification both in dental surgery and in medicine and those who hold a qualification in dental surgery alone or have otherwise obtained admission to the *Dentists Register*. The early stages of the education of dental and medical students cover the same subjects, and it is possible to combine the two educations so as to obtain qualification both in medicine and in dental surgery without any very great extension of the time which would be necessary to become a registered medical man alone.

In any case a prospective dental surgeon must obtain registration as a dental student (see p. 355) and thereafter pursue a curriculum which lasts a minimum of four years.

During the last two years, which must be spent at a medical school and hospital, concurrently with attendance at the dental hospital, in addition to studying anatomy and physiology, surgery and pathology, he will include in his work the more specific subjects—namely, dental anatomy and physiology, dental histology, dental surgery and pathology, and practical dental surgery, for all of which he must be "signed up" by the authorities of the dental and medical schools before entrance to the Final Examination for the Licence.

Recognized dental schools are numerous: in London there are those connected with the Royal Dental Hospital, Leicester Square; the National Dental Hospital, Great Portland Street; Guy's Hospital and the London Hospital. In the provinces and Scotland and Ireland there are those connected with the universities of Sheffield, Manchester, Liverpool, Leeds, Bristol, Durham, and Birmingham, and the Devon and Exeter Dental Hospital; the Edinburgh Incorporated Dental Hospital; the Glasgow Incorporated Dental Hospital; the Royal Infirmary, Glasgow; and the Dental Hospital of Ireland, Dublin. As for qualifications in dental surgery, these are almost equally numerous. There are considerable variations in the order in which different licensing bodies require various subjects to be taken up, and every prospective dental student should consequently study not only the regulations of the General Medical Council, but also those of the body whose licence or degree he hopes to obtain.

THE WINTER SESSION IN THE MEDICAL SCHOOLS.

INFORMATION received from the deans of the various Medical Schools in London shows that by October 1st or 4th the work of the winter session will have begun, in spite of the great difficulties created by the absence of so many members of the hospital staffs on military service. At St. Bartholomew's Hospital the opening of the winter term will be marked by no ceremony; there will be no address delivered, and the annual dinner will not be held this year. At Charing Cross Hospital, the opening of the session will be marked by the distribution of prizes and a reception in the college. At St. George's Hospital the general introductory address will not be given and the annual dinner will not be held. The same is true of Guy's Hospital, King's College Hospital, the London Hospital, St. Mary's Hospital, St. Thomas's Hospital, University College Hospital, and Westminster Hospital. At the London School of Medicine for Women and the Middlesex Hospital introductory addresses will be delivered by Mrs. Willey, M.D., M.S., and John Cameron, M.D., F.R.C.S.

In the rest of England, Scotland, and Ireland, work will have begun by the middle of October. No ceremony will mark the commencement of the term, no general intro-

ductory addresses will be delivered, and no dinner will be held in the Medical Schools at Aberdeen, Belfast, Bristol, Cardiff, Dublin, Edinburgh, Glasgow, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, and Sheffield. At Leeds Sir William Osler, Bt., will deliver an address on October 1st, when term begins.

MEDICAL STUDENTS AND COMBATANT COMMISSIONS.

AT this critical time many medical students will naturally ask what is their immediate duty; should they continue their medical studies and try to qualify as soon as possible, or should they take up military service at once? So recently as last June the Under Secretary of State for War, in reply to a question from Sir Philip Magnus, stated that medical students, even in their first and second years, should be encouraged to continue their medical studies, and not to join the combatant ranks. Since then, however, the position has changed. A letter from his secretary, dated August 11th, gives it as Lord Kitchener's opinion that "it is advisable for medical students in their fourth and fifth years to continue their studies, with a view to qualifying as soon as possible. The War Office would be unwilling to suggest that junior students should be discouraged from taking combatant commissions." Sir Philip Magnus, in a letter to the *Times* of August 27th, points out the scarcity of medical men in a few years' time to which this policy will naturally lead, and he expresses the hope that the younger medical students will not be encouraged, so long as other recruits in sufficient numbers are available, to join the forces of the Crown. The position is very clearly put in the following letter received from Professor Halliburton:

To the Editor of the "British Medical Journal."

Sir,—The following are extracts from a letter I have just received from a medical student on the above subject:

I am writing on behalf of my fellow-students to thank you for all the trouble you have taken. We feel somewhat surprised at the reply you have received from the War Office; for there is a greater demand now for medical men, both military and civil, than there has ever been before, and unless the usual supply of students is kept up I fail to see how they will be obtained, for the longer the war lasts and the larger our army becomes, the more urgent will be the call for medical men. One has to bear in mind that a doctor cannot be trained under five years, so that when those who are now in their final years are qualified, there will be a scarcity for some years to come unless the supply of students is kept up.

The hospitals are now urgently in want of senior students to fill the posts of those who have just become qualified.

In the army we deal with men by the million, so surely the few hundred men who are now engaged studying in different parts of the country for the medical profession would be far more useful if they continued with their own work rather than waste two or three years of their training, for the doctor is quite as essential for the welfare of this country as the soldier or the sailor, and, like the latter, the medical profession must have recruits.

The foregoing appears to me to put the case very clearly and logically. The Government have admitted the mistake they made in the early days of the war in allowing munition workers to go to the front. To-day's papers announce that they are taking measures to prevent a repetition of this mistake in the case of skilled agricultural labourers. Surely the same applies with equal or even greater force to those who are to fill the ranks of the medical profession, the numbers of which are already disquietingly low.

I AM, SIR, YOURS FAITHFULLY,

W. D. HALLIBURTON.

King's College, London, Aug. 27th.

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OBSERVATIONS UPON ACIDOSIS IN DIABETES MELITUS.*

BY A. P. BEDDARD, M.D., M. S. PEMBREV, M.D., AND E. I. SPRIGGS, M.D.

(From the Physiological Laboratory and Wards of Guy's Hospital.)

DURING the last twelve years investigations upon the question of acidosis in diabetes have been in progress at Guy's Hospital. The chief practical result of the work has been the demonstration that analyses of the carbon dioxide in the alveolar air of the lungs afford an index of the degree of acidosis, and a guide in treatment and prognosis.

When the work began there was current the theory that in diabetes the blood is unable, owing to its diminished alkalinity, to take up the normal amount of carbon dioxide. The pressure of the gas, therefore, rises in the tissues, and the respiratory centre is stimulated to the great activity seen in the typical "air-hunger" of coma. The accumulation of carbon dioxide leads to a cessation of its production, and, according to Pavy, "death takes place when the non-removal has attained a sufficient height to reduce the occurrence of activity to a point which is no longer consistent with the continuance of life." According to this theory, diabetic coma is a condition of narcosis due to carbon dioxide.

Our first series of observations¹ was concerned with the amount of carbon dioxide in the venous blood and the alkalinity of the serum, as estimated by Wright's method. The blood required for the determination of the gases by the mercurial pump was drawn from a vein in the arm by means of an antitoxin syringe which contained a few cubic centimetres of a solution of potassium oxalate. The following tables (I, A, I B) give the results:

TABLE I.—Diabetes without Coma.

Case.	Date.	CO ₂ in Venous Blood; vols. per cent.	Alkalinity of Serum.	Urine in c.cm. per day.	Dextrose in grams.	Nitrogen in grams.	D N	Ammonia Nitrogen in grams.	Percentage Nitrogen as Ammonia.
16	19.xii.02	33.4	N/32						
9	9.i.03	24.8	N/45						
9	21.ii.03	55.2	N/25						
15	6.v.03	52.0	N/25						
	12.v.03	44.6	N/25						
	3.vi.03	30.8	N/40	2280	115.8	15.6	7.4	3.2	20.2
	18.vi.03	45.4	N/27	3310	89.7	13.9	6.5	1.4	10.2
	2.vii.03	40.0	N/27	3350	112.6	13.8	8.2	0.7	5.2
20		70.9	N/25						

* See Table II.

Remarks on Table I.

Case 15. T. M., male, aged 45. Duration of disease at least four or five years. Discharged from hospital in October, 1903.

TABLE I A.—Diabetic Coma.

Case.	Date.	CO ₂ in venous blood, vols. per cent.	Alkalinity of Serum.	Urine in c.cm. per day.	Dextrose in grams.	Nitrogen in grams.	D N	Ammonia Nitrogen in grams.	Percentage Nitrogen as Ammonia.
1	14.x.02	13.0	N/70						
	15.x.02	16.8	N/70						
2	17.x.02	24.0	N/80						
3	2.xii.02	14.8	N/57	1100	40	4.8	7	1.2	23.5
	3.xii.02	13.8	N/45	500	10	0.8	15	0.2	18
	13.7								
4	14.xii.02	22.8	N/60						
	22.1								
7	9.ii.03	20.1	N/90						
11	17.iii.03	14.1	N/45	2620	70	11.3	7	2.0	14.5
	22.2								
13	4.v.03	28.0							
14	4.v.03	17.6	N/40						
21	12.v.04	17.9	N/35						
24	5.ii.05	18.9	N/35						

* After administration of sodium bicarbonate. † See Table II.

Remarks on Table I a.

Case 2.—Female. December 2nd, 1902, sodium bicarbonate intravenously. Died on December 3rd.
Case 11.—C. female, aged 34. Illness began about November, 1902. Died on March 22nd, 1903; bronchopneumonia, hyperpyrexia.

The expenses of this research were defrayed by grants from the British Medical Association and the Royal Society. The work was done during the tenure of one of us (E. I. S.) of the Gull studentship.

Case 24.—T. T., male, aged 31. Wasting and thirst during previous twelve months. Coma began on February 3rd, 1905. Recovered from coma after infusion of sodium bicarbonate. Discharged from hospital July 11th, 1905. See Table IVc.

TABLE I B.—Other Diseases (for purpose of Control).

Case.	Date.	Carbon Dioxide in Venous Blood; vols. per cent.	Alkalinity of Serum.	Remarks.
8	11.ii.03	25.5	N/30	Empyema; dyspnoea on this date.
	17.ii.03	43.0	N/27	
	20.ii.03	41.8	N/27	
10	26.ii.03	51.4	N/25	Ascites, malignant.
12	30.iii.03	43.2	N/25	Pernicious anaemia.

It will be seen from the tables that in the cases of diabetes there is a relation between the alkalinity of the serum and the amount of carbon dioxide in the venous blood; the two rise and fall together without being actually parallel. In the non-diabetic cases, which were taken for the purpose of control, the alkalinity of the serum ranged from N/25 to N/30. According to Wright, the average alkalinity of the serum of healthy subjects corresponds to about N/30 NaOH. As regards the amount of carbon dioxide in healthy venous blood the usual figure is between 40 and 50 volumes per cent. In the first determination in Case 8 there was dyspnoea due to empyema, and this probably accounts for the low value of the carbon dioxide in the venous blood.

These results for diabetes confirm those obtained by Minkowski and Kraus, but they do not prove the correctness of the theory of narcosis due to carbon dioxide. The important question is the tension or partial pressure of the carbon dioxide in the blood and tissues. Attempts, therefore, were made to obtain information upon these points. The capacity of venous blood to take up carbon dioxide was determined in cases of diabetes, diabetic coma, and other diseases. Similar estimations were made for the urine, for it was assumed that the tension of carbon dioxide in the renal cells would not be raised without a corresponding increase in that gas in the urine. The results are given in the following table (No. II).

TABLE II.

Case.	Date.	CO ₂ in Venous Blood; vols. per cent.	Alkalinity of Serum.	Total CO ₂ in blood, vols. per cent.	Saturation Capacity of the Venous Blood for CO ₂ ; vols. per cent.	Saturation Capacity of the Urine for CO ₂ ; vols. per cent.	Disease.
5	19.xii.02	33.4	N/32	7.1	208	99	Diabetes without coma.
	'19.ii.03	28.1	N/30	8.9	238	95	"
9	21.ii.03	56.5	N/25			87.1	"
3	3.ii.02		N/50		220		Diabetic coma.
		13.8	N/45	5.1		82	"
		12.7					"
4	14.xii.02	22.8	N/60	5.0	301	91	"
		22.1					"
8	17.ii.03	43.0	N/27	11.1			Empyema.
		20.ii.03	N/27	8.4	212		
10	25.ii.03	48.5	N/25	6.7	226	139	Ascites, malignant.
12	30.iii.03	43.2	N/25	2.7			Pernicious anaemia.
				2.6			

* Sodium bicarbonate had been administered for several days before this date.

In addition, attempts² were made to estimate directly the tension of the carbon dioxide in the venous blood by exposing it in a glass sampler to atmospheres of known composition, and kept in a water bath at 37 (98.6°). After an hour or two the composition of the atmosphere and of the gaseous content of the blood was determined. For the analysis of the gases in the small amount of blood the original form of the apparatus introduced by Barcroft and Haldane was used; the difficulty of taking human blood with the ammoniacal solution rendered the results unreliable. The venous blood from a case (No. 15) of

diabetes without acidosis appeared to have a tension between 5 and 7 per cent. of an atmosphere; whereas venous blood from a case of coma with acidosis and an alveolar pressure of carbon dioxide of 2.29 per cent. absorbed carbon dioxide from an atmosphere containing 4.7 volumes per cent.

It is now necessary to consider the errors which may accompany such determinations as these already given. The serum is not the blood; it is not even a normal constituent of the blood. The alkalinity of the serum is not necessarily the same as that of the blood or the plasma. Blood is both alkaline and acid in the sense that it can combine with acids and alkalis. Physico-chemical investigations upon the relative concentrations of acid and basic ions in blood show that in health its reaction is alkaline to such a slight degree that it may be said to be neutral. The blood is a living tissue, and undergoes changes when it is removed from the body; the gases in the blood are affected, carbon dioxide increases, and oxygen decreases. If the bandage upon the arm delays the flow of the venous blood too much before the sample is withdrawn, more carbon dioxide is taken up by the blood from the tissues, and more oxygen is lost by the blood to the tissues. These sources of error will raise the percentage of carbon dioxide, and tend to make the values too high. The argument, however, based upon the low values will not be minimized by these sources of error, which are further discounted by the observations on the blood in other diseases taken for the purpose of control. The figures given in Table II show that the venous blood from patients in diabetic coma will absorb 200 to 300 volumes per cent. of carbon dioxide at the temperature of the room when pure carbon dioxide is passed through it. Although it is probable from this experiment that the blood circulating in the body of the patient has a great capacity for taking up carbon dioxide, it is necessary to prove it by actual observation. This was done in the following way; by means of a tight bandage upon the arm the flow of the venous blood was stopped for a minute or two before the sample of blood was withdrawn into the syringe. This retardation of the flow caused the blood in the small vessels to be exposed for a longer time to the action of the tissues in which the carbon dioxide is produced. The results, as shown in the following table (No. III) prove that the blood in the body of a diabetic patient has a great capacity for absorption.

TABLE III.

Case.	Date.	CO ₂ in Blood vols. per cent.	Alkalinity of Serum.	Urine in c.cm. per day.	Dextrose in grams.	Nitrogen in grams.	D %	Ammonia Nitrogen Percentage as Ammonia.	Acidity.	
15	8.ix.03	61.8	N/25	4550	399	12.2	32.4	0.6	4.9	3
22	13.vi.04	39.9* 43.2†	N/30	3430	113.5	22	5.1	5.8	26.5	32.8

* Loose bandage.

† Tight bandage.

Remarks on Table III.

Case 15.—T. M.; diabetes. See Tables I and IV.

Case 22.—D., male; recovering from diabetic coma; alveolar carbon dioxide = 2.7 per cent. See Table IVc.

It was desirable in the next place to determine the tension of the gases of the blood circulating in the body, for, apart from the sources of error in the exposure of blood to known atmospheres, it is not often possible to obtain samples of blood. Moreover, blood withdrawn from a vein in the arm is not a fair sample of the mass of the venous blood. The mixed venous blood from the right side of the heart contains carbon dioxide which has been taken up from the various tissues of the body, and it is probable that the pressure of the gas is below that which obtains at the seat of production. In passing through the lungs the blood gives off carbon dioxide and takes up oxygen; an analysis, therefore, of the air in the alveoli of the lungs will afford an estimate of the pressure of those gases in the arterial blood. The exact value of the estimate will depend upon the nature of this process of gaseous interchange, whether it be one of simple diffusion or whether there be an active secretion inwards of oxygen and an active excretion outwards of carbon dioxide. The

balance of evidence is in favour of diffusion. If such be the process the pressure of carbon dioxide in the alveolar air may be considered to be a little below that of the gas in the arterial blood, and the oxygen would show a reverse relationship. The alveolar air can be obtained by the method introduced by Haldane and Priestley. In these observations a slight modification was made, the last portion of an adequate expiration was collected in a vacuum sampler and, in the case of unconscious patients in coma, a small mask was placed over the face. The results are shown in the following tables (IV, IVA, IVb, IVc).

TABLE IV.—Diabetes.

Case.	Date.	Alveolar Air.*		CO ₂ O ₂	Urine in c.cm. per day.	Dextrose in grams.	Nitrogen in grams.	N %	Ammonia Nitrogen Percentage as Ammonia	Acidity.	
		CO ₂ vols. per cent.	Oxygen vols. per cent.								
115	10.ix.03	4.98 4.05			5030	426	13.3	31.9	0.3	2.5	6
23	17.vi.04	5.62	14.06	0.78							
	8.viii.04	5.62	13.79	0.76	2560	128.8	24.3	5.3	1.8	7.4	24
			6.12	13.04	0.73						
		5.45	13.94	0.74							
11.vii.04		5.26	14.00	0.70	2140	98.2	23.3	4.2	1.4	6.1	26.4
		5.48	14.13	0.76							
		5.71	13.55	0.73							
14.vii.04		5.55	13.93	0.73							
		4.64	14.89	0.73	1880	57.7	20.9	2.7			43.8
		4.51	13.52	0.71							
		5.10	14.45	0.75							
19.vii.04		4.51	15.44	0.79	2270	65.1	30.8	3.1	2.8	13.3	31.3
	20.viii.04	4.90	14.85	0.77	2410	113.3	19.4	6.1	2.9	15.1	26.9
		5.15	14.30	0.73							
M.30	21.viii.13	5.22	16.13	0.93							
		5.22	15.07	0.87							
E.15	3.ix.13	4.26									
		4.03									
9.x.13		5.39									
		4.91									
		5.21									
Mi.30	20.x.13	4.46									
		4.79									
A.47	21.viii.13	6.99	12.16	0.76							
		6.77	12.58	0.77							
		6.54	12.68	0.76							
	22.viii.13	6.44	12.65	0.75							
		5.73	12.55	0.63							
		5.25	14.60	0.79							
	25.viii.13	5.48	14.72	0.85							
		5.16	14.52	0.76							
	28.viii.13	4.83	15.10	0.79							
		5.01	14.68	0.76							
	30.viii.13	4.93	14.01	0.65							
		4.64	14.89	0.73							
		4.63	14.85	0.71							
	1.viii.13	4.34	14.98	0.68							
	5.viii.13	4.43	14.47	0.63							
	4.99	14.24	0.69								
6.viii.13	5.61	14.82	0.90								
9.viii.13	5.36	14.40	0.78								
11.viii.13	5.31	14.81	0.83								
13.viii.13	4.75	15.95	0.94								
18.viii.13	4.77										
19.viii.13	5.15	15.58	0.96								
	5.05	15.00	0.82								
20.viii.13	5.31										
	5.22										
21.viii.13	4.51										

* Not reduced to 0° and 760 mm.

† See Tables I and III.

TABLE IVA.—Diabetic Coma.

Case.	Date.	Alveolar Air.		CO ₂ O ₂	Remarks.
		Carbon Dioxide, vols. per cent.	Oxygen, vols. per cent.		
21	12.v.04	2.55	17.37	0.65	L., male; milk diet. See Table I.
		2.18	17.66	0.61	
24	3.ii.05	2.01	17.89	0.51	See Table I. Milk and beef-tea. Infused with sodium bicarbonate.
		1.16	19.40	0.71	
		1.09	19.54	0.74	
		1.13	19.37	0.66	
		1.13	19.47	0.73	
27	11.vi.06	1.13	19.42	0.70	See Table I. Milk and beef-tea. Infused with sodium bicarbonate.
		1.08	19.52	0.71	
		1.26	19.54	0.75	
		1.24	19.16	0.65	
		1.24	19.31	0.71	
E.17	20.viii.13	1.59	19.08	0.83	E., male; milk diet.
		1.57	19.47	0.79	
		1.37	19.93	0.83	
		1.52	19.19	0.84	
		1.52	19.19	0.84	
Mi.30	23.x.13	1.55			Female. Three hours after onset of coma and six hours before death.
		1.15				Female. A few hours before death.

Remarks on Table II.

Case 23.—B., male, aged 25. Onset of illness about ten weeks before admission to hospital on May 27th, 1904. On July 8th he was given diabetic diet and 90 grams of starch; on the 11th diabetic diet and 50 grams of laevulose. Diabetic diet was also given on July 14th, 19th, and 20th, on the latter date 90 grams of starch being also given. The patient was discharged on July 26th, 1904, in improved condition, and with a gain of 6 lb. in body weight. See also Table V.

Case M.30.—H., female; mixed diet.

Case E.13.—Female; mixed diet.

Case M.130.—L., female.

Case A.47.—C., male. (For details of urinary examination see reference 5.) Over 100 grams of sodium bicarbonate were given on July 19th, 1915, and also on July 20th; from July 22nd to August 6th 25 grams were administered daily; and from August 9th to 19th, 46 grams daily.

TABLE IV B.—Passing into Coma.

Case.	Date.	Alveolar Air.		Remarks.
		Carbon dioxide, vols. per cent.	Oxygen, vols. per cent.	
E. 17	18.viii.13	3.53		Female. Three hours after onset of coma and six hours before death.
	20.viii.13	3.65	1.14	
M. 30	20.x.13	4.46		Female. A few hours before death.
		4.79		
	23.x.13	1.55	1.15	

TABLE IV C.—Recovery from Coma.

Case.	Date.	Alveolar Air.		CO ₂ in e.n.a., per day.	Dextrose in grams.	Nitrogen in grams.	N D	Ammonia Nitrogen in grams.	Percentage Nitrogen as Ammonia.	Acidity.	
		CO ₂ vols. per cent.	Oxygen vols. per cent.								
24	3.i.05	1.16	19.40	0.71							
		1.09	19.54	0.74							
		1.13	19.37	0.66							
		1.13	19.47	0.73							
		1.13	19.42	0.70							
	4.ii.05	1.08	19.52	0.71							
		1.26	19.34	0.75							
	5.ii.05	1.24	19.16	0.65							
		1.24	19.31	0.71							
	7.ii.05	3.21	17.27	0.85	6135	139.6	11.9	11.7			
3.07		17.60	0.90								
8.ii.05	2.22	17.46	0.94	5590	174.4	10.3	16.9	1.5	15		
	3.00	17.57	0.86								
21.ii.05	3.19	16.89	0.75	3060	209.5	9.7	21.6	1.6	17.3		
13.iii.05	4.62	15.31	0.78	6520	457.6	10.8	40.5	1.1	10.2		
22	14.ii.05	2.69	16.87	0.60	3430	113.5	22	5.1	5.8	26.5	32.8
		2.64	17.22	0.66							
	14.vi.04	2.64	17.11	0.63							
	2.74										
	15.vi.04	2.92	17.96	0.97	2570						
	17.vi.04	2.46	17.88	0.78	2350						
	24.vi.04	3.93	15.57	0.68	2880						
	4.41	15.05	0.70								
	4.46	14.60	0.65								
	4.74	14.14	0.65								
27.vi.04	3.42	15.44	0.56	4080	153.4	25.9	5.9	5.2	19.9	29.9	
	3.38	15.32	0.68								
	3.28	16.08	0.63								
1.vii.04	3.61	15.52	0.62								
	3.47	15.51	0.59	4400	166.8	27.4	6	5.0	18.4	32.4	
7.vii.04	3.86	14.55	0.54								
	5.72	13.08	0.68	3410	125.5	19.3	6.5	0.29	1.5	*	
	5.82	12.66	0.65								
	5.76	12.76	0.65								
	5.67	13.50	0.71								
9.vii.04	4.69	14.40	0.65	3630	127.3	25.1	5.1	1.2	4.8	22.6	
	4.88	13.72	0.63								
	4.91	13.59	0.62								
16.vii.04	4.05	15.45	0.69								

* Alkaline.

Remarks on Table IVc.

Case 24.—T. T., male, aged 31. February 3rd, 1905: Onset of disease about twenty months before this date. Diabetic diet was started on January 27th, 1905. Coma began; infusion with solution of sodium bicarbonate.

February 4th: Infusion continued.

February 5th: Venous blood contains 18.9 vols. per cent. of carbon dioxide.

February 7th: Patient conscious. β -oxybutyric acid (Ryffel's method) = 9.8 grams.

February 8th: Venous blood contains 32.6 vols. per cent. of carbon dioxide. β -oxybutyric acid = 8.9 grams.

February 21st: Abscess formed at site of infusion. β -oxybutyric acid = 8.5 grams.

March 13th: β -oxybutyric acid = 11.9 grains. Sodium bicarbonate and carbolydurate given in diet.

The patient was discharged on July 11th, 1905, much improved.

Case 25.—D., male, aged 45. Illness began about October, 1905. Diabetic diet began on June 9th, 1904; coma threatening (see Table III).

June 14th, 1904: Diabetic diet.

June 15th: Diabetic diet; body weight 52 kilos.

June 17th: Diabetic diet; alveolar air after holding breath for twenty-five seconds = 3.55 per cent. CO₂ and 13.92 per cent. O₂.

June 24th. Diabetic diet.

July 27th: Diabetic diet, with 65 grams of starch and 42 grams of sodium bicarbonate. Weight of patient 54 kilos.

July 1st: Diabetic diet and 90 grams of starch.

July 7th: Fifth day of diabetic diet and 56 grams of sodium bicarbonate. Weight of patient 56.5 kilos. On this day 90 grams of starch and 25 grams of sodium bicarbonate given.

July 9th: Diabetic diet, with 50 grams of laevulose and 14 grams of sodium bicarbonate.

July 16th: Sixth day of diabetic diet. Alveolar air after holding breath for twenty-five seconds = 4.61 per cent. CO₂ and 13.4 per cent. O₂.

The patient died on August 13th, 1904, from pneumonia.

For the better understanding of the foregoing tables it is necessary to give the average values for the composition of the alveolar air of healthy subjects. The means of fifty observations upon ten men are 5.57 volumes per cent. of carbon dioxide and 14.89 of oxygen; the maxima are 6.11 and 15.59, the minima 4.87 and 13.91. In women and children the mean alveolar pressure of carbon dioxide is, according to Fitzgerald and Haldane, about 8 per cent. lower than in men.

Diabetic patients may have alveolar pressures of carbon dioxide, which are within the normal limits, although they are passing large quantities of sugar in the urine. When there is acidosis the carbon dioxide falls and in diabetic coma reaches as low a figure as 1 or 2 volumes per cent. If under treatment with sodium bicarbonate the patient recovers, the pressure of carbon dioxide may gradually rise to the normal level, as is well shown in Case No. 22. Moreover, in diabetic patients massive doses of sodium bicarbonate may raise the pressure to a height beyond the normal range; this is shown by the observations on Case A.47 in whom the highest figure was 6.99 volumes per cent.

To determine more closely the conditions as regards the carbon dioxide, observations were made upon the composition of the alveolar air before and after the patient had held his breath as long as he could.

TABLE V.

Case.	Date.	Alveolar Air Before Holding Breath.		Alveolar Air After Holding Breath.		Duration of Holding Breath in Seconds.
		Carbon Dioxide, vols. per cent.	Oxygen, vols. per cent.	Carbon Dioxide, vols. per cent.	Oxygen, vols. per cent.	
A. B.*		5.77	15.12	7.35	9.67	40
22†	15.vi.04	2.42	17.96	3.55	13.92	25
	18.vi.04	2.96	17.88	4.01	15.18	20
	16.vii.04	4.05	15.45	4.61	13.14	25
23†	14.vii.04	4.53	15.52	5.70	11.00	23
		4.64	14.89			
	19.vii.04	4.51	15.44	5.41	10.75	42

* Healthy man. † Recovering from diabetic coma (see Table IVc). ‡ Diabetes (see Table IV).

The "breaking point" on holding the breath was determined by the discomfort, which, as observations on healthy men show, is produced by the accumulated carbon dioxide rather than by the fall in the amount of oxygen. In these patients the pressure of carbon dioxide was raised, but in no case did it reach normal figures. This result indicates that other substances, in addition to carbon dioxide, were stimulating the respiratory centre. The low values in the patient recovering from coma would suggest that it is due to the condition of acidosis. If this interpretation be correct it would be expected that the pulmonary ventilation would not correspond with the pressure of the alveolar carbon dioxide. The amount of

air breathed by a patient was determined by means of a mask provided with inspiratory and expiratory valves and connected with a meter of low resistance. The following table (VI) shows that the volume of air breathed was greatest when the pressure of the alveolar carbon dioxide was least.

TABLE VI.

Case.	Condition.	Date.	Alveolar Air.		Volume of Air Breathed per Minute in Litres at 15°.	Respirations per minute.
			Carbon Dioxide, vols. per cent.	Oxygen, vols. per cent.		
24*	Diabetic coma	4.ii.05	1.26	19.34	9	19 18
	Recovering from coma	7.ii.05	3.21	17.27	3.75	18 18
	Recovered from coma	14.iii.05	4.62	15.31	5.3 5.2	20 20

* See Table IVc.

Soon after the first observation the comatose patient was given to breathe a mixture containing 3.9 volumes per cent. carbon dioxide and 18.42 volumes per cent. oxygen; the volume breathed was 8 and 10 litres with 22 and 20 respirations per minute; the pulse became more forcible, although not increased in rate, and a tendency to struggle complicated the result. Ten days later, when the patient had recovered from coma, the ordinary volume of air breathed, 5.3 litres, was increased to 7.65 and 8 litres in two consecutive minutes, when he inspired a mixture containing 5.92 volumes per cent. carbon dioxide and 20.08 volumes per cent. oxygen. The mixture made him breathe more deeply at a rate of 14 and 15 respirations per minute, and the alveolar air taken directly after contained 5.46 volumes per cent. carbon dioxide. The patient himself said that the gas caused a feeling of suffocation.

To remove any effects due to a decrease in the amount of oxygen further observations were made upon the same patient. The alveolar air contained 3.19 volumes per cent. carbon dioxide and 16.89 oxygen on February 21st, 1905; the patient then breathed in and out of a big gas-bag containing 5.78 volumes per cent. carbon dioxide and 24.45 oxygen until his breathing became much deeper. A sample of alveolar air taken directly after contained 4.83 volumes per cent. carbon dioxide, and 52.67 oxygen and the bag 5.82 carbon dioxide and 29.03 oxygen. On the same day the patient breathed in and out of a small bag of oxygen until his breathing was deeper; a sample of his alveolar air was then taken for analysis; it contained 3.96 volumes per cent. carbon dioxide and 39.58 oxygen and the bag 0.82 volumes per cent. carbon dioxide and 77.21 oxygen. The first of these observations shows that the blood in the lungs absorbed carbon dioxide from the mixture when the pressure of that gas was above that present in the patient's ordinary alveolar air (3.19 volumes per cent.). The tension of the gas in the arterial blood was probably between 3 and 4 per cent. of an atmosphere. This was confirmed by the second observation; the breathing became deeper when the alveolar carbon dioxide was raised to 3.96 per cent. by rebreathing. In both cases the oxygen was present in great excess.

A large number of observations have been made upon the composition of the urine at different stages of the disease and under various methods of treatment. Only a few of the data have been given in this paper. The total respiratory exchange was determined in only one case, and further observations are necessary before it would be possible to discuss the significance of the respiratory quotients contained in the tables. The research has been continued and extended by Dr. Poulton, who is communicating some of his results in this number of the JOURNAL.

REFERENCES.

Beddard, Pembrey, and Spriggs: 1 Some Observations on the Blood Gases in Diabetes. *Lancet*, May 16th, 1903. 2 The Quantity and Pressure of Carbon Dioxide in Venous Blood and in Alveolar Air in Cases of Diabetes and Diabetic Coma. *Proc. Physiol. Soc., Journ. Physiol.*, xxi, 1904. 3 Further Observations, etc. *Ibid.*, xxvii, 1908. 4 The Relation of Acidosis to the Carbon Dioxide of the Blood in Diabetic Coma. *Lancet*, June 19th, 1909. 5 Kennaway, Pembrey, and Poulton: Observations on Acidosis. *Proc. Physiol. Soc., Journ. Physiol.*, xlvii, 1913.

THE SIGNIFICANCE OF ALVEOLAR CARBON DIOXIDE DETERMINATIONS IN THE TREATMENT AND PROGNOSIS OF DIABETES.*

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THE study of the phenomena of respiration was put on a firm basis when Haldane and Priestley⁷ introduced a simple and accurate method of obtaining samples of air from the alveoli of the lungs. By this method Beddard, Pembrey, and Spriggs^{1,2} first showed that in diabetes the partial pressure of the carbon dioxide in the alveolar air falls with increasing acidosis, and during coma reaches a very low point, and when low can be raised by the administration of sodium bicarbonate.

The true explanation of these facts is based on the theory of neutrality regulation—that is, the power of the organism to preserve the neutral or very slightly alkaline reaction of its arterial blood at a nearly constant level. In diabetes where there is an increased production of unusual acids at least three mechanisms are brought into play to counteract their effects:

1. The acidity of the urine is increased.
2. There is an increased formation of ammonia.
3. The partial pressure of CO₂ in the alveolar air is lowered.

It is the last factor which is particularly important in the present connexion, and which has only lately been realized, owing to the work of Haldane, Barcroft, and Hasselbalch.

The venous blood gives off into the alveoli of the lungs its excess of CO₂, and this is prevented from accumulating by the respiratory ventilation. In health the latter is so adjusted that the percentage of CO₂ remains at a constant value, between 5 and 6 per cent. The arterial blood leaves the lungs saturated with CO₂, corresponding to its partial pressure in the alveoli. By the simple expedient of increasing the pulmonary ventilation the percentage of CO₂ in the alveolar air will be diminished without necessarily altering very much the actual quantity given off by the lungs, which depends on the body metabolism. Inasmuch as the alveolar CO₂ is lowered by this means, the amount contained in the arterial blood will be diminished, that is, the arterial blood will become more alkaline.

In diabetes, when the acidosis is severe, the respiratory centre is stimulated by excess of acid, so that the pulmonary respiration is increased, and the diminution of CO₂ in the arterial blood compensates for the quantities of aceto-acetic acid and β-oxybutyric acid in the circulation. Hence the amount of CO₂ in the alveolar air changes inversely as the amounts of these unusual acids present, and thus it can be taken as a measure of the acidosis.

The original observations of Beddard, Pembrey, and Spriggs were carried out on 13 patients. These included 6 fatal cases of diabetic coma, which gave very low values for the alveolar CO₂, namely, about 1 to 2 per cent. The 7 cases which were not fatal showed acidosis of varying intensity; the alveolar CO₂ pressures were normal in the 3 mild cases, that is, 5 per cent. and over. In the 4 remaining cases, the values ranged between 2 per cent. and 5 per cent., depending on the severity of the acidosis.

Porges, Leimdorfer, and Markovici¹² published results somewhat similar in 1910. The method used was that described by Plesch. The patient breathes backwards and forwards into a small rubber bag for about 30 seconds. The air in the bag is then analysed. This method certainly does not give true alveolar values; the CO₂ is too high. As a matter of fact, the results correspond to the CO₂ pressures in the venous blood; whereas the true alveolar air is the gas in equilibrium with the arterial blood.

These authors have been given the credit of being the pioneer workers in this field of inquiry.¹³ They even claim the priority for themselves,¹³ as they dispose of Beddard, Pembrey, and Spriggs's work by saying that they only investigated the carbon dioxide pressure in diabetic coma.

* The expenses of this investigation were defrayed by a grant from the British Medical Association.

They add, "In four diabetics who were not comatose they (Beddard, Pembrey, and Spriggs) obtained in opposition to our findings, absolutely normal CO₂ pressures." A true examination of Beddard, Pembrey, and Spriggs's published figures, summarized just above, shows that this statement is absolutely incorrect. These authors established all the facts concerning the behaviour of the alveolar CO₂ in diabetics, and published them before the Viennese authors started working at the subject at all.¹⁴

Straub¹⁵ and Fridericia,⁵ and Kennaway, Pembrey, and Poulton,¹¹ using the Haldane-Priestley method, quite recently published results which confirm the original observations of Beddard, Pembrey, and Spriggs.

A brief examination of all these results makes it quite obvious that the method of measuring the alveolar CO₂ should become of the greatest importance in estimating the acidosis in the severer types of diabetes, and it has been regularly employed for this purpose during the last year and a half at Guy's Hospital.

In all the results so far published the alveolar air has been analysed by means of some type of gas analysis apparatus. Such an apparatus is only suitable for the laboratory; for clinical work it is essential to have some simple method of analysis. Collingwood and Buswell⁸ have described a simple apparatus which has given satisfactory results in the hands of students.

Fridericia⁶ has introduced a modification for clinical work which makes the operation even simpler, and possesses the additional advantage that after the CO₂ has been absorbed the percentage amount can be read off, without any calculation at all being necessary.

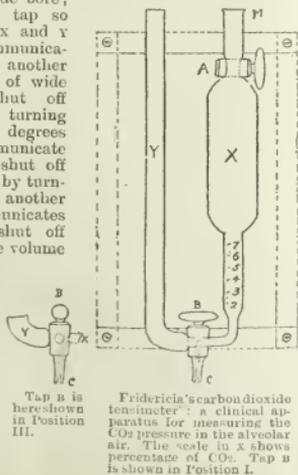
This method of Fridericia's seemed at first sight to be the most satisfactory means of obtaining and analysing the alveolar air for clinical purposes. Experience has borne this out fully. It is an extremely simple instrument to use. The results obtained are surprisingly accurate, considering that it is purely a clinical instrument.

The object of this paper is to describe Fridericia's instrument in some detail and to bring forward observations on several diabetics which will indicate the importance of alveolar CO₂ determinations as a guide to prognosis and treatment, and to show at the same time that the instrument gives trustworthy results. The actual dimensions of the instruments used in these investigations have been chosen by the writer with a view to combining accuracy and practicability.

Fridericia's Carbon Dioxide Tensimeter.

This instrument is shown in the figure. X is the mouth-piece through which the patient blows; A is an ordinary two-way tap of wide bore; B is a three-way tap so arranged that (1) X and Y can be put into communication with one another through a channel of wide bore, C being shut off (Position I), (2) by turning the tap through 90 degrees Y is made to communicate with C, X being shut off (Position II), or (3) by turning the tap through another 180 degrees, X communicates with C, Y being shut off (Position III). The volume of X between the taps A and B, including the wide bore of B, is 100 c.c.m., and percentages of this volume up to 7 per cent. are marked on the narrow stem of X.

The subject whose alveolar air is to be analysed must sit quietly in a chair and breathe naturally, holding the apparatus in front of him with the tap A open and B in



Position I. After taking a normal inspiration he puts the mouthpiece into his mouth and blows as hard and as quickly as possible through the apparatus, thus washing out the whole apparatus and leaving it filled with alveolar air; the tap A is at once closed, and the whole apparatus is placed in a pail of water for five minutes. By this means the alveolar air in X and Y is cooled to a temperature which remains constant throughout the experiment, and the contraction in volume will cause the alveolar air in the lower part of Y to be drawn back into X, and any diffusion with the outside air at the top of Y will not reach down to the bottom of the tube owing to its length. At the end of five minutes the tap B is turned into Position II. By this means we have in X 100 c.c.m. of alveolar air at atmospheric pressure, and at the temperature of the water in the pail, which remains constant throughout the experiment.

The apparatus is now removed from the water, a rubber ball is fitted over the end of X, and the tube C is placed beneath some 10 per cent. caustic soda in a porcelain dish, and, by squeezing and releasing the rubber ball, soda is sucked up into Y; B is then turned into Position I, and the soda forced into X by squeezing the ball. During this operation the instrument is held with Y rather depressed, so as to prevent any small bubbles of air from escaping from B along the tube Y; B is at once turned back into Position II, and the remainder of the potash in Y forced out again at C. The vessel is turned up and down several times, and all the CO₂ is absorbed; half a minute is sufficient for this.

The instrument is then put back into the pail of water, which rises through C into X; B is then turned through 180 degrees into Position III. The apparatus is left in the water for five minutes to equalize the temperature. It is then raised rapidly until the level of the water in the pail is the same as that in the narrow tube X. The gas in X will now be at the same pressure and temperature as before. The reading of the bottom of the meniscus of the fluid in X is taken, and this represents without any further calculation or correction the percentage of CO₂ in the alveolar air.

Before the apparatus is put away it should be completely freed from alkali by washing out with water and dilute acid.

It has been pointed out that when any one breathes out forcibly through a tube, the expired air travels along the axis of the tube and tends to leave the air at the sides unmixed. Obviously this fact will not produce any perceptible error in this clinical instrument, as the volume of the instrument is only 100 c.c.m. and the volume of a forced expiration is 2 litres, which is sufficient to wash out the whole apparatus several times over. This fact can also be observed experimentally by filling the instrument with tobacco smoke and noticing how long it takes for the smoke to be expelled on forcibly breathing out through the tube. The smoke disappears almost instantaneously.

The accuracy of the instrument has been tested on several occasions by performing duplicate determinations with the apparatus and with the Haldane-Priestley method, or the modification of this method described by Hasselbalch and Lindhard;⁹ the latter is an excellent method for use with patients.

The following results have been obtained. The Haldane-Priestley method is so well known that it requires no description here.

Subject.	Fridericia's CO ₂ Tensimeter. Sample Obtained after Normal Inspiration.	H.-P. Method after Normal Inspiration.*
E. P. P. ...	5.4 5.6 5.35 5.15 average	5.50 5.20 5.10 average
A. B. ...	5.6 5.5 5.8 6.1 5.7 6.0 average	5.54 5.33 5.28 5.69 average

* Throughout this paper the CO₂ pressures are given in percentages of the dry alveolar air. The actual pressures of CO₂ in the lung alveolar air are a little lower because the alveolar air is saturated with moisture at 37°C. (the body temperature). For purposes of comparison in clinical work at sea level, it is unnecessary to apply this correction.

The results obtained by the clinical method agree quite well among themselves; but with these two subjects the mean result is slightly higher than the results obtained by the H.-P. method after a normal inspiration. They seem to approximate towards the mean alveolar CO₂ pressure, which is calculated by Haldane by taking the mean of end-inspiration and end-expiration samples. This is probably due to the fact that it takes a little longer time to breathe out through the instrument owing to the slight resistance of the taps. Hence the CO₂ has a little longer time in which to accumulate in the lung alveoli.

On many occasions the clinical method has been compared with the Hasselbalch-Lindhard modification, which is carried out as follows: The patient is told to breathe absolutely quietly into a closely-fitting mask, having inspiratory and expiratory valves attached to it. Towards the end of each expiration a minute quantity of air is withdrawn from just in front of the lips and nose of the patient. The small samples are collected together over mercury, and analyzed by a Haldane's gas analysis apparatus.

It is of course necessary to be certain that the patient is breathing sufficiently deeply to wash out all the dead space completely at each breath.

The very close agreement of the results obtained by this method can be seen from Hasselbalch's own figures.⁵ It is particularly suited to cases of diabetes, as the tidal air is larger in volume than usual in serious cases, and the results are usually very concordant. Unfortunately, the use of some form of gas analysis apparatus is essential, which at once limits its use to the laboratory.

It is the great advantage of Fridericia's instrument that the whole analysis is made as simple as the ordinary urea determination in urine. However, the instrument cannot be used when the patients are actually comatose. Under these circumstances it is best to use the Hasselbalch-Lindhard method.

Diagram I shows the effect of a rigid diabetic diet on the alveolar CO₂ of a perfectly healthy individual. It also affords a comparison between the results obtained by the

tendency to take a deep inspiration before making the forced expiration. This is the natural thing to do, and it requires some patience to get the subject to take only a normal inspiration before blowing out. The result of this error is to dilute the air in the lungs abnormally, just before the sample is obtained, and so the values are too low. In the second place the subject, after correcting the first error, is apt to hold his breath before making the forced expiration. This makes the results too high. Of course, these errors may also be present in the Haldane-Priestley method, especially when the subject has had but little practice. The magnitude of these two errors is shown by the following figures:

Subject E. P. P. (Clinical Method Used.)

	Percentage of CO ₂ .	
Normal alveolar samples	5.6	5.8
Alveolar samples immediately after taking a large inspiration	4.9	4.9
Alveolar samples after holding the breath for five seconds	6.5	6.2

Alveolar CO₂ Pressures in Diabetes.

Before considering the values of the alveolar CO₂ pressure in diabetes it is necessary to state what variations occur in normal individuals. The following figures were obtained by Fitzgerald and Haldane,⁴ using the Haldane-Priestley method, and they will serve as a standard for comparison in pathological cases.

	Number of Individuals Examined.	Maximum CO ₂ per Cent. of the Series.	Minimum CO ₂ per Cent. of the Series.	Mean CO ₂ per Cent.
Men ...	27	6.25	4.58	5.51
Women ...	32	5.76	4.26	5.10
Boys ...	16	5.92	4.30	5.21
Girls ...	11	5.62	4.37	4.94

As a contrast, the following table shows the values obtained by the writer in diabetic coma; the Hasselbalch-Lindhard method was mostly used.

	Age.	CO ₂ per Cent.	CO ₂ Pressure in mm. Hg Corrected for Pressure of Aqueous Vapor.
W. B. ... Man	35	0.86	6.9
P. S. ... Man	22	1.23	8.8
J. O. ... Man	47	2.49*	17.8
E. S. M. ... Man	24	1.01	7.3
M. N. ... Woman	47	1.51	10.8
R. S. ... Woman	61	2.13	14.1
B. K. ... Woman	40	1.66	11.7
E. H. ... Woman	61	1.14	8.1

* Shortly before death, patient not actually comatose.

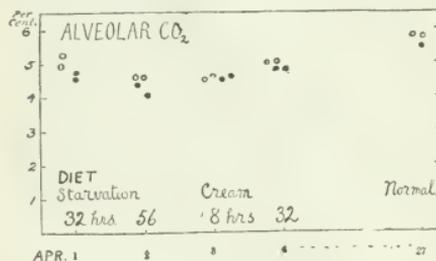


Diagram I.—Dr. G. G.

Notes on Diagrams.—O denotes alveolar CO₂ determination by the Hasselbalch-Lindhard method. ● denotes alveolar CO₂ determination by Fridericia's clinical method. C denotes the onset of coma. In Diagram IV and in Diagram VII (case P. S.), and in Diagram VIII (cases L. W., W. B.), the alveolar CO₂ determinations were made by the Haldane-Priestley method, the actual samples in coma being taken by means of a mask and valves.

clinical and the H.-L. methods respectively. They agree very closely. It will be noticed that the acidosis produces a perceptible lowering of the CO₂ after thirty-two hours. This reaches a maximum in the next twenty-four hours and diminishes again towards the end of the next two days. Straub has pointed out that the alveolar CO₂ in mild diabetes behaves in a similar manner if the patient is put on a rigid carbohydrate-free diet.

On many other occasions in diabetic subjects the clinical method and the H.-L. method have been compared (see Diagram IX especially). The result is usually quite satisfactory. On the whole there is a tendency for the clinical apparatus to give the lower value, again approximating towards the mean alveolar CO₂ pressure, as it has been pointed out by Hasselbalch that his method gives results identical with end-expiration samples of the Haldane-Priestley method.

However, there are two errors in the Fridericia method that must be guarded against. In the first place there is a

The alveolar CO₂ pressures of the various cases of diabetes examined are shown in the Diagrams II to IX. Every single observation made has been plotted on these diagrams. This plan has the advantage of showing the trustworthiness of the method. It will be noticed that occasionally values were obtained which were obviously incorrect, because they lie a long way away from the curve in the particular case. In Diagram VI, for instance, two of these fallacious results are seen; one of them was proved to be incorrect by carrying out two concordant determinations by the Hasselbalch-Lindhard method at the same time. It is obviously necessary to treat the results with a certain amount of discrimination and reject those obviously wrong. It would probably be safest to do duplicate determinations in a case seen for the first time. However, these obviously erroneous results are not met with very often.

These cases of diabetes fall roughly into two groups; in

one the acidosis was mild and the alveolar CO₂ pressures were normal; in the other the alveolar CO₂ pressures were diminished and these cases usually terminated fatally.

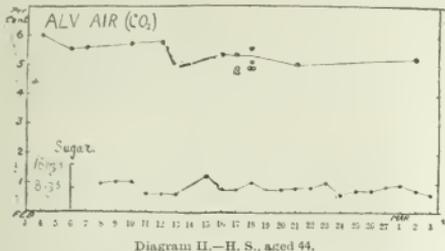


Diagram II.—H. S., aged 44.

The mild cases (Diagrams II to IV) consisted of 5 patients, all men. In each case the amount of carbohydrate in the diet was restricted. In spite of this, in the

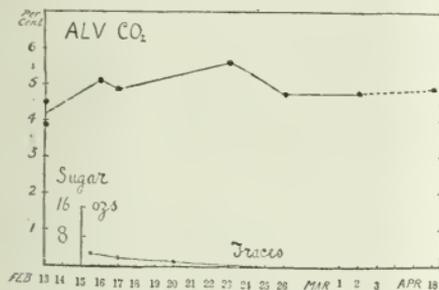


Diagram III.—R. E., male, aged 45.

case of H. S. the sugar excretion was roughly 8 oz. a day (227 grams), while in the case of R. E. it had practically disappeared after a fortnight. Acidosis was slight in all cases. The alveolar CO₂ was in the neighbourhood of 5 per cent. It is noteworthy that, in two cases—C. G. M. and R. E.—investigated soon after admission, the alveolar CO₂ was distinctly low—that is, 4.2 per cent. in each case (mean of two determinations), and rose subsequently. In the case of R. E., this low value was associated with a slightly raised ammonia index—namely, 7.7 per cent. It is a well-known fact that diabetics often become comatose very soon after admission into hospital, whether due to the excitement of the journey or their unusual surroundings. Probably, in these two cases, the abnormally low CO₂ values were due to the same cause, the acidosis subsequently disappearing. In the case of A. J. T. there was no obvious diminution in the CO₂ pressure on admission.

The next two cases (Diagrams V and VI) are of special interest, as the patients sometimes exhibited a mild degree of acidosis, with a normal alveolar CO₂, whereas at other times the acidosis became severe, and the

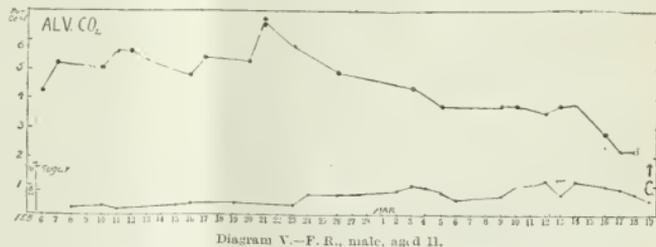


Diagram V.—F. R., male, aged 11.

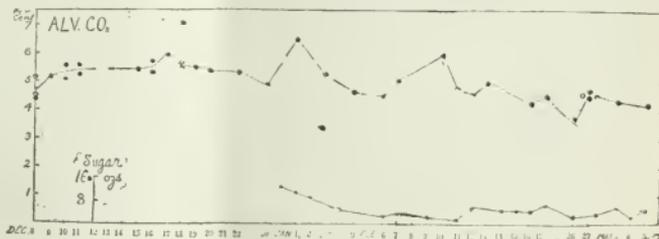


Diagram VI.—B. R., female, aged 42.

alveolar CO₂ pressure

found to be 3.7 per cent., and again a hopeful prognosis was given. On the next day it had risen to 4.6. Undoubtedly the acidosis had been suddenly increased by the bilious attack, but, as the alveolar analysis showed, the acidosis was not sufficient in amount to indicate the immediate onset of coma. The patient was eventually discharged feeling much better.

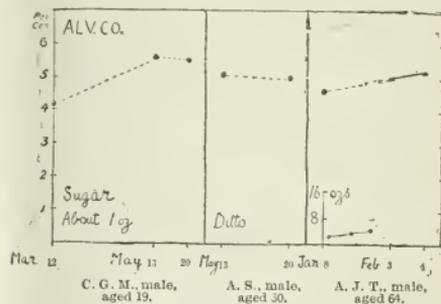


Diagram IV.

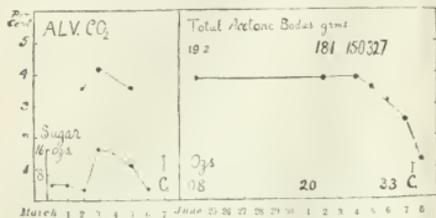
steady decline in the CO₂ began. For ten days remarkably constant values of 3.8 per cent. were obtained, and then the patient went rapidly downhill and died in coma. This decline was associated with a very marked aceto-acetic reaction and ammonia excretion, and with a rise in the output of sugar.

The case of B. R., a woman aged 42, was of particular interest as showing the value of the method from the point of view of prognosis. When admitted she was drowsy, and had severe headache. The ammonia index was 14 per cent.—that is, distinctly raised. Coma was thought to be imminent. Alveolar determinations, however, gave values ranging from 4.4 per cent. to 5.2 per cent. A good prognosis was given, and she rapidly improved. The carbohydrate in the diet was restricted, but the acidosis remained very slight until February 26th, when she had a bilious attack, accompanied by abdominal pain and vomiting. Acetone was smelt in her breath, and she was thought to be going into coma. In fact, when the writer went to make the alveolar determination, he was told that the case was hopeless. However, the CO₂ was

¹⁰ It has been pointed out by Hurlley that the nitro-prusside reaction is a far more delicate test for aceto-acetic acid (diacetic acid) than for acetone. In fact, in acidosis there is probably very little acetone present if the urine is fresh. This fact has been taken into account in this paper. The strength of the nitro-prusside reaction has been used in drawing inferences as to the presence of smaller or larger amounts of aceto-acetic acid.

Diagrams VII and VIII show the results obtained from analyses on patients who all died in coma.

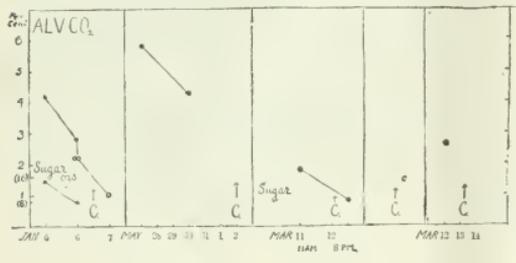
P. S., a man of 22, is a particularly instructive case. It was one of the earliest of the series to be investigated. On admission he was not looked upon as one of the



P. S., male, aged 22.*

Diagram VII.

gravest cases. Only 0.8 oz. (23 grams) of sugar was being passed, though the aceto-acetic reaction was marked. He was feeling perfectly fit. His alveolar CO₂, however, gave a value of 3.8 per cent., which is considerably below the minimal value for a healthy adult. The carbohydrate in his diet was reduced to 80 grams per diem; it was further reduced to 23 grams eight days later, and he began to get up and walk about, still feeling quite well. Three days later the alveolar CO₂ began to diminish. On July 7th



E. S. M., male, aged 24.

L. W., male, aged 40.

W. B., male, aged 35.

M. N., female, aged 47.

R. H., female, aged 24.

Diagram VIII.

the pressure was 2.5 per cent., and coma started shortly afterwards.

The other 6 cases do not require separate description, but it is noteworthy that in most of them abnormally low values were obtained several days before the onset of coma. Thus with S. S., E. S. M., and R. H. values of about 3 or 4 per cent. were obtained two days before the onset of coma, while the values just before coma were under 2 per cent.; at this stage typical air hunger was present.

The case of J. O. (Diagram IX) merits a rather fuller

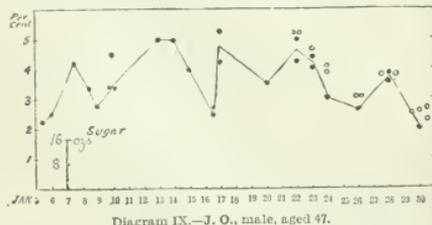


Diagram IX.—J. O., male, aged 47.

description. His was a different type of case in several particulars. He was lipaemic, the blood containing fat in a finely divided state, and he retained consciousness to the end, although the breathing was obviously somewhat increased. The most noticeable thing about the CO₂ chart is its extreme irregularity; in one occasion the pressure

varied from 5 to 2.5 per cent. in the course of two days. To make sure that these variations were real, and not simply due to errors of experiment, the Hasselbalch-Lindhard modification was also used on January 22nd to 30th. The values obtained by these two methods correspond well together, the H.-L. values being usually somewhat higher for the reason already explained. The patient was given large doses of sodium bicarbonate every day, and at one time there was some temporary oedema.

Discussion of Results.

The object of alveolar CO₂ determinations is to measure severity of acidosis. Hence it is useless to apply the method when the urine, in a case of diabetes, gives a negative result with the nitro-prusside test. Under these circumstances the alveolar CO₂ pressure will always fall within normal limits. However, when the urine contains acetone bodies, it is usually impossible, from the nitro-prusside or ferric-chloride tests alone, to say how severe the acidosis is. In any of these cases the alveolar CO₂ pressure is a sure guide.

By its means cases can readily be divided into two categories: (1) *The mild cases*, where the alveolar CO₂ pressure falls within normal limits; in these cases the prognosis with regard to coma is relatively good. (2) *The severe cases*, where the alveolar CO₂ is definitely lower than normal; here the utmost care must be taken to prevent the onset of coma. All the time the CO₂ is below normal the patient is, as it were, on the edge of a precipice, and any disturbance, such as sudden excitement or worry, or the administration of too rigid a diet, may push him over the edge.

In these cases the actual CO₂ pressure observed will give the measure of the danger. A value of 2 per cent. means that coma may supervene within twenty-four hours. A value of 3 per cent. or 4 per cent. is less dangerous; in the worst event, coma will not come on for at least two or three days.

A sudden drop in the alveolar CO₂ is also of significance; it means that acidosis is increasing, and, though the immediate danger may not be great, there is always the possibility of a further increase until coma sets in. The cases E. S. M., L. W., and P. S., all of whom died in coma, illustrate this point. This sudden drop in the CO₂ pressure may be unaccompanied by symptoms, such as drowsiness, abdominal pain, or air-hunger; for these only appear when the CO₂ reaches a very low value—that is, about 2 per cent. Hence the alveolar CO₂ gives by far the earliest warning of approaching danger.

Again, it is possible to be misled if reliance is placed on symptoms alone, without determining the alveolar CO₂, because it not infrequently happens that the rapid onset of coma may be suspected from symptoms, even when the alveolar CO₂ still remains relatively high. Case B. R. illustrates this point. On two occasions—namely, December 8th and February 26th—coma was suspected from her symptoms, but the alveolar CO₂ was too high for her drowsiness, etc., to be really due to oncoming coma, and the patient improved.

Of course, it does not necessarily follow that the chance of averting coma is hopeless because a very low CO₂ pressure is obtained. It may be kept off for a considerable time by judicious treatment. In the case of J. O. death did not occur for a month, in spite of several very low CO₂ results. Boddard, Pembrey, and Spriggs have published similar cases.

There are various other methods commonly employed for measuring acidosis in diabetes, such as estimating the amount of ammonia or total acetone in the day's urine. The disadvantages of these methods are the labour involved in the determinations and the fact that it is necessary to get the patient to collect his urine for a period of twenty-four hours. However, the greatest disadvantage of all is that it is impossible to obtain the result at once. This is especially the case if the patient is being seen for the first time.

A device for overcoming this difficulty is to determine the ratio of the ammonia nitrogen to the total nitrogen in a specimen of urine. This ratio, the so-called ammonia index, is usually about 3 per cent. or 4 per cent. in health;

in severe acidosis values of about 12 per cent. to 30 per cent. are obtained. These analyses, of course, take some little time to perform, and they are essentially methods for the laboratory; but even so, the results are apt to be uncertain, because the total amount of protein consumed by the patient is unknown.

It would be possible to draw quite incorrect conclusions from this ratio in some cases. For instance, in the case of B. R., on February 26th, when she had a sharp attack of vomiting accompanied by drowsiness, the ratio was 13 per cent. This might suggest coma, but it has been pointed out from the alveolar CO₂ results that coma was not imminent. Again, in the case of R. H., on March 12th, while the ratio was only 6.4 per cent., the alveolar CO₂ on the next day was 2.7 per cent., and coma came on the day after; and even when the patient was actually comatose the ratio had only risen to 10 per cent.

The great advantage of the alveolar CO₂ pressure is that it affords a measure of the actual acidosis of the blood at the time of the observation. Its sensitiveness as an indicator depends on the sensitiveness of the respiratory centre to changes in hydrogen ion concentration of the arterial blood. This sensitiveness is very high.

On the other hand, an increase of substances excreted in the urine does not necessarily mean an increased production of these substances in the organism; it may mean increased excretion alone. The two processes, production and excretion, do not necessarily run parallel to one another. Suppose sodium bicarbonate is given to a diabetic in a state of acidosis, the excretion of acetone bodies may be increased, their production in the body remaining the same; hence the actual acidosis of the blood will be diminished, whereas, from an analysis of the urine alone, the erroneous conclusion would be drawn that the acidosis had increased.

Apart from this theoretical advantage, alveolar CO₂ determinations by the tensimeter method present many practical advantages. The apparatus is easy to use. It can be readily carried about from case to case. The method requires but little practice. The results are of a high degree of accuracy, and they are of the greatest significance in the treatment and prognosis of diabetes; in fact, to any one who has once used the method it would appear absolutely impossible to treat satisfactorily a severe case of diabetes without it.

The writer's thanks are due to his colleagues on the medical and surgical staff of Guy's Hospital for allowing him to investigate the cases under their care, and to Mr. J. H. Ryffel for letting him quote extensively the urine analyses made by him, and to Mr. J. F. Venables, who kindly undertook some of the observations when he was away.

Clinical Notes on Cases.

H. S., a porter aged 44, was admitted January 23rd, 1914, and discharged March 18th. He had been in Guy's Hospital five years previously with diabetes. He subsequently had jaundice and was operated on for gallstones. Chronic pancreatitis was diagnosed. Two months previous to admission he noticed wasting, and also that he passed a large quantity of urine. He had some bronchitis. A test meal showed hyperchlorhydria. While in hospital carbohydrate was restricted to 120 grams per diem. He was given 3 oz. olive oil per diem in addition to his diet. He passed about ½ lb. (227 gms.) of sugar daily, but put on 4 lb. in weight during his stay. Most of the time the amounts of aceto-acetic acid were present in the urine. The alveolar CO₂ remained between 5 and 6 per cent.

R. E., a postman aged 45, was admitted February 12th, 1914, and discharged March 3rd. He had a gonorrhoeal orchitis. He had had rheumatism. He became ill five weeks previous to admission, and had since lost 32 lb. in weight. Treatment while in hospital—carbohydrates 142 grams, sodium bicarbonate 6 grams per diem. His weight remained about the same as that is, 11 st. He passed about 3 oz. (85 grams) of sugar at first; this gradually diminished, and finally only traces were passed. Aceto-acetic acid disappeared after ten days. The ammonia index was 7.7 per cent. on admission. This was associated with an alveolar CO₂ of 4.2 per cent. The alveolar CO₂ subsequently rose and remained about 5 per cent.

C. G. M., a boy aged 19, was admitted March 12th. He was given a strict diabetic diet with acetone in starvation days. He had sodium bicarbonate 6 grams per diem. Aceto-acetic acid present. Sugar about 1 oz. (28 grams) per diem. Alveolar CO₂ about 5 per cent.

A. S., a man aged 30, admitted March 11th, 1913, discharged May 22nd. He had peripheral neuritis and an enlarged liver. Diet, strict diabetic. Aceto-acetic acid present. Sugar about 1 oz. (28 grams) per diem. Alveolar CO₂ 5 per cent.

A. J. T., a man aged 64, admitted January 6th, 1913, discharged February 6th. He had peripheral neuritis. Diet, etc.: Carbohydrate 57 grams, olive oil ½ oz. per diem. Traces of

aceto-acetic acid present. Sugar excreted about 4 oz. (113 grams) per diem. Alveolar CO₂ 5 per cent.

F. B., a schoolboy aged 11 years, was admitted February 2nd, 1914, and died March 20th, 1914. There was a month's history of hunger, thirst, and frequent micturition. On admission apart from his diabetes he was normal. Carbohydrates were restricted to 102 grams. Total caloric value of diet, 2,150; sodium bicarbonate 21 grams per diem. The sugar remained about 110 grams, but rose to 250 grams towards the end of February. Aceto-acetic reaction marked. Ammonia N, 1 gram per diem. Alveolar CO₂ about 5 per cent. On March 2nd carbohydrate in the diet was increased to 175 grams including a small quantity of cane sugar. Subsequently the amount of sugar in the urine increased to about 300 grams; the aceto-acetic reaction increased and the ammonia nitrogen output increased to 3.2 grams. The alveolar CO₂ remained fairly constant at 3.8 per cent. from March 5th to 14th; it then sank in three days to 2.2 per cent., and the patient subsequently died in coma. *Post mortem:* Pnecrosis small (23 grams).

B. R., a woman aged 42 years; admitted December 6th, 1913; discharged March 18th, 1914. She had neuritis in the legs. On admission she was drowsy, and had headache. Her limbs were painful and wasted; the aceto-acetic reaction was marked. The ammonia index 14 per cent.; alveolar CO₂ 4.8 per cent. Diet: Carbohydrates 88 grams, protein 126 grams, olive oil 3 oz.; total caloric value, 2,259. On February 2nd a period of restricted protein intake was begun: protein 46.3 grams, carbohydrates 40 grams per diem; caloric value, 2,502. On February 23rd the diet was relaxed. On February 26th the patient became very sick, vomiting bile-stained fluid. She had abdominal pain. Acetone was smelt in the breath. The urine contained albumin and much aceto-acetic acid; ammonia nitrogen 1.2 grams; index 13 per cent.; alveolar CO₂ 3.7 per cent. Next day she was better. Urine contained traces of albumin; ammonia nitrogen 1.9 grams; index 13.4 per cent. aceto-acetic reaction conspicuous; alveolar CO₂ 4.7 per cent. Two days later the acidosis was still less: ammonia nitrogen 0.5 gram; index 3.4 per cent. The rest of her stay in hospital was uneventful.

S. S., a woman in domestic service, aged 22. Admitted February 28th, 1914; died March 7th, 1914. Symptoms of the disease were first noticed before Christmas, 1913. On admission: Diet, light, full; no restriction of carbohydrates. Sodium bicarbonate 9 grams per diem. On March 3rd sugar excretion was 15.6 oz. (443 grams), subsequently falling. Marked aceto-acetic reaction.

	Mar. 1st.	Mar. 2nd.	Mar. 5th.	Mar. 6th.
Ammonia N (grams) ...	2.07	1.35	2.18	1.78
Ammonia index... ..	12.2%	12.9%	12.4%	24.4%

Alveolar CO₂ 3.5 per cent. two days before coma. *Post mortem:* Pnecrosis soft, smaller than usual, 37 grams.

P. S., a man aged 22; admitted June 23rd, 1913; died July 9th, 1913. Diet: Carbohydrates at first restricted to 80 grams a day; on July 2nd to 25 grams; on July 8th 102 grams were given. Sodium bicarbonate, on admission, 5.8 grams per diem; on July 8th 87 grams. Sugar excretion rather small in quantity, rising to 3.3 oz. (94 grams) on July 6th. Aceto-acetic reaction marked. Alveolar CO₂ at first 3.8 per cent.; while in coma 1.23 per cent.

E. S. M., a chauffeur aged 24; admitted January 2nd, 1914; died January 7th, 1914. Diabetes had been diagnosed four years previously. He had been dieted for three months before admission. On admission, diet light, full. Sodium bicarbonate 5 grams. He was passing 15 oz. sugar (426 grams) in the day. 7 grams. The alveolar CO₂ was 5.8 grams, and the index 11.7 per cent. The alveolar CO₂ fell rapidly after January 5th. On January 6th, 7.20 p.m., the patient's breathing was increased, but he was perfectly sensible; alveolar CO₂ 2.2 per cent. Coma supervened the next day, and at 5 p.m. the alveolar CO₂ was 1.01 per cent.

L. W., a man aged 40, was admitted May 22nd, 1913, for a septic scalp, and died on July 2nd. On May 27th the alveolar CO₂ was 5.8 per cent. A strict diabetic diet was then begun. The alveolar CO₂ fell to 4.3 per cent. on May 30th. A guarded prognosis was given. Coma supervened three days later.

W. B., a man aged 35, was admitted March 8th, 1913, and died on March 13th, 1913. On admission an ordinary full diet was given: carbohydrates 120 grams, sodium bicarbonate daily. On March 5th carbohydrates were restricted to 45 grams, and the index showed a strong aceto-acetic reaction. The ammonia index, 12 per cent.; sugar 241 grams; alveolar CO₂ 1.9 per cent. Coma came on the next day, the CO₂ in the alveolar air being 0.86 per cent. *Post-mortem:* Pnecrosis, 35 grams, appeared normal; atheroma of aortic valves; subpleural and subpericardial atheromas.

M. N., a woman aged 47, suffering from diabetes, was admitted February 2nd, 1914, for a surgical operation. She became comatose. Alveolar CO₂ 1.5 per cent.

R. H., a woman aged 24; admitted March 6th, 1914; died March 14th. On admission, ordinary full diet; sodium bicarbonate 71 grams per diem. Marked aceto-acetic reaction. On March 12th, ammonia N was 0.9 gram, and the ratio was 6.4 per cent. On March 12th the alveolar CO₂ was 2.7 per cent. On March 13th she became comatose; ammonia nitrogen 0.34 gram; index 10 per cent.

J. O., a painter aged 47; admitted January 5th, 1914; died January 29th, 1914. He had had diabetes since March, 1913. Since then he had been on a strict diet. For the last fortnight he had complained of general lassitude. His eyesight had become bad. He had weighed 11 st. previously. On admission his weight was 8 st. 8 lb.; he was rather drowsy; his breath smelt of acetone. There was a small haemorrhage in the right retina, with some retinitis. The ferric chloride reaction was strongly positive. A diet containing 13 grams carbohydrate was given and sodium bicarbonate in large doses by the mouth and rectum (78 grams on January 7th). On January 9th ammonia N was 4.4 grams, index 13.6 per cent. He passed about 8 oz. (227 grams) sugar daily. On January 11th the urine was faintly alkaline. On January 15th ammonia N was 2.2 and the patient's legs began to be oedematous. The sodium bicarbonate was diminished to 51 grams for three days, and it was then increased again to the previous amount. The oedema disappeared in twenty-four hours. On January 26th a normal abdominal pain. He became delirious. He regained consciousness, and remained conscious right till his death, the next morning at 4 o'clock. While in hospital the alveolar CO₂ showed large variations—that is, between 2 and 5 per cent.

Post mortem.—Lipæmia, due to a finely divided suspension of fat. General wasting. Atrophied pancreas.

METHODS OF ANALYSIS EMPLOYED.

Sugar.—Benedict's method.

Ammonia.—By formol titration.

Ammonia Index (that is, the ratio between the ammonia nitrogen and total nitrogen).—The total nitrogen was calculated from the amount of urea, determined by Duprès's method, assuming that the urea nitrogen was always 95 per cent. of the total nitrogen. This is approximately the case under ordinary conditions of diet, and the results are accurate enough for clinical purposes. The Duprès method is much simpler than Kjeldahl's, and takes less time to perform.

REFERENCES.

- ¹ Beddard, Pembrey, and Springs; *Journ. Physiol.* (Proc. Physiol. Soc.), 1904, 31, p. xlv. ² Beddard, Pembrey, and Springs; *Journ. Physiol.* (Proc. Physiol. Soc.), 1906, 37, p. xxix. ³ Collingwood and Bassett; *Journ. Physiol.* (Proc. Physiol. Soc.), 36, p. xxiv. ⁴ Fitzinger and Haldane; *Journ. Physiol.*, 1905, 32, p. 486. ⁵ Fridericia; *Ztschrift für Therapi.*, Copenhagen, 1913. ⁶ Fridericia; *Hospitalstatistik.*, Copenhagen, 1914, 57, p. 285. ⁷ Haldane and Fridericia; *Journ. Physiol.*, 1905, 32, p. 225. ⁸ Hasselbalch; *Arch. Ztschrift.*, 1912, 46, p. 403. ⁹ Hasselbalch and Lindhard; *Skand. Arch. f. Physiol.*, 1911, 25, p. 351. ¹⁰ Hurdley; *Lancet*, 1913, 184, p. 1169. ¹¹ Kenaway, Penbury, and Leimrodter; *Journ. Physiol.* (Proc. Physiol. Soc.), 1913, 47, p. 14. ¹² Forges, Leimrodter, and Markovici; *Ztschrift f. klin. Med.*, 1913, 77, p. 446. ¹³ Straub; *Deutsche Arch. f. klin. Med.*, 1913, 109, p. 225. ¹⁴ Von Noorden; *Die Zuckerkrankheit*, p. 155, 6te Auflage, Berlin, 1912.

His general health has been excellent. Eight years ago, at the age of 34, he had an attack of what was diagnosed as influenza, with symptoms of pain in calves and thighs, and headache, but no rigors or "port-wine" urine.

In October, 1913, he formed one of an exploration party after the Seughenydd explosion. At one time, whilst returning to the base of operations, a distance of 1,000 yards, he and his companions were exposed for over two hours to smoke and gases. He himself felt great difficulty in breathing, and was unable to travel more than ten yards at a time. A fellow explorer suffered chiefly from pains in the head, calves, and thighs, with weakness of the legs—symptoms characteristic of CO poisoning.

Whether the effect of this exposure has played any part in my patient's subsequent illness it is difficult to estimate, but it is of interest to note that thereafter he complained of frequent tingling of the ears, only relieved by the application of warmth. His present illness, he told me, started eight weeks before with loss of appetite, constipation, frontal headache, lassitude, pains in the thighs and calves, some feverishness, and also some pain in the epigastrium. A fortnight later he experienced a slight "shiver," but no vomiting occurred at any time. During the last two weeks definite rigors developed, followed by profuse sweating. These rigors usually started about midday, every day, and would last from two to five hours; they were not controlled by quinine. He noticed that the first appearance of "port-wine" coloration of his urine synchronized with the first rigor. From then to the time that I first saw him he had become steadily worse. About the time that the rigors started he first noticed that an irritating rash appeared on exposing his arms and legs when getting out of bed. The rash and its attendant irritation would last from twenty to thirty minutes, and on returning to bed and keeping closely covered the skin would assume its normal condition.

The specimen of urine he brought with him (July 8th) presented the following characters: "Port-wine" colour, acid, gave strong positive reaction with tincture of guaiacum and ozonic ether; high albumin content. On centrifuging, a heavy deposit containing very many granular casts, a few granular-leucocytic casts, and much detritus, all tinged a brownish colour. A few isolated leucocytes and urinary epithelial cells were seen. Some calcium oxalate crystals were present, but these were not red blood corpuscles.

I now proceeded to obtain some blood from the tip of the right ear. This procedure was immediately followed by a rigor. It will be noted that the blood taken on this occasion represented a sample of his circulating blood during the period of his haemoglobinuria. As subsequent events proved, this was the only sample I was able to obtain while he was in this condition, as, when I next saw him, he had improved so much that his immediate symptoms had ceased.

The blood withdrawn clotted quickly, and the resultant serum was large in amount. The serum was tinged a smoky-brown colour, with the very merest trace of a reddish tint. The Wassermann reaction was positive. A differential count of 300 leucocytes, performed at the same time, gave the following result: Polymorphonuclears, 70 per cent.; large mononuclears and transitionals, 7 per cent.; lymphocytes, 9.6 per cent.; eosinophiles, 10 per cent.; mast cells, 3.3 per cent. The leucocytes appeared greatly in excess of the normal ratio to the red corpuscles. There were a few dead leucocytes, chiefly polymorphs, eosinophiles, and mast cells. Blood platelets were present in slight excess. The red corpuscles stained lightly, rouleaux formation was fair; macrocytes, microcytes, poikilocytes, and many phanтом cells present; polychromatosis abundant. No nucleated red corpuscles and no malarial parasites seen.

Four days later (July 12th), after his removal to the local military hospital, I was enabled to make continuous estimations of his urine over a period of eight days. Each time he micturated the total amount was measured, and a sample submitted to examination, in order to ascertain the question of acidity, specific gravity, general appearance and colour, and the presence or absence of haemoglobin, bilirubin, albumin and crystalline deposits. In this way it was possible to estimate the total for each successive twenty-four hours, and any changes that might occur.

PAROXYSMAL HAEMOGLOBINURIA.

BY

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As the condition known as paroxysmal haemoglobinuria is of extreme rarity, and recorded observations may assist in its elucidation, I venture to set out some of the results obtained in an investigation of a case that has recently come under my notice.

The man, an ex-soldier, 42 years of age, who had re-enlisted for home service during the period of the war, was sent to me by the medical officer of his battalion on July 8th, in order to have his blood and urine examined, with a view to ascertaining if he was suffering from secondary anaemia and, if so, to what cause it could be assigned.

Well built and of keen intellectual capacity, he was, when I saw him, pale and bloodless, and his sclerotics were tinged yellow. He stated that he joined the army at the age of 19 years, and after six months' home service and six months at Malta was drafted to India, where he served eight years. He left India at the age of 28, and was then transferred to the army reserve. Whilst in India, at the age of 25 years, he contracted malaria—benign tertian—and also syphilis; for the latter he received oral mercurial treatment for a period of three months. After leaving the army he started work as a coal miner, and became successively a mine official and an inspector of mines. At the age of 33 he married, and six years later a girl was born, whom I have seen. She is now over 3 years of age, and appears perfectly healthy.

The total daily amounts varied from 1,123 c.cm. to 1,746 c.cm.; the specific gravity from 1008 to 1028—even on the same day—but this variation was unusual, the average being 1016. The colour and appearance varied between a clear light amber and a cloudy deep brown; on no occasion did it show the slightest trace of a "port-wine" tint. Sometimes there would be a heavy deposit of urates, but there was never any haemoglobin present, whilst the slightest traces of bilirubin and albumin were only rarely encountered. It was surprising to find how extremely quickly the urine had approximated to the normal standard.

On July 12th I withdrew some of his blood. It again clotted quickly and produced a large resultant serum, which was, however, tinged a strong red colour. Using this serum in a fresh state I added it in varying dilutions to a 5 per cent. suspension of my own washed red corpuscles, with a suitable control, and incubated at 37° C. for one hour. No haemolysis took place in any of the preparations. The Wassermann reaction was positive.

On this day also I took 1 volume of the serum obtained on July 8th (immediately preceding a rigor), inactivated it at 60° C. for half an hour, to it added 1 volume of my own washed red corpuscles, 1 volume of my own fresh serum (complement), and 3 volumes of normal saline, incubating at 37° C. for one hour. As a result I obtained slight haemolysis of my own red corpuscles. I also, on the same occasion, took one volume of the serum obtained on July 12th (during the quiescent convalescent period), and proceeded in a precisely similar fashion, but I did not thereby obtain any haemolysis of my own corpuscles.

On July 15th I estimated his total leucocytes at 9,200 and total red corpuscles at 2,944,000 per cubic millimetre.

On July 26th I again withdrew some of his blood, the serum, as before, was strongly tinged. The Wassermann reaction was again positive.

On the same day I performed a differential count of 400 leucocytes with the following result: Polymorphs, 57.25 per cent.; large mononuclears and transitionals, 15 per cent.; lymphocytes, 20 per cent.; eosinophiles, 7.5 per cent.; mast cells, 0.25 per cent. The red corpuscles were much more uniform in size and shape, but there were still some macrocytes, microcytes, and poikilocytes, also some rosettes. The colour was better, but there was still some polychromatosis, though not so pronounced. A few shadow cells were present. Rouleaux formation was fair. There were fewer blood platelets, but many dead leucocytes, chiefly large mononuclears. There were no nucleated red corpuscles, and no malarial parasites were seen.

On July 30th I estimated his total leucocytes at 5,400 and total red corpuscles at 3,952,000 per cubic millimetre.

On this day also I made a preparation of his washed red corpuscles. To one volume of these I added one volume of his own fresh serum and one volume of normal saline, incubating at 37° C. for one hour. I further added to another volume of his own washed red corpuscles one volume of my own fresh serum and one volume of normal saline, also incubating at 37° C. for one hour. In neither preparation did haemolysis occur.

In order to ascertain if the haemolyzed state of his serum was due to free haemoglobin in the blood plasma (which seemed improbable, as his urine contained none) or to fragility of his red corpuscles, whereby the haemoglobin was expressed during the act of clotting, I withdrew on August 3rd one portion of blood, and allowed it to clot. The serum was definitely tinged with haemoglobin. Another portion of blood was received into a tube lined with paraffin wax and immediately centrifuged, thereby quickly separating the corpuscles from the plasma. The latter was seen to be entirely free from the slightest trace of tinting. In point of fact, it was perfectly normal in appearance.

A curious phenomenon was noted in the right ear. On the day following the first needle puncture the site of the puncture in the lobe, together with the upper portion of the ear, which had not been punctured, became tense and swollen with extravasated blood and tender to the touch. Thereafter the left ear was used, happily with no untoward result. The right ear assumed its normal state in the course of two to three weeks, the normal condition being hastened by keeping the ear protected and warm.

During the course of the investigation he was at first kept strictly in bed, on a milk diet. Then, when it was

found that his urine remained free from albumin, eggs were allowed; later, fish and a full diet.

Throughout he was extremely susceptible to cold. Although to the ordinary mind the temperature was distinctly warm (75° F. in the shade), he would be found with as many as nine blankets and woollen coverings, including his great coat!

During this time his temperature fluctuated between 97.4° F. and 99° F. When he began to sit up he complained of considerable pain in the thighs and calves, though this, in time, passed off. Eventually he improved sufficiently to allow his return to his billet, and his convalescence is proceeding satisfactorily. Iron and arsenic are being given to combat the anaemia. It would be inadvisable to administer neo-salvarsan intravenously until his corpuscles have regained their normal state.

In reviewing the facts disclosed, one is first of all struck with the malarial and specific history, a combination of frequent recorded occurrence in the etiology of paroxysmal haemoglobinuria, though the disease has been described when neither the one nor the other has been antecedent. The next point is that the first symptoms should have started in midsummer, as it is generally held that exposure to cold is a predisposing factor. In this case there was not even the possible exposure to the rigours of camp life, since he was billeted and his work was actuarial. I did not go the length of deliberately exposing him to cold in order to test this contention, but I understand from the medical officer of his battalion that on arrival at his billet, after a twelve-mile drive in the ambulance, he experienced a slight rigor. The vasomotor disturbances, as seen in the right ear and in the exposure rash, are of interest in connexion with the previous history of tingling in the ears, relieved by warmth, subsequent to exposure to CO fumes.

The blood counts are of interest chiefly as supporting the condition of secondary anaemia following the loss of blood indicated by the haemoglobinuria. For some reason the eosinophile count was high. The process of approximation to normal in the case of the urine was remarkably rapid and very difficult to understand.

As far as the blood serum is concerned, the suggestion is offered that the marked haemolysis present, after the period of the rigors and haemoglobinuria had passed, is evidence of the fragility of the red corpuscles, the haemoglobin being discharged from them during the act of clotting, since the plasma prepared coincidentally was normal in appearance. However, this does not quite explain why the serum of the blood taken immediately prior to a rigor, and during the period of the haemoglobinuria, should have been but barely tinged with haemoglobin; its smoky-brown colour strongly suggests reduced haemoglobin.

The presence of a haemolytic body in the serum just prior to a rigor, and coinciding with the period of haemoglobinuria, and its absence later, coincident with the cessation of haemoglobinuria, are points of some importance.

In a short note on "Psychological Medicine," published in the Educational Number last week, p. 385, it should have been stated that the University of Manchester grants a diploma in psychological medicine. We regret the oversight the more because the University of Manchester was, we believe, the first to give such diplomas.

In a paper on the experimental treatment of human beri-beri with constituents of rice polishings (*Philippine Journal of Science*, March, 1915) Williams and Saleeby come to the conclusion that allantoin has a beneficial effect in certain cases of beri-beri, although it probably never produces complete cure. Hydrolyzed extract of rice polishings has been found to benefit all the types of the disease upon which it has been tried, and unhydrolyzed extract of rice polishings is, they state, a safe and valuable remedy for infantile beri-beri, but of little use for older cases. The vitamins of rice polishings was proved to possess specific and prompt curative properties far beyond those of any other known substance, but unfortunately its cost at present prohibits its general use amongst the poorer class. As a whole the observations on the 27 cases recorded in this paper are, as regards their bearing on the etiology of beri-beri, in accord with the broad proposition that the disease, in a practical sense at least, results primarily from a poor diet, deficient more particularly in specific substances of the nature of Funk's vitamins.

CONGENITAL DISLOCATION OF RIGHT FOOT WITH ALMOST COMPLETE ABSENCE OF RIGHT FIBULA.

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GEORGE B., a lad aged 13, was admitted to the Lincoln County Hospital on May 29th, 1915.

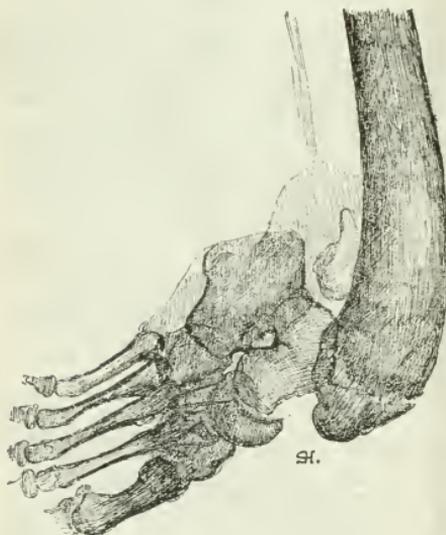
History.

The malformation of foot and leg was noticed at birth. The patient walked at the usual age, resting the right foot on the right great toe; he ran well, played football, etc., became a scout when 11, and did all drills and marches without difficulty.

A year ago he began to suffer from backache after long walks, due to the tilting of the pelvis from the shortness of the right leg. Last March this deformity was noticed by the medical inspector at school, and found to be very marked.

Condition.

The right foot seemed as though it had been rotated outwards for nearly a quarter of a circle, and then turned over so that its dorsal surface looked almost directly forwards and its plantar surface backwards. The power to move the foot on the ankle existed, but backwards and forwards instead of up and down. The boy walked on



the end of the tibia, which was enlarged and made a good "stump." There was 2½ in. shortening of the right tibia (measuring from patella to inner malleolus) and, of course, owing to the absence of the foot beneath the tibia there was much more difference in the total length of each limb.

A radiograph was taken on March 11th by Captain A. L. Yates, now on active service "somewhere in France or Flanders." As will be seen from the sketch of the radiograph here reproduced the hinge of the joint was between the upper and posterior portion of the articular surface of the astragalus with the outer edge of the lower end of the tibia. This bone is also seen to be much enlarged and curved, with the convexity inwards. The inner malleolus is large and turned outwards. A small piece of the lower end of the shaft of the fibula appears in the plate between the tibia and the tibia.

Amputation.

On June 5th, 1915, a flap was formed from the dorsum of the foot, the tendons and ligaments were divided, the incision carried upwards and downwards over the os calcis, the tendo Achillis cut, the flap turned upwards and outward, making the wound like an inverted U. This healed by first intention, and the scar is well out of the way of any vertical pressure.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SOAMIN TREATMENT OF CEREBRO-SPINAL MENINGITIS.

CASE I (under the care of A. M. B.).—E. G. C., aged 29, had an attack of influenza in February. On March 10th, 1915, had acute symptoms of influenza, with vomiting and symptoms of meningitis. On March 12th the head was very retracted, pulse 48, and temperature 99°; the legs were drawn up and slightly rigid; the patient was very irritable but quite conscious and had no rash; Kernig's sign was well marked. He was given 5 grains of soamin by injection into the gluteus maximus muscle, together with an injection of morphine ½ grain and atropin ⅛ grain. On March 13th he had well marked *tache cerebrale*; Kernig's sign was less marked than the day before. A peculiar patch of herpes was noticed on the right ankle, which was like a burn from a hot water bottle. This, however, did not prove to be the case, for it happened in a similar way to several other patients, and was clearly due to conglomeration of herpes; this patch, like similar ones, took six weeks to heal. Another injection of soamin (5 grains) was given; the pulse was 56 and temperature about 100°. His irritability required injections of morphine twice a day until March 17th. He required frequent catheterization. On March 16th a lumbar puncture was performed for headache and pressure signs and an injection of meningococcal serum given. On March 14th there were papules on the chest; the temperature was then 102° and pulse 108. From March 16th Kernig's sign became less marked, headaches ceased, and he made an uneventful recovery, and was discharged on March 20th quite cured and without any symptoms whatever.

CASE II (under the care of J. F. R.).—R. Y., aged 14, was quite well on March 31st, and working till 4 or 5 p.m. He felt slightly ill towards evening, and at 11 p.m. I was called to see him. His temperature was then 105.4°, the pulse 140, the face was flushed, and he was drowsy, but complained of pain in the left side of the chest in the axillary line. The blood count showed 23,700 leucocytes per cubic centimetre; 72 per cent. multinuclear; Kernig's sign was present, and also *tache cerebrale*, and stiffness and rigidity of the neck muscles; the pupils were dilated. There was a peculiar patch on the left ankle, looking like a recent bug-bite, 3 to 4 cm. in extent. Meningococci were cultivated from the posterior nares. An injection of 3 grains of soamin had a somewhat marked effect. His temperature came down shortly afterwards to 100°, and the pulse to 80, while Kernig's sign was less pronounced. After one day's interval, as the temperature again reached 103°, another 3 grains were injected, and again on the fifth day 2 more grains were injected in the gluteal region; drowsiness decreased, headaches became less, and the pulse much better. Apart from a sudden rise of temperature to 104.2° on the sixteenth day, he made steady and uneventful progress. On the fourth day there was a peculiar rash on the left hip, and herpes of two square inches over the left eye, nose, and anus, and one or two rose spots on the trunk. The patch noticed on the ankle within twenty-four hours became bullous, and looked like a scald; then the scab dropped off, and left an ulcer half an inch in diameter, which took over six weeks to heal. At the end of three weeks he appeared fully recovered, and swabs taken were negative. In the fifth week, after resuming normal life, he had a sudden rise of temperature to 104°, pulse 130, coupled with violent headache and pains down spine. Bromides relieved this, and, apart from another attack a week later, he has been quite well in every way.

A. M. BARFORD, M.D., D.P.H., M.O.H.,
J. F. REY, M.R.C.S.Eng., L.R.C.P.Lond., etc.,
Bognor.

Reviéus.

SURGICAL TUBERCULOSIS.

WE are glad to draw the attention of the profession to a new book dealing with the disease which, above all others, is the source of worry to hospital surgeon and general practitioner alike. DR. JOHN FRASER has been well known for some years as the author of papers recounting the results of original investigation in tuberculosis. He has collected these papers on pathology and etiology, added clinical studies, and, finally, has built up the whole into a most excellent treatise on *Tuberculosis of the Bones and Joints in Children*.¹ The work has been carried out in the Royal Hospital for Sick Children in Edinburgh, and the author makes acknowledgement of his indebtedness to that distinguished surgeon Mr. H. J. Stiles, an inspiring and encouraging guide. The book falls naturally into two divisions—general and special; in the latter tuberculous disease of each individual joint and of many bones is considered in detail. This method is apt to lead to repetition, but the tendency is kept well in check, and the story of each joint unfolds itself complete and self-contained.

The first part of the volume is devoted to the general discussion of the subject; the pathological development and minute structure of the lesion, from the earliest deposit of a bacilli-laden embolus and endarteritis obliterans to the formation of abscess and sequestrum, are very fully set forth. The illustrations of this portion are all exceedingly beautiful original photomicrographs; they form quite the most perfect series of the kind known to us. If they have a fault, it is that the description attached to each is too meagre; the practitioner who is not accustomed to inspecting microscopic sections would appreciate them more if the various details of the picture were pointed out by lettered lines or arrows.

The growth of bone on the external surface of bones infected with tubercle is quite frankly credited to the osteogenetic function of the periosteum. It seems to us that Macewen's theory as to the periosteum being merely a limiting membrane is too airily dismissed in a two-line footnote. The theory has gained very wide acceptance, and, so far as we know, the accuracy of the experiments proving it has not been contested. In this connexion it is of interest to note that Dr. Fraser cannot explain the fact that "in tuberculosis of the vertebrae the periosteum rarely forms any degree of new bone."

There is only one other minor criticism which we desire to make: it is in connexion with the clinical evidences of the second stage of hip disease. In this work the attitude of the limb is said to be flexion, abduction, and eversion. In most books the limb in the second stage is said to be in a state of flexion, adduction, and inversion, with apparent shortening. Of course, it is obvious that in such a disease stages are arbitrary divisions with indefinite limits, but for teaching purposes it is convenient to regard the stages of the disease as three, and uniformity of description of each stage is desirable.

We do not think that any more useful or practical work on the subject of tuberculosis of bones and joints in children has been placed in the hands of the profession. It is admirably arranged, most fully and beautifully illustrated throughout, and written in free, graceful style. A most commendable feature is the oft-repeated insistence on conservatism in treatment. Young practitioners and surgeons will find here that even tuberculous abscesses may diminish in size and their contents become dry and calcareous if left alone, provided recumbency and general treatment be carried out, and that the treatment of joint tuberculosis is a matter of infinite patience lasting sometimes for years. There is no department of these diseases, etiology, pathology, clinical manifestations or treatment, in which the anxious family doctor or the enterprising surgeon to a children's hospital will not find the information he seeks, and generally he will find far more than ever he thought of.

Bibliographically the volume is handsome, its whole

¹ *Tuberculosis of the Bones and Joints in Children*. By J. FRASER, M.D., F.R.C.S.E., Ch.B. The Edinburgh Medical Series. London: A. and C. Black, 1914. (Sup. roy. 8vo, pp. 368; 51 plates; 164 figures. 15s. net.)

arrangement reflecting credit on the publishers. We have found only one proof-reading slip; on page 80 "Michael's" should be "Michel's."

ANTITYPHOID INOCULATION.

DR. H. MÉRY of Paris has written a brief and admirable account of the history, principles, and practice of inoculation or vaccination against typhoid fever.² It was first employed in France by Chantemesse and Widal in 1888, experimentally and on mice; it was not employed to protect man by Chantemesse till 1899, three years after Wright in England and others in Germany had used it for that purpose. Besredka employed his sensitized vaccine in 1902. At the present time antityphoid vaccines fall into three main classes, according as the cultures are injected dead, alive, or in the form of autolysates (extracts). The chief vaccines of the first class are those of Wright, Wright and Leishman, Chantemesse, Pfeiffer and Kölle, and Russel, in which the typhoid bacilli had been killed by heat; in other instances they are killed by antiseptic drugs, as is the case with Vincent's polyvalent antityphoid vaccine now being employed extensively in the French army. The second class is represented by Castellani's vaccine, Besredka's living sensitized vaccine, and others; all are used much less freely than the vaccines containing only dead typhoid bacilli. The same is true of the autolysate antityphoid vaccines of Wassermann, Conradi, Vincent, Rowland, and others, which contain only extracts of the bacterial bodies.

Practical considerations lead to the use of antityphoid vaccines containing killed bacteria for choice. The vaccine should be injected, according to Vincent, in the region of the left shoulder, behind the border of the deltoid muscle and two or three fingerbreadths below the spine of the scapula. Intravenous injections are not free from danger. Antityphoid inoculation should not be practised on phthisical persons or patients with disease of the heart or kidneys.

Discussing the vaccine treatment of patients with enteric fever, Méry notes that it was first tried in 1893 by Fränkel; Netter in 1913 collected 1,318 cases of its use, with a mortality of 5 per cent.; and Gauchery 2,256 cases, with a mortality of 5.7 per cent. The vaccines employed here are the same as those described above for prophylactic use; the doses are much smaller, from 5 to 30 or 60 million of the dead microbes being injected and from two to four injections being given, as a rule. The treatment is not free from dangers—high fever, cardiac failure, aggravation of the disease, even rupture of the spleen; Méry notes the fact, and is unable to give any definite rules or indications whereby the practitioner may foretell the cases in which the vaccine treatment is contra-indicated. This is an excellent little book, well and temperately written. It should be in the hands of all medical men who have to deal with the prophylaxis and treatment of enteric fever.

NOTES ON BOOKS.

YEAR BOOKS.

THE Charity Organisation Society has recently issued the twenty-fourth edition of its *Annual Register and Digest*.³ This gives a classified register of all the more important charities in or available for the metropolis, together with a digest of information respecting legal and voluntary means for the prevention and relief of distress, and the improvement of the condition of the poor. It begins with an introduction of nearly 400 pages, in which the modes in which the benefits of these charities ought to be turned to account is given. In other words, this supplies the reader with an outline of the principles of charitable work. The bulk of the volume is occupied by details of the societies, institutions, agencies, and leagues actively concerned in the relief of sickness and poverty. There is an excellent index, to which, indeed, the reader will naturally turn first when making use of this annual. The book has grown vastly since it was first brought into

² *La Vaccination Antityphoïdique*. Vaccination préventive et Vaccino-thérapie. Les Actualités Médicales. Par le Dr. H. Méry. Paris: J. B. Baillière et Fils, 1915. (Cr. 8vo, pp. 95; 6 figures. Fr. 1.50.)

³ *The Annual Charities Register and Digest*, with an introduction on How to Help Cases of Distress. By C. S. Loch. Twenty-fourth edition. London: Longmans, Green, and Co. For Charity Organisation Society, London, 1915. (Demy 8vo, pp. 1071. 5s. net.)

existence in 1879. It is not too much to say that it is quite indispensable to all who are concerned in charitable work in London and most useful to those so concerned elsewhere in this country.

The new edition, that for 1915, of *Low's Handbook to the Charities of London*⁴ is the eightieth; it gives particulars of the objects, funds, and offices of over 1,200 charitable institutions. The classified table of contents not only facilitates reference but shows the great variety of objects with which such institutions in, or for, the metropolis exist. The editor makes a special appeal for the support of the benevolent public at this time. It is recognized that this will be a very critical year for all institutions dependent for maintenance on incomes from subscriptions, and there is a real danger that their resources may be crippled unless those whose generosity has rendered it possible to build up the magnificent fabric of the voluntary system continue the help so ungrudgingly given in the past.

The *Girls' School Year Book*,⁵ which is the official book of reference of the Association of Head Mistresses, has reached its tenth year of publication. Its object is to provide a record of all matters of interest to parents, school mistresses, and girls in connexion with secondary education, so far as concerns public secondary schools for girls with governing bodies, and to the exclusion of private schools. In addition, it contains information about universities and colleges for women. The last 200 pages are given to information and advice about professions and employments for educated women—teaching, the civil service, secretarial, clerical, and librarian work, journalism, medicine, nursing, social work, music, art, agriculture, horticulture, the drapery trade, and other such things. The book should be of great service to those for whom it has been compiled, and seems well up to date.

There are over eighty universities and university colleges in the British Empire, ranging from Aberdeen and Acadia to Western Australia. The *Year Book of the Universities of the Empire*⁶ gives in summary form the information contained in their respective calendars, so far as it may be of service to those responsible for university organization and to advanced students who are looking out for opportunities of study and research. Ten appendices on kindred institutions are added and sixty-five pages of war rolls; forty pages at the end give a list of the names of those teaching at the various universities and colleges included in the volume. This year-book is now in its second year; it appeals to only a small audience, but should be of great utility to those for whom it caters.

For those who are taking holidays this year, *The Holidays*,⁷ issued by six of the large railway companies in England and Scotland, contains a vast amount of useful information. It gives lists of hotels, boarding houses, apartments, and all the other information required by holiday seekers in Great Britain and Ireland.

HIGHLANDS AND ISLANDS MEDICAL SERVICE BOARD.

(From our Correspondent in Edinburgh.)

In July, 1912, a Committee was appointed by the Treasury, under the chairmanship of Sir John Dewar, Bt., M.P., "to consider at an early date how far the provision of medical attendance in districts situated in the Highlands and Islands of Scotland is adequate, and to advise as to the best method of securing a satisfactory medical service therein, regard being had to the duties and responsibilities of the several public authorities operating in such districts." This Committee, under the guidance of its secretary, Mr. (now Captain) Malcolm Beaton, was able to visit the Highlands and Islands (including the Outer Hebrides, the Orkneys and Shetlands, and the Fair Isle), to examine a large number of witnesses, and, speaking generally, to look into local requirements and difficulties in a conspicuously thorough manner.

The result was a report presented in the end of December of the same year, out of which grew the Highlands and Islands Medical Service Act of 1913, with its annual grant of £42,000 for the improvement of medical service, including nursing. The next step was the coming into being of the Highlands and Islands Medical Service Board, which, according to the first report of the Highlands and Islands Medical Service Board for the period ended December 31st, 1914, is constituted as follows:

- Sir John A. Dewar, Bt., M.P., Chairman;
- The Lady Susan Gilmour;
- Sir Donald MacAlister, K.C.B., Principal and Vice-Chancellor of Glasgow University, and President of the General Medical Council;
- Dr. W. Leslie Mackenzie, Medical Member of the Local Government Board for Scotland;
- Dr. John Macpherson, Senior Medical Commissioner in Lunacy for Scotland;
- Dr. John C. McVail, Deputy Chairman of the Scottish Insurance Commission;
- Dr. J. L. Robertson, Senior Chief Inspector of Schools in Scotland;
- Dr. Norman Walker, Direct Representative for Scotland on the General Medical Council; with
- Mr. Lewis M'Quibban, of the Scotch Education Department, as secretary.

This Board, which is appointed for four years, commenced its work in November, 1913, but did not report until May 31st of the present year, and then only concerning preliminary and emergency matters; now, however, it has issued, after approval by the Secretary for Scotland and the Treasury, a very far-reaching series of schemes for the improvement of the medical service (including nursing) in these outlying regions of Great Britain.

It cannot be doubted that the fact of the British Empire's participation in the greatest war of history was known to the Board, along with the additional facts that the former Committee's secretary (Captain Beaton) was at the front, and that many of the medical practitioners vitally affected by these schemes were serving in Flanders or at the Dardanelles, having left their work in the Highlands and Islands at their country's insistent call. No hint of these is contained in the schemes put before the doctors of the north and west of Scotland and less directly of the medical profession in general; one is tempted to ask if, after all, there is not a perfect peace and an overflowing supply of medical men available in the Highlands, or, alternatively, if the Board has not succeeded in demonstrating that the Government Departments exist and do their work in absolutely water-tight and non-communicating compartments. Such suppositions are certainly strengthened by the instructions given to the medical men in the north to whom the Board has addressed a letter, dated August 16th, transmitting a copy of Scheme A providing for the general conditions under which medical practitioners will be eligible to participate in grants from the Board, published in the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL of August 21st (pp. 93-98). The Board enclosed a draft form of agreement between the Board and medical practitioners, and a "form to be filled up by all medical practitioners who desire to make a claim for a grant from the fund" (see Appendix).

The papers were sent out on August 16th, and the medical practitioners who received them were informed that their claims must be completed and submitted to the Board before August 31st. It is probable that some of the

⁴ *Low's Handbook to the Charities of London*. Eightieth year of publication, 1915. London: Sampson Low, Marston and Co., Ltd. (Cr. 8vo, pp. 250, 1s. 10d.)

⁵ *The Girls' School Year Book* (Public Schools). The Official Book of Reference of the Association of Head Mistresses. Tenth year of publication. London: The Year Book Press, 1915. (Cr. 8vo, pp. 698, 3s. 6d. net.)

⁶ *The Year Book of the Universities of the Empire*. 1915. Published for the Universities Bureau of the British Empire. London: H. Jenkins, Ltd., 1915. (Demy 8vo, pp. 329, 7s. 6d. net.)

⁷ *The Holidays*, 1915: Where to Stay and What to See. London: Walter Hill, Twentieth edition. 1915. (Demy 8vo, pp. 2000; illustrated. 1s.; post free, 1s. 6d.)

The Philippine Journal of Science (vol. X, Sec. B, No. 1) contains papers on cholera, the treatment of infantile beri-beri, new compounds of emetine, the preparation of tetanus antitoxin, and the development of the eggs of *Ascaris lumbricoides*. Of these, perhaps the most interesting to tropical medicine is the paper on the new compounds of emetine by Du Mez, who has produced an emetine mercuric iodide and an emetine bismuthous iodide. He hopes that these new compounds will simplify the emetine treatment and increase its efficiency; he thinks that he has obtained a remedy which can be administered frequently in fairly large doses, with a minimum amount of trouble, and that it brings emetine into contact with the entamoeba for a longer time than the form in which it is administered at present. Clinical tests alone will show whether this hope is warranted or not.

medical men who have gone to the front may be receiving the papers by the latter date. One is inclined to agree with Dr. Encas K. Mackenzie of Tain when he says (in a letter to the *Scotsman* of August 23rd), "the scheme outlined is revolutionary, and it seems extraordinary that it should be issued at this time, when the national crisis is uppermost in the minds of the profession and the public, and when the majority of medical men in the Highlands and Islands are either fully occupied performing civil and military duties at home or are actually serving with His Majesty's forces abroad."

Not only is the date chosen for the issue of the schemes inopportune and the time given for consideration of and compliance with them far too short, but the proposals contained in them are radical, sweeping, and subversive, and are marred by many of the same faults as made the Insurance Act so unwelcome to many of the medical profession two or three years ago.

Yet it will be generally agreed that the objects aimed at in the schemes are admirable, and likely, if attained with smoothness and ease, to be most beneficial. The financial aid to be given to district nursing associations, and the linking up of medical and nursing work in private practice, in connexion with schools, with infectious disease, with tuberculosis, and with maternity cases, and in the general medical and surgical work, and in the care of the sick poor and old age pensioners, are both steps in the right direction. The district nursing associations will, we do not doubt, scan most carefully the conditions they are asked to fulfil before they can participate in any grants-in-aid. Admiration may also be freely expressed for the scheme which deals with hospitals and ambulance services, for any means which can bring serious cases requiring specialist skill quickly and safely into hospitals where such skill is available must be good both for the patients affected and for the hard-worked doctors who have to travel many miles to look after them; but, again, the managers of hospitals will be well advised to look closely at the responsibilities they are asked to accept in order to receive the proffered aid. The grants towards the provision or improvement of houses for doctors and nurses, admirable in their object, are again seemingly overburdened with irritating restrictions and minute details providing against almost unimaginable contingencies.

One would like to see one-half of the many desirable things accomplished which are placed before the profession in the scheme which is occupied with grants towards specialized services. There are three directions in which such grants are intended to exert their beneficial effects. The first is to bring medical consultations, assistance at operations, and the supply of surgical appliances within the reach of all patients everywhere within the areas included in the Highlands and Islands. Obviously, this is a great thing to accomplish, but it is hedged around with many difficulties, and the wording of the scheme itself suggests obstacles when it says, "The remuneration of a specialist for services rendered is a matter that will call for very careful consideration"; the reference to retaining fees, modified charges, and supplementary fees from the Board does not sound too hopeful, although the goodwill of the specialists and their desire to "do their bit" may possibly facilitate and simplify matters. Specialized services in connexion with dentistry, the medical treatment of school children, and school clinics form the second group under this heading, and at first sight at least do not seem so beset with difficulties as some of the others; the provision of laboratory facilities, which is the third direction in which grants can flow, may seem as yet almost visionary, but such facilities are very essential, for it can hardly be expected that doctors working under this Board and undertaking the extra clerical labour which that work will involve will be able "to maintain small pathological laboratories and provide vaccines of various kinds." Nothing respecting the grants towards the extension of telegraph and telephone facilities need be said, save that great good may be expected to flow therefrom unless all the money is expended before they are reached.

Something, however, must be said regarding the regulations which are laid down, and which must be complied with before medical practitioners can begin to receive grants from the Highlands and Islands (Medical Service) Fund, or can continue to participate in them. It is this

scheme—and it is indeed the leading and most vital one, for upon it the success of all else depends—which seems to have produced a feeling almost bordering upon dismay in some parts at least of the Highlands and Islands. Dr. Mackenzie's letter makes this feeling vocal, and his views have been adopted as their own, in large measure, by a number of medical men engaged in practice in the Highland district of Perthshire, who held a meeting on August 23rd to consider the scheme. These practitioners, after pointing out how inopportune the launching of the scheme is, say, "We cannot see how a Board which have taken two years to draw up their scheme can expect us to make up our minds in as many weeks to accept or reject their proposals." They continue, in words which indicate some irritation, not very surprising in the circumstances and with the clauses of the schedules before them, "We are told in the agreement which we are supposed to accept that we are to keep motor cars or motor cycles, and motor boats if necessary, to get expeditiously to see our patients, but there is not a word about what we are to receive in return for all this. We are apparently to sign the agreement, and trust everything in the way of fees to the generosity of the Board. According to the scheme the doctor is to be a sort of machine under the Board; he is to go to certain places on certain days; he is not to think for himself; he is to keep a different set of books and registers; and he is to be regularly visited by an official of the Board, who is to see that he is doing his duty, who is to examine his books and registers, and generally to pry as much as possible into his private affairs."

At a meeting of the members of the Inverness Division of the British Medical Association held in Inverness on August 28th, a resolution was unanimously passed to the effect that, owing to the anxiety felt amongst medical practitioners on the mainland of the county of Inverness as to the working of the proposals of the Highlands and Islands Medical Service Board and their bearing upon future medical practice, and the numerous difficulties in the way of clearly understanding the proposals which arose during the discussion, the Board be respectfully asked to send a representative to a meeting of medical men in Inverness at a date to be arranged by the Board, and that in the meantime the medical men of the county of Inverness should delay completing their form. The attendance at the meeting, the *Scotsman* reports, was not large on account of so many Highland doctors being away on military duty.

A clause which can hardly be regarded as helpful to a medical man anxious to work under the Board is that in which it is stated that "for the current year no payments will be made by the Insurance Committees in respect of mileage for attendance on insured persons, but the subsidy payable to the doctor will be arranged on a footing that will cover the travelling expenses involved in attendance on insured persons, as well as on all others entitled to receive medical attention under any arrangement between the doctor and the Board." Why, the year is two-thirds over, and, moreover, what, it may be asked, do the words mean, and how can the Board step in between the medical men and the Insurance Committees in respect of work already done? Dr. Encas Mackenzie points out that for a grant of uncertain amount and duration the medical man is to act as medical officer of health, as parish doctor, and as medical officer of schools; he is to treat school children, to attend patients at fixed fees no matter how far they are away or what difficulties are to be met with in getting to them; he is to give personal attention to midwifery cases, attend at fixed hours and days at different parts of his district, and to provide his own locomotion. Even the Board will, perhaps, excuse Dr. Mackenzie's caustic inquiry whether he has not also "to bath the children and assist at the weekly washing."

Six cardinal objections to the scheme are stated by Dr. Mackenzie, and may be given here as summarizing the criticism which has thus far emerged. He trusts it will be opposed:

1. Because it has been devised by the Board without taking the medical men into their confidence as a whole, but deals with them in their individual capacity.
2. Because no time is given to the medical men, many of whom are away from home serving their country, to consider the scheme properly.
3. Because remuneration is not based upon work done, and

because mediocrity and inefficiency are to be encouraged at the expense of ability and attention to duties.

4. Because clerical work is made of greater importance than medical services.

5. Because there is no discrimination made between Highland and Lowland areas.

6. Because there is intolerable interference with the liberties and rights of individual medical men and scrutiny of their private affairs by public officials.

Dr. A. C. Miller, of Fort William, who was a member of the Treasury Committee of 1912, has endeavoured in the *Scotsman* for August 28th to meet some of the objections tabled by Dr. Mackenzie and the medical men of Inverness and the Highlands of Perthshire, and it is only just to consider carefully what he has to say, for he has knowledge. For instance, in respect of the objection that the Board has not taken the medical men into their confidence as a whole, Dr. Miller says that the Treasury Committee, which preceded the Board, invited (with few exceptions) all medical men practising in the Highlands and Islands to assist them in their investigations either through written information or by oral evidence; and adds that of 102 query schedules issued to practitioners, no fewer than 87 were replied to, while altogether 93 medical men belonging to the area proffered their views. It is, however, a different thing to give opinions regarding facts and to be allowed to criticize the proposed measures to be adopted to correct the defects revealed by the facts, and it scarcely appears that the medical men have had any opportunity of pursuing this latter line of comment or criticism.

Dr. Miller is on surer ground when he points out that the Committee presented a unanimous report in January, 1913, and that three of the members were medical men; and he is also right in claiming that their investigations made them to some extent acquainted with the hardships and perils which doctors in the north and west have to face in the prosecution of their calling. It may be added that surely with this experience in mind the Board will view sympathetically any protests these same doctors may now be making, and see whether, after all, there may not be cause for some complaint; for, as Dr. Miller himself writes, there are "complicated and delicate problems" to be dealt with by the Board.

It is a little difficult to follow Dr. Miller's arguments in connexion with the mileage grant when he maintains that it will not, in effect, be diminished under the scheme of the Board. Possibly he is right, subject to considerations such as the fact that the scheme will throw the whole £42,000 into hotch-potch, to be allotted as the Board may think fit after taking into account the private and confidential information in Form 2 inserted below. One must not forget that £10,000 was voted by Parliament for mileage in the Highlands and Islands for the financial year 1913-14, and £42,000 for the purposes of improving medical service in the Highlands and Islands, "and for other purposes connected therewith," but nothing for mileage specifically. Dr. Miller thinks *evolution* is a better term for the Board's schemes than *revolution*, the word which the critics have applied to them; but he is hardly happy when he passes the objections to clerical worries, officious interference, and official supervision lightly by with the reflection that apprehensions regarding these things under the Insurance Act have turned out to be to a great extent unfounded. Many will say "Question" to that. The suggestion that "the profession is strong enough to get an objectionable official disposed of at any time" is not, perhaps, very helpful, and seems to foreshadow troublesome times. Further, Dr. Miller's letter cannot be said to answer the second, third, fifth, and sixth objections lodged by Dr. Mackenzie and the others at all; but at the same time all will unite with him in hoping that measures and arrangements may yet be evolved which will prove a charter of emancipation for practitioners resident in the Highlands and Islands.

Even an entirely disinterested survey and study of the schemes, and especially of the first (that concerning grants to medical practitioners), reveals many regulations which are sure to be irksome if no worse, as well as matters of principle, which it is essential should be fully considered by a full gathering of the medical men involved. Such a gathering is impossible until the war is over. It seems not unreasonable to ask for delay until that desirable termination has been reached, unless the Board is

prepared to struggle with the same sort of difficulties as the Insurance Commissioners had to meet, and to overcome them by means which will leave a bitterness in the hearts of the medical men who sometimes at the risk of their lives, and often with great personal inconvenience, try their hardest to supply the comforts and assuagements of modern medical and surgical means to the dwellers in the outlying districts of our land known as the "Highlands and Islands."

LETTER TO MEDICAL PRACTITIONERS.

Highlands and Islands Medical Service Board,
4A, St. Andrew Square, Edinburgh,
August 16th, 1915.

HIGHLANDS AND ISLANDS (MEDICAL SERVICE) FUND.

SIR,—I beg to inform you that the general consent of the Secretary for Scotland and Treasury has now been obtained to the proposals submitted by the Board for the administration of the Highlands and Islands (Medical Service) Fund, and the Board now propose to proceed forthwith to make arrangements with practitioners in regard to the terms and conditions under which grants may be payable to them.

2. I am directed to enclose for your information a copy of a Scheme (A) setting forth the general conditions on which grants may be made to medical practitioners.

3. If, on consideration, you desire to enter into an agreement with the Board, I am to ask you to be good enough to submit to the Board at your earliest convenience, and *not later than August 31st*, the statement of information asked for on the accompanying form. The information supplied in the form filled up by you will be regarded as *strictly confidential*.

4. It is intended that the Board's grants shall be payable half-yearly—namely, about 45 per cent. of the approved claim at the end of June and the balance at the end of December in each year, or as soon thereafter as may be found to be practicable.

5. I also enclose draft form of agreement with practitioners which the Board propose to adopt, *subject to adjustment according to the circumstances in each individual case*.

6. I also enclose for your information copies of the following documents:

Scheme (B), in regard to the general conditions under which district nursing associations will be eligible to participate in grants from the fund.

Scheme (C), in regard to grants to central hospitals and in regard to ambulance services in connexion therewith.

Scheme (D), in regard to the provision and improvement of houses for doctors and for nurses.

Preliminary scheme (E), as to the general conditions under which grants will be made towards specialized services.

Scheme (F), in regard to telegraph and telephone extension in connexion with the medical and nursing services.

I am, Sir,

Your obedient servant,

L. MCQUEBBAN,
Secretary.

To Dr.

Form 2 (Claim).

Private and Confidential.

HIGHLANDS AND ISLANDS (MEDICAL SERVICE) FUND.

Form to be filled up by all Medical Practitioners who desire to make a claim for a grant from the fund.

The particulars asked for in certain sections of the form may be omitted by practitioners whose net professional income is over £300 a year (see footnotes on page 405).

N.B.—By "net professional income" is meant the gross income from all professional sources (including appointments, private practice, fees for special services and medicines supplied to patients), less travelling expenses incurred in attending patients, drugs purchased, and payment for rent of house and rates and taxes thereon.

1. Two copies of this form are supplied. One copy should be filled up and returned to the Board, the other should be kept by the doctor for reference.

2. It is to be understood that the information given in this form is *strictly confidential* and that it is supplied solely for the information of the Board and such of their officers as may be required to deal with it.

Draft Agreement.

HIGHLANDS AND ISLANDS (MEDICAL SERVICE) GRANT ACT, 1913.

DRAFT FORM OF AGREEMENT BETWEEN THE HIGHLANDS AND ISLANDS MEDICAL SERVICE BOARD AND MEDICAL PRACTITIONERS.

N.B.—This Draft Form of Agreement is sent as a general indication of the undertaking which the Board propose to ask practitioners to enter into as a condition of the payment to them of any subsidy. The Agreement will be subject to adjustment according to the circumstances in each individual case.

AGREEMENT between the Highlands and Islands Medical Service Board (hereinafter called "the Board") of the one part and Dr. of (hereinafter called "the practitioner") of the other part, whereby it is agreed as follows:

1. The practitioner shall, as from the date on which this Agreement shall be deemed to have commenced, visit systematically and when asked to do so, all persons within the area of his ordinary practice in need of medical attention.

2. For the purposes of this Agreement the area of the practitioner's ordinary practice shall be—

(Specify the parishes or parts of parishes.)

3. Subject to the provisions of Article 13 hereof, the fees chargeable by the practitioner for medical attendance and treatment provided under this Agreement shall not exceed those specified in the following Table, and no addition shall be made to such fees in respect of the distance from the practitioner's residence to the place of residence of the patient attended.

(Specify fees as arranged with the doctor—for example, fees per visit, per contract, or otherwise, and midwifery fees.)

In the event of any dispute as to whether any patient resident within the aforesaid area as specified in Article 2 hereof comes within the scope of the arrangements for medical attendance and treatment at the foregoing rates, the matter shall be decided by the Board, and the practitioner shall give attendance in accordance with the decision of the Board. But nothing herein contained shall infer any liability on the Board for said fees.

4. The practitioner undertakes that he shall not do anything to terminate or to involve the termination during the currency of this Agreement, of any Agreement or arrangement entered into by him with any Parish Council or Parish Councils and Insurance Committee or Insurance Committees and Public Health Authorities with reference to providing medical attendance and treatment or medicines, drugs, and appliances to paupers, old age pensioners, insured persons, and others respectively within the area of his ordinary practice.

5. The practitioner shall make regular and systematic visits to the outlying districts within his practice, and for that purpose shall attend for the purpose of providing medical attendance and treatment under this agreement at the places and at the times following.

(For example, at A on each Monday between 2 p.m. and 4 p.m.)

6. The practitioner shall, where requested, and so far as practicable, give personal attendance in midwifery cases.

7. The practitioner shall give regular attendance at schools or elsewhere within the area of his ordinary practice on such terms as, with the approval of the Board, may be agreed upon between him and any School Board or School Boards or Secondary Education Committee or Committees concerned for the treatment of diseases of school children, including attendance to the defects disclosed by the medical inspection of school children.

8. The practitioner shall, so far as not already done, provide himself with suitable means of conveyance to enable him to attend patients at their place of residence as expeditiously as possible, having regard to the circumstances of his area, and, in particular, but without prejudice, to the said generality he shall provide himself with—

(Specify motor car, cycle, etc., as may be agreed upon.)

9. The practitioner shall keep a classified Register, to be supplied by the Board, of all persons attended by him under this Agreement, including paupers, old age pensioners, and insured persons, showing in each case the number of visits paid, the distance of the patient from the practitioner's residence, and the fees collected in respect of attendance, which Register shall be open to the inspection of any accredited Officer of the Board.

10. Subject to the provisions of Article 13 hereof, the practitioner, where the circumstances so require, shall supply to all persons attended by him under this Agreement such medicines, dressings, and appliances as may be necessary and that at strictly moderate prices, being as nearly as possible such as to recompense him for his outlays in respect of such medicines, dressings, and appliances; but nothing herein contained shall infer

any liability on the Board for said medicines, dressings, or appliances.

[Where the fees specified in Article 3 of this Agreement cover medicines, dressings, and appliances, this article will have to provide that these are to be supplied to the patient free of any additional charge.]

11. Notwithstanding the date hereof this Agreement shall be deemed to have commenced as on the first day of January, 1915, and shall continue in force until the thirty-first day of December, 1915, and from year to year thereafter, provided always that either party may at any time terminate this Agreement on giving three months' previous notice in writing to the other party.

Note.—In the event of the practitioner ceasing to practise within the area, the Board may accept less than three months' notice, but in that case the practitioner shall provide during the unexpired period of the three months a duly qualified medical practitioner approved by the Board as a substitute.

12. The Board shall, provided the practitioner has implemented his part of this Agreement to their satisfaction, pay to the practitioner a sum at the rate of pounds per annum, which sum shall be payable in each year by two instalments, the first, amounting to 45 per cent. of the sum for the year, being payable as at the thirtieth day of June, and the second, representing the balance of 55 per cent., being payable at thirty-first December, or as soon after said respective dates as is practicable; and in the event of this Agreement being terminated prior to 31st December in any year, the payment for that year so far as then remaining due shall be made as soon after such termination as is practicable. In the event of the practitioner not having implemented his part of this Agreement to the satisfaction of the Board, the Board may withhold and cancel the right to such portion, or even the whole of the sum payable to the practitioner, as they think proper.

13. Nothing herein contained shall prejudice or affect any Agreement or Agreements or other arrangements made between the practitioner and any Parish Council or Parish Councils or Insurance Committee or Insurance Committees or Public Health Authorities with reference to providing medical attendance and treatment, or medicines, drugs, or appliances to paupers, old age pensioners, or insured persons, or others, and nothing herein contained shall entitle the practitioner to any payment from such paupers, old age pensioners, and insured persons in respect of medical attendance and treatment, medicines, drugs, or appliances, provided by him under such Agreements or arrangements; but except in so far as such medical attendance and treatment, medicines, drugs, and appliances are provided under such agreements or arrangements these presents shall apply to paupers, old age pensioners, and insured persons.

14. Any notice to be given by, or on behalf of, the Board shall be sufficient if signed by any member of the Board, or the Secretary thereof, and a certificate or letter signed by any member of the Board, or the Secretary thereof, shall be final and conclusive evidence as to the decision of the Board as to any sum due under this Agreement or as to the satisfaction or non-satisfaction of the Board and the extent to which the Board have resolved to withhold or cancel the right to any payment under this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as follows:

Signed for and on behalf of the Highlands and Islands Medical Service Board at.....

on the.....day of.....One Thousand Nine Hundred and.....in the presence of—

Name.....
Address.....
Designation..... Member.
Name.....
Address.....
Designation..... Secretary.

Signed by the above-named at..... on the.....day of.....One Thousand Nine Hundred and..... in the presence of—

Name.....
Address.....
Designation.....
Name.....
Address.....
Designation.....
Qualifications.....

6d. Stamp.

MILEAGE.

Paragraph 4 of the Memorandum A on grants to medical practitioners (SUPPLEMENT, August 21st) is so unfortunately worded that its meaning is very far from clear. Some light

is thrown on the matter by a paragraph dealing with the subject in the first report of the Medical Service Board issued last June.

(1) Mileage Scheme.

The annual grant-in-aid voted by Parliament is £42,000. The grant of £10,000 previously voted in aid of mileage and other special charges connected with attendance on insured persons in the Highlands and Islands is, however, included in the annual grant-in-aid, and the additional grant provided by the Act of 1913 is therefore £32,000.

The "mileage" grant of £10,000 in respect of the year 1913 was distributed amongst the practitioners entitled to a share thereof by the various Insurance Committees under a scheme prepared by the Scottish Insurance Commissioners and approved by the Treasury. . . . The organisation of the work of the Board was not sufficiently advanced in the early part of 1914 to enable them to undertake the distribution of the corresponding grants in that year. Accordingly they sought and obtained the consent of the Secretary for Scotland and Treasury to a temporary scheme in respect of the year 1914, whereby grants from the Fund equivalent to those allocated in the previous year to the various Insurance Committees under the Commissioners' Scheme would be payable to the various Committees for distribution amongst the practitioners under the same terms and conditions as in 1913. The first two instalments of the grant have been paid to the various Committees, and the third and final instalment will be paid on the certificate of the Scottish Insurance Commissioners that they are satisfied that the principles laid down in their Scheme of 1913 have been duly observed by the Committees concerned during the current year.

For 1915 no payment will be made by the Insurance Committees in respect of mileage for attendance on insured persons, but the sum formerly set aside for that purpose will be paid on the subsidies payable to the practitioners by the Board in respect of travelling expenses involved in attendance on all persons entitled to receive medical attention under any arrangement between the practitioners and the Board.

THE BRITISH ASSOCIATION.

ANNUAL MEETING AT MANCHESTER.

This week Manchester has been giving a hearty welcome to the eighty-fifth annual meeting of the British Association. Since Sir David Brewster, in 1831, called together at York a preliminary meeting of men who were willing to join with him in a scheme for the assistance of scientific discovery and the public diffusion of the result of research, the association has never abandoned its primary object—"the advancement of science." The chief business of the preliminary meeting at York was to draw up a constitution for the society and to outline a list of subjects on which reports were to be prepared for the first actual meeting of the association at Oxford in 1832. Since that time the conception of what is included in the term "science" has been gradually widened, and, in spite of some opposition, educational matters and a wide range of economical questions have been included within the purview of the association, while some of the original sections have had to be divided up into two or more, notably physiology, which became a section apart from anthropology in 1894. A very substantial part of the income of the association is devoted to the assistance of scientific research where extended observations have to be made or particular apparatus purchased, and at the close of each annual meeting the town to be visited two years later is fixed in advance, and a president-elect is named.

The present occasion is the fourth on which the association has met in Manchester, the first being in 1842, when Lord Francis Egerton was president, the next in 1861, with Sir William Fairbairn as president, and the last occasion in Jubilee Year, 1887, when Sir Henry Roscoe was president. The Manchester meeting in 1887 was one of the best attended of the whole series, no fewer than 3,838 persons being present, including an unusual number of eminent foreign scientists. On the present occasion, owing to the war, it was hardly to be expected that the attendance would even nearly equal that of previous meetings, as not only must a large number of foreign scientists be unavoidably absent, but even many of the leading British scientists, who take the greatest interest in the meetings, have had to announce that Government duties in connexion with the war will prevent their attendance. At one time, indeed, the question was seriously considered whether the meeting should not be altogether abandoned this year, but it was felt that there were so many connecting links between the advance of science and the conduct

of modern warfare that the meeting might prove of even unusual value; practically the only deviation from the usual programme has been that most of the social functions have been abandoned and the meeting has been more than ever for what may be called business science.

President's Address.

The inaugural meeting was held in the Manchester Free Trade Hall on Tuesday evening, September 7th, when Professor ARTHUR SCHUSTER took over the presidency from Professor William Bateson, and delivered his presidential address on "The common aims of science and humanity." There were not wanting many members who would have preferred that Professor Schuster should have dealt with some of the more strictly scientific questions on which he is the highest living authority, but the reception he received was in no way lessened on that account. In the course of his address, he said: Under the influence of the diversity of pursuits imposed upon us by the conditions of modern life, different groups of the community—men of business, men of science, philosophers, or artists—have acquired detached and sometimes opposing interests. Each group, impressed by the importance of its own domain in the life of the nation, and focussing its vision on small differences and temporary rivalries, was in danger of losing the sense of mutual dependence. But in the shadow of a great catastrophe it has been brought home to us that the clash of interests is superficial. As we eliminate the superficial, and regard only the deep-seated emotions which control our thoughts and actions, the differences vanish, and the unity of purpose and sentiment emerges more and more strongly. Were it otherwise, the British Association could not perform one of its most important functions. Our records show that while not avoiding controversy and even inflammatory subjects, we have been able to exercise a powerful influence on the progress of science. Nevertheless, it may be admitted that our efforts have been spasmodic, and the time has arrived to consider whether it may be possible to secure not only a greater continuity in our work but also its better co-ordination with that of other scientific organizations. Dealing with the qualities of intellect and temperament characteristic of different occupations or pursuits, Professor Schuster showed how Poincaré concluded that the characteristic of the mathematician is a peculiar type of memory. It is not a better memory, for some mathematicians are very forgetful, and many of them cannot add a column of figures correctly; but it is a memory which fixes the order in which the successive steps of reasoning follow each other without necessarily retaining the details of the individual steps. Applying the same reasoning to other occupations, the same conclusion is inevitable. The commercial man, the politician, and the artist must all possess the type of memory best suited to concentrate in the field of mental vision their own experiences as well as what they have learnt from the experience of others; and, further, they must have the power of selecting out of a multitude of possible lines of action the one that leads to success; it is this power which Poincaré calls the inventive faculty. The most fatal distinction that can be made is the one which brings men of theory into opposition to men of practice, without regard to the obvious truth that nothing of value is ever done which does not involve both theory and practice. In his presidential address, delivered to the association in 1899, Sir Michael Foster arrives at the same result which I have tried to place before you: that there are no special peculiarities inherent in the scientific mind. But if we must avoid assuming special intellectual qualities when we speak of groups of men within one country, we ought to be doubly careful not to do so without good reason in comparing different nations. So-called national characteristics are in many cases matters of education and training; and, if I select one as an example, it is because it figures so largely in public discussions at the present moment. I refer to that expedient for combining individual efforts which goes by the name of "organization." The cry for organization, justifiable as it no doubt often is, resolves itself into a cry for increased discipline. This discipline is not an inborn quality which belongs more to one nation than to another; it is acquired by education and training. In an emergency it is essential to success, but if it be made the guiding principle of a nation's

activity, it carries dangers with it which are greater than the benefits conferred by the increased facility for advance in some directions. Why does a scientific man find satisfaction in studying Nature? Let me once more quote Poincaré:

The student does not study Nature because that study is useful but because it gives him pleasure, and it gives him pleasure because Nature is beautiful; if it were not beautiful it would not be worth knowing and life would not be worth living. I am not speaking, he it understood, of the beauty of its outward appearance—not that I despise it, far from it—but it has nothing to do with science. I mean that more intimate beauty which depends on the harmony in the order of the component parts of Nature.

It might easily be shown that what has been said of science equally applies to other studies, such as history or literature. We may even go further, and say that any occupation whatever from which we can derive an intellectual pleasure must possess to a greater or smaller degree the elements of combining the useful with the beautiful. There is only one feature in the operation of the intelligence by means of which a sharp division may possibly be drawn between brain workers showing special capabilities in different subjects. In some persons thought attaches itself mainly to language, in others to visualized images, and herein lies, perhaps, the distinction between the literary and scientific gift. Those who, owing to external circumstances, have resided in different countries, are sometimes asked in what language they think. Speaking for myself, I have always been obliged to answer that, so far as I can tell, thought is not connected with any language at all. The planning of an experiment, or even the critical examination of a theory, is to me entirely a matter of mental imagery, and hence the experience, which I think many scientific men must have shared, that the conversion of thought into language, which is necessary when we wish to communicate its results to others, presents not only the ordinary difficulties of translation, but reveals faults in the perfection or sequence of the images. Only when the logic of words finally coincides with the logic of images do we attain that feeling of confidence which makes us certain that our results are correct. According to Poincaré, the pleasure which the study of science confers consists in its power of uniting the beautiful with the useful; but it would be wrong to adopt this formula as a definition of the object of science, because it applies with equal force to all human studies. I go further, and say that the combination of the search for the beautiful with the achievement of the useful is the common interest of science and humanity. Some of us may tend more in one direction, some in another, but there must always remain a feeling of imperfection and only partial satisfaction unless we can unite the two fundamental desires of human nature. I have warned you at the beginning of this discourse not to beat the utilitarian drum too loudly, and I have laid stress throughout on the idealistic side, though the most compelling events of the moment seem to drive us in the other direction. Should I not have found a surer ground for the claims of science in its daily increasing necessity for the success of our manufactures and commerce? I have said nothing to indicate that I do not put the highest value on this important function of science, which finds its noblest task in surrendering the richness of its achievements to the use of humanity. But I must ask you to reflect whether the achievement of wealth and power, to the exclusion of higher aims, can lead to more than a superficial prosperity which passes away, because it carries the virus of its own doom within it. Do we not find in the worship of material success the seed of the pernicious ambition which has maddened a nation, and plunged Europe into war? Is this contempt for all idealistic purposes not responsible for the mischievous doctrine that the power to possess confers the right to possess, and that possession is desirable in itself without regard to the use which is made of it? I must therefore insist that if we delight in enlisting the wealth accumulated in the earth, and all the power stored in the orbs of heaven, or in the orbits of atomic structure, it should not be because we place material wealth above intellectual enjoyment, but rather because we experience a double pleasure if the efforts of the mind contribute to the welfare of the nation. Happy were the times when it could be said with truth

that the strife of politics counted as nothing before the silent display of the heavens. Mightier issues are at stake to-day: in the struggle which convulses the world all intellectual pursuits are vitally affected, and Science gladly gives all the power she wields to the service of the State. Sorrowfully she covers her face because that power, accumulated through the peaceful efforts of the sons of all nations, was never meant for death and destruction; gladly she helps, because a war wantonly provoked threatens civilization, and only through victory shall we achieve a peace in which once more Science can hold up her head, proud of her strength to preserve the intellectual freedom which is worth more than material prosperity, to defeat the spirit of evil that destroyed the sense of brotherhood among nations, and to spread the love of truth.

The Sections began their meetings on Wednesday, mostly at the university, and continued to meet for the reading of papers and discussion on Thursday and Friday. It is proposed to give some account next week of subjects that arose of medical interest.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE WEEK'S SUBSCRIPTIONS.

The subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund received during the past fortnight have been as follows:

	£ s. d.		£ s. d.
Mr. C. E. S. Watson	5 0 0	Dr. Fred Hazell	1 1 0
Cape of Good Hope		Dr. Bolger	2 2 0
Branch (Western		Dr. Reynolds	1 1 0
Division), B.M.A.		Dr. Gullendard	1 1 0
Dr. E. B. Fuller	5 5 0	Dr. S. F. Silberbauer	1 1 0
Dr. McGowan Kitching	2 2 0	Guerresy and Alderney	
Dr. Chas. Anderson	5 5 0	Division, B.M.A.	
Dr. G. W. B. Daniell	1 1 0	Dr. H. D. Bishop (Hon.	
Dr. Simpson Wells	1 1 0	Sec.)	
Dr. Benjamin Cohen	0 10 6	Dr. Carothers	0 5 0
Dr. Hugh Smith	5 0 0	Dr. Bishop	0 10 0
Dr. C. C. Elliott	5 0 0	Dr. Wallace	0 10 0
Dr. Verduhaer	0 10 6	Dr. Baitlee	0 5 0
Dr. Darley Hartley	1 1 0	Dr. Gibson	0 10 0
Dr. A. W. Carden	2 2 0	Dr. Bisson	0 5 0
Dr. C. J. Hill Aitkin	1 1 0	Dr. Bostock	0 5 0
Dr. E. F. W. Moon	1 1 0	Dr. R. W. Winstanley	1 1 0
Dr. W. Thomas	5 0 0	Leicester Pharmaceutical	
Dr. Gerecke	1 1 0	Association (per Mr. C. J.	
Dr. J. Conroy	1 1 0	Avery)	15 7 6
Dr. F. Waldron	2 2 0	Mr. A. Chapman	0 11 8
Dr. H. Syrett	2 2 0	Mr. E. A. Williamson	0 7 6
Dr. H. Kramer	2 2 0	Anonymous	1 0 0

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and would be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE APPEAL FOR SURGICAL INSTRUMENTS.

Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C.

We have received from Copenhagen a leaflet stating that a society has been formed to study the "social consequences of the war." The head quarters of this society—"Selskabet for Social Forsken at Krigens Følger"—are at Østerbrogade 56 C, Copenhagen, and its aims are: (1) The foundation of a collection of the whole war literature appearing in all European languages. (2) The classification of the materials to facilitate a scientific elaboration of the same. (3) The elaboration of the materials. Apparently the society already possesses "a special library of social war literature. . . . A special room is placed at the disposal of anybody who wishes to work on a scientific basis. It purposes to publish bulletins about the collections and progress of work of the society." We are not given any details as to the origin of this society; the names of the members of its executive committee—if such exists—are not supplied us, and the only name that appears is that of D. Lewin. Over his signature we are told that the aims of this society are purely scientific, and that it remains absolutely neutral in all political questions. It is to be hoped that the society's self-appointed task of "preparing scientifically the new social formation to come by elucidating the scientific, financial, social, and political consequences of the war" will be successfully carried out. It will not be easy.

British Medical Journal.

SATURDAY, SEPTEMBER 11TH, 1915.

THE WAR EMERGENCY.

THE campaign for the recruiting of commissioned officers for the R.A.M.C. is in full swing. Medical men of suitable age and physical condition in England and Wales are urged by the War Emergency Committee, which is sitting at 429, Strand, London, W.C., to take immediate service where possible, or to undertake to do so at some specified date. The scheme of enrolment is now worked out. All men of military age are earnestly requested to enroll themselves with the Committee as willing to take service in case of special emergency. Forms have been prepared which can be had on application. These forms provide spaces in which the doctor can enter the particular difficulty which prevents his volunteering forthwith. These difficulties will be taken into consideration by the Committee; men on this roll will only be called upon in case of special necessity, and each case will be considered on its merits according to the statements made by the signatory of the form. It is particularly requested that medical officers of municipal authorities who have medical men of military age on their staff will encourage these members of their staff to fill up these enrolment forms. By so doing they will render considerable service, enabling the Committee to have knowledge of all the available material; the statements made on the form of enrolment indicating the particular difficulty which prevents immediate volunteering will ensure that they do not lose these members of their staff, except in case of special necessity.

The Committee has this week received a communication from the War Office concerning the age limits for medical officers; it shows that the somewhat varied statements of the several commands have now taken definite and identical form. Medical officers for home service only will not be commissioned over the age of 55 years. Medical men for foreign service will now be accepted up to the age of 45 provided they are in every way fit. One important point arises out of the limitation of the age for commissions for home service to 55 years. It means that men over this age who are fit for additional work or for some form of medical practice differing from that which they are doing at present can best serve their country by doing the work of some younger man and releasing him for foreign service.

As has previously been reported, the Committee resolved to represent to the Director-General A.M.S. that it was not desirable that medical men of age for foreign service should fill home military posts. It has now been informed by the Medical Department of the War Office "that the question of men of military age doing military work at home is under our serious consideration, and steps have already been taken to prevent men who are under 40 being continuously employed in regular military hospitals in this country. The question is also being taken up with regard to Territorial Force General Hospitals and Voluntary Aid Hospitals, and it is hoped that a satisfactory arrangement will be arrived at. We

are in every way discouraging younger men who are physically fit for active service from engaging for home service only."

Medical men desiring information on any of the points here mentioned should, if resident in England or Wales, apply to the Secretaries of the War Emergency Committee, 429, Strand; if resident in Scotland, to the Convener of the Scottish War Emergency Committee at the Royal College of Physicians, Edinburgh; if resident in Ireland application may for the present be made to the Medical Secretary in Ireland of the British Medical Association, Dr. Hennessy, 16, South Frederick Street, Dublin.

THE HIGHLANDS AND ISLANDS MEDICAL SERVICE.

THE schemes of the Highlands and Islands Medical Service Board for the amelioration of conditions in respect of medical attendance and treatment in those remoter parts of Scotland were published in the SUPPLEMENT to the JOURNAL of August 21st, and this week we are enabled by the courtesy of the Board to publish (p. 404) for the information of the profession generally the documents it sent on August 16th to the medical practitioners resident in the areas concerned.

It will be worth while in the first place to trace the brief history of the Board. Representations as to the difficulty of securing a satisfactory medical service for the Highlands and Islands were made to the Treasury by the Scottish Insurance Commission soon after it was formed, and in July, 1912, a Committee was appointed, with Sir John Dewar, M.P. for Inverness, as Chairman, to consider "how far the provision of medical attendance in districts situated in the Highlands and Islands of Scotland is inadequate, and to advise as to the best method of securing a satisfactory medical service therein, regard being had to the duties and responsibilities of the several public authorities operating in such districts." The members of the Committee made a tour of the Highlands, encountering discomforts by land and sea which must have impressed on them the perils of practice in these districts; they heard many witnesses as reported in our columns at the time, and after they got home drew up a report which was made the basis of the Highlands and Islands (Medical Service) Grant Act of 1913. This Act provided that for the four years ending December, 1917, on which date the Act itself will expire, there shall be paid to the Board set up by the Act the sum of £42,000 a year "for the purpose of improving medical service, including nursing, in the Highlands and Islands of Scotland, and otherwise providing and improving means for the prevention, treatment, and alleviation of illness and suffering therein."

The Board got to work in November, 1913, but before issuing its first annual report in June last gave no overt signs of life until, on August 16th, it launched upon the practitioners in the Highlands and Islands a series of documents of a voluminous and complicated character, and demanded much information and the acceptance of a draft agreement on or before August 31st. When it is remembered that at the best of times the post to not a few of the places takes several days, and moreover that at this particular time fully a third of the medical practitioners concerned are serving in the Army and Navy, many of them in Flanders or the Dardanelles, it is difficult to understand how the blunder of allowing so short a time for consideration could have been made. That

it was no more than a blunder we have no doubt, but it would not have needed very much imagination to picture the perplexity such an avalanche of documents must produce in the mind of an isolated man not perhaps very well acquainted with legal terminology, and the suspicion which the short time allowed for their consideration, a time so short as to render consultation among the men affected practically impossible, would naturally arouse.

We must credit a Board appointed for a purpose so benevolent and containing so large a proportion of medical members with the best intentions, and it will be proper first of all to attempt to realize the objects the Board may be supposed to have had in view. We take it that they were somewhat as follows: The grant is intended to benefit the population of the Highlands by making available for them medical attendance and nursing on reasonable terms. The money is not to be devoted wholly to doctors and nurses; it is to include the cost of such facilities as improved telegraph and telephone communication and aid in the provision of hospitals and of suitable houses for doctors and nurses; but increased income and increased travelling facilities for doctors and nurses are important features of the proposals. Before the Insurance Act relieved the situation the plight of many doctors was lamentable, and there is still much room for improvement, especially in remote and thinly-populated areas, where many of the people have very little command of money.

The medical problem is divided pretty sharply into two parts, though they overlap each other—namely, single practice areas and multiple practice areas. In the former the doctor has no competitor. The local sources of income are very small, and the legislature intended in every such case to make life at least tolerable for the doctor. The Committee's idea, as suggested in questions to medical witnesses, would seem to have been an income of £300 a year after paying travelling outlays, and house rent and rates and taxes, excepting income tax. The Board appears to have adopted the principle that every local source of medical income should be utilized to provide a living for the doctor of the single practice area. If there is to be any treatment of school children, the doctor is to be prepared to undertake it and the salary will be taken into account. If there is a lighthouse the Lighthouse Commissioners' payment for medical attendance should, it is considered, go to the same man and not to some one from a distance. The parish council appointment is commonly the most important; next comes the income under the Insurance Acts; and all these also should, it is held, be in the hands of the same man. The request that the amount received from appointments under the Poor Law and Lunacy and Public Health and Education and Insurance Acts, as well as from private practice and from medicines, should be set out in the statement of income (Form 2) is doubtless due to considerations of this order. As we understand the matter, the idea of the Board is that when it is in possession of these details, and also the details of expenditure, it will be in a position to confer with the doctor as to the amount of subsidy appropriate to the case. With regard to private practice, it would appear that the Board desires, not merely that a doctor should be obtainable throughout the whole area of the practice, but that he should be obtainable at moderate terms—that is to say, that there should be for people of the crofter and cottar classes a fixed uniform fee, independent of distance, so that a crofter twenty miles away would pay the same charge for a visit as a crofter next door. Any reduction due to this cause in the income from

existing private practice will have to be estimated in fixing the amount of the subsidy.

In multiple practice areas the position is in some respects different. A small town or populous village is usually the centre of a multiple practice area, and from the centre doctors go out in various directions to attend the strictly rural population. Sometimes many miles have to be travelled. It is equally important that in these areas also poor people should be assured of medical attendance at a rate within their means, but we gather that the Board does not propose to attain this end by making arrangements with the doctors in such a centre to secure for them a minimum net income. Their net income may already be in excess of anything that the Board would be able to offer, but the Board would appear to desire that the town or village doctors should receive under the grant such remuneration as will enable them to attend distant crofters and cottars at a fee commensurate with the means of the crofter or cottar. It is for this reason no doubt that Form 2 does not require from such doctors any information as to the income from private practice or the expenditure on travelling or on house rent, etc., and that the Board does not seek to know the net professional income.

Having, as we hope, done full justice to the intentions of the Board, we feel at liberty to say that the manner of their presentation has been most unfortunate. No attempt whatever was made by way of a memorandum to explain the objects the Board had in view or its, no doubt, excellent intentions. The covering letter issued on August 16th was of the driest official sort, and it certainly seemed to require the immediate signature of an agreement to cover the whole of 1915, including the eight months already expired, "and from year to year thereafter." The covering letter said that it was a draft form of agreement with practitioners which the Board proposed to adopt, "subject to adjustments according to the circumstances in each individual case," but not a word was said about how these adjustments were to be made. On the contrary, it appeared on the face of it that the form was to be duly witnessed and signed by the doctor over a 6d. stamp; Jeddart justice, in fact: hang him first and try him afterwards. The provision that the agreement may be terminated by three months' notice does not really relieve the situation and no appeal seems to have been provided in respect either to the amount of remuneration or the terms of service. At the hastily summoned meetings so far held in the Highlands it has been asked that any agreements now signed shall be considered provisional, and we have been given to understand that this is the Board's intention, but, if so, it has failed in the most singular manner to make it plain, and the further request made at these meetings for explanation is fully justified.

The reference in Scheme A, paragraph 4, to the matter of mileage has excited much apprehension: this is, we believe, really due to the unfortunate turbidity of the paragraph in question. The matter is made rather more clear in the paragraph quoted at p. 407 from the annual report of the Board. Before the Medical Service Act was passed a grant of £10,000 a year was voted by Parliament for mileage under the Insurance Act; later, Parliament voted £42,000 a year for all the purposes of the Board, among which was to be the making of arrangements for the payment of mileage for attendance not only on the insured under the Insurance Act, but also on the uninsured of the crofter and cottar class. It is, we think, clear that there is no intention to diminish the mileage grant, but there is equally no assurance that it will be maintained, or, as it ought to be, increased.

There are many other points which need to be cleared up. How, for instance, is a doctor to visit "systematically and when asked to do so" all persons in need of medical attention (all persons, let it be observed, from the shooting tenant to the cottar); how is he also to give personal attendance in mid-wifery cases, and to do these things while undertaking to make regular and systematic visits to certain localities on fixed days? How, again, is he to obtain and maintain his motor car or cycle, or motor boat? Is the capital expenditure to fall upon him, and when the motor cycle is smashed or the motor boat wrecked, is he to bear the cost of replacing it?

In this state of obscurity we are glad to know that the Scottish Committee of the British Medical Association has been summoned to meet at Perth on September 10th to discuss the whole matter in all its aspects.

THE UNIVERSITIES OF LANCASHIRE AND YORKSHIRE.

THE Vice-Chancellors of the Universities of Manchester, Liverpool, Leeds, and Sheffield addressed a letter on August 26th to the Committee on Public Retrenchment, expressing the desire of the authorities of these universities to do whatever is wise and possible to secure such economies in the expenditure of public and private moneys as will be found consistent with the needs of the country in the present national emergency. The letter expresses the opinion that it will be found on inquiry expedient in the economic interests of the nation somewhat to increase the public grants to the universities, even at the present time of financial difficulty. The four universities concerned have the intention of reducing their expenditure during the period of the war to the lowest point consistent with efficiency; they have already effected drastic economies and have others in view. The income of the universities is derived from the annual grant made by the Treasury to university institutions which, being without ancient endowment, need public subsidy in the discharge of their national work; from grants from the Board of Education for the encouragement of technological and professional training; from grants from the Board of Agriculture for the training of men and women as agriculturalists, horticulturists, and dairy farmers, and grants from the Development Commission for scientific experiments on a commercial scale for the resuscitation of the flax industry, and for the improvement of cereals and other crops. Their other source of income—students' fees—amounts in some instances to a quarter, and in others to two-fifths, of the total. The universities by their charters are open equally to women and men, and it is admitted that the number of women students may be maintained, possibly increased, especially in the faculties of arts and medicine. It is, however, submitted that the most important part of the work of these universities lies in the field of pure and applied science, in the training of chemists, physicists, doctors, dentists, public health officers, steel experts, civil, mechanical, and electrical engineers; architects, farmers, colliery managers, textile managers, metallurgists, gas engineers, dyers, and leather trade experts. The universities concerned have in consequence been able to render very important service, in some respects vital, to the State during the war, and they have further in a specifically military sense rendered important service, especially in the training of officers. "The various departments of a university," the letter continues, "are interdependent. The intellectual life of one department gains from intimate association with the intellectual life of another. For example, you could not curtail or close down the departments of inorganic and organic chemistry without paralysing the departments of chemistry applied to dye-stuffs, leather, or fuel consumption. Again, some of the researches in the physics de-

partment have a close bearing on the work of the department of textile industries, which at first sight seems remote. And the departments of applied science gain stimulus and range of vision from association with scholars who are engaged in economic, historical, and other studies. A university which is actively contributing to the life of the nation is a unity, and would be lamed by partial closure. Moreover, it takes years to form a staff of researchers and teachers imbued with the spirit of scientific co-operation. Such a staff is a delicate organization, and, if 'scrapped,' could not be started again at pleasure." The universities receive about one-fifth of their income from local authorities out of rates, but this support is to some extent measured by the Government grants; if the Government subsidy were cut down the local grant would probably be reduced, and the result to the universities would be very serious. The Vice-Chancellors insist upon the need of looking to the future; the universities, they say, were created to supply the educational needs of the great industrial populations of the north. They are slowly, and not without a struggle, winning the confidence and respect of the communities in which they are set, and are inculcating upon the business world the advantages of scientific education. If, they conclude, it be true "that one of the most obvious lessons to be drawn from the war is the need of an increased application of scientific method to industry, we feel that the northern universities have a great part to play in the direction of such a movement, and that it would be unwise and unthrifty to starve those of their energies which are devoted to that end." The force and truth of the appeal put forward by these four universities, which are bound together by a statute for the purpose of conducting a joint matriculation, and still more by the similarity of the duties which fall upon them in the great industrial communities which have called them into existence, will appeal to all those who appreciate the perilous position of British industries in competition with the enterprise of Germany and the United States, in both of which countries the leaders of industry seem to have a better understanding of the need for scientific investigation and scientific methods. From the point of view of the medical faculties, which, perhaps, more particularly concern us, it has now become a truism to say that they cannot be efficiently carried on without adequate endowments, or, failing them, adequate subsidies from the State and from municipalities; the time has long passed when students' fees, ekeed out by the utmost self-sacrifice of the teachers, could suffice. Medical education has become costly, and is certain to become yet more costly in the future.

FLIES AT THE FRONT.

It was foreseen that a plague of flies was to be expected both in Flanders and Gallipoli, owing to the conditions inevitably associated with military operations, especially, perhaps, when the forces engaged are more or less stationary. Apart from the discomfort which the troops would suffer by the presence of flies of various kinds in large numbers, the danger of the dissemination of disease was, of course, recognized, and the need of instituting effective practical methods of keeping down the plague to the smallest dimensions possible fully understood. In Flanders the precautions taken have been of an elaborate kind, and date back to April last—that is, before the commencement of the house-fly season, when a circular memorandum on *The Abolition of Flies in Camps, Bilets, and Hospitals* was issued by the Director-General of Medical Services, British Forces in the Field. Sir Arthur Sloggett pointed out that within the area occupied by the British forces in the field there were concentrated enormous numbers of men and horses, with the result that abnormal quantities of stable manure and other waste organic matter were produced, and he added that in places along the line of the actual front there were many unburied

bodies. He anticipated that in consequence flies in unparalleled numbers would make their appearance in the course of the summer and autumn unless adequate measures were taken to prevent the insects from breeding. The memorandum, which was widely circulated to medical officers, contained full practical instructions for the prevention of the fly plague, and among other fly poisons enumerated was the solution of sodium arsenite, which, as was noted in the JOURNAL a short time ago, has recently been employed with success and, under proper precautions, without risk in South Africa. Very shortly after the issue of this circular, a special entomological commission for service in the field was appointed; it consisted of three well-known entomologists—Mr. Robert Newstead, F.R.S., Professor of Medical Entomology, Liverpool University; Mr. R. W. Jack, Government Entomologist, Southern Rhodesia; and Captain E. E. Anstey (Artists' Rifles), British Museum (Natural History). The commission was instructed to study the question on the spot and to inquire into the efficacy of the measures for the suppression of flies already adopted or projected. After a preliminary investigation of the conditions in a part of the front area, visits were paid to the lines of communication and the various bases. An extensive series of experiments were made with a view to ascertaining the best method of dealing with fly-breeding places which it might be impossible to destroy by fire. As a result of this work, further recommendations were issued by the commission in an interim report. Since then the commission has been continuously engaged in visiting all parts of the front in turn with a view to giving advice to sanitary officers and others on the spot. In this way visits have been paid to a large number of casualty clearing stations, field ambulances, and advanced dressing stations, to the town of Ypres, to the trenches, and to farms and other billets within range of the enemy's guns. The flies to be dealt with have been house-flies, blue-bottle flies and green-bottle flies, and the places where the insects were found to be breeding, and the best practical means for checking them were indicated. In the trenches themselves house-flies have been less numerous than blue-bottle and green-bottle flies; although in certain places in the war zone in France and Belgium house-flies have been more numerous than could be wished, yet a great deal has been done, and but for the preventive measures adopted and the attention paid to the subject by those responsible the plague would undoubtedly have been much worse than it is. The blow-flies, blue and green, have presented greater difficulties. Dr. Shipley, in the account he published last year of the habits and life-history of both the blue-bottle fly and the green-bottle fly,¹ pointed out that two species of blue-bottle or blow-flies had to be considered, *Calliphora erythrocephala* and *C. vomitoria*. He spoke of them as outdoor flies which entered houses in search of a suitable place to deposit their eggs, by preference on fresh or decaying meat, but even on wounds. The habits of the green-bottle fly, *Lucilia caesar*, are very similar, but it is said to prefer fish when it can find it. The eggs of the blue-bottle hatch out in from ten to twenty hours in normal British temperatures; the larval life in its three stages lasts from seven to eight and a half days; the pupa state lasts a fortnight, so that the total development extends a day or two over three weeks. Though no practical means for destroying these flies in the trenches on a wholesale scale have been devised, it has been found possible to drive them away by periodic spraying with a suitable fluid. Fortunately, though perhaps more annoying than house-flies, the blow-flies are far less dangerous to man as disseminators of disease.

THE ALCOHOL QUESTION IN FRANCE.

M. RIBOT, the French Minister of Finance, has drafted a bill to regulate the manufacture and sale of alcoholic beverages in France, which embodies many of the recom-

mendations of the Académie de Médecine enumerated in the JOURNAL of August 21st, p. 299, and those of the Académie des Sciences, which were almost identical. The discussion on the question of permitting wine as part of the regular ration issued to French soldiers was concluded by the Académie de Médecine on August 24th, but not before the views expressed by M. Gautier and others,¹ who advised a litre of wine a day to replace part of the meat, had been severely criticized by Professor Chauffard and Professor Richet. The former disputed the assertion that the food ration was insufficient, and denied that wine should be considered an aliment, holding that the Académie would come much nearer the truth if it described wine as an agreeable condiment. The issue of wine had been suggested as a means of fighting alcoholism, but he expressed the opinion that unless the soldier could be prevented from going to wine shops to supplement the ration the remedy would be worse than the disease. Professor Richet's criticism was directed mainly against the pedantic use of the doctrine of calories. A poisonous substance might be burnt up in the body and yield a certain number of calories, but it remained a poison, and it was not a contradiction in terms to say that alcohol both yielded calories and was a poison. He held that the use of wine, even in a small quantity, was an evil, that it slowed gastric digestion, and that if it produced some passing stimulation this was paid for by depression later on. At the same time, he thought that the habit of drinking wine was too deeply rooted to be eradicated, and that it would be better to issue wine in strictly limited quantities rather than to leave the soldier to obtain it clandestinely. Finally, the Académie determined to define a moderate quantity of wine as half a litre, the quantity issued daily in the French navy. After adopting the following aphorism: "*Apéritifs* never, wine with food and in moderate quantity, a liqueur occasionally, but only after a meal," it passed a resolution in these terms: "That naturally wine in moderate quantity—namely, in the same amount as in the navy—be included in the official ration of the soldier, and that precautions be taken to ensure that if the administration supplies wine to the soldiers they shall not be allowed to consume it elsewhere."

A LONG SHOT.

EARLY in 1886 Dr. Byrom Bramwell saw a man of 45 with complete loss of peripheral vision and very marked reduction of macular vision, the result of an attack of what appeared to be uraemic convulsions twenty months previously. Dr. Bramwell diagnosed the condition as probably due to a simultaneous bilateral lesion of the two occipital lobes of the brain, in the region of the half-vision centre. In October, 1910, the patient died of crumptions pneumonia, and his brain was sent to Dr. J. S. Bolton, who completed his elaborate examination in May, 1915; it entirely confirmed the brilliant diagnosis made by Dr. Bramwell twenty-four and a half years before the patient's death; during that period the condition had remained practically unaltered, while sensory and motor paralyses were absent. Without going into detail, the following points from Dr. Bramwell's preliminary report² on the case may be noted. Originally the patient had an attack of acute general dropsy, probably due to acute nephritis, with epileptiform convulsions, permanent loss of peripheral vision, normal fundi, and no mind-blindness or word-blindness. During the next quarter of a century the patient remained in fair health, speaking generally, able to get about by himself and to read large type and to write; his mental condition was not abnormal; the pupils reacted normally to light and to accommodation. In 1905 the optic discs were described as having a somewhat leaden-grey atrophic

¹ BRITISH MEDICAL JOURNAL, AUGUST 7th, p. 251.

² Edinburgh Medical Journal, July, 1915.

appearance, with extensive shallow cupping, and a well developed scleral ring round each. The retinal arteries had a hard "silver-wire" appearance. After examining the brain, which contained a large lesion in each occipital lobe, Dr. Bolton makes the preliminary report that "the histological investigation of this case may thus claim not only to have explained the clinical features present during life, but to have added to our knowledge of the part played by the visuo-sensory area in macular and in non-macular or panoramic vision. It may, in fact, be stated that the anatomical basis of the former is the cortex of the calcarine core of the pear-shaped visuo-sensory area, and that the anatomical basis of the latter lies in the surrounding and remaining visuo-sensory cortex." Questions as to the cortical localization of the centres for the special senses in man can only be determined, as Dr. Bramwell points out, by the combined observations of the clinician and the pathologist in man, for the results obtained by experiments upon the lower animals cannot be transferred directly to human beings. In the present instance Dr. Bramwell's skill and his success in following up the patient have added materially to our knowledge of the functions of the visuo-sensory cortex.

GERMAN ORGANIZATION.

For a generation at least before the war the Germans made bold, if not always very skilful, use of bluff to establish a belief in their pre-eminence in various spheres of activity—as for instance, in science. They are pursuing the same policy in the war to-day. A year ago they were proclaiming loudly that the number, high training, and bravery of their soldiers, and the strategical genius of their generals would bring them early victory. Now, when these boasts would sound hollow, they proclaim that their confidence in ultimate success rests on the efficiency of their organization, civil as well as military. "The Germanic race," says Professor Ostwald, "has discovered the factor of organization." That its organization is very carefully thought out, and that when subjected to the maximum strain for which it is calculated it works very efficiently, no one doubts. When the strain on an organization is much greater than that calculated defects are bound to be disclosed, and a breakdown can only be avoided if there are skilled experts possessed of initiative in positions of sufficient authority to enable them to make good defects as they are detected. A year ago the cruelties to which British wounded were subjected by their captors were partly excused on account of the sudden stress produced by the rapid advance into France, which ought, of course, to have been foreseen, and partly explained by the ostentatious hatred with which fear of this country had inspired the German people. But the very interesting article by an "Exchanged Officer" in *Blackwood* for this month shows that even four months later, in January, 1915, the machine had not been repaired. At that late date a large number of wounded men, Germans and prisoners, were crowded into third-class carriages for the long journey from Flanders to southern Germany. No distinction was maintained—among the wounded prisoners, at any rate—between sitting-up and lying-down cases, the forwarding of the trains by the railway officers was about as bad as could be, the arrangements for feeding and supplies generally totally broke down, and the policing of the stations seems in many places to have been left to chance. A fact mentioned incidentally, and quoted as an example of good organization, is that dressing rooms and pharmacies had been established at railway stations in Belgium. This looks well until we learn that wounds were not dressed during the long journey, and that, in fact, there were no trained orderlies or nurses to make any attempt in that direction. The whole story of muddle and callousness takes us back to pre-Criméan days, with some added horrors, due to mere spite and cowardice, thrown in.

A SCHOLARLY PARANOIAC.

AMONG the minor benefits conferred upon us by the war is immunity from medical conversation at the mixed dinner table. Those ladies who were accustomed to dogmatize on diet and drugs now talk tactics and strategy. However, the attention given in various lay publications to a case which we will refer to as that of Dr. X., warns us that the interest in medical topics is only in abeyance, and is ready to become active again as soon as the interest in temporarily more absorbing matters has subsided. Dr. X., apart from his scholarship, which was not ordinary, was an ordinary paranoiac, with the ordinary proclivity of the paranoiac to take the life of his imaginary persecutor whenever opportunity presents and exasperation reaches the boiling point, from which it is never far distant. The double event occurred in the early hours of a winter's morning in 1872, and the unfortunate paranoiac, who ought not to have been allowed at large, shot and killed in the street an unoffending passer-by. It is not mentioned in the reports now published, but the fact was that on waking in the night Dr. X. had seen at the foot of his bed an imaginary figure which he took to be that of his persecutor. He bounded out of bed, seized his revolver, and followed the figure downstairs and into the street, where he saw a real man, whom he identified with the imaginary man that he was pursuing, and shot him dead. At the trial he was found "Not guilty, on the ground of insanity," and was detained at Broadmoor for many years. He was a man of education and literary tastes, and was, of course, allowed every alleviation possible, which in his case took the form of an abundant supply of books. The single rooms at Broadmoor are not spacious, nor elastic, and Dr. X.'s room was crammed with piles of books as high as a man, which left but the narrowest of passages between them; and here for many years he worked for Dr. Murray in the production of the wonderful Oxford *Dictionary*. The public gapes with wonder at the conjunction of madness with scholarship and unusually high intellectual attainments, but to those who are familiar with insanity there is nothing unusual in the combination, and to those who understand what insanity is there is nothing to wonder at in the combination. A highly intellectual and learned man is no more immune from insanity than a yokel or a boor, and in paranoia, as in many other mental disorders, the disorder affects but a small region, though unluckily a very important region, of mind, and leaves the remainder completely normal. *Pope* Mr. Pope, a little knowledge is not necessarily a dangerous thing. It is not dangerous if it is a sound knowledge of a true principle, and this resurrection of the case of the unfortunate Dr. X. would be of great value if it were used, not as an occasion for stupid wonderment, but as an opportunity of inculcating the maxim, which is generally true, that every paranoiac is a potential homicide, and that no paranoiac ought to be allowed at large. Unfortunately there are many paranoiacs at large. There are many who are so clever that their relatives and acquaintances cannot believe that they are mad, although they are well known to cherish delusions of persecution. Such persons are a grave danger to the community in which they live. Some years ago one of them, at Ramsgate, shot down seven unoffending wayfarers in the street, three of them fatally; and scarcely an assize goes by without one or more paranoiacs in some county or other being indicted for murder or some crime of violence.

THE Governor of Hong Kong announces that in the two weeks ending September 6th four cases of plague occurred; all died.

DR. JAMES DONELAN desires to state that, having resigned his appointment as medical referee to the London Committee of the French Red Cross, he has no further responsibility in regard to appointments in French auxiliary military hospitals.

THE WAR.

THE PROPORTION OF RECOVERIES AMONG THE WOUNDED.

Ugeskrift for Læger, the journal of the Danish Medical Society, published in its issue for July 29th, the following table, furnished to it by Louis Fraenkel, showing the relative number of deaths, recoveries and partial recoveries among all the German soldiers treated in the military hospitals in Germany during the first nine months of the war. The results, he states, are in reality better than would appear from the table, as a number of the rejected recovered sufficiently to again offer their services for military work at a later date.

Results of Treatment in German Military Hospitals.

	Fit for Service.	Died.	Rejected.
1914.			
August	84.3 per cent.	3.0 per cent.	12.2 per cent.
September	88.1 "	2.7 "	9.1 "
October	89.9 "	2.4 "	8.7 "
November	87.3 "	2.1 "	10.6 "
December	87.8 "	1.7 "	10.5 "
1915.			
January	88.7 "	1.4 "	9.9 "
February	86.6 "	1.3 "	10.0 "
March	88.9 "	1.6 "	9.5 "
April	91.2 "	1.4 "	7.4 "

Comparable figures have not been published in this country, and it is not probable that their compilation will at present be undertaken. We believe, however, from information in our possession, that the following percentages, based on the experience of the first year of war, will prove to be approximately correct:

Results of Treatment in British Military Hospitals in Great Britain and Ireland.

Discharged to duty, on furlough, or sent to convalescent homes	95.00 per cent.
Died	0.86 "
Permanently unfit	4.14 "

Such statistics possess a certain interest, but it is not possible to draw from them any conclusions as to the ratio of men who have died of wounds to those who have recovered more or less completely. A large but unstated number of men treated in the most advanced medical units and on the lines of communication must have died before they reached the hospitals in Germany or the United Kingdom.

In connexion with this subject reference may be made to the following statement published by Geheurnat Dr. W. Exner in the *Wiener medicinische Wochenschrift* for June 12th, 1915: "Dr. Biesalsky, an authority in Germany on cripples, has reported that out of 800 wounded under his care, he has found 235 severe cases. But only in 10 of these cases were the patients completely crippled. This would be about 1 per cent. of all the wounded. But even if the proportion of cripples is only 1 per cent. and is smaller than was first anticipated, the responsibility towards the individual is not lessened."

ABERDEEN WAR DRESSINGS DEPOT.

The Aberdeen War Dressings Depot was opened on May 19th, 1915, in a house kindly lent for the purpose in a central part of the city. A General Committee was formed under the presidency of the Marchioness of Aberdeen and Temair, and the management placed in the hands of a small Executive Committee, consisting of a doctor, three trained nurses, and a secretary. Before the undertaking was started a certain monthly income had been guaranteed by voluntary subscription.

The object of the depot is to save time and labour in hospitals abroad by providing them with dressings and other requisites ready for use. Since all the work is done

voluntarily, the articles are produced at a very low rate. They are sterilized and packed in assortments ready for immediate use.

The house in which the work is carried on has been utilized from floor to roof, while the outhouses have been turned into store-rooms and workshop, and even the garden is used for the drying of sphagnum moss for dressings. On the top floor are store-rooms for materials and work-rooms in which moss and pine sawdust dressings are made. On the next floor there are rooms for the padding of splints and the making of swabs, an additional store-room, and a tea-room, where tea is served at 9d. a head, the profits being devoted to the general fund. On the ground floor a large room is given up to the making of bandages; here also are sewing machines for making the muslin bags for the moss and pine sawdust dressings. On this floor also is the office and a room where the finished articles are collected and examined before packing. The basement is used for the packing and export department and for the storage of packing cases, wood for splints, dried sawdust, etc. By the kindness of the directors all the necessary sterilizing is done at the Aberdeen Royal Infirmary.

The number of workers on the books is over 300; they work in relays from 10.30 a.m. to 1 p.m., and from 2.30 p.m. to 5.30 p.m. From May 19th to August 26th the number of articles made and dispatched was over 72,000, consisting, in round numbers, of 55,000 swabs, 6,000 moss dressings, 4,000 pine dressings, 4,000 roller bandages, 1,000 padded splints, 600 many-tailed bandages, 200 "T" bandages, 300 wood-wool fomentation pads, 400 slings, 100 pillows, 300 pillow-cases, 100 rolls of plugging, 100 face-cloths. The following notes, founded on the experience, may be of use to others:

The moss must be thoroughly cleaned and all pine needles, grasses, twigs, etc., carefully removed. It must not be artificially dried, as this makes it very brittle and dusty. The most satisfactory plan is to expose it in coarse muslin bags to the action of the sun and air. Pine sawdust is sifted twice, first through a No. 8 sieve, to exclude the coarse particles, secondly through a No. 36 sieve to remove the fine dust, which otherwise passes through the muslin. The sawdust is well dried before use in the drying-room of a steam laundry which has kindly offered its services for the purpose. For the finished dressings the moss and sawdust are put into muslin bags, which are made in four sizes, 6 in., 8 in., 10 in., and 12 in. square. The muslin must be of a fine quality, and the bags are filled about half full. These are packed in flannelette bags, each holding twenty assorted sizes, and are then sterilized.

Round and flat swabs are made of gauze and absorbent wool; they are packed in lots of 25 and 50, in sealed grease-proof paper bags. Eight bags containing 25 swabs each, or four bags containing 50 swabs each, are packed in pillow cases and sterilized. A small number of ear, nose, and throat swabs are sent with each consignment.

Straight splints are made in the following sizes—9 in. and 12 in. long, 3 in. wide by $\frac{1}{2}$ in. thick; and 20 in. and 29 in. long, $\frac{3}{4}$ in. wide by $\frac{1}{2}$ in. thick. Long Liston splints are made 52 in. and 55 in. in length by $\frac{3}{4}$ in. wide by $\frac{1}{2}$ in. thick, and are finished with perineal counter-extension bands. Small and long roller splints and back splints with footpieces are moulded. All splints are padded in the recognized manner, the pads being made of old linen filled with well-tensed tow, and are held in place by strong tacking across and across the backs of the splints. This method has been objected to on the ground that the pad may easily become soiled by discharges, and the time devoted to the making consequently wasted, but if the splint is protected by a piece of lacoon, this accident can usually be avoided. A properly padded splint is much more efficient and comfortable than one extended with wool and bandage, moreover it is cheaper.

Roller bandages are made in the following sizes: 1 in., 3 in., 4 in., and 6 in. wide. A very thin flannelette has been found to be an excellent substitute for doelette, and is considerably cheaper. It is also used for making "T" bandages, and many-tailed bandages, which are in two sizes, abdominal and limb.

Packing for export is done as far as possible in light tea-chests, but splints and sawdust dressings are sewn into bales. Both boxes and bales are lined with waterproof sheeting for use in hospitals, and bales are provided with corner tags for doghooks.

The cost of materials is unfortunately increasing, but up to the end of July the cost price of some of the articles was as follows: Swabs, 7d. per 100; many-tailed and "T" bandages, each 4 $\frac{1}{2}$ d.; 3 in. bandages, about 1d. each; 4 in. bandages, 1 $\frac{1}{2}$ d. each; 6 in. flannelette bandages, 8 $\frac{1}{2}$ d. each; moss and sawdust dressings, size 6 in., about 3d. for 5d.; 8 in., about 16s. for 5d.; 10 in., about 12s. for 5d.; 12 in., about 8s. for 5d.; slings, each 2d.; wood-wool fomentation pads, each under $\frac{1}{2}$ d.

The cost of the depot is met by monthly subscriptions and donations, and, in addition, numberless gifts of

material of all kinds have been received. Many willing workers in outlying districts collect and forward sphagnum moss and pine sawdust, of which large supplies have to be stored before the approach of winter makes the work of collection impossible. Other gifts include empty cases for packing, hessian, rope, wood for splints, sacks, ticking, feathers, etc.; while much help has been received in the form of work done by joiners and others in making splints, putting up shelving, sifting sawdust, closing packing cases, mending machines, and in various other ways.

GERMAN EXPERIENCES OF WAR SURGERY.

THE TREATMENT OF BULLET AND SHELL WOUNDS.

DR. W. ISRAEL, Oberarzt of the 11th Field Hospital of the Guards, in summarizing his experiences in the treatment of wounds, states that at the outbreak of the war conservative treatment of bullet wounds, including shrapnel wounds, was generally adopted, and subsequent experience confirmed the wisdom of this course. It was found that the fate of men thus wounded depended on the first aseptic dressing, and that from a clinical, though not a bacteriological point of view, the wound inflicted by a bullet was primarily aseptic. On this account it was advisable not to probe such a wound nor to attempt to remove the bullet.

Conservative treatment of shell wounds was frequently practised early in the war, and they were often left to themselves, the dressings being seldom changed. A more frequent change of dressings, and more active treatment, including free incisions and amputations, would, he thinks, undoubtedly have saved many lives. Every shell wound was septic from the outset, and in the majority of cases anaerobic gas-forming organisms, producing an offensive smell, were present. Among these anaerobic organisms only the *Bacillus emphysematous* of Fraenkel was really pathogenic. As it was impossible to detect the nature of the infection of a recent shell wound it was not possible to anticipate the course of the infection. It might be strictly limited, and give rise to a necrotic or purulent inflammation with circumscribed gas phlegmon, or it might develop into a rapidly progressive galling gas phlegmon or gas gangrene, terminating fatally within forty-eight hours. On account of this uncertainty of the course of the infection, and in order to save not only the patient's limb but his life, it was imperative to operate as early and as radically as possible. It was necessary to remove all the dirt, grass, straw, and particles of clothing which fragments of shell had carried into a wound, as well as metallic fragments and clotted blood. The small scab or crust which, when covering a bullet wound, was interpreted as a sign of healing without infection, was, in the case of shell wounds, a treacherous mask, the removal of which disclosed a brown, stinking, gaseous discharge. This was the case even with quite small shell wounds, and it was therefore necessary to remove all such crusts.

While dry dressings were excellent for bullet wounds, and were necessary for all wounds during transport, the ideal dressings for shell wounds were wet. After the wounds had become relatively clean, the wet dressings were replaced by ointments; by this treatment change of dressings was painless, and there was no hæmorrhage. In the early stages of the wound, and when there was a profuse stinking discharge, it was found advisable to change the dressing at least once a day in order that any spread of infection might be detected early. In many cases the track of a fragment of shell was overlooked, and only a small superficial wound was detected. In such cases the persistence of suppuration led to a more careful examination of the wound, and to its exploration with a thick blunt probe, a procedure harmless in the case of wide septic shell wounds; it often led to the discovery of a channel through the tissues, at the end of which a fragment of shell was found. Such a channel was always freely opened, and the fragment of shell removed at all costs. Dr. Israel never regretted freely opening all shell wounds at the earliest possible opportunity, and he often found the removal of hidden fragments of shell and other foreign bodies followed by the disappearance of suppuration and offensive smell, by a fall in the temperature, and by improvement in the patient's general well-being, noticeable within a few hours of the operation. When

the presence of large vessels and nerves in the neighbourhood of a shell wound prevented free incisions, small incisions and a liberal use of drainage tubes were indicated. Early incision and drainage were so essential in the case of shell wounds that they should be undertaken by surgeons in the first line ("Sanitätskompanie") and not deferred until the man was admitted to a hospital. This course, however, was practicable only when the number of wounded at a given time was limited and the fighting of a stationary character, as in trench warfare. Daily change of the dressings of shell wounds and the careful examination for signs of extension of infection were too often neglected; many a limb had been lost because a free incision of a localized gas phlegmon was made too late. However clean and well applied the dressings of a shell wound might be when the patient was admitted to hospital, they should at once be taken off and the wound thoroughly examined, in order that the development of a pocket of pus might be detected early. While the first dressing usually determined the course of a bullet wound, the course of a shell wound was principally determined by the degree of care devoted to the case throughout its course and by the timely intervention of the surgeon when complications arose. When wounds of the limbs were complicated by fractures, even early surgical interference was often attended by failure.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed.

SURGEON FREDERICK JAMES HUMPHREYS, R.N., died of wounds in the Dardanelles. He was educated at St. Thomas's, and took the diplomas of M.R.C.S. and L.R.C.P. Lond., and also the degrees of M.B. and B.S. Lond. in 1912. After qualifying he filled the posts of house-physician, casualty officer, resident anaesthetist, and obstetric house-physician at St. Thomas's. He joined the navy as a temporary surgeon on August 4th, 1914, and was attached to the Armoured Car Division when killed.

ARMY.

Killed.

Lieutenant Peyton Tollemache Warren, R.A.M.C. (T.F.), who, as already noted, was reported on August 20th as killed in the Dardanelles, was educated at Dublin, where he took the diplomas of L.R.C.P.I. and L.R.C.S.I. in 1909. He was medical officer and public vaccinator at Bryn, Port Talbot, Glamorgan, where he was a prominent member of the Bryn golf and rifle clubs. He received a commission as lieutenant in the third Welsh Field Ambulance on June 9th, 1913.

Captain James Noble Armstrong, R.A.M.C., killed in France on August 22nd, was the only son of Mr. J. M. Armstrong, J.P. of Dundalk. He was educated at Ipswich and at Trinity College, Dublin, where he gained a senior moderatorship in science, with gold medal. He took the M.B., B.Ch., and B.A.O. at Trinity College in 1914, got a temporary commission as lieutenant R.A.M.C. on August 15th, 1914, became captain in April, 1915, and was attached to the 2nd Battalion Durham Light Infantry when he was killed at the age of 25.

Lieutenant-Colonel Charles Ernest Thomas, V.D., of the New Zealand Army Medical Corps, was killed in action in the Gallipoli peninsula on August 28th, 1915. He was the son of Mr. H. S. Thomas, formerly of the Madras Medical Service, a member of the Madras Council, now of Parkside, Tiverton, and was educated at Cheltenham College and at the Middlesex Hospital. He took the diplomas of L.S.A. and L.R.C.S. Edin. in 1888, and after acting as house-surgeon and house-physician at Middlesex Hospital went out to New Zealand. There he filled the post of resident surgeon of the Timaru Hospital, and afterwards settled in practice at Timaru, where he was port health officer and public vaccinator. He was surgeon-captain in the 5th New Zealand Regiment, the South Canterbury Infantry, and served with the New Zealand contingent in South Africa in 1900-1, receiving the Queen's medal with three clasps. When the New Zealand force was raised for the present war, he was appointed to the Medical Corps, with the rank of lieutenant-colonel.

Died of Wounds.

Lieutenant T. A. Peel, R.A.M.C., was wounded on August 19th in the Dardanelles, and succumbed to wounds

on August 24th. He was the youngest son of Mr. J. E. Peel, solicitor, Armagh, a very well-known name in the North of Ireland. He received his education at the Armagh Royal School and then entered the medical school of the Royal College of Surgeons in Ireland, after about a year there he went to Newcastle-on-Tyne, and finally graduated M.B., B.S., 1911, in the University of Durham. He had a very successful and distinguished career in the University and earned for himself the good opinion and affection of his seniors and fellow students. T. A. P., as he was known to his intimates, was an all-round man and had very distinct literary tastes; his strongest inclinations in this respect were towards poetry, and on his own account could jingle a string of verses which were both tuneful and pleasing. He had an affection for the works of Francis Thompson, and the writer treasures a copy of *The Hound of Heaven* given to him by his dead friend. Peel's literary tastes had some outlet when as a student he was on the staff of the *Students' Journal* at Newcastle, and he was particularly gratified that during his term of office he was instrumental in issuing a print of Henry Gray, the anatomist. After leaving the university he became a house-surgeon at the Royal (Gwent) Hospital, Newport, and he is well remembered there as a courteous and efficient officer. After leaving Newport he went to the Stafford General Infirmary, where he remained for some months, and then passed on to the larger institution—the North Stafford Infirmary at Stoke; he was a very popular officer there, and gained the very good will of the staff. He was gazetted temporary lieutenant R.A.M.C. on October 10th, 1914, and was for a considerable time in training with the 5th Dorset Regiment; he went out with the 11th Division Mediterranean Force. Peel was not untravelled: he was particularly interested in the clinics of Lambotte at Antwerp, and Tuffier in Paris. There is no doubt that he would have rapidly attained eminence in his own profession, and men of his charming temperament and conspicuous ability are a sad loss to our much stricken profession. Peel is survived by his father, two sisters, and two brothers, one of whom, a solicitor, is serving in the forces. He would say, in the words of his beloved Francis Thompson:

My mangled youth lies dead beneath the heap,
My days have cracked and gone up in smoke.

Lost in Transport "Royal Edward."

The list of officers lost in the transport *Royal Edward*, torpedoed and sunk in the Aegean Sea on August 14th, with the loss of about a thousand lives, was published on September 7th. Out of thirty-two officers on board, thirteen were lost, including four medical officers—Lieutenant-Colonel J. H. Dauber, Major J. Mowat, Captain C. B. Marshall, and Lieutenant T. Hayhurst. Obituary notices of the first two have already been published in the JOURNAL.

Major James Mowat, R.A.M.C., who was lost in the *Royal Edward* transport when she was torpedoed in the Aegean Sea, with great loss of life, on August 14th, was an ex-naval officer. He was educated at Gordon's College, Aberdeen, and at the university in that city, where he took the degrees of M.B. and C.M. in 1891. Entering the navy as surgeon, he attained the rank of fleet surgeon on May 10th, 1910, and retired at twenty years' service. He rejoined at the beginning of the war, and was medical officer on board H.M.S. *Hermes* when she was torpedoed and sunk near Dover last autumn. He then had to take sick leave, and was subsequently discharged on account of ill health, receiving the thanks of the Admiralty for his services. Having recovered, he applied for employment in the R.A.M.C., and was appointed major in the 54th Casualty Clearing Station from April 29th, 1915. "An Old Shipmate" writes: "When H.M.S. *Hermes* was torpedoed Mowat rendered gallant service. Owing to the force of the explosion the ship's carpenter had both his legs broken. Mowat rendered first aid, and gave up his own lifebelt and placed it around this man. Having attended those he could, he helped the wounded to reach the destroyers around, and by lucky chance survived himself. Some months later he retired a second time and took up private practice, but later, when there was a shortage of R.A.M.C. officers, he volunteered, and joined as a major (T.F.), and met his fate in H.M.S. *Royal Edward*. A most capable officer, beloved by all who knew him."

Captain Charles Bertram Marshall, R.A.M.C.(T.F.), was educated at Manchester, where he took the M.B. and Ch.B. Vict. in 1909, the D.P.H. in 1911, and the M.D. in 1913. After acting as resident medical officer to the Manchester Children's Hospital and resident surgical officer to the Ancoats Hospital, Manchester, he went into practice at Bramhall Park, Cheshire, Hulme, Cheshire. He joined the 3rd East Lancashire Field Ambulance (head quarters, Manchester) as lieutenant on September 5th, 1914, and became captain on February 27th, 1915.

Lieutenant Thomas Hayhurst, R.A.M.C.(T.F.), took the M.B. and Ch.B. at Edinburgh in 1911. He filled the posts of junior and senior house-surgeon to the Victoria Hospital, Burnley, in 1911 and 1912, and then went into practice at Fulwood, Preston. He joined the 1st East Lancashire Field Ambulance (head quarters, Manchester) as lieutenant on September 5th, 1914.

Died.

Major J. L. Duval, of the Canadian Army Medical Corps was reported in the casualty list of September 1st as having died in Flanders. He was an officer of the 1st Canadian Field Ambulance, to which he was appointed as captain on September 22nd, 1914, becoming major on April 17th, 1915.

Wounded.

Dardanelles.

Lieutenant-Colonel A. R. Wilson, R.A.M.C.(T.F.)

Major L. P. Brassey, I.M.S.

Captain C. V. Baigent, M.D., Otage Infantry.

Lieutenant T. C. Clarke, R.A.M.C.(T.F.).

Lieutenant C. H. K. Smith, R.A.M.C.(T.F.).

Lieutenant R. G. M. Ladell, R.A.M.C.(T.F.).

Lieutenant J. C. Young, R.A.M.C. (Special Reserve).

Lieutenant J. D. Jones, R.A.M.C. (temporary).

Lieutenant W. Magner, R.A.M.C. (temporary).

Lieutenant H. H. Elliott, R.A.M.C. (temporary).

Lieutenant H. E. McWall, R.A.M.C. (temporary).

Lieutenant N. Matthews, R.A.M.C. (temporary).

Lieutenant Quartermaster J. F. E. Godman, R.A.M.C.

Flanders.

Lieutenant R. J. Batty, R.A.M.C.

Missing.

Captain A. P. Smith, R.A.M.C., Dardanelles.

DEATHS AMONG SONS OF MEDICAL MEN.

The following cases have been reported during the past two weeks, chiefly from the Gallipoli peninsula: Campbell, George Edward Forman, Lieutenant 2nd Battalion 10th Gurkhas, wounded and last surviving son of Colonel Robert Neil Campbell, C.B., I.M.S. (retired), Senior Medical Officer, Pavilion and York Place Indian Hospitals, Brighton, killed in the Dardanelles, between August 6th and 10th, aged 21. He was born on August 27th, 1893, educated at Edinburgh Academy, where he was in the school eleven and fifteen, was a King's Cadet at Sandhurst, and entered the army on August 24th, 1912.

Chapman, Philip E., Private 8th Battalion Hampshire Regiment, eldest son of Dr. Paul Chapman, of Carfax, Hereford, died at Malta, September 4th, of wounds received in the Dardanelles.

Harries, Eric Guy, Captain 7th (Merioneth and Montgomery) Battalion Royal Welsh Fusiliers, younger son of Dr. Harries, of Grosvenor House, Aberystwith, died on August 16th from wounds received in action in the Dardanelles on August 10th, aged 22. He was an engineer by profession, and was employed in the Cambrian railway works at Oswestry, till he got a commission as lieutenant on September 2nd, 1914, becoming captain on March 6th, 1915.

Hoffmeister, H. A. N., Captain King's Shropshire Light Infantry, second son of Mr. John Hoffmeister, of Cowes, Isle of Wight. He reached the rank of captain on December 31st, 1914.

Humphreys, R. M., Second Lieutenant 7th (Merioneth and Montgomery) Battalion Royal Welsh Fusiliers, eldest son of Major C. E. Humphreys, R.A.M.C.(T.F.), District Sanitary Officer, 68th (Welsh) Division, and County Medical Officer of Merionethshire, killed in the Dardanelles. His commission is dated September 2nd, 1914.

Hunt, C. H., Second Lieutenant 5th Battalion Lancashire Fusiliers, son of Dr. T. Hunt, of Heywood, Manchester. He received his commission on March 1st, 1912.

Key, Douglas, Second Lieutenant 78th Field Company R.E., elder son of the late Dr. James M. Key, of South Africa, died of wounds in France. He was educated at Montrose Academy and Dulwich College, and received his commission on July 2nd, 1914.

O'Duffy, Kevin Emmanuel, Second Lieutenant 7th Battalion Royal Munster Fusiliers, second son of Mr. Kevin O'Duffy, L.D.S., Surgeon Dentist to His Excellency the Lord Lieutenant

of Ireland, killed in the Dardanelles on August 15th, aged 20. He was educated at Belvedere College, Dublin, and at Stouyhurst, and got his commission on January 28th, 1915.

Proctor, Charles Edgcombe, Lieutenant 7th Battalion Norfolk Regiment, son of the late H. C. Proctor, M.D., of Southport, and of Lady Smith, Natal, killed in France on August 2nd, aged 23. He was born in Lady Smith, in the siege of which town his father served, and educated at Lindisfarne College, Epsom College, and Middlesex Hospital, and had passed the medical missionary. He received his commission on January 1st, 1915.

Roberts, E., Lieutenant 7th Battalion West Yorkshire Regiment, son of Dr. E. Roberts of Leeds, died of wounds in Flanders. His commission is dated August 23rd, 1913.

Scott-Skiving, A. W., Captain 5th Battalion Royal Irish Fusiliers, son of Dr. Robert Scott-Skiving of Sydney, died at sea on August 7th of wounds received in the Dardanelles. He formerly held the rank of Lieutenant in the Australian Commonwealth Forces, and became Captain on December 2nd, 1914.

Southern, Gerald Cameron, Lieutenant 53rd Sikhs, second son of Mr. F. G. Southern, M.R.C.S., of Clifton, Bristol, and of Llandebe, Carmarthen, killed in action at Sheikh Otman, Aden, while leading his men, in the range of July 21st. He was born on March 7th, 1892, entered the army on August 24th, 1912, and became Lieutenant on November 24th, 1914.

Thompson, E. H. B., Lieutenant 9th Battalion Somerset Light Infantry, eldest son of Dr. E. T. Thompson, of Southfield, Belgate Road, Bath, died at sea, on the way to the Dardanelles, aged 35. He was formerly in the 3rd Royal Irish Regiment, and had served in the South African war, when he gained the Queen's medal with three clasps.

Tobin, Richard Patrick, Lieutenant 7th Battalion Royal Dublin Fusiliers, only son of R. F. Tobin, F.R.C.S.I., of Angharagh, Dublin, killed in the Dardanelles on August 15th, aged 21. He was a medical student at Trinity College, Dublin, and a member of the O.T.C. when the war began, and received his commission on March 6th, 1915.

Tomes, Geoffrey, Captain 53rd Sikhs, second son of Lieutenant-Colonel A. Tomes, I.M.S.(ret.), killed in the Dardanelles, while attached to the 1st Battalion 5th Gurkhas, between August 6th and 12th, aged 30. He was born on October 6th, 1884, and joined the Queen's West Surrey Regiment from August 5th, 1902. He entered the Indian army on October 23rd, 1906, and was posted to the 1st Sikh, with that regiment he served in the Zalka Khal and in the campaigns on the North-West frontier of India in 1908, receiving the Queen's medal with a clasp. With it also he went to Egypt, took part in the repulse of the Turks on the Suez Canal. In July he was sent to join the 15th Gurkhas, with which he was serving when he was killed in the Gallipoli peninsula.

Treves, Harold Thomas, Lieutenant Nelson Battalion Royal Naval Division, younger son of the late W. K. Treves, F.R.C.S., of 32, Dalby Square, Margate, died at sea on May 25th, from wounds received at the Dardanelles on May 22nd. He was a barrister-at-law of the Middle Temple.

Turnbull, Percy D., Private 1st Battalion King's Own Scottish Borderers, son of Surgeon-General P. S. Turnbull, I.M.S.(ret.), of 4, Churchhill, Edinburgh, lost in the *Royal Edward*, torpedoed in the Aegean Sea on August 14th.

Weston, Captain John Theodore Spencer, killed in action in France on August 20th, was the younger son of Dr. Darby Weston of Handsworth, Birmingham, and was in the last year of his medical course in the university of that city when war broke out. He was a Colour-Sergeant in the University Officers' Training Corps, and at once volunteered. He received a commission as Lieutenant in the 1st Royal Warwickshire Regiment, but was transferred to the 1st Berks Regiment, with which he was serving at the time of his death. He was mentioned recently in dispatches and received the Military Cross for conspicuous service in the field. He was promoted Captain a few weeks ago. He was 23 years of age.

Whitaker, Owen, Second Lieutenant Royal Garrison Artillery, eldest son of Dr. J. Smith Whitaker, of the Insurance Commission, was killed in Flanders on the 29th. He was born at Great Yarmouth on May 6th, 1895, educated at University College School, and had entered at University College, London, with a view to beginning medical studies. He was for four years a member of the O.T.C. on the London University Officers' Training Corps, and received a commission in the R.G.A. on September 29th, 1914, when he was posted to Plymouth Honorary Force in Flanders, where he was serving in the Expeditionary Force. His name appeared as killed in the casualty lists of September 24th, and on the same day in a list of officers on whom the Military Cross had been bestowed for gallantry in action, as follows: "Tenants, Lieut. Owen Whitaker, 34th Trench Howitzer Battery, R.G.A., for conspicuous gallantry on the Yser Canal on August 14th, 1915, when a front section of the enemy's trench mortars and aerial torpedoes, but with his soldier's detachment were all killed or wounded, the place of the detachment (Gunner Raynor) he took placed two bombs in the enemy's trenches before expending all the ammunition on the spot. They were under very heavy fire from the enemy's trench mortars all this time."

Young-James, A. Y., Lieutenant 8th (Lancashire) Battalion Hampshire Regiment, son of Dr. Young-James of Bournemouth,

wounded and missing, believed killed, in the Dardanelles. He was by profession a solicitor, in practice at Newport, Isle of Wight.

MEDICAL STUDENTS.

Auchinachie, George, Lance-Corporal Gordon Highlanders, son of the late Provost Auchinachie of Aberchirder, killed by a shell in Flanders. He was a medical student at Aberdeen, who had enlisted for the war, and had been twice previously wounded.

MacAdam, John, Lieutenant 4th Battalion Essex Regiment, died of wounds at the Dardanelles, August 18th. He was the son of Mr. H. MacAdam, of Messrs. MacLaren and Sons, Ltd., the publishers, London, and was educated at the City of London School and at St. Bartholomew's Hospital. He got a commission as Second Lieutenant in 1912, becoming Lieutenant on August 5th, 1914, and went to the front in July. Another brother holds a commission in the same battalion.

NOTES.

HONOURS.

On September 6th the War Office published a list of twelve appointments to the Distinguished Service Order, and thirty Military Crosses, bestowed for gallantry in the field. One medical officer, Captain K. W. Jones, R.A.M.C., Special Reserve, received the D.S.O., and one, temporarily Lieutenant T. L. Ingram, R.A.M.C., the Military Cross, for the following services:

Captain Kingsmill Williams Jones, M.D., R.A.M.C.(S.R.), attached to 1st Battalion East Kent Regiment. For conspicuous gallantry and devotion to duty at Hooge. During the entire night of August 9th-10th, 1915, and the whole of the following day and night, he was attending to and evacuating himself to shell and rifle fire. He was twice slightly wounded, but stuck to his work with unflinching energy. It was entirely owing to wounded. Before the crater was successfully evacuated of Manchester, and was a member of the City Council.

Temporary Lieutenant Thomas Lewis Ingram, R.A.M.C., attached 1st Battalion Shropshire Light Infantry. For conspicuous devotion to duty and energy at Hooge. He was evacuating wounded from the front trenches almost without cessation on the entire nights of August 9th and 10th, 1915, and his lives of many severely wounded officers and men. He has previously done consistently good work. Before the war Lieutenant Ingram practised at Rugby.

The award of the Military Cross to the late Lieutenant Owen Whitaker is noted above.

At the same time the Distinguished Conduct Medal was bestowed upon 144 non-commissioned officers and men, including the following nine men of the medical services:

Sergeant J. W. Broome, R.A.M.C., 1st East Anglian Field Ambulance.

Private H. T. Cameron, No. 3 Field Ambulance, 1st Canadian Division.

Private J. Comrie, New Zealand F.A.

Lance-Corporal G. C. Farnham, 3rd F.A., Australian Imperial Force.

Private W. J. Hendy, New Zealand F.A.

Private E. P. Hitchcock, Australian A.M.C.

Private J. V. F. Gregg-Macgregor, 1st F.A., Australian Imperial Force.

Private A. A. Morath, Australian A.M.C.

Private L. Crawford-Watson, New Zealand A.M.C.

RUSSIAN DECORATIONS.

Among the recipients of honours conferred by the Emperor of Russia for distinguished service in the field, as announced on August 25th, appears the name of Lieutenant John Downie, M.B., Yorkshire Mounted Brigade Field Ambulance R.A.M.C.(T.F.), who receives the Order of St. Anne, Fourth Class, inscribed "For Valour in War." The list also contained the names of the following non-commissioned officers and men of the medical services:

Third Class.—Sergeant-Major T. Crawley.

Fourth Class.—Assistant Surgeon K. P. Elloy, Staff Sergeant E. Dymond; Sergeants A. W. Brown, T. M. Brown, T. B. Carter, and R. H. Davies; Privates M. Johns, A. Kester, W. A. Last, H. C. Sell, and D. Wolfe.

Medal of St. George.

First Class.—Sergeant C. Ingram.

Second Class.—Sub-Assistant Surgeon Gopinath Agarwall, Staff Sergeant W. Lankin, Sergeant J. H. Faveley, and Corporal F. M. Harris.

Third Class.—Corporal A. Burns, Private F. Turner, Driver J. N. Gibbs.

Fourth Class.—Privates W. Hanson, W. Malone, T. Markes, H. Stapleton, P. M. Stephens, C. B. Tomkins, H. Wilkinson, and A. B. Wood.

ANGLO-RUSSIAN RED CROSS HOSPITAL.

A committee has been formed in England for the purpose of organizing a hospital unit of 200 beds to be offered to the Russian Red Cross for work in Russia. It is known that the offer will be appreciated, and when the staff and equipment have been completed the medical superintendent and some members of the committee propose to go to Russia to make final arrangements; the hospital could be adapted for work at a base or on the lines of communication, but the manner in which it can best be employed must be determined entirely by the Russian military authorities. The committee has already made considerable progress towards providing the personnel of the unit. It is proposed that the medical staff shall consist of a senior operating surgeon, a physician, a radiographer, a bacteriologist, and two assistant surgeons, and the nursing staff of a matron, twenty-two qualified nurses and eight probationers. There will also be a small clerical and subordinate staff, consisting of a store keeper, clerk, and two or more artificers; it is expected that orderlies will be procured when the hospital gets to Russia. The hospital will be equipped in every detail, and it will be ready to start work, it is hoped, almost as soon as it arrives in Russia. It is anticipated that in addition a convoy of motor ambulances and accessories will be attached to the hospital. The scheme of the committee has the approval of the British Ambassador in Petrograd, and Queen Alexandra is its patron. Its president is Lord Cromer, Lord Chylesmore is the chairman of the Executive Committee; Sir Starr Jameson vice-chairman, Sir Owen Phillips treasurer, and Lady Muriel Paget honorary secretary. From Professor Pares, who has been working with the Russian Red Cross for nearly a year, the committee has received the assurance that the help thus proffered will be highly appreciated, particularly at the present time. The offices of the Anglo-Russian Hospital Committee are at 116, Victoria Street.

SCOTTISH AMBULANCE TRAIN FOR FRANCE.

The ambulance train which has been constructed by the Caledonian Railway Company for service in France, at the cost of £20,000, is of the kind known as the permanent hospital train, and consists of sixteen long carriages, some of which are ambulance coaches fitted with tiers of cots, others are coaches for the medical officers, nursing sisters, and remaining personnel, whilst yet others constitute the treatment room, operating theatre, kitchen, and the dispensary. Sir Charles Eric Renshaw, the chairman of the Caledonian Railway Company, in some remarks at the opening ceremony on September 2nd, referred to the increasing means of dealing death in modern warfare, and said that he was thankful to think that the surgical and medical possibilities of the present day were also enormously greater. There was first aid on the field of battle, a swift motor service to and from the field hospitals, and splendid ambulance trains going from the field hospitals to the base hospitals. All these agencies were helped by the devoted labours of the medical profession, the value of whose efforts during the present war it would be impossible to exaggerate. The whole empire owed them a great debt of gratitude. The Duchess of Montrose, in performing the opening ceremony, made use of the appropriate expression "veritable train de luxe" for the work of the Caledonian company's yards. The train was on show during the remainder of the week at Glasgow, the proceeds from the visitors going to the funds of the Scottish branch of the Red Cross Society; it was then viewed in Edinburgh on Monday, Tuesday, and Wednesday (September 6th to 8th), and was afterwards taken to Dundee, Aberdeen, and other centres.

THE FRENCH RED CROSS.

In a paragraph published in the JOURNAL of April 24th, p. 740, it was stated that a system had been started in conjunction with the London Committee of the Croix Rouge Française for supplying voluntary service by British surgeons for short periods. We are disposed to think that in existing circumstances British surgeons wishing to give their services for limited periods would be well advised to consider in the first place the claims of their own country and the needs of the British Red Cross and the St. John Ambulance Association. The call on the profession in this country is very urgent, and the War Emergency Committee appointed at the Representative Meeting of the British

Medical Association is prepared to advise British medical men as to the best course they should take. Communications may be addressed to the Honorary Secretaries, War Emergency Committee, British Medical Association, 429, Strand. It is satisfactory to be able to add that, as was shown during the recent debate in the French Chamber, the French organization for dealing with wounded from the French army has been, during the last few months, very greatly improved.

THE STAR AND GARTER HOSTEL.

The acquisition of the Star and Garter Hotel at Richmond for the purpose of a home for paralysed and disabled soldiers and sailors was referred to in our issue of August 21st, and an outline of the scheme, so far as it had then proceeded, was given. Many of the details were still then under consideration a fortnight ago, and even now much remains to be decided. The original Star and Garter, erected in 1738, and subsequently greatly improved and extended, was totally destroyed by fire in 1870. The present hotel was built a few years before the destruction of the old building, and on a neighbouring site. The actual site of the old Star and Garter is occupied by the present pavilion, which was built in 1872. The first part of the plan now to be proceeded with relates, not to the larger building, but to this comparatively low-roofed annex, which comprises two very large apartments, the pavilion dining room and the Prince's Hall. This part of the building is being converted so as to accommodate sixty-four paralysed men, and will be opened in two months. Meanwhile the work upon the main structure will be proceeded with so soon as the architect's plans for remodelling have been finally worked out and approved. The garden village scheme also is in the tentative stage at present, and the question of opening up the big colonnade is still under discussion. There will be a resident medical officer, but the institution will not be a hospital. The cases received will be those of paralysed men who have been discharged from the services as incurable. Should an inmate show signs of improvement, he will be sent at once to a hospital proper. The institution when completed will, it is hoped, be not only an expression of national gratitude to those who have been so peculiarly stricken, but also an important national memorial to the work of the British Red Cross Society in the time of the great war.

MONTENEGRO.

The following is an extract from a letter written by Dr. Strong to Miss Mabel T. Boardman, chairman of the American Red Cross Relief Committee. It describes a visit to a hospital to Pech in Montenegro:

On entering the hospital I saw in the first room² through which we had to pass many piles of clothing which had been removed from the typhus cases. These lay on the floor, and crawling over these and upon the floor in the vicinity were literally thousands of lice. I had never seen so many before, even in Serbia. The hospital had about 250 cases of typhus. They were all badly neglected. The wards themselves were in a dreadful condition. There were no disinfectants, and means of bathing the patients, and no clean clothes or bed-covers for them. The condition of the latrines was beyond description. Unless strenuous measures are immediately taken, here an epidemic may spread and another general typhus will probably rapidly spread and another general epidemic result, as happened in Serbia. I have arranged to disinfect the hospitals here, the patients, and their clothes.

YPRES, OCTOBER, 1914.

Mrs. Pumphrey (Stocksfield-on-Tyne) has inserted an advertisement in this issue of the JOURNAL, in the hope of being brought into communication with a medical officer of the army or navy who, on October 24th, was working at a hospital in Ypres station; the building had apparently been a convent, and may have been a French or Belgian hospital.

MEDICAL OFFICERS WANTED.

2/1st Highland Mounted Brigade Field Ambulance, R.A.M.C. Two medical officers are urgently required to complete the establishment of the 2/1st Highland Mounted Brigade Field Ambulance, now sending drafts of officers and men overseas. Full particulars of pay and duties from Captain Mount, Officer Commanding 2/1st H.M.B.F.A., R.A.M.C., Highland Mounted Brigade Camp, Thetford, Norfolk.

Recruits for Sanitary Section Wanted.

Captain C. B. Moss-Blundell, R.A.M.C., Officer Commanding Sanitary Section, Hillsborough Barracks, Sheffield, is anxious to obtain recruits for the section. The duties performed by men of a sanitary section are analogous to those performed by civil sanitary inspectors in time of peace, and men who have already had experience in sanitary work would be preferred.

24th Cameron Highlanders.

A medical officer is wanted for the 24th Battalion the Queen's Own Cameron Highlanders. Pay as in regular army. Promotion to captain after six months' service. Apply the S.M.O., 191st Infantry Brigade, The Camp, Blair Atholl.

31st H.C.F.A., R.A.M.C.(T).

Wanted for the 31st H.C. Field Ambulance, R.A.M.C., one medical officer to complete establishment; he must undertake the foreign service obligation. Applications should be made to the C.O., Smiths Lawn Camp, Windsor.

2nd Line Welsh Border Mounted Brigade.

Two medical officers, willing to undertake the Imperial Service obligation, are urgently required for service with the 2nd Line Shropshire Royal Horse Artillery and Cheshire Yeomanry. Pay and allowances as in the regular army, also outfit and camp kit grants. Full particulars on application to Lieutenant-Colonel D. C. Leyland Orton, Senior Medical Officer, 2nd Line Welsh Border Mounted Brigade, The Camp, Morpeth, Northumberland.

England and Wales.**THE EDGAR ALLEN INSTITUTE FOR MEDICO-MECHANICAL TREATMENT AT SHEFFIELD.**

MR. EDGAR ALLEN, who died in the early part of the present year, was one of Sheffield's industrial princes, who, observing the number of casualties sustained by Sheffield workmen in the ordinary course of their employment, equipped, maintained, and to some extent endowed an institute where, under medical direction, they could be helped to regain muscular movement and nervous equilibrium. On the outbreak of war, the institute, then three years old, rose to the new occasion, and down to the date of a report recently issued had dealt with some 600 invalided soldiers. The treatment is founded on the Swedish system of physical exercises applied to apparatus for remobilizing injured joints and groups of muscles; capable masseurs assist by early passive movements. A scheme of enlargement is now going forward, the result of which will be to double the accommodation for the disabled men, and the public is being asked to support what is now a national and no longer a strictly local project. The report, which can be obtained (price 3d.) from the Secretary of the institute, at Gell Street, Sheffield, contains numerous photographs which give an excellent idea of the machinery employed, as well as of the nature of the exercises, and the manner in which, by an elaborate system of measured resistances for meeting the requirements of the injured part, any given case can be dealt with progressively, and the gradual improvement recorded.

RECRUITING FOR THE R.A.M.C. IN MANCHESTER.

It is a matter for regret that the recruiting for the Manchester "City" Battalions has recently fallen off very considerably, only 400 men having enlisted in Manchester in the week ending September 4th. The two brigades of the "City" battalions, forming part of the 30th Division, representing about 10,000 men, will certainly be disappointed if the County Palatine Brigade, which were at first so rapidly recruited, should be unable to develop into a County Palatine Division without the addition of outside units. At least 1,500 men are needed as early as possible. At the same time there is urgent need for more rapid recruiting for the medical units of the R.A.M.C. and the Royal Naval Division, and Lord Derby has been authorized to state that unless more men come forward for the R.A.M.C. very soon they will not be able to receive sufficient training in time for them to go out with the City Battalions of the 30th Division. For home service men are required to be between the ages of 17 and 50, and for service abroad between 17 and 40. Preference is given to those holding the certificates of the St. John Ambulance Association, the British Red Cross Society, or other bodies recognized by the War Office. During the last week a fair number of recruits presented themselves, and batches have been, or will shortly be, sent to Aldershot or Blandford or one or more of the London hospitals.

PRESENTATION OF MOTOR AMBULANCE FOR ANCOATS HOSPITAL.

At the close of a performance last week at the Gaiety Theatre, Manchester, the proprietor of the theatre, Miss

Horniman, formally handed over to the Ancoats Hospital a motor ambulance which had been provided by the Gaiety Theatre Motor Ambulance Fund. The fund was started by the staff of the theatre, and was assisted by the staff of Lloyd's Bank, Manchester; much of its success is due to Miss Horniman herself. Trustees of the fund were appointed and a trust deed was drawn up, by which the ambulance was handed over to the trustees of the hospital to be used by them for the duration of the war. The trustees have further promised money for the erection of a garage in the hospital grounds and to provide for upkeep so long as the war lasts.

MANCHESTER ROYAL EYE HOSPITAL.

It is reported that the number of new cases treated at the out-patient department of the Royal Eye Hospital during the eight months ending August was 27,533, which is nearly 1,500 in excess of the number treated in the same period last year. Much of the increase is undoubtedly due to the war, as treatment has been given to a large number of soldiers from neighbouring military hospitals, to men referred to the hospital by recruiting officers, or men in training at the camps. About 40 beds in the hospital have also been allocated to the military authorities for wounds or diseases affecting the eye, and during the same eight months 241 soldiers have been treated as in-patients. In recognition of the treatment given by the hospital to wounded soldiers several special donations have been received from various war relief funds.

Scotland.**ANNUAL CONGRESS OF THE INCORPORATED SANITARY ASSOCIATION OF SCOTLAND AT GLASGOW.**

At the forty-first annual Congress of the Incorporated Sanitary Association of Scotland, held in Glasgow on the first three days of September, several of the addresses and discussions had a direct bearing on medical matters. The annual general meeting was held on the evening of September 1st, when the retiring president, Mr. Francis Braid (Kirkcaldy), was succeeded by Mr. Robert Lambie, Convener of the Public Health Committee, Lanarkshire County Council, and when Dr. Alex. Robb (County Medical Officer, Midlothian, Linton, and Peebles), and Mr. F. G. Holmes, C.E. (Office of Public Works, Govan), were elected vice-presidents. Dr. Robb was also nominated president-elect. The president (Mr. Lambie) took for the subject of his address (which was delivered on September 2nd) "Twenty-five years of Local Government," beginning his survey with the Local Government (Scotland) Act of 1889, which opened the way to a more progressive and comprehensive policy and set up a machinery which had proved wonderfully successful. The death-rate had fallen, and infantile mortality had also gone down; deaths from phtisis had decreased, whilst comfort and convenience had been added to the everyday life of the community. There had been and there still were anomalies in rating; but the Legislature should not permit a system to exist which was capable of allowing a local authority to neglect in any way its public health and sanitary duties because of the fear of high rating. He made a plea for a broader basis of rating all round, with an adequate recognition from the imperial funds.

Insects and Disease.

On the evening of September 1st Dr. R. M. Buchanan, bacteriologist to the Corporation of Glasgow, gave the customary popular lecture, taking as his subject insects in relation to disease. It was, he said, a remarkable fact that the sinister influence of a relatively small number of insects in spreading some of the most deadly diseases had only come to light in the past ten or fifteen years. It was now known that a few species (for example, mosquitos, tsetse flies) had controlled the destinies of nations and made parts of the world wellnigh uninhabitable. By spreading both malaria and yellow fever, mosquitos had for a time held up that stupendous engineering scheme, the Panama Canal. The common house-fly, too, was credited with a share in the transmission of the intestinal diseases, typhoid fever, infantile diarrhoea, dysentery, and cholera. It had a prodigious progeny, but fortunately it had also many powerful enemies, including man the

common fowl, and a parasitic fungus (*Empusa muscae*). The last-named enemy caused the only serious disease to which the fly was subject, and attempts had been made to use it for the extermination of the insect. A crusade against flies must aim at prevention rather than at destruction, and must be applied against them at the earliest stages of their existence. The injunction "kill that fly" implied a confession of failure in sanitation. Intelligent scavenging could be counted on to do much, along with the timely collection and destruction of domestic refuse and garbage and the stringent enforcement of measures dealing with stable manure. Since the shortest period necessary for the development of the fly from the egg was ten days, the removal of all temporary collections of fermenting matter should be undertaken at intervals of not more than seven days.

The Care of the Health of the Child.

One of the most important matters dealt with at the Congress was that of the care of the health of the child, the discussion upon which took place on September 2nd. Dr. A. Campbell Munro, County Medical Officer, Renfrewshire, divided his address into four parts—the prenatal care of the child, care in infancy, in the period between infancy and school age, and during school age. He hoped that in the coming years there would be a compensatory increase in the birth-rate to make up for the wastage of the most virile manhood of the nation in the war. It was satisfactory that notification of births was now compulsory, and he should like to see a roll—not of honour—of the local authorities in Scotland who had not adopted the system voluntarily. But even this compulsory notification did not lead far, and it was essential that official health visitors should be appointed, and provision for this was contained in the Notification of Births (Extension) Act. It ought to be made penal to sell or buy long-tube feeding bottles. There was also a wide sphere of usefulness for voluntary infant health visitors' associations, and between these and the local authority and its officials there should be the most intimate touch. There should be infant consultations and consultations for expectant and nursing mothers, prematurity homes, and post-natal homes. Child welfare committees would be a better name than infant health associations. There was great need for the passing of a Midwives (Scotland) Bill, and when the Act was in existence the Medical Officer of Health should be the "supervising medical officer" over the practising midwives. Maternity benefit, under the National Insurance Act, required revision; the money should be payable only on the certificate of the medical adviser to the Insurance Committee that the mother had received proper attention in connexion with her confinement. Dr. Campbell Munro moved that the Congress should resolve that measles and whooping-cough be made compulsorily notifiable; but the motion was lost on a vote being taken.

Dr. J. W. Ballantyne, of Edinburgh, spoke specially on the prenatal care of the infant. He said he would not go back beyond the marriage of the parents, being content to leave to the eugenists the directing and perfecting of matrimony among the "fit." He recommended, however, that newly married couples should make an immediate choice of their medical attendant, and not wait till the emergency conditions of a threatened miscarriage sent them to the nearest practitioner. He recommended, also, that the wife should put herself under medical supervision and care as soon as she suspected herself to be with child; to wait until the pains of labour were upon her was certainly the very reverse of prenatal provision. Medical men and women should likewise be ready to accept the responsibility for the care and supervision of the expectant mother during the whole time of her expectancy, and be ready to treat any of the complications of pregnancy which might arise, and so save many infantile lives. In all large towns prematurity homes for unmarried girls and rest-homes for married women should be provided where pregnancies could be watched over medically and where tired women could rest in the later weeks of their term of expectancy. Financial aid should be forthcoming in the four weeks preceding labour as well as in the month following it, as was being done in France. If this aid were given, it would send women earlier to their doctors, and it might, along with the discovery of a reliable blood

within reach. Prematernity wards, prenatal nurses (to visit and advise expectant mothers among the poor), and antenatal clinics and consultations at maternity hospitals, were other most desirable things, and should not be outside the range of authorities in large cities. He instanced a case of a woman who gave way to drink in the last month of her pregnancies who had recently been under his care in the prematernity ward of the Edinburgh Royal Maternity Hospital, and had been preserved from temptation during her critical month, had been safely delivered of a healthy child, and had been sent safely home again. Dr. Ballantyne concluded by seconding a motion made by Dr. Campbell Munro, "That in the opinion of this Congress it is important that the Midwives (Scotland) Bill should be passed into law without further delay." The motion was put to the meeting and carried unanimously.

Milk, Town Planning, Dietary, and other Subjects.

Another interesting discussion took place on the essentials of a pure milk supply and suggestions for regulations under the new Act; this was introduced by Mr. John Frew, County Sanitary Inspector, Linlithgowshire, and in it Dr. Fred Dittmar, Edinburgh, Mr. John Finlay, and others took part. Other subjects dealt with were methods of treating vermin in buildings, refuse bins on fire, sanitary provisions in Scottish town-planning schemes, economic dietary in time of war (opened by Dr. A. K. Chalmers), the effect of the war on the duties and responsibilities of local authorities in Scotland, and the training of nurses in local authority and Poor Law hospitals and their relation to the general supply of nurses (introduced by Dr. Walter F. Brown of Ayr).

MILITARY APPOINTMENT OF EDINBURGH PHYSICIAN.

Dr. G. Lovell Gulland, Professor of Practice of Medicine in the University of Edinburgh, has been appointed a Consulting Physician to the Forces in the Mediterranean, with the temporary rank of Colonel.

Ireland.

DUBLIN HOSPITALS: COST OF FEEDING WOUNDED SOLDIERS.

THE Board of Superintendence of the City of Dublin Hospitals announces in its fifty-seventh annual report, covering the year ended March 31st last, that it had visited all the hospitals and found everything most satisfactory. Reference is made in the report to the hospitals opened for the reception of wounded soldiers, and it is stated that the officer in charge of King George V Hospital, who had these institutions under his supervision, informed the board that the way in which the wounded and sick were treated in them was, without exception, highly satisfactory. The board points out that the financial aspect of the treatment of wounded soldiers in hospitals set apart for the use of the poor is a subject that demands its special consideration, for its chief duty is to see that the hospitals under its control "fulfil in an economical and thorough way the objects for which they were instituted." The report attempts to arrive at an estimate of the payments that would reimburse the out-of-pocket expenses of the general hospitals under its supervision. The calculations are exclusive of the cost of buildings and the furnishing and equipping of such buildings. For the last year the daily cost of each bed in the several hospitals was as follows:

	Richmond.	Stevens's.	Meth.
An occupied bed ...	3s. 5½d.	4s. 2½d.	4s. 1½d.
An unoccupied bed...	2s. 5½d.	2s. 10½d.	2s. 7½d.

From these figures, and bearing in mind that the maintenance of wounded soldiers is more costly than that of fever patients and of children—classes of cases proving a considerable part of the hospital patients—it is held that the amount paid by the Treasury—3s. for occupied bed up to December 13th, 1914, and on and after that date 4s. per occupied bed, and nothing at all for unoccupied beds—is too small, so that all hospitals working on these terms are incurring a loss each day that passes. In November, 1914,

authorities, pointing out the insufficiencies of the payments. As a result the payment for occupied beds was raised to 4s., but payment of any kind for unoccupied beds was not granted.

ST. JOHN AMBULANCE ASSOCIATION.

Sir John Moore, who presided at the distribution of certificates gained by the lady members of the staff of the Insurance Commission at the St. John Ambulance Society's examination in first aid and home nursing, paid a tribute to the excellent work done by Mrs. Dickie in connexion with the classes.

On the motion of Dr. Lumsden, a vote of thanks was passed to Lady Glynn, who attended the meeting and distributed the certificates. Dr. Lumsden said some men might be accused of slacking, but that could not be said of the women, as the work done by them was one of the outstanding features of the war.

THE LATE DR. JEREMIAH COTTER OF CORK.

Many former students of the old Queen's College, Cork, will lament the death of Dr. Jeremiah Cotter, F.R.C.S.I. An obituary notice appeared in the JOURNAL of August 28th, p. 351. That Dr. Cotter was held in high esteem not alone by the members of his own profession in the South of Ireland, but also by various public bodies, is manifested by the many votes of condolence which, within the last few weeks, have been conveyed to his wife and family in their bereavement. The North Infirmary, the South Infirmary, the County Council, the Cork Corporation, the Cork Union, the Cork Borough Insurance Committee, the Eglington Asylum Committee, and last, but by no means least, the members of the Cork Medical and Surgical Society, of which he had been the honoured President, have all recorded their sorrow. The following resolution was passed at a special meeting of the profession:

We, the members of the Cork medical profession, desire to express our deepest regret at the lamented death of our President, Dr. Jeremiah Cotter, F.R.C.S.I., and to record our unanimous opinion that his loss to the profession and to the public cannot be adequately estimated.

As a member of the medical profession Dr. Cotter occupied a leading position, which, through his sound knowledge, eminent ability, skill and judgement, he richly deserved.

As a friend and colleague he at all times proved himself true and honourable, while his invariable amiability endeared him to all those with whom he came in contact.

His love for the Cork Medical School led him to devote a very large amount of his time, energy, and ability to teaching, while he took a deep and permanent interest in the success of his graduates. We desire to convey our expression of heartfelt condolence and deepest sympathy to his sorrowing widow and children, and all those who mourn his loss.

Correspondence.

MEDICAL STUDENTS AND COMBATANT COMMISSIONS.

Sir,—I have read with much interest the answer of Lord Kitchener's private secretary to Professor Halliburton's letter of August 16th, 1915, and while the wishes of the War Office, contained in the reply with regard to fourth and fifth year students, are quite unambiguous, I regret I am unable to say the same as to their statement about the position of the junior students. I know many who were most anxious at the beginning of the war to take combatant commissions, but reluctantly continued their studies at the suggestion of the War Office and the request of the authorities of the hospitals to which they were attached, and now we have a statement which, if it means anything, appears to favour the view that they ought to take combatant commissions.

From conversations I have had with the students and their parents, it seems to me that both would much prefer a decided expression of opinion one way or other, since medical students are not the type of young men who desire to wait until they are forced to join the army.

There is another way out of the difficulty, and that would be for the War Office to form a special corps under the R.A.M.C. in which junior students could serve as privates and non-commissioned officers. In this way their services would not be lost to the medical profession and

they would gain an insight into the medical and administrative aspect of the army, which would be most valuable to them in after life.—I am, etc.,

R. KING BROWN,

Medical Officer of Health, Bernardsay; Lecturer on Public Health, Guy's Hospital, London, S.E., Sept. 1st

THE SUPPLY OF MEDICAL OFFICERS.

Sir,—The recent appeal made to the medical profession must have caused many of us to consider whether we are doing the whole of our duty. To men working country practices, much of the work with troops would not come strangely. Most of us can ride, we have been accustomed to do the greater part of our own surgery, and to treat accidents on the spot, with extemporized appliances and without aid from hospitals. Yet, anxious as we are to do our duty, there are many difficulties in the way. When a man's nearest medical neighbour is eight miles or more away, it is not possible that his neighbour should carry on the two practices if the one leaves. Locumtenents are hard to get, their fees are high, and it does not seem right that a country doctor should pay a man younger than himself to look after patients to whom he must be a stranger.

Yet there must be many men who, while their health is not good enough for active service, are still able to do work at home. There must, too, be many men whose health or whose nerves have suffered from the strain of work abroad, and who might recover health and strength while working a country practice. We in the country have no means of getting in touch with such men. I suggest, then, that the British Medical Association should take steps to furnish a list of such men who would be willing to do country work at a fee that we could pay, and who, themselves incapacitated for further foreign service, could do work at home, and so free men who, anxious to do their duty, have so far been unable to leave home.—I am, etc.,

CHAS. W. SMERTON, M.R.C.S., L.R.C.P.

Hovingham, Malton, Aug. 23rd.

A NOTE ON THE TESTING OF DISINFECTANTS.

Sir,—In view of the fact that the International Committee on the Standardization of Disinfectants, appointed at the last meeting of the International Congress of Applied Chemistry, cannot meet this year owing to the war, and that this may entail a further delay of three years, we desire to call attention to one or two points which have arisen since the publication of our paper on "Approved technique of the Rideal-Walker test,"¹ and to submit the following suggestions as addenda to the paper referred to.

First, in view of the difficulty experienced by some workers not familiar with the technique of the chemical laboratory, we suggest that a burette, such as that described by Hermann W. Mahr, of the Board of Estimate and Appointment, New York,² can be adopted in place of the dropping pipette. On the other hand, we know many workers who have a decided preference for the dropping pipette originally used by ourselves, and who do not see the necessity for changing this detail of the technique.

The second suggestion deals with the well-known variations in resistance offered by the standard broth culture of *B. typhosus*. To obtain the desired result in the phenol column—life in two and a half minutes and in five minutes, and no life thereafter—dilutions ranging anywhere between 1 in 80 and 1 in 140 may be required. We feel that this range is too great, and suggest therefore that the culture be rejected if it calls for a phenol dilution higher than 1 in 110 or lower than 1 in 90. Where the culture becomes so attenuated as to call for dilutions higher than 1 in 110, it can be strengthened by passage through any suitable animal. By restricting this range in dilution the only rational objection to the Rideal-Walker test is at once removed.

A new difficulty has been introduced through the war: it is impossible now to obtain supplies of Witte's standard peptone. We understand this matter has been taken up by an American committee, representing four prominent laboratories, with Dr. Conn as umpire, and that this committee is about to report in favour of a brand which is said to be equal to Witte's in every respect. In the mean-

¹ American Journal of Public Health, vol. vii, No. 6.

² New York Medical Journal, March 7th, 1914.

time it would be interesting to have the views of other workers. We therefore invite discussion on this point.—
We are, etc.,

SAMUEL RIDEAL,
London, Aug. 10th.
J. T. AINSLIE WALKER,
New York, Aug. 23rd.

USE OF A SLEEVE OF VEIN IN NERVE SUTURE.

SIR,—Under the above heading Mr. Fullarton of Belfast describes a method of treating nerve unions which I can cordially recommend, as I have used the same method for many years. I demonstrated the method at a meeting of the Glasgow Medico-Chirurgical Society on April 18th, 1913; the method was again illustrated in the *Clinical Journal* for November, 1913, in an article entitled "A Few Examples of Grafting."—I am, etc.,

ALEX. MACLENNAN.

A. NOCI ASSOCIATION.

SIR,—It ought to be unnecessary to remind your readers that the adjectival stem from the root of *nocere* is not *noci-* but *nocu-*; indeed, "Innocuus" by his pseudonym (p. 346) admits this, though he does not follow it to its logical conclusion.

The proper form of the word in dispute is "innocuousness," and as this is also the most obvious and most euphonious form, it is strange that any other should have found acceptance.

Can we venture to hope that the profession will adopt the right word? The clumsy words "chemo-taxis" and "ptomaine" (for "chemio-taxis" and "ptomine") persist in spite of protests.—I am, etc.,

F. J. ALLEN.

Obituary.

DAVID BRIDGE LEES, M.D. CANTAB. AND DURH., F.R.C.P.

CONSULTING PHYSICIAN TO ST. MARY'S HOSPITAL, THE HOSPITAL FOR SICK CHILDREN, AND ST. JOHN'S HOSPITAL, TWICKENHAM.

Not one month had elapsed after the tragically sudden death of one distinguished member of the consulting staff of St. Mary's Hospital—Mr. Edmund Owen—when another member, on this occasion a distinguished physician, Dr. D. B. Lees, also expired suddenly. Both, like Nicanor and Sivadard the Strong, died in harness—in fact, Dr. Lees had a fatal seizure when actually at work in his consulting-room on August 16th.

David Bridge Lees was born in 1846; after leaving the Owens College in Manchester, his native town, he studied at Trinity College, Cambridge. He distinguished himself both in classics and mathematics. He was Carns prizeman, and took the B.A. in 1869, coming out fifth in the Natural Science Tripos, received the degree of M.B. in 1874, and as he had gone through the usual curriculum at Guy's Hospital, he was able to qualify as M.R.C.S. in the same year. Dr. Lees had also studied for a time in the medical schools at Vienna. After qualification he returned to the Owens College, of which he was an Associate. He took the degree of M.D. at Cambridge in 1875, and in the same year became M.R.C.P. (London); in 1881 he was elected F.R.C.P. In 1879 Dr. Lees was elected assistant physician to the Hospital for Sick Children, Great Ormond Street, becoming full physician in 1890. He was placed on the consulting staff in 1905. In 1880 Dr. Lees became associated physician to a London medical school, being elected assistant physician to St. Mary's Hospital. In 1887 he was appointed full physician, holding that post until he retired and was made consulting physician in 1907. Thus Dr. Lees was an active member on the staff of a general hospital with a medical school for no less than twenty-seven years, and was attached for nearly as long a period to one of the most celebrated of all hospitals devoted to the treatment of children's diseases.

David Bridge Lees, settling down to work as physician to a general hospital, soon proved himself to be an excellent clinical observer. His writings, which must be well known to every one bringing the notification, were of a

of bronchopneumonia treated with bleeding and ice." He considered that the true indication for bleeding in pneumonia was the approach of failure of the right heart to overcome the greatly increased pressure in the pulmonary artery, due either to extensive consolidation of lung or to overwhelming engorgement. Failure was imminent in both the cases, which he reported at full length, but he insisted that the relief which followed the abstraction of blood would have been but temporary but for the beneficial influence of cold applications. Venesection, tepid sponging, and the ice-bag were made use of for the first patient, a maidservant aged 15; and tepid bathing, leeching, and the ice-bag for the second, a female infant 6 months old. Both cases recovered, although very severe, indeed the second was complicated by internal otitis resulting in posterior basic meningitis.

Dr. D. B. Lees contributed other important articles to our pages. Our readers may remember his paper on "The effective treatment of acute and subacute rheumatism," read at a meeting of the Therapeutical Section of the Royal Society of Medicine, and published in the *JOURNAL*, January 16th, 1909. The profession, noting the subject of this contribution, may profitably pause and reflect how well it is that a leading doctor should in his teachings dwell for a time not on "rare and interesting" maladies, blood counts, and bacteriology, but rather on very common diseases most interesting to the general public yet, though known to the ancients, not so easy to overcome even by the newest resources of medical and therapeutic science. The author was not above supporting an already popular remedy—sodium salicylate—and pointing out that some of the organic compounds of salicylic acid were hardly, if at all, preferable to the alkaline salt, and he specially expressed, on the strength of personal experience, his distrust of aspirin. He in fact lay great trust in sodium salicylate, especially on its alkalinity, recommending that a large proportion of sodium bicarbonate be prescribed and administered with it. This teaching, including certain precautions which Dr. Lees published along with his advocacy of the salicylate, was valuable reading for many, especially the younger of us who may think too much of cerebral and abdominal surgery. Dr. Lees found that the strong doses of two salts, combined with the application of ice to the heart, was most satisfactory in the treatment of cardiac rheumatism, endocarditis as well as pericarditis. The photographs of rheumatic nodules accompanying this useful and excellent paper were, our readers must admit, highly instructive. Dr. Lees favoured us in the same year with an important contribution on the physical signs of incipient pulmonary tuberculosis and its treatment by continuous antiseptic inhalations, published on December 11th, 1909. He advocated the continuous use of an oro-nasal respirator charged with a solution composed of carbolic acid, creosote, tincture of iodine, and spirits of chloroform. He had employed that therapeutic measure in about thirty cases with good results, and in order to convince his readers he published the abstracts of all of them in our pages. Dr. Lees's reputation as a physician skilled in the clinical as well as the pathological features of phthisis doubtless caused him to be selected as Bradshaw Lecturer at the Royal College of Physicians in 1912, where he discoursed on incipient phthisis. Much other work of interest appeared in other publications, the *Lancet* publishing in 1893 an article entitled, "Is there a dextero-cardiac respiratory reflex?" whilst Dr. Lees's views and experience on rheumatism, above referred to, were conveniently summarized in Sir W. Allchin's *Manual of Medicine*, which included a special article by the deceased physician on acute and subacute rheumatism as a whole.

Dr. David Bridge Lees was a man of a very retiring disposition. He mixed but little with his colleagues, who, on the other hand, from first to last recognized him as a deeply conscientious and religious man, the soul of honour in professional matters as well as in every-day life.

Dr. Lees was elected senior Censor of the Royal College of Physicians of London last July. At the funeral at Finchley the College was represented by the President (Dr. Frederick Taylor), Dr. Newton Pitt (Censor), and Dr. Ormerod (Registrar); the Hospital for Sick Children by Sir James Goodhart and Dr. W. S. Colman; and St. Mary's Hospital by Dr. Luff, Dr. William Hill, and Mr. Kenneth Lees, Dr. Lees's son, who is at present surgical registrar to the hospital.

Dr. R. H. STEEN (Medical Superintendent, City of London Mental Hospital, Dartford) writes: The news of the sudden passing of Dr. Lees will come as a great shock and sorrow to all his old pupils. Dr. Lees was most careful in all his work, and spared neither time nor trouble to do his best for his patients. He was keenly alive to all progress, and was ever willing to impart his knowledge to those who worked under him. His tone through the wards of St. Mary's was always popular with the students, and among the circle of those listening to his remarks by the bedside were frequently to be found some of his old house-physicians who had returned to brush up their work. In the days when I was his house-physician he was especially enthusiastic upon the use of the ice-bag for pneumonia. At the beginning of our six months' residence few of his house-physicians were so sanguine in this direction as our master, but when our time of office had expired most of us were converted to his views. He used to insist that the first thing to be done was to place hot-water bottles to the feet of the patient, and then to apply ice-bags, not only to the dull area but to the entire lung affected. There is no doubt that under this treatment the area of dullness receded sometimes in a remarkable manner, and if one could not state with certainty that it aborted the disease (though at times it appeared to do so), it gave great relief to the patient. Dr. Lees was perhaps best seen in his systematic lectures, which always gave evidence of careful preparation and attracted large attendances. His sterling and upright character will always remain as a bright example to those who were associated with him.

GEORGE ALFRED EDSSELL, M.D.,

LIEUTENANT-COLONEL, R.A.M.C. (T.F.).

LIEUTENANT-COLONEL GEORGE ALFRED EDSSELL, R.A.M.C. (T.F.), commanding the 3rd Home Counties Field Ambulance, died on August 16th, aged 56, at his residence, Cedar House, Surbiton, of pleurisy, contracted at the front from which he had recently been invalided. Born at Aberdovey on January 18th, 1859, Lieutenant-Colonel Edsell was educated at St. Bartholomew's Hospital and at University College, and took the M.R.C.S., the L.R.C.P.Lond., and the L.S.A., in 1886, the M.D.Durb. in 1902, and the D.P.H. of Cambridge and also that of the London Colleges in 1905. After qualifying, he acted as resident obstetric assistant and as clinical assistant in some special departments at St. Bartholomew's and as clinical assistant in the Royal Eye Hospital, Southwark. Subsequently he became clinical assistant to the Samaritan Hospital for Women, and honorary surgeon to the Cripples' Home, Surbiton. In 1904 he contributed to the JOURNAL (vol. i, 1904, p. 131) a case in which a severed finger was successfully replaced; the patient was a man aged 60; when killing a pig, the animal bit off his right index finger through the middle phalanx. It was replaced after the patient had walked six miles, and a few years later, though the distal joint was stiff, the finger was useful for work. Dr. Edsell was examiner and honorary life member to the St. John Ambulance Association, surveyor to the medical department of the Admiralty, and a member of the British Medical Association.

Dr. FRANK B. NORRIS of Surbiton writes: When the history of the present war comes to be written Edsell's name will deservedly be entitled to a place in the list of heroes who have sacrificed their lives in the cause of their country, for the illness which has terminated fatally was contracted at the front in the course of the arduous work of attending to sick and wounded soldiers, on which he had been engaged for some months. He removed from Thame, near Oxford, to Surbiton about twelve years ago. He quickly won great esteem, not only for his professional attainments, but also because he was a thorough sportsman in the field with gun, and likewise at tennis, at cricket, and at hockey. Many a day have I spent with him and badly shall I miss him. For a few years he was on the Surbiton District Council, but resigned his seat soon after becoming a member of the Surrey County Territorial Force Association. He always manifested keen interest in military work, especially in its medical branch. In 1889 he joined the Oxfordshire Light Infantry as surgeon. Subsequently, after settling in Surbiton, he joined the 3rd Home Counties

Field Ambulance, R.A.M.C., as captain, was rapidly promoted to the rank of major, and eventually assumed command of the unit, his promotion to the rank of lieutenant-colonel having taken place on October 22nd, 1911. Largely owing to his enthusiasm, recruits were obtained to bring the unit up to its full establishment. When the Territorial Force was mobilized the 3rd Home Counties Field Ambulance was called out, and after undergoing a period of training at Surbiton, Sittingbourne, and Winchester, it proceeded to France, where since last December it has been doing yeoman service in the firing line. It has worked mainly in the neighbourhood of Ypres, Hill 60, and St. Eloi. "A Private" who has served under him abroad writes to emphasize Colonel Edsell's sterling qualities as a gentleman and a commander. He was, he says, loved by all who served under him, both at home and in Flanders. The men speak in high appreciation of his thought at all times for their comfort and safety. "We all loved and admired him."

The funeral took place on August 18th with the full military honours of his rank. The arrangements were in the hands of the War Office, and a large body of troops attended under the command of Lieutenant-Colonel H. P. Treby, D.S.O. The coffin was draped with a Union Jack, upon which were placed the deceased's sword and helmet.

ARCHIBALD ROBERTSON DOUGLAS,

L.R.C.P. AND S.E., L.F.P.S., GLASGOW.

We regret to record the death on August 26th, after a few days' illness, of Dr. A. R. Douglas, the esteemed medical superintendent of the Royal Albert Institution for Mental Defectives at Lancaster.

Born in 1868 at Newcastle-on-Tyne, he was educated successively at Madras College, St. Andrews, the Newcastle College of Medicine, and in Edinburgh, where he took the triple qualification. His first appointment was that of resident surgical assistant at the Royal Infirmary, Newcastle, and he was subsequently registrar and clinical assistant at the Throat and Ear Hospital in that city. Later he took up the practical study of psychological medicine, and after serving as clinical assistant at Dunston Lodge Asylum, Gateshead, he became assistant medical officer to the East Riding Asylum, Beverley. He had also some years' experience in the prison service, acting temporarily as medical officer to H.M. Prison, Durham, and subsequently as deputy medical officer to H.M. Prison, Portland.

He was appointed assistant medical officer to the Royal Albert Institution in 1893, and succeeded Dr. Telford-Smith as chief medical officer in 1899. As medical superintendent he displayed conspicuous ability in the administration of the large institution under his charge during a difficult period of transition consequent upon the passing of the Mental Deficiency Act. He was most eager to extend in various directions its utility as a training institution, quite regardless of the increased responsibilities such extension would entail upon himself. The Central Committee lose by his death the services of an energetic and devoted officer, and his colleagues a considerate and sympathetic chief. His fellow workers in his special department of psychiatry have reason to lament the premature loss of one whose help had been invaluable in unravelling the intricate problems of legislation for the feeble-minded, as evidenced by his practical statements before the Royal Commission and his various contributions to medical literature. His labours at Lancaster have enhanced the high reputation enjoyed by the Royal Albert amongst similar institutions; and the esteem in which he was universally held was shown by the large attendance at his obsequies at Scotforth Cemetery, not only of the committee, officers, and inmates of the institution, but of numerous members of the local medical profession, of the Masonic lodges, and of the Mayor and Corporation of Lancaster. He leaves a widow and two sons to lament his loss.

We are permitted to subjoin the following extract from a letter written to Mrs. Douglas by Sir James Crichton-Browne: "I am shocked and grieved by the announcement of your good husband's death. He seemed so full of life, and health and energy, and had so much useful work before him, that it is inscrutably sad to see him thus cut down in the very heyday of his career. I have long admired

friendship, and held him in the highest esteem. He is an irreparable loss to our department, for he brought to his work clear insight and sound judgement, ripened by unique experience. I hoped that one of these days he would be called to high public office, as he has done admirable work, and conferred signal benefit on a grievously afflicted class."

The Services.

TERRITORIAL FORCE. EXCHANGE DESIRED.

CAPTAIN, R.A.M.C.(T.), at present with Field Ambulance (T.) in France, wishes to exchange to Territorial General or Casualty Clearing Hospital, either at home or in France. Captain's pay and allowances.—B. W., c/o. Editor, BRITISH MEDICAL JOURNAL.

Lieutenant A. E. Huxtable, 23rd London Field Ambulance (T.F.), desires to exchange with a Territorial medical officer serving in, or anywhere south of, London. Ordinary pay with full billeting and ration allowances. His present address is 7, Brunswick Road, Norwich.

Medical News.

THE Scottish Committee of the British Medical Association has been summoned to meet at Perth on September 10th to consider questions arising in connexion with the schemes and form of agreement issued by the Highlands and Islands Medical Service Board.

DR. LOCKHART STEPHENS, of the White House, Emswirth, has been appointed a Deputy Lieutenant for the county of Hampshire.

In the list of names which have recently been inserted in the Commission of the Peace for the County Palatine of Lancaster appears that of John Kendall, L.R.C.P. and S., of Oaklands, Coniston.

WITH the concurrence of the Director-General of the Army Medical Service, an exhibition of the various forms of apparatus that have been found most useful in the treatment of fractures met with in the war will be held in the house of the Royal Society of Medicine, 1, Wimpole Street, W., from October 7th to 11th, both days included. The apparatus will be shown by officers of the R.A.M.C. serving in France, as well as by those attached to the base hospitals at home. The bulk of the apparatus will be brought over for the purpose from Boulogne. In addition, Colonel Sir Almonst Wright, C.B., F.R.S., will demonstrate his most recent researches in the drainage of wounds. Invitations to exhibit will be issued to the consulting surgeons of the various commands, and officers desiring to send exhibits should communicate with the consulting surgeon for the command in which they are serving.

THE Royal Sanitary Institute held its annual meeting at Brighton on September 3rd and 4th. It assembled in the Permanent Fine Art Gallery, where it was welcomed by the Mayor and the chairman of the Brighton Health Committee. The first paper read was by Major S. P. James, I.M.S., who, in discussing some sanitary problems in hospitals for Indian troops in England, gave a description of the Kitchener Indian Hospital in Brighton. Afterwards Major C. C. Marison, I.M.S., staff officer of the hospital, dealt with the use of storm-water drains, and Professor H. B. Kenwood urged the importance of establishing, wherever practicable, a complete water carriage system for the semi-permanent hatted camps of which there are now so many in this country. Afterwards visits were paid to the Kitchener and to the Royal Pavilion Hospitals. On the second day of the meeting a discussion on maternity and child welfare and infant mortality was opened by Dr. Boothby, M.O.H. Nottingham, and Dr. Duncan Forbes, M.O.H. Brighton. The latter said that when the infant mortality from all causes in the first week of life was investigated very little difference was found between the richer and the poorer classes. If this were proved generally to be the case, it seemed an argument against the view that the better feeding and housing of the mother, and freeing her from manual labour and anxiety, had an effect upon the health of the child at birth. A discussion also took place on the final report of the Royal Commission on Sewage

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Artillery, Westward, London*; telephone, 2634. GERRARD. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertising, etc.), *Artillery, Westward, London*; telephone, 2639. GERRARD. (3) MEDICAL SECRETARY, *Medicines, Westward, London*; telephone, 2634. GERRARD. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES.

INCOME TAX.

RETIRED PRACTITIONER'S Earnings ceased in November last, but small sums have since been received. Is he liable to pay income tax on these sums, and if so, does the three years' average rule apply?

* The assessments made in the past have year by year covered the full profits of the practice, and liability to income tax ceased as from the date the practice was relinquished. If, as is doubtless the case, "Retired Practitioner's" returns in the past have been computed on the basis of cash receipts only, this statement still holds good. That basis of return is accepted by the authorities only on the ground that in a practice of some years' standing the year's cash receipts are equivalent to the value of the year's bookings, and the cessation of liability immediately on retirement is a natural corollary of that proposition. We understand from our correspondent that his successor has been charged in respect of the period from November, 1914, to April, 1915, by the local authorities. This is in accordance with the fourth rule applying to the first and second cases of Schedule D, but the tax collected from the retiring practitioner should have been restricted to the proportion applying to the period from April to November, 1914. If it is clear that this has not been done, our correspondent should communicate with the surveyor of taxes on the matter.

C. T. calls attention to the fact that in an article on the general practitioner's income tax returns, which appeared in our issue of April 18th, 1914, no mention is made of deductions to be made for the cost of drugs, chemicals, bottles, etc.

* The expenses in question are certainly deductible for tax purposes. The expenses quoted in the article should be regarded as the usual, but not necessarily the only, forms of professional expense.

ANSWERS.

G. W. R. (Bieldside) is referred to an article on "Officer's Income Tax" published in the JOURNAL of March 20th, 1915, page 510.

A. G. P.—Gonorrhoea and syphilis can both be treated successfully in a pregnant woman. The risk of infection of the child's eyes by gonorrhoea during delivery must of course be borne in mind. Our correspondent should inform the husband that he cannot share with a chemist the responsibility of treating him.

SCOPOLAMINE-MORPHINE IN LABOUR.

J. G. M. M.—We may refer our correspondent to the article published in the JOURNAL of June 19th, 1915, p. 1052, where he will find the principle discussed, together with references to papers contributed to the Section of Obstetrics and Gynaecology of the annual meeting of the British Medical Association in 1908 (BRITISH MEDICAL JOURNAL, vol. ii, pages 805-8) by Professor Krönig, of Freiburg, and Dr. R. C. Buist. Mention is there made also of the popular work by Mrs. Hanna Riou. We are not aware of any clinic in this country where the method can be seen in routine use or according to the Freiburg ritual. Cases are usually individualized.

LETTERS, NOTES, ETC.

WE have received a communication from a director of a Church Army hospital in France suggesting that the credentials of any person representing himself to be a captain of the Indian Medical Service and F.R.C.S. Eng., who may apply for an appointment in Great Britain, should be carefully investigated.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive post *restante* letters addressed either in initials or numbers.

THE TREATMENT OF CHOLERA BY HYPERTONIC SALINE SOLUTIONS

DURING AN EPIDEMIC AT SWATOW, SOUTH CHINA.

BY

G. DUNCAN WHYTE, M.D. ED., D.T.M. & H. CANTAB.,
SWATOW.

The ideal method of treating a bacterial disease is to destroy the causal bacillus *in situ*. Attempts have been made to achieve this end in cholera by the use of such antiseptics as calomel,¹ carbolic acid,² chlorine,³ cresote,⁴ mercury cyanide,⁵ iodoform,⁶ salol,⁷ and more recently, creolin;⁸ but all these methods are passing into disuse (save perhaps the use of calomel) since the good results reported in one epidemic are rarely obtained—even by the same doctor—in subsequent epidemics.

At the Bombay Medical Congress in 1909 Pant⁹ mentioned that he used solutions of potassium permanganate in the treatment of cholera, and Rogers,¹⁰ having satisfied himself—both by laboratory experiments and at the bedside—of the value of permanganates in destroying the toxins formed by the bacilli, has regularly used them since either in the form of a solution of the calcium salt, or as pills of potassium permanganate. Unfortunately this line of treatment did not prove acceptable to the Chinese patients; the unpleasant astringent taste, when given in solution, frequently brought on exhausting vomiting, and the same result followed the administration of permanganate pills. Rogers does not make any reference to the use of these salts in his account of "The treatment of cholera at Palermo,"¹¹ and it may be that this permanganate treatment is unsuitable for those with more sensitive stomachs than his Indian patients.

According to Liebermeister,¹² the patient's vitality is diminished by (1) "the loss of water from the blood and tissues," (2) "the absorption of . . . poisons," and (3) "the severe disease of the intestinal membrane may cause . . . heart failure." Presuming that the above poisons exert their most serious action on the heart, these three factors may be resolved into two, namely, the degree of concentration of the blood, and the failure of the heart. Treatment by the intravenous injection of saline solution exactly meets these conditions, for on the one hand large quantities of fluid are supplied to diminish the concentration of the blood (and incidentally to dilute the toxins), and on the other hand the heart is powerfully stimulated. The value of intravenous infusion in combating shock due to surgical causes is too well known to require further reference, but it is only rarely employed to overcome collapse in medical cases. A case described by Bradley and Smith¹³ shows the great value of intravenous infusion in overcoming very severe prostration following a sudden fall of temperature.

It is interesting to note that this method of treatment was introduced (in the pandemic of 1831-2) by two British physicians, one of whom confesses that his "first idea was to return into the system the alvine dejections by injecting them into the venous system . . . but as the dejections are seldom preserved, it occurred to me to make an artificial serum."¹⁴

The extraordinary effect of intravenous infusion in the collapse stage of cholera must be seen in order to be realized. Unfortunately, however, the improvement that follows infusion with normal saline is generally transient, the diarrhoea and vomiting recommence, or become more severe, and in a few hours the patients again collapse, and often fail to rally.

So the practice of intravenous infusion fell largely into disuse till Leonard Rogers overcame the fundamental difficulty—the rapid passage of the saline from the circulatory system into the alimentary canal, and its subsequent loss by vomiting and diarrhoea—by the use of saline solution double the normal strength, and so established intravenous saline infusion as the most successful as well as the most scientific method of treating cholera. It may be said that no real advance had been made in the treatment of cholera from the time of Latta (1832)¹⁵ till Rogers made this discovery.

Mild cases of cholera occur during an epidemic which it would be absurd—and might even be dangerous—to treat with intravenous infusion, while in other cases the

progress of the disease is so rapid that only immediate intravenous injection can save the patient's life. The line of treatment to be carried out in each particular case can only be determined by the accurate measurement of the degree of concentration of the blood and of the amount of cardiac failure.

The greater the degree of concentration of the blood the higher will be its specific gravity, and O'Meara, in reporting the treatment of a cholera epidemic in 1908, recommended that the specific gravity of the blood should be taken at the bedside;¹⁷ this important advance was a feature of the line of treatment carried out in Swatow.

The most rapid method of taking the specific gravity of the blood at the bedside is by means of solutions of definite specific gravity, with which the blood can be readily compared. The most convenient standard solutions are composed of oils in which the blood does not diffuse itself (as in a mixture of glycerine and water), but retains a definite globular outline. If a blood drop is placed in such a solution it will rise to the top and float on the surface if the blood is lighter than the oils, and will sink to the bottom if it is heavier. Mixtures of oil of wintergreen with either castor oil or olive oil were used throughout the epidemic.

Rogers has shown that two specific gravity figures stand out as of special importance in cholera—namely, 1.062 and 1.066; if the specific gravity of the blood is below 1.062, the injection of saline is not required, whereas, if it is over 1.066, 120 oz. must be administered at once; between these two figures 80 oz. of saline should prove a sufficient amount. In treating this cholera epidemic I found these two figures of incalculable value, for, in place of measuring the specific gravity of the blood exactly, it is only necessary to determine its relation to these two standards.

But the proper line of treatment to be adopted cannot be learnt from a study of the specific gravity of the blood alone; the condition of the heart must also be examined. The sphygmomanometer enables the degree of cardiac failure to be measured accurately, so that, instead of depending upon one's estimation of the strength of the pulse, as made out by digital pressure, one obtains an exact figure representing the number of millimetres of mercury required to obliterate the pulse. Here, again, Rogers has established a standard figure for the guidance of those engaged in the treatment of cholera. He writes:

As a result of prolonged experience, I have come to regard a blood pressure below 70 mm. of mercury as an indication of the presence of a dangerous degree of collapse necessitating an intravenous saline injection. . . . I have several times had occasion to regret having postponed transfusion in cases with a pressure a little below 70 mm.¹⁶

After treating the Italians at Palermo, he advised that the standard for Europeans should be 100 mm.¹⁴

Although in healthy Indians "the blood pressure is often on a much lower scale than is the case in Europeans,"¹⁸ yet this does not apply to Chinese,²⁰ and in treating cholera amongst Chinese intravenous injection is often required while the blood pressure is between 70 mm. and 100 mm. of mercury. It sometimes happens that in a patient with quite a good blood pressure (for example, over 100 mm. of mercury) the blood is so concentrated as to demand the administration of saline solution. In such a case the injection should not be given intravenously, but may be administered under the skin or by the rectum.

The sphygmomanometric estimation of the blood pressure yields more reliable information as to the strength of the heart than any other method, but if only the systolic pressure is estimated one will occasionally be led to wrong conclusions in patients in whom there is an abnormal difference between the diastolic and systolic blood pressures.

Although it may be more difficult to determine exactly the diastolic pressure—that is, the sustained pressure between the beats—yet it is upon this, rather than upon the systolic pressure, that the carrying on of vital functions depends. As a rule, the difference between the systolic and diastolic pressures is about 30 mm., but in various abnormal conditions it may be either greater or less. The difference is, for instance, much greater in aortic incompetence; and in the case of a cholera patient aged 35, who

was also suffering from aortic incompetence, his high systolic pressure led to the postponement until too late of the intravenous infusion that might have saved his life. On the other hand, when the difference between the systolic and diastolic pressures is less than usual, the patient may make a good recovery without intravenous infusion, although the low systolic pressure may have suggested that this was necessary. This was exemplified in the case of woman, aged 27, an opium smoker who was menstruating.² She was admitted with a blood pressure of 70 mm. of mercury. The pressure remained between this figure and 90 mm. for the five days she was under observation, although after the first twenty-four hours the blood was not unduly concentrated and a reasonable amount of urine was being secreted each day. It is important that one should be on the watch for these cases in which the cause of the misleading systolic pressure can only be discovered by a thorough and careful examination of the patient's general condition.

Those who have treated epidemics of cholera in the past, without the guidance afforded by the accurate determination of the concentration of the blood and the degree of cardiac failure, will remember the anxiety with which they often had to consider the question of the necessity or otherwise of saline infusion—an anxiety which is now done away with.

The solution (sodii chloridi 1 oz., potassii chloridi 24 grains, calcii chloridi 16 grains, aquam destill. ad 80 oz.) was filtered into glass flasks holding 20 to 30 oz. each, and these were plugged with sterile wool and boiled for ten minutes. The infusion was administered by means of Horrocks's apparatus, which consists of a simple glass funnel into which the saline is poured, and a rubber tube through which it makes its way to a cannula inserted into the vein. It was found advisable to interrupt this tube a few inches from the vein by the insertion of a simple piece of apparatus which not only acted as a trap for air bubbles, but also enabled the temperature of the saline to be measured as it was about to enter the patient's body.

The apparatus consisted of the body of a common glass syringe from which the piston had been removed; to the nozzle of the syringe was attached an india-rubber tube leading to the glass funnel. The other end of the syringe was closed by a cork with two holes. In one hole was a short glass tube which communicated with the interior of the syringe, and to which at the other end was attached an india-rubber tube communicating with the cannula to be inserted into the vein; through the other hole in the cork passed the tube and bulb of a common domestic thermometer, bearing on its stem two marks to indicate the position of the mercury at temperatures of 95 and 100° respectively. It is desirable (1) that the syringe be about four-fifths filled with saline before the infusion is commenced—it is not easy to estimate the flow if the syringe is quite full; and (2) that the "inflow" end be elevated, so that if by any mischance an air bubble should find its way into the apparatus it will not enter the vein.

Apart from the use of saline solution very little was done in the way of routine treatment. If the blood pressure was low and the blood was not unduly concentrated, vaso-constrictors were given, either infundibular extract or adrenalin chloride hypodermically, or, when all vomiting and nausea had ceased, the fluid extract of *apocynum cannabinum* by the mouth. The use of the sphygmomanometer showed that the use of these drugs was almost always followed by a rise in blood pressure and an increase in the flow of urine.

After the acute stage of the illness has passed, some patients are troubled with persistence of the vomiting or of the diarrhoea. For the former, cocaine,³ menthol,⁴ and iodine²² have been recommended; but in cases treated with large saline infusions the vomiting is rarely so persistent as to require such special treatment. Throughout this epidemic no patient was troubled with long-continued nausea and vomiting—a result that may be attributed, in part at least, to the almost routine use of calomel in doses of one-sixth of a grain every hour. In the few patients who were troubled with frequent small stools so late as the third or fourth day after the onset, immediate relief followed the use of a small starch enema containing one

or two drachms of bismuth subnitrate and half a drachm of tincture of opium.

A difficult problem in the treatment of cholera is the question of how to sustain the patient's strength. The persistent vomiting and diarrhoea prevent the giving of nourishment either by the mouth or in the form of nutrient enemata, and even after the vomiting is relieved the patient has but little appetite and only feeble digestive power. The administration of dextrose dissolved in the saline solution is advisable in very severe cases, for, although it may increase the tendency to hyperpyrexia, it certainly helps to sustain the patient's strength while he is in a very critical condition. The most important point that was insisted upon was that the patients must remain in a recumbent position. The attendants soon learnt that any infringement of this rule was likely to be followed by fatal results.

It was on these lines that the Swatow epidemic was treated, and the results varied according to the age, sex, and habits of the patients.

Table showing the Influence of Age in Determining the Result of Treatment.

Age Period.	Number Treated.	Number of Recoveries.	Percentage of Recoveries.
1-10 years	15	6	40
11-20 years	34	27	80
21-30 years	53	45	85
31-40 years	53	40	75
41-50 years	30	19	63
51-60 years	19	14	73
Over 60 years	8	3	37

Sex.

The results among the women were not so good as amongst the men, for death ensued in one-third of the female and only one-fourth of the male cases.

Opium Smoking.

In chronic opium smokers the results were unsatisfactory, for not only was their vitality diminished by long-continued indulgence in this habit, but it was found that they were especially liable to develop hyperpyrexia, and if that danger were surmounted there was considerable risk of their succumbing to *uraemia*. Taking the epidemic as a whole, of the 212⁺ patients who were treated with intravenous saline injections 154 recovered—that is, 72 per cent.

It would be unreasonable to contrast this eminently satisfactory figure with the percentage of recoveries obtained in the days before Rogers had published the

Table compiled from Recently Published Reports of Cholera Epidemics.

Date.	Place.	Number Treated.	Number of Recoveries.	Percentage of Recoveries.	Physician in charge.
1910	Puglia	14	3	21	Casharrini ²³
1911	Tunis	688	229	33.2	Conseil ²⁴
1911	Toulon	466	241	51.7	See ref. ²⁵
1911	Palermo	67*	40	58.2	Rogers ²⁶
1911	Calcutta	94†	59	62.8	Megaw ²⁷
1911	Madeira	319	206	64.6	Stevens ²⁸
1911	Toulon Fleet	18	12	66.6	See ref. ²⁷

These figures only include those cases which were so severely ill as to require the intravenous injection of saline.

* This number, as has already been stated, does not include the large number of cholera cases in which, though the concentration of the blood may have required the use of saline, the state of the heart was such that it was not necessary to administer this intravenously; these cases all recovered. Fourteen patients were taken home before their treatment had been completed. Some of them are known to have recovered, but as in other cases the final result could not be ascertained, none of these fourteen is included in the total of 212 cases. On the other hand, this figure does include the cases that were brought to the hospital in a moribund condition, or no case was considered too ill to receive treatment, so that there were no deaths in those who remained under our treatment that are not included in these statistics.

² Delmaboy Allen has found that the blood pressure usually falls at the commencement of the menstrual period and does not reach the normal again till the period is over. (From a private letter.)

results of treatment carried out with hypertonic—that is, "double strength"—saline solution; but comparison may fairly be made with the results obtained in epidemics treated since that date.

CAUSES OF DEATH: PRECAUTIONS.

In the course of the Swatow epidemic 58 patients died; the main causes of these deaths were collapse, hyperpyrexia, uraemia, and asthenia.

Table showing the Causes of Death in the Swatow Epidemic compared with the Causes of Death in other Epidemics.

Swatow Patients.	Collapse.	Hyperpyrexia.	Uraemia.	Asthenia.	Other causes.
Age 1-15 ...	3	8	0	0	1
Age 16-40 ...	6	10	2	3	4
Age over 40 ...	4	7	5	2	4
Total at Swatow	13	25	7	5	9
Palermo ...	15	2	7	1	2
Madeira ...	104	0	2	3	4

These causes must now be carefully examined, so as to learn how to anticipate and, if possible, avert the tendency to death.

Collapse.

Collapse accounted for death in 6 per cent. of the cases treated. In anticipating the probability or otherwise of a patient becoming collapsed great assistance is derived from a reliable history of the duration of the illness. The more rapid the onset, the more likelihood there is of the patient becoming suddenly collapsed.

Two members of the same family were seen at 9.30 one morning; one had been ill since the previous evening and had a blood pressure just below 70 mm., the other had a blood pressure just above 70 mm., but had only been ill since sunrise. Although the blood pressures differed but little, the history showed that the latter patient was more acutely ill and would require closer attention. The subsequent course of the cases showed the accuracy of this judgement, for although both alike received 80 oz. of saline into a vein, six hours later the former patient had a blood pressure of 86, while the latter was still in a semicollapsed condition and the blood pressure remained as before. A second infusion was then administered, raising the blood pressure to 86, and the patient made an uneventful recovery.

This shows that in a patient with a history of rapid onset the blood pressure requires to be estimated at short intervals till the acute stage has drawn to a close, and in dealing with cases in which no history can be obtained equally frequent observations are required until the rate of progress of the disease has been estimated.

Table showing the Rapidity with which the Blood Pressure may Fall, and the Consequent Importance of taking Frequent Readings with the Sphygmomanometer.

Sex.	Age.	Hour.	Specific Gravity.*	Blood Pressure.	Treatment.
M.	49	9 a.m. 12 noon	- +	110 mm. 88 mm.	Intravenous.
M.	40	6 p.m. 9.30 p.m.	+ +	102 mm. 84 mm.	Rectal. Intravenous.
F.	30	2.30 p.m. 6.30 p.m.	- +	120 mm. 84 mm.	Intravenous.
M.	42	7 a.m. 11 a.m. 1 p.m.	- + +	110 mm. 84 mm. 74 mm.	Rectal. Intravenous.

*The negative sign in this column indicates that the specific gravity of the blood was less than 1.062; the positive sign that that figure was exceeded.

But it is not enough to determine the blood pressure before commencing treatment with a view to deciding whether intravenous infusion is or is not required. After such an injection has been given, within even so short a period as six hours, the blood pressure may again fall so low as to make a second intravenous injection necessary. During the first six weeks of the epidemic in more than a quarter of the patients the blood pressure had fallen

within eight hours so low as to necessitate another injection. The patients therefore should be visited twice daily for four or five days. The two charts here reproduced show the need for those repeated visits.

It will be seen that it was only by constant attention and repeated treatments that the patients were brought through the dangers that threatened them. If death from collapse is to be avoided frequent estimation of the systolic blood pressure must be made, and intravenous injections of saline must be administered as often as the pressure falls to a dangerous level.

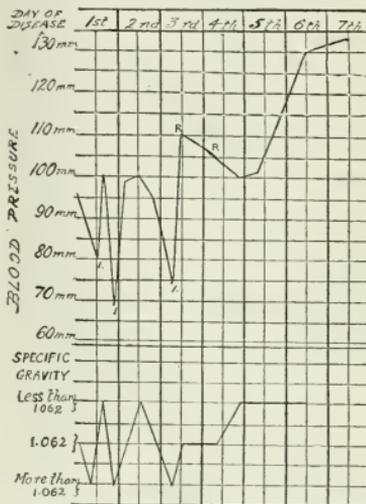


CHART 1.—Showing daily variations in blood pressure and specific gravity of blood. I, Intravenous infusion of 80 oz. of "double strength" saline solution. II, Rectal administration of 30 oz. of "normal" saline solution. Male, aged 26.

Hyperpyrexia.

The second great cause of death was hyperpyrexia, which accounted for death in 11.5 per cent. of the cases treated. This figure, though high, is a marked improvement on the death-rate from hyperpyrexia (23 per cent.) which obtained amongst the Europeans treated in Calcutta from 1895 to 1906 before the use of hypertonic saline solution had been introduced.

Composition and Amount of Saline Solution.

If deaths from this cause are to be avoided, careful attention must be given to the composition and amount of the saline solution to be injected and to the temperature at which the injection is to be made.

Composition.

McIntosh and others²⁶ have shown that the infusion of saline solution, which has been sterilized but from which the dead bodies of the bacilli have not been filtered, is sure to be followed by the development of pyrexia. They suggest that if these bodies are got rid of, little or no fever will result. More recently, however, Hort and Penfold²⁷ have shown that there may be present, even in bacillus-free water a substance, "pyrogen," the injection of which into a patient's circulation will assuredly be followed by the development of fever; this substance can neither be removed by filtration nor destroyed by heat.²⁸ A further point is that the saline solution must not be unduly concentrated. Rogers has shown that as a result of raising the saline content of the blood by the use of hypertonic solutions, the tendency of the osmotic currents is to carry fluid from the intestines into the blood stream. Consequently, if the saline solution injected is too concentrated, the salt content of the blood will be raised so high that a dangerously large amount of toxic fluid will be absorbed

from the intestines.²⁹ Repeated sterilization of the saline solution by boiling may render it so concentrated as to be dangerous; sterilized distilled water should, therefore, be added after each boiling in order to restore the saline solution to its original volume.

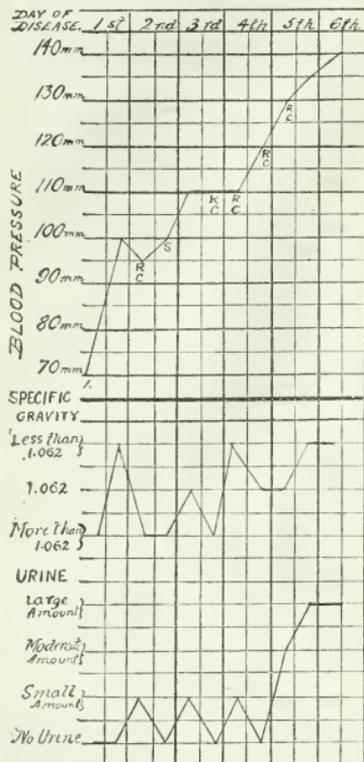


Chart 2.—Showing daily variations in blood pressure and in the specific gravity of the blood. *a*, Intravenous infusion (as in Chart 1). *b*, Rectal saline (as in Chart 1). *c*, Dry cupping over the kidneys. *s*, Subcutaneous injection of 40 oz. of "normal" saline solution. Male, aged 50.

Amount of Saline Solution Injected.

It has been shown experimentally²⁹ that the greater the volume of fluid injected the greater will be the degree of fever produced, so it is obvious that in order to prevent an undue degree of fever the amount of saline solution injected must not exceed the limit approximate to each case. Some light is thrown on this question by Table III, which shows that hyperpyrexia was the cause of a larger proportion of the deaths under the age of 16 than of those at the other age periods. In dealing with children it must be borne in mind that the normal blood pressure is low (in a child of 3 it is only 70 mm. of mercury) and varies with each year of age, so that Rogers's standard figure here becomes inapplicable. In view of this variation in the normal, one may sometimes be led to administer saline solution to children by the intravenous route when a saline enema would have met the requirements of the case. In such a case even a very small amount of saline may prove to have been too large and hyperpyrexia may ensue. Further, in those cases in which an intravenous infusion is really necessary sufficient

allowance must be made for the much less body weight and much smaller circulatory system of children, and a correspondingly small infusion must be given.

Temperature.

In regard to the temperature at which the saline is administered, Rogers¹⁰ has shown that, in the case of patients who are febrile in the collapse stage hyperpyrexia will almost certainly develop if saline is administered at the ordinary temperature (98° to 100° F.), whereas if the temperature of the saline is reduced to 70° to 80° F. the fever will in all probability not increase to any dangerous extent.

But in spite of every precaution the temperature may rise too high, and if it remains above 105° F. for any length of time, it is probable that all efforts to reduce the fever will prove useless and the patient will die.

If these deaths are to be avoided, therapeutic measures must be energetically carried out as soon as the rectal temperature reaches 104° F. It is true that many of these cases might recover without treatment, but as it is impossible to tell in which cases the temperature will subside if left to itself, and in which it will rise to uncontrollable heights above 106° F., it would be unjustifiable to withhold treatment from a patient who might benefit thereby. Cold sponging, the application of ice to the head, and the administration of iced saline enemas will probably prove the most effective means of reducing the temperature.

Uraemia.

The third main cause of death was uraemia. Seven patients died from this cause—that is, 3 per cent. of those treated; only two of these were under 40 years of age, and most were over 50. To avoid death from uraemia one must secure and maintain a copious flow of urine, and treatment directed to this end must embrace three distinct lines—the blood pressure must be raised, the concentration of the blood must be diminished, and congestion of the kidneys must be relieved.

The importance of a high blood pressure has been shown by Rogers,¹⁰ who found by experiment on kidneys obtained at *post-mortem* examinations that whereas in normal organs a pressure of 20 to 30 mm. of mercury sufficed to run a good stream through the renal circulation, yet in the case of kidneys obtained from patients after death due to the uraemic complications of cholera a pressure of 80 to 100 mm. of mercury was required for the same purpose. Theoretically the blood pressure can be raised by intravenous saline infusion, but often the patient seemed too well for such severe treatment, so a drug was prescribed for this purpose. The preparation which yielded the best results as a vaso-constrictor was the liquid extract of *apocynum cannabinum*, in doses of 2 minims every three or four hours.

For diminishing the concentration of the blood, water must be given—into the vein or under the skin, into the mouth or into the rectum. When one is dealing with a case of threatening suppression of urine, the less salt introduced into the body the better, so that once the initial collapse stage has been passed, the amount of salt added to the water to be administered should be reduced to its lowest possible limits. If the fluid is for intravenous or subcutaneous use then "normal saline"—that is, one drachm of salt to the pint—should be employed, while if it is proposed to give the fluid per rectum no salt at all need be added to sterile tap water.

The third line of treatment in uraemia is to relieve the congestion of the kidneys, and this is best secured by cupping. In many cases this was practised twice daily, and although it occasioned some discomfort to the patient, the passage of urine, which so frequently followed the cupping, more than compensated him for the discomfort he had undergone. In cases that proved fatal it would have been well if as a last resort the capsules had been stripped off the kidneys, but neither the patients nor their friends would consent to this operation.

Unfortunately, however, the battle with uraemia is not won when the kidneys have begun to secrete a little urine; if the secretion is not maintained, deaths will occur from delayed uraemia. The following may represent the history of a case in which this threatens: A patient has got over the stage of collapse and has not developed hyper-

²⁹The pyrogenetic power of cholera toxins may be gathered from the frequency with which fever used to be brought about by the reabsorption of the bowel contents consequent upon the sudden checking of the diarrhoea in cholera by large doses of opium.

pyrexia; he has passed urine, the vomiting and diarrhoea have practically stopped, and no anxiety is felt either by the friends or the physician, but the patient has little desire for food and his friends do not insist on his taking it; and so day by day less nourishment is taken. The patient does not complain of any discomfort, and he still gives a prompt and cheery response to inquiries for his welfare. After a few days a certain delay is noticed in the response; the patient is far from being comatose, he is only a little lethargic. Once the doctor's attention is aroused, inquiry reveals the fact that only little fluid is being ingested and that still less, if any, is being excreted. Prompt treatment will probably save the patient, but if this earliest symptom—the delayed response—is neglected, the results may be fatal. Treatment must be directed to the cupping of the kidneys and to getting plenty of fluid into body; fluid foods at frequent intervals and enemata must be insisted upon.

I cannot close without expressing my indebtedness both to my senior colleague, Dr. Alexander Lyall, and to Dr. Chalmers of Swabue—to Dr. Lyall for his invaluable help and advice in the treatment of the more serious cases and for his kindness in setting me free from the routine work of the hospital throughout the epidemic, and to Dr. Chalmers for carrying on the treatment during my temporary absence from Swatow.

REFERENCES.

¹ Reiche: *Medical Annual*, 1853. ² Lowe: *Carbolic Acid in Choleraic Diarrhoea*, *Madras Monthly Journal of Medical Science*, 1871. ³ Dobie: *On the Use of Chlorine in the Treatment of Cholera*, Edinburgh, 1867. ⁴ Calkins: *The Use of Cresol in Cholera Morbus*, *Charleston Medical Journal and Review*, 1852. ⁵ Choksi: *Lancet*, April 29th, 1907. ⁶ *Indian Medical Gazette*, December, 1905. ⁷ Nicholson: *Treatment of Cholera with Salol*, *Indian Medical Gazette*, 1889. ⁸ Basil: *BRITISH MEDICAL JOURNAL*, September 24th, 1910. ⁹ Pant: *Transactions, Bombay Medical Congress*, 1909. ¹⁰ Leonard Rogers: *Cholera and its Treatment*, London, 1911. ¹¹ Leonard Rogers: *BRITISH MEDICAL JOURNAL*, November 18th, 1911. ¹² Nothnagel: *Encyclopaedia of Medicine*—article, "Cholera." Liebermeister: English translation, London, 1902. ¹³ Stevens: *Analysis of 326 Cases of Asiatic Cholera*, *BRITISH MEDICAL JOURNAL*, March 25th, 1911. ¹⁴ Bradley and Smith: *Journal of the Royal Army Medical Corps*, August, 1912. ¹⁵ Murphy: *Lancet*, June 2nd, 1912. ¹⁶ Latta: *Lancet*, June 2nd, 1832. ¹⁷ O'Meara: *Indian Medical Gazette*, October, 1908. ¹⁸ Duncan Whyte: *A New Method of Determining the Specific Gravity of the Blood*, *International Medical Congress (Medical Section)*, London, 1913. ¹⁹ McCay: *Standards of Constituents of the Urine and Blood in Bengal*, Calcutta. ²⁰ Duncan Whyte: *The Need for Physiological Standards in Clinical Research*, *Transactions, Far Eastern Assoc. Trop. Med.*, 1912. ²¹ Marni: *Journ. des praticiens*, May 16th, 1905. ²² *Semaine médicale*, October 2nd, 1907. ²³ Casbarrini: *L'Epidemia Colerica nelle Puglie*, *Policlinico*, October, 1912. ²⁴ Conseil: *L'Epidemie de cholera de Tunis et de sa banlieue pendant l'annee 1911*, *Arch. de l'Inst. Pasteur*, Tunis, 1912. ²⁵ *Lancet*, June 1st, 1913. ²⁶ Meigs: *Note on Major Leonard Rogers's Method of Treatment of Asiatic Cholera*, *Lancet*, November 23rd, 1912. ²⁷ *Archives de médecine et pharmacie navales*, August and September, 1911. ²⁸ Melnotch and others: *Lancet*, March 9th, 1912. ²⁹ Hort and Poulton: *Micro-organisms and their Relation to Fever*, *Journal of Hygiene*, October, 1912. ³⁰ Hort: *Vaccines and Fever*, *BRITISH MEDICAL JOURNAL*, February 8th, 1913.

THE ADMINISTRATIVE CONTROL OF MEASLES.

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DISCUSSION at a recent meeting of the Central Council for District Nursing in London, and the circular letter of the Local Government Board issued on March 31st, 1915, are signs that measles as a potent cause of death in the young is again the subject of official and unofficial concern. It may be interesting to review briefly some past experiences in the effort to control its ravages. For many years public health officials have been fully alive to the problem, as official reports and the proceedings of various medical and sanitary societies testify. No doubt these records will be carefully considered in the formulation of new schemes for dealing with the measles.

Perhaps the earliest systematic effort to compile and sift the methods of control adopted by various local authorities was made by Thomson in 1894-5. The practice in 33 districts where measles had been notifiable was made the subject of minute inquiry, which resulted in the advocacy of notification. But he admitted the futility of notification unless it was supported by an adequate epidemic staff, rigorous search for unnotified cases, hospital treatment, judicious employment of school closure and other machinery for bringing the health department into the closest touch with measles at every point. The result of a

somewhat similar collation of evidence is embodied in an annual report by the Medical Officer of Aberdeen. In reply to his inquiries none of the medical officers of districts where measles was notifiable were able to adduce convincing evidence of gain, but in some instances the feeling was nevertheless strongly in its favour.

Experiments in the notification of measles have probably been carried out on a larger scale in Scotland than elsewhere. For Aberdeen the records are more than usually detailed. Measles was notifiable in Edinburgh also from 1880-1902, at the end of which period the medical officer was reluctantly compelled to admit practical failure. The more elaborate investigations of Aberdeen, carried out by Hay and Wilson, ended in the same conclusion.

Notification of measles has been in force since 1892 in Renfrewshire. All the conditions of success laid down by Thomson, except hospital treatment, have been rigorously observed. There has been no evidence that more cases of measles than of other infectious diseases have been missed. The information thus acquired has been for some time the subject of study (the results of which are as yet unpublished) by the writer. It may be appropriate here to mention briefly some of the points which have emerged in relation to the value of notification.

At the outset it is obvious that the absence of notification in other comparable areas deprives us of the very information required as a control to the Renfrewshire figures. Moreover, since the introduction of notification was practically synchronous with the commencement of county public health administration in Scotland, statistics for comparison with the past are not available. We are confined to a comparison of death returns in Renfrewshire and adjacent counties where measles is not notifiable. The mean annual death-rates from measles per 100,000 of the population in the Western Lowland Counties of Scotland, 1893-1912, are as follows:

Renfrew	...	...	...	...	21.04
Stirling	...	...	...	...	30.56
Dumbarton	...	...	...	...	30.50
Ayr	...	...	...	...	25.04

A chart of the biennial death-rates from measles in these counties since 1891 demonstrates that a decline has occurred in every case. The rate for Renfrewshire in 1891-2 was by far the highest, and that for Ayrshire least. In Renfrewshire a very sudden drop occurred in 1893-4, and continued in 1895-6, since when the curve has run at a lower level than the others. In Stirlingshire and Dumbartonshire a sharp rise took place in 1893-4, followed by a steep fall in 1895-6. Since that time the curves have been more or less parallel with that of Renfrewshire, but always at a higher level. The curve for Ayrshire runs a course more nearly horizontal.

Of the uniformly notifiable diseases, scarlet fever is less different from measles in its characteristics than any of the others. The proportions of deaths from measles per 100 deaths from scarlet fever in the four counties, 1893-1912, are as follows:

Renfrew	...	...	...	...	176
Stirling	...	...	...	...	225
Dumbarton	...	...	...	...	398
Ayr	...	...	...	...	222

Port Glasgow is an industrial town in Renfrewshire. Measles had been compulsorily notifiable there since October, 1898, and the campaign has been conducted on the same energetic lines as in the county. Port Glasgow is continuous with one end of the larger town of Greenock, where compulsory notification is not in force. A chart of the mean biennial death-rates from measles in these towns from 1891-2 to 1903-10 reveals a great and practically continuous decline of the measles death rate in Port Glasgow since 1893-4, and a similar descent for Greenock since 1897-8. The trend of the curve is somewhat steeper in Port Glasgow, and, from being almost uniformly higher in the first three biennia, it has run consistently at a lower level in the last three. It will be noted that the fall commenced in Port Glasgow before measles became notifiable. In Port Glasgow the mean of the annual death-rates in the second decennium is 60.9 per cent. lower than that for the first. The corresponding percentage for Greenock is 49.2.

None of these sets of figures afford fit basis for conclusive arguments, but, taken altogether, they show some

evidence in favour of the notification of measles both in a county area and in an industrial town.

It has been strongly urged by Campbell Munro that one of the great advantages of notification is the early information it affords on which to base school closure. He has adduced numerous instances from his experience in Renfrewshire, Port Glasgow, and Jarrow-on-Tyne, of the efficacy of notification and school closure, both in his annual reports and elsewhere. Körösy, Kingsford, and others have discussed the influence of the normal holiday closure, the former regarding the effect as important, Kingsford rather inclining to scepticism. According to Gilmour, the value of school closure depends largely on the better social class of the scholars. The statistical investigations of Brownlee on the inherent tendency of epidemics to end themselves, and on rhythmic variability in the power of the virus to infect, require to be considered in drawing conclusions from all such experiments on the controlling of epidemics. He emphasizes the importance of these two factors, the former having been indicated originally by Farr and discussed, along with influences of season and susceptible population, by Ransome.

Considered over a number of years effectual school closure should reduce the case-rate; delay the age of attack, and so reduce the case-mortality; and diminish the volume of biennial epidemics. As a matter of fact, comparing the decennia 1893-1902 and 1903-1912 in Renfrewshire, one finds a fall in the mean annual case-rate of only 7.6 per cent., whereas the case-mortality has dropped by 32.0 per cent. That the lower case-mortality is not due to protection of young children from infection is shown by the fact that the mean annual case-rate under 3 years of age has fallen only 5.6 per cent., while the case-mortality at these ages has declined by 30.3 per cent. The mean age of all cases under 20 years of age has actually fallen from 5.56 years to 5.41 years. No doubt part of the disproportion is the result of imperfect notification in the early years. Again, if the years considered are periods of twelve months from September to August, the biennial fluctuation of cases is more pronounced in the six years 1907-1912 than ever previously. It would appear that some factor has come into play which has tended to reduce the fatality more than the incidence of the disease. Whether it has been the educative campaign associated with notification, or improved social conditions, or increasing immunity by selection, or a natural variation of the disease, it is not possible to decide in the absence of mortality statistics elsewhere.

In order to delay the age of attack Sykes made a strong plea for raising the age of school entrance. This might save a certain number of children, but it is difficult to see how it would materially affect the children at ages when measles is most fatal—that is, under 3 years.

Hospital treatment has been advocated in many quarters, notably in Glasgow and Kensington, and by Thomson. The difficulty of treating in hospital any serious proportion of cases of a disease like measles, which flares out in epidemics, has been generally recognized. In Glasgow hospital treatment has been adopted on a large scale for many years. And yet the curves of death-rates from 1893 to 1912 in Glasgow and in Lanarkshire, which encircle the city and has never offered hospital treatment to any extent, are remarkably similar in their trend. The influence of hospital treatment on chronic sequelae can hardly be measured, but it is probably important. On the other hand, the risk of infectious bronchopneumonia is increased.

Home visitation by trained nurses is now receiving official countenance. The educative effect and the prevention of sequelae may be valuable. It cannot have much influence on the spread of infection, and probably little upon the immediate fatality of the disease. Indeed, it is highly improbable that any measure short of the production of artificial immunity will have much influence on measles. The work of Anderson and Goldberger holds out hope that the discovery of the organism may yet lead to its administration in some attenuated form. Meanwhile, any advance in the administrative measures for dealing with measles is a move in the right direction, and must be based on accurate information, such as compulsory notification affords.

EPILOGRAPHY.

Anderson and Goldberger: Experimental Measles in the Monkey; *Public Health Reports*, U.S. Public Health Service, vol. xxvi, No. 23, p. 847; and No. 24, p. 887.

- Brownlee: Periodicity in Infectious Disease; *Proc. Roy. Philosoph. Soc. of Glasgow*, March 26th, 1914. Investigations into the Periodicity of Infectious Disease by the Application of a Method hitherto only used in Physics; *Public Health*, March, 1915, p. 125. Certain Considerations on the Causation and Course of Epidemics; *Proc. Roy. Soc. Med.*, June, 1909. Historical Note on Farr's Theory of the Epidemic; *BRITISH MEDICAL JOURNAL*, August 14th, 1915, p. 250.
- Campbell Munro: The Utility or otherwise of School Closure and of the Compulsory Notification of Measles in the Control of the Spread of Infectious Disease amongst School Children; *Transactions of the Incorporated Sanitary Association of Scotland*, 1905, p. 212; and 1906, p. 67. Measles: an Epidemiological Study; *Transactions of the Epidemiological Society of London*, N.S., vol. x, p. 59.
- Gilmour: Measles and School Closure; *Public Health*, September, 1912, p. 448.
- Kingsford: The Seasonal Incidence of certain Infectious Diseases amongst School Children, with Special Reference to the Effects of School Holidays; *Public Health*, June, 1912, p. 349.
- Körösy: Letter to Professor W. R. Smith, *Harben Lectures*, 1899, Appendix, p. 163.
- Ransome: On the Form of the Epidemic Wave, and some of its probable Causes; *Transactions of the Epidemiological Society of London*, N.S., vol. i, p. 95.
- Sykes: Measles and Elementary Schools; *Public Health*, September, 1911, p. 467.
- Thomson: Report upon Measles in England and Wales, and as to Measures that may be, and which have been adopted by Sanitary Authorities with a view to obtaining Control over the Disease; *Annual Report of the Medical Officer of the Local Government Board*, 1894-5, Appendix A, No. 10, p. 135.
- Wilson: Measles; its Prevalence and Mortality in Aberdeen; *Public Health*, November, 1905.
- Annual Reports of Medical Officers of Health: Aberdeen, 1903, 1904, 1910; Edinburgh, 1902; Glasgow, 1908, 1910; Kensington, 1910; Port Glasgow, 1898-1910; Renfrewshire, 1891-1912.

UNIVERSAL SUSPENSION APPARATUS FOR ARM AND LEG.

By M. SINCLAIR, M.B., CH.B. EDIN.,
CAPTAIN R.A.M.C.

ARM.

This is composed of a movable wooden top and a fixed wooden perpendicular (Figs. 1 and 2).

The lower perpendicular pole, L.P. (2 in. by 2½ in.), 5 ft. in length, is fastened to the top of the bed by means of a flat bit of timber, F (4 in. by 1 in.) 2 ft. 4 in. long, bolted with two bolts to the pole, with bed head rail between them, on the extreme right or left of bed.

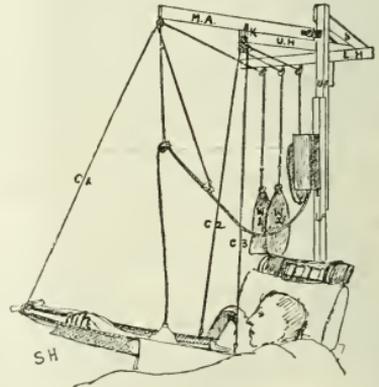


Fig. 1 (from a photograph).—Showing arm suspension applied.

This pole, L.P., has two sets of hinges, anterior and posterior, to enable it to be used for right or left arm— anterior for left, and posterior for right. These hinges are set at 15 in. apart, the upper hinge being 4 in. from the top of pole L.P. They also allow the top to swing 180 degrees.

The hinges are composed of two parts (Fig. 3), thus allowing the top to be easily moved when the suspension is required for right or left arm, as the case may be.

By this method two male parts are fixed to the upper perpendicular, U.P., and four female parts to the lower perpendicular, L.P. In alternate suspensions male and female parts are reversed.

The top has a perpendicular cap, U.P., and carries two

fixed horizontals, L H and U H, and a movable arm, M A, which is hinged to the upper perpendicular, U P.

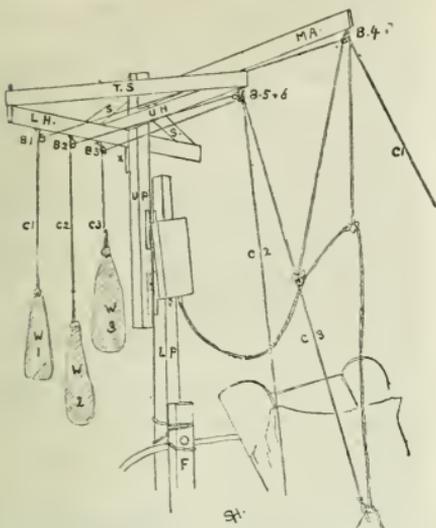


Fig. 2 (from a photograph).—Arm suspension, showing details.

This top can be completely removed from the pole by pushing the top upwards and thus separating the male from the female hinges. This renders it applicable to right or left arm. The upper perpendicular, U P, is made of the same material as the lower fixed perpendicular, L P (namely, 2½ in. by 2 in.), and is 3 ft. 2 in. in length. The two fixed horizontals L H and U H are set at right angles one above the other. They are 2 ft. 8 in. in length, the material is 3 in. by 1 in. They extend 2 ft. in one direction and 8 in. in the other.

The upper, U H, rests on the horizontal L H, which in turn rests on a block of wood X, all three being screwed to the upper perpendicular, U P. From the end of the shorter pieces of these two horizontals two stays, S S (2 in. by 1 in.), are fixed to the top of the upper perpendicular to counteract the weight that has to be applied to the longer ends. No dovetailing is done so as to avoid any weakening of the superstructure.

The ends of the longer pieces of the two horizontals are joined by a piece of wood, T S (3 in. by 1 in.), and, in order to keep this level, it is let in at the end which is in contact with the higher of the two horizontals, and rests on the top of the other horizontal. At each end of this transverse stay T S is a flat iron upright (¾ in. by 1 in. by ¼ in.) projecting upwards to act as a check, K, to the movable arm, and at the same time give more strength to these joints.

The movable arm, M A (3 ft. by 1 in.), is hinged to the upper perpendicular, and the upper edge 4 in. from the top of U P moves through an angle of 90 degrees. It is for the attachment of a block when the arm is extended, as in an arm Thomas splint. When the arm is extended (as in Fig. 1) in an arm Thomas splint, there are three eyes of wire fixed to the splint, and the third at the middle of the transverse bar at the hand end.

Three cords, C 1, 2, 3, are attached to these eyes—watch-chain hooks are very convenient—and each passes through its respective two blocks, and a suitable weight is attached to the other end.

For the right arm the cord C 1 from the hand end passes through block B 4 which is attached to the end of the M A, then passes to block B 1, which is fixed to horizontal L H, and a weight (sandbag) of about 2 lb. is attached at the other end.

The cord C 2 is attached to the outer eye at the ring end of the splint, passes through block B 5, which is fixed at the junction of T S and U H, then through block B 2 on L H, and carries a weight of about 4 lb.

Cord C 3 passes from the inner eye of the splint through the other block, B 6, fixed at the junction of T S and U H, thence to block B 3 on L H, and carries a weight of about 6 lb.

The blocks B 1, 2, 3, should be so placed on L H as to allow free play of the weights without touching.

In the accompanying drawings from photographs the irrigator rubber tube and two cords supporting the tubing which is leading to a wound that is being treated by continuous irrigation, are not lettered, to avoid confusion.

A gutter of perforated zinc is fixed to the sides of the Thomas splint, and holes are burned in the zinc opposite any drainage tubes. To prevent tissues herniating through these exits, the holes should not be too large. The whole is sterilized by flaming, and the arm with wounds is laid directly on this bed of zinc.

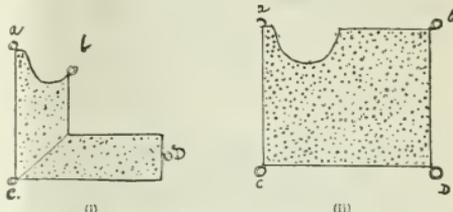


Fig. 4.—(i) Three cords with suitable weights are arranged as follows: Fix a block with about 4 in. of cord to a hook at (a). Fix cords at (b) (c) (d). Thread cord (b) through block (a), and suspend (b) (c) (d) to three blocks about 2 in. apart at the extremity of U H. Arrange blocks, cords, and weights so that they do not touch. Approximate weights: (b) 5 lb., (c) 4 lb., (d) 3 lb. (ii) Approximate weights: (a) and (c) 3 lb., (b) and (d) 2 lb.

This form of suspension of the splint conforms to all permissible movements of the limb, and is a great comfort to the patient, who is free to move at his will, or to sit up by his bedside if he wishes. Wounds so treated, drained freely, are readily dressed, and are open to inspection at all times.

By redistribution of the weights and blocks, this suspension can be adapted to a rectangular wire splint or a square wire frame, both of which are filled in with perforated zinc, for use with the flexed elbow.

LEG.

The suspension consists of a fixed frame carrying a travelling cradle, from which the limb in its splint is suspended by a system of weights and pulleys.

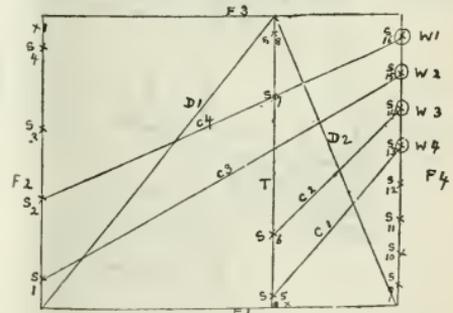


Fig. 5.—Diagram of suspension.

Frame.—The material is 3 in. by 2 in. A length of T-section iron rail is screwed to the upper surface of an 8-ft. wooden bar for a distance 5 ft. 6 in. from the foot

end. Two such bars are supported at their extremities by 6-ft. uprights placed so that the rails are 3 ft. 3 in. apart and parallel to each other. The uprights are firmly fixed

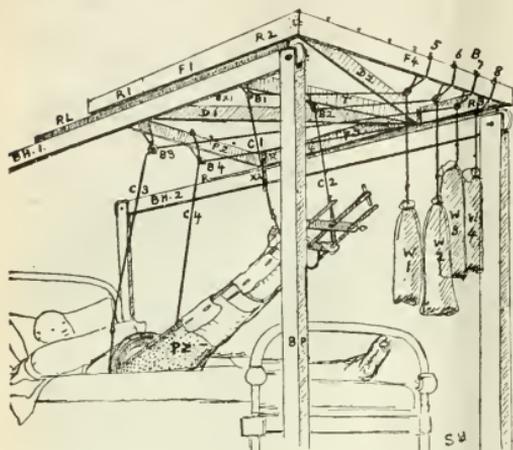


Fig. 6 (from a photograph).—Leg suspension applied. F Z, Perforated zinc.

to the floor by suitable stays, and the pair at the head end is joined by a transverse bar.

Cradle.—The material is 3 in. by 1 in. (all dimensions are outside measurements). The travelling cradle is rectangular with sides (F 1 and F 3) 4 ft. in length, carrying two window-sash pulleys, each let in 4 in. from the extremity R 1, 2, 3, 4. The ends F 2 and 4 are 3 ft. 4 in. in length. This rectangle is divided by a transverse stay, T, at 1 ft. 5 in., and the two smaller rectangles thus formed have diagonal stays, D 1 and 2, to prevent racking and give rigidity. On F 2 and T iron checks, X 2 and 1 (6 in. by 1 in. by $\frac{1}{2}$ in.), project vertically downwards, just clearing the horizontals B H 1 and 2. Strong 2-in. screws are fixed half in into the inner sides of B H 1 and 2 to engage with these checks. These are best adjusted experimentally. Sixteen round-headed

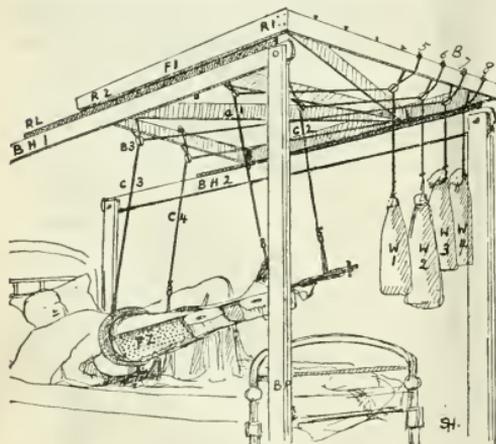


Fig. 7.—The same, showing patient raising pelvis unaided four days after injury. F Z, Perforated zinc.

2-in. screws are fixed half in into the upper edges of F 2, T and F 4 in the following way (Fig. 5): On F 2 four screws at the 6th and 15th inch from each side. On

T four screws at the 2nd and 11th inch from each side. On F 4 eight screws at the 4th, 9th, 14th, 19th, 21st, 26th, 31st, and 36th inch.

There are now sufficient for a right and left leg, and are for the attachment of the single blocks of the Hodgen's splint ($1\frac{1}{2}$ in. block is the best size).

In slinging a right fractured femur in a Wallace's splint, blocks are attached to screw S 1, 2, 5, 6, 13, 14, 15, 16.

There are four eyes of wire fixed to the splint, two on the ring (one on each side below the bars of the splint), and the other two to the transverse bar carrying the foot-piece.

Four cords—C 1, 2, 3, 4—are attached to these eyes; watch-chain hooks are very convenient, and each passes through its respective two blocks, while a suitable weight is attached to the other end.

Cord C 1 from outer foot attachment passes through block B 1, which is attached to screw S 5 on T, then through block B 5, which is attached to screw S 13, and carries a weight of about 7 lb.

Cord C 2, from inner foot attachment, passes through block B 2, which is attached to screw S 6 on T, then through block B 6, which is attached to screw S 14, and carries a weight of about 7 lb.

Cord C 3 from outer ring attachment, passes through block B 3, which is attached to screw S 1, then through block B 7, which is attached to screw S 15, and carries a weight of about 14 lb.

Cord C 4, from inner ring attachment, passes through block B 4, which is attached to screw S 2, then through block B 8, which is attached to S 16, and carries a weight of about 14 lb.

This suspension allows the patient very free movement, is a great comfort to him, and nursing is made comparatively simple. Fig. 7 (from a photograph) shows the patient, who has a fractured femur and ulna, raising his pelvis unaided four days after injury.

AN OPERATION FOR THE OBLITERATION OF THE CAVITY IN THE TIBIA REMAINING AFTER SEQUESTROTOMY.

By WILLIAM GEMMILL, F.R.C.S.,

KILMARNOCK.

The operation described is after the osteoplastic method recommended by M. W. af Schulten.¹ The patient was a man aged 61 whose left leg had been crushed nineteen years previously. At that time he was for four months in hospital; according to his own statement some dead bone came away from the lower part of the leg, and the wound healed. About a year afterwards the upper part of the leg, which had remained swollen, became very painful, was laid open, and part of the bone was removed. The wound produced at this operation had never healed, but the patient for sixteen years pursued his occupation with frequent intervals of incapacity due to the discharge becoming more profuse and foul. During this period he had four operations, which, he said, consisted in "scraping the bone," and one in which an unsuccessful attempt had been made to obliterate the cavity by filling it with wax.

The condition of the limb before operation was as follows: The whole of the shaft of the left tibia was much thickened and rounded, and scars of old sinuses were present over the lower part. The upper third of the shaft presented a cavity with overhanging edges about an inch apart at the outlet. The depth was one inch and a quarter, and the length three inches and three-quarters. The upper limit of the cavity reached to within one inch and a quarter of the knee-joint. The epithelium had grown well down into the cavity, leaving the posterior wall, however, covered with weak exuberant granulation tissue. There was some sero-purulent discharge.

Under a general anaesthetic, the limb having been rendered bloodless by means of a tourniquet, the cavity was thoroughly swabbed with pure carbolic acid. An incision down to the bone was made round the opening of the cavity just outside the margin. The epithelium

within the incision and the granulation tissue in the cavity were thoroughly removed with a sharp spoon till healthy hard bone was reached all round. From the upper and lower extremities of the wound vertical incisions were made, terminating at the levels of the roof and floor of the cavity, and what remained of the bony part of the anterior wall of the cavity was removed. A transverse incision was now made at the upper, and a corresponding one at the lower, end of the wound reaching down to the bone, care being taken at the same time to avoid injury to the tibialis anticus muscle. Each incision was $\frac{3}{4}$ in. in length, and reached on either side to the junction of the lateral with the posterior wall of the cavity. Through these incisions the attachments of the lateral walls to the roof and floor were now severed by means of a small saw. The lateral walls, consisting of skin, subcutaneous tissue and bone, now remained attached only to the posterior wall, and the next step consisted in severing the bony attachments. This was done by means of a chisel and mallet, working from the inside of the cavity, the last part of the separation being completed by using the chisel as a lever and breaking through the outer shell, in order to preserve the periosteum intact. The lateral walls could thus be turned outwards as two flaps. Sufficient bone had now to be chiselled away from them and from the posterior wall to allow the flaps to lie against the posterior wall and their edges to be brought together. Unfortunately, before this step was quite finished the condition of

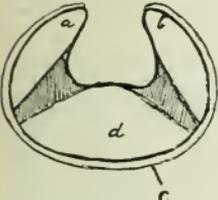


Diagram of transverse section through cavity in tibia. Shaded part represents bone removed to allow flaps a and b to come together; c = periosteum, d = tibia.

of the patient, who had all along been taking the anaesthetic badly, became so unsatisfactory that the operation had to be completed rapidly. The flaps were stitched together with silkworm gut through skin and periosteum, but the edges remained separated by about a quarter of an inch. The transverse incisions also could only be closed in part. Dressings and a back splint were applied and the tourniquet removed. The leg was dressed next morning as blood had appeared through the dressing, and was again dressed on the seventh day, when the stitches were removed.

The wound healed partly by first but mainly by second intention, and with the exception of two small sinuses, one at either end, which admitted a probe and led down to small points of bare bone, had entirely healed by the seventh week. Three weeks later the sinuses had disappeared, the bony flaps had joined solidly to the shaft, and the patient was walking about. The resulting scar consisted of a vertical part with a transverse piece at either end.

Two points worthy of note arose during the operation. The first was that the amount of bone which had to be removed before the flaps could be brought into apposition was much greater than I had anticipated, and the other that before the edges of the transverse incisions could be brought together it was necessary to bevel down the edges of the overhanging bone at the roof and floor of the obliterated cavity.

Had the condition of the patient under the anaesthetic permitted of sufficient bone being removed to bring the flaps accurately together recovery should have been more rapid.

REFERENCE.
1 *Archiv f. klin. Chir.*, lii, 145.

THE Prefect of Police in Berlin has notified the German medical profession that the authorities are disquieted by the great fall in the number of pathological specimens sent to the laboratories for investigation. He points out that this slackness on the part of medical men greatly increases the chances of epidemics. However much the ranks of the medical men may be depleted by the demands of the army, the authorities, he declares, cannot allow practitioners to neglect one of the most important measures for the early detection and localization of infectious diseases.

THE TREATMENT OF SEPTIC WOUNDS BY THE ELECTROLYTIC BATH.

BY
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MEDICAL OFFICER IN CHARGE OF ELECTRICAL DEPARTMENT, ROYAL VICTORIA AND WEST HANTS HOSPITAL, ROUINEMOUTH.

THERE has lately been much discussion of the possibility of sterilizing wounds by antiseptic lotions. A weak solution will not kill the septic organisms, and a strong solution will kill those it can reach, but produces a slough, which provides excellent culture material for those deeper in the tissues. The question asked was: "How can we attack those germs which remain in the tissues?" Bacteriologists have had some success in this direction with vaccines and serums, utilizing and fortifying the natural resistance of the body to the infection.

It did not occur to any one to ask, How can these germs be induced to leave the deep parts? The idea that a Pied Piper should arise to call them from their fastnesses to be destroyed seems fantastic; yet it appears that this is not only possible but in many cases easy. The credit for the discovery belongs to Dr. Charles Russ,¹ who found that nearly all germs are carried towards the positive pole of an electric current passing through a solution of sodium chloride, and that the small current required is lethal to the bacteria without the need for any aid from the ionization of various drugs, such as the salts of zinc and copper, which have been much used for the purpose of introducing an antiseptic into the cells.

The practical results of treatment seem to support Dr. Russ's observations. I have been much impressed by the success obtained in every case that I have treated. I will only describe one, a perforating gunshot wound of the foot, with a crater on the dorsum leading to a tunnel through which the little finger could be passed and which opened on the sole of the foot. The whole wound was welling with pus and it seemed doubtful whether the man's leg could be saved; five days later granulation tissue was level with the skin at both wounds, which were surrounded by a healthy looking ring of new skin.

The action of the current is not confined to carrying bacteria from the wound, but also stimulates the formation of granulation tissue and epithelial growth.

The treatment opens up a wide field for further research in the treatment of many intractable conditions. Dr. Russ reports some cases of chronic cystitis in which it has produced very satisfactory results.

Apparatus.

The only apparatus required is a battery of 20 to 30 dry cells with a current collector and a good milliamperemeter reading to 25 m.a. with a shunt to 250 m.a.

Bath.—A Schnee four-celled bath is very convenient, but any vessel will do if it is long enough to immerse the forearm and hand, or deep enough to cover a wound of the foot or leg, wounds of the other parts can have a local bath applied, such as a glass cylinder made water-tight with plasticine, as suggested by Dr. Russ, and filled with a warm saline solution.

Electrodes.—Two electrodes are necessary—the carbon of a Leclanché cell serves admirably, or they can be cut from sheet zinc. One is immersed in the bath with the wounded limb, and this must be connected with the positive pole of the battery, marked +. The negative pole has to be connected to some (indifferent) part of the body, either in another bath, or the electrode may be placed under the back of the patient, separated from the skin by sixteen thicknesses of lint well soaked in warm salt solution—this pad should be 12 in. square, and must be well washed after use to remove any trace of caustic soda produced by the current.

Method of Treatment.

The wounded limb being placed in the bath and covered with warm normal saline solution, the negative pole connected to some other part of the body, the current should be slowly turned on from zero until the meter registers 20 to 30 milliamperes. This current, which the patient will barely feel, is sufficient for an average bullet wound; for larger wounds the current must be increased proportionately. The patient must be warned not to take the

limb out of the bath until the current is quite turned off, or he will get a shock; for the same reason the turning off of the current at the close of the treatment must be gradual.

Treatment should be given daily, for half an hour on each occasion.

My experience of the method leads me to recommend it as giving excellent results in all septic wounds and ulcers; it needs no expensive outfit and is painless.

REFERENCE.

¹Proceedings of the Royal Society of Medicine, Electro-therapeutic Section, vol. VIII, No. 5, p. 45.

A CASE OF HYSTERICAL AMBLYOPIA.

BY

KENNETH CAMPBELL, M.B., F.R.C.S.,

SURGEON TO THE WESTERN OPHTHALMIC HOSPITAL.

AN acquaintance with a few elementary principles of psychology is necessary for the proper understanding of the modern views concerning hysteria. Up to the time of Locke (1632-1704) the belief was generally held that all ideas are innate—that is, that the mind has the power of spontaneously drawing from its own depths conceptions and ideas which are quite independent of all experience. It was this philosopher who first taught the now generally accepted doctrine that impressions received from without must precede any ideas in the mind, that no ideas exist antecedently to experience. Locke likened the mind at birth to a sheet of white paper upon which the environment prints its messages.

There are reasons for thinking that each of us possesses a dual mental life—(a) the ordinary life of normal conscious thought, and (b) a subconscious mental life (the "subliminal consciousness"). This in effect means that there are two main planes of consciousness—a higher and a lower—and that impulses flowing into the lower plane are not of such degree of intensity as to excite immediate attention, but, being stored up in the mind as memory images, can, under the influence of certain stimuli, enter the higher plane of conscious thought, and thus be presented to the ego. According to Freud, there is no such thing as chance in the determination of a thought, for he postulates that for every psychic phenomenon there has been an antecedent experience in the life-history of the individual. He illustrates this thesis by the following history of a case: A certain young woman complained of the constant presence of the odour of burnt pudding, concerning which she herself could offer no explanation. By applying his method of psycho-analysis Freud eventually was able to trace the hallucination to its source; at a time of great emotional crisis in her life (a repressed love affair) she had been occupied with a burnt pudding.

Alice K., aged 21, exhibits all the classical symptoms of hysteria. She is highly emotional, self-conscious, of defective will power, keenly desirous of sympathy, and speaks in a whisper (hysterical aphonia). Her life has no satisfactory aims.

Visual acuity varies within wide limits. Sometimes it is as low as $\frac{2}{300}$; at other times, particularly when her attention is distracted, it is as high as $\frac{5}{5}$. Retinoscopy shows +2 D. of correction. That there is no element of malingering is proved by the fact that she will unintentionally hurt herself by stumbling over a chair or knocking against a post. Just as visual acuity varies, so does the visual field vary, at times being reduced to a small area around the fixing point. On ophthalmoscopic examination the media are found to be transparent and the fundus normal. There are no signs of disease in any of the viscera. The blood pressure is not raised and the urine is free from albumin. The condition of the kidneys is very important, inasmuch as many cases of amblyopia are uramic in origin.

Following Freud's method of endeavouring to trace every particular symptom to its source—some antecedent experience in the life-history of the individual—it was revealed that a short time prior to the onset of the visual defect the eyesight of the patient's father had begun to fail. This preyed considerably on her mind, and from then dates the beginning of the amblyopia. Having now traced the condition to its source, the next thing was to

get the patient frankly to acknowledge its nature, to face it bravely, and to bring the entire circumstances of it under the criticism of the mind. This line of treatment, combined with measures adopted to improve the general health, effected a cure by the end of nine months.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

HYPOCHLORITE SOLUTIONS IN THE TREATMENT OF WOUNDS.

SINCE reading the experimental observations of Professor Lorrain Smith and others on the use of hypochlorous acid as an antiseptic I have used a solution of hypochlorous acid, made by diluting the liquor sodæ chlorinatæ B.P. with water (one to four of water), extensively in the treatment of industrial injuries in the casualty department of the Bradford Royal Infirmary (at present under my charge). It has exceeded my expectations in every way, although, like many others, I have used it for many years in septic throat conditions with great advantage.

The liquor sodæ chlorinatæ has the advantage over "eupad" in that it is much more stable, and does not lose its gaseous contents so readily. It is also much more convenient—in civil hospitals, at all events—than the solid "eupad," and its solution is less troublesome to prepare than "eusol"; also its hypochlorous acid content as demonstrated by its power of liberating iodine from a solution of potassium iodide, is greater than that of "eusol." After over twenty years' experience of various antiseptics, I have no hesitation in saying that it is better than any other I know. It is cheaper even than mercury perchloride; it is non-poisonous, is non-irritating to the deep tissues and skin, being almost a neutral solution or only slightly alkaline; it does not either discolour or irritate the surgeon's hands, or destroy his instruments. I have done a number of amputations in badly lacerated hands, where there was every chance of sepsis arising, and even when the full strength of the liquor sodæ chlorinatæ was used primary union of the flaps was obtained. I have not worked out the lowest effective strength of dilution, but in all probability it can be used effectively in much weaker solution than I have employed. In several cases of previously septic wounds I have used the full strength with most gratifying results. My apology for writing this is that probably many medical men do not realize that they have at hand an old preparation which gives them the benefits of the most recent researches on the antiseptic treatment of wounds when the conditions are such that aseptic methods cannot be applied.

Bradford.

WILLIAM MITCHELL.

LOCALIZATION OF FOREIGN BODIES.

I HAVE been asked if my "ladder" localizer, described in the BRITISH MEDICAL JOURNAL of July 3rd, could not be adapted for the localization of foreign bodies by the fluorescent screen. The following method is quite simple and accurate: With the usual arrangement, the screen above the patient and the tube below, the latter is first set so that the vertical ray is in the plane of the ladder. The shadows of the wire rungs are thus superposed, forming one black line on the screen. This line is marked conveniently by placing over it on the lead glass of the screen a thin knitting needle, with a small piece of adhesive strapping at each end. The shadow of the chosen point of the foreign body is also marked by the point of an ordinary pin, similarly furnished with a bit of strapping. The tube is then moved so that the vertical ray passes through the chosen point of the foreign body. The ladder shadow is now, of course, spread out, the rungs appearing separately. The dividers are next brought into play, one point set on the former shadow of the foreign body (the pin point) and the other on the present shadow. The dividers are then moved to the ladder shadow (the line joining their points being kept parallel to its original direction) and moved along with one point kept lightly pressed against the knitting needle until the second point of the compasses falls on the shadow of a rung, let us say a quarter of the

way along the fourth rung. The foreign body is at the depth thus indicated—that is, 3.25 cm. below the screen. The tip of a second knitting needle pressed lightly on the skin, so that its shadow coincides with that of the foreign body in the second position of the tube, can, if necessary, be localized similarly, to allow for the distance of the plate above the skin of the patient. In any case, the knitting needle should be set in place and the position of its tip marked on the skin, recording the spot which is vertically over the foreign body.

3rd Western General Hospital, Cardiff.

JOHN H. SHAXBY.

Reports

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

MANCHESTER CHILDREN'S HOSPITAL.

A CASE OF STUPOROUS INSANITY CURED BY THYROID EXTRACT.

(By G. H. HICKLING, M.D., D.P.H., B.Sc.)

M. B., aged 12, was brought to the dispensary in March last. She was assisted to a chair, being apparently unable to walk alone. She did not speak nor take the slightest notice of what was said to her, but remained during the entire consultation in a condition of complete apathy, staring blankly before her.

History of Onset.

During the past six months from being a pleasant, good natured girl she became increasingly bad tempered and sulky. Then dirty habits developed. Incontinence of urine and faeces occurred by day and by night. She lost all interest in her surroundings and became more and more morose. The only thing which roused her was the sight of food. She was ravenous and greedy, eating all that was placed before her, even stealing the portion of the younger children. She would sit in one position for hours, never uttering a word. Occasionally, however, if disturbed she would give vent to loud inarticulate cries. There was no history of shock before the onset, nor had the child suffered from any previous ailments other than the minor maladies of childhood. She was the third child of a family of seven, and all the others were healthy.

Condition when First Examined.

She was a pale, thin child, small for her age; her face was devoid of expression. The tongue was furred, the bowels constipated; the hands and feet were cold, the pulse slow and feeble; no heart lesion was detected; respiration was shallow, but the lungs appeared normal; the urine was not examined owing to difficulty in obtaining a specimen; there was no indication of the approach of puberty; the knee-jerks were present but response was slow. During the examination the child remained passive, offering neither resistance nor assistance. She never turned her head when spoken to, but continued to gaze stolidly before her. At the conclusion of the interview she had to be dragged from the seat and more or less carried out of the room.

Treatment.

The case was duly labelled "mental" and a poor prognosis given. An aperient mixture together with bromides were prescribed. A fortnight later the bowels were acting freely but the mental condition was unchanged. Treatment with thyroid extract, 1 gr. daily, was then started. Two weeks later there was a slight but distinct improvement, with an attempt at speech, and after another fortnight she replied intelligently when questioned. From that time on she progressed rapidly. After two months of thyroid treatment she had regained control over bladder and rectum, and her appetite was normal. A month later her demeanour suggested no mental abnormality; she looked bright and amiable though somewhat frail. She has now been sent into the country for a month, and given a tonic of iron, arsenic, and strychnine. It is proposed to keep her under observation for some time longer until puberty is established.

Rebicus.

DELORME'S "WAR SURGERY."

VERY large numbers of surgeons have been discovering during the past eventful months that the surgery of war was not quite the same thing as the surgery of peace. The lessons learnt by the surgeons of a generation or more ago had to be relearned by the men of to-day. Very early in the war Inspector-General DELORME, of the French Army Medical Service, published a volume of advice to surgeons, and with the object of preserving "unity of doctrine" and uniformity of practice. That volume has now been supplemented by *War Surgery*, a translation of which has been made by Dr. H. DE MÉRIC. The work is a small, compact volume, not overburdened with detail, rather synoptical in its form. Reference to any subject is easy, and the reader finds quickly the information on the matter in hand. The author confines himself strictly to the point of view of injuries and their direct results as they are produced in war.

The preliminary chapters on weapons and projectiles are interesting for the authors remarks on the so-called "humanitarian" bullets. "It is truly pushing the love of paradox very far to call humanitarian a bullet that goes through several men when fired from a short distance, and that is capable of causing great slaughter in a zone of more than 3,000 metres." Bullets which on meeting the slightest obstacle turn on their axis, strike obliquely or transversely, and so give rise to wounds of large size, are, he considers, outside the borders of "humanitarian." The mortality in short-distance rifle firing is, he says, very great, and he does not accept the idea that men are simply placed *hors de combat* for a short time and not killed. With equal fearlessness he dismisses the notion of the employment of explosive bullets so often alleged against the Germans. In these terrible injuries the "explosive shots are due to projectiles of very high velocity becoming more or less broken up in their course through the tissues." The ricochet accounts for very many of these explosive effects. Ricochet occurs in about one-third of all rifle bullets fired. The so-called explosive bullet does not ricochet.

In the treatment of wounds of arteries Delorme's experience suggests the adoption of this formula, which we quote in full: "In wounds of large vessels, ligature after compression should remain an operation of emergency for cases in which the haemorrhage continues; if it stops, the patient should be immobilized on the spot and closely watched. Supervision would be better carried out in the first line than in halting places on the road or on the railway. When the surgeon considers the proper time has arrived he will send the wounded man on to the nearest hospital."

In dealing with metallic foreign bodies he maintains that the asepticity or otherwise of the wound is of more importance than the tolerance of these bodies in the tissues, or their nature, size, and form. But if a foreign body in an aseptic wound gives rise to no pain or uneasiness by coming into contact with vessels and nerves, it should be left. No attempts have hitherto been made, so far as we know, to classify the effects on bone of rifle-bullet fire in relation to velocity—that is, distance from which the shot has been fired. M. Delorme states that as a general rule the higher the velocity of the projectile the more limited in length is the fracture, but the greater is the comminution; and he makes a classification, fully illustrated with diagrams, which we commend to surgeons dealing with these injuries in any of their stages.

Conservatism is the leading note of the chapter on abdominal injuries. The treatment of such is summed up in two sentences: First, narrow wounds made by bullets fired point blank should be left alone, the patient kept at rest and starved; secondly, extensive wounds of both skin and bowel made by bullets which have turned, or by shrapnel, certain to be accompanied by peritoneal infection, should be treated by absolute rest, starving, Murphy's small incision in the lower abdomen to drain the pelvis, rectal salines, and Fowler position.

This little book is very systematically arranged and reference is facilitated by a good index, and the translator

¹ *War Surgery*, by E. Delorme. Translated by H. de Méric. London: H. K. Lewis and Co., Ltd. 1915. (Cr. 8vo, pp. 256; 14 figures. 5s. net.)

has done his work well. The volume, as has been said, is small, and might well be added to the kit of every young surgeon attached to our forces. On the way out to the Dardanelles or in the preparatory months at home, time would be well spent in mastering the concentrated expression of M. Delorme's experience.

TEXTBOOKS OF MIDWIFERY.

The appearance of a fourth edition of Dr. EDEN'S *Manual of Midwifery*¹ forms abundant evidence that the popularity into which it immediately sprang on its first publication less than a decade ago was well founded. As a student's textbook particularly it has in these years held one of the foremost places. The present edition differs from its predecessors in one important point only—namely, its increased size. The author explains that he has had to include descriptions of the advances in the science and art of obstetrics which have taken place during the last three years, and certainly every justice has been done to these matters. Several of them, however, involve questions upon which the final judgment has yet to be pronounced, and it is a moot-point whether in a book which presumably is primarily designed for students, they deserve an increase of close upon seventy pages. If this process continues, we venture to think that the whole character of the book will change. Amongst the new subjects introduced, a prominent place is given to the rare form of obstruction in labour due to the formation in the uterus of a contraction ring, and the author has made an interesting classification of the various forms of spasm of the uterine muscle met with during labour. The condition is incisively explained, and the classification will be distinctly helpful to the student. The whole question of the serum reactions in pregnancy is touched upon, and a description given of Abderhalden's reaction. The question of its ultimate value is judiciously left open. The section upon the physiology of pregnancy has been rewritten and expanded in other directions also, and reference made to the functions and correlation of the endocrine glands. The treatment of placenta prævia has been revised, and due consideration has been given to Caesarean section as an operation suitable for certain cases. Recent work on the etiology of eclampsia has received ample recognition, but in regard to its treatment mention might have been made of veratrine, as distinct from other preparations of veratrum viride, in view of the encouraging results that have followed its use in the hands of several authorities. The new edition unquestionably maintains the book at a high level of excellence. Its general production is first-rate, and the addition of four good coloured plates adds to its attractiveness.

The work on obstetrics² by Professor LEOPOLD MEYER, of Copenhagen, possesses many of the characteristics of the ideal textbook. Each volume is light and handy, the print is large, and the convenient device of using small print for the discussion of matters of secondary importance is of inestimable value to the student, who thus gets a book combining the advantage of an epitome with that of a detailed review. There are many signs that the author is indebted to the German schools, and a certain number of the illustrations are taken from Bumm's book, but many of the best illustrations are original, and the author's style is in marked contrast to the ponderous and tedious composition of many German scientific publications. Professor Meyer's book reads as easily as a novel, but is not verbose, and it would be impossible to condense his book appreciably without serious loss of valuable matter. This combination of brevity with style and lucidity is so rare a feature of textbooks that the restriction of this work to the readers of Danish, which is little read outside the Scandinavian countries, is all the more regrettable. Probably much of the charm of Professor Meyer's style would be lost in translation. His many years of teaching have no doubt impressed on Professor Meyer the importance of avoiding side-issues and qualifications of general statements, and he is blameless of Gladstone's *per se* pursuit

of successive digressions. But the virtue of keeping to the main point and to generalities exposes the author to the critic armed with the exceptional case; and when the author gives catheterization of the bladder as the only cause of cystitis after labour he is probably overlooking other factors. Thus, on page 310, he says: "Cystitis may occur during pregnancy, but it is rare; it is more common in the puerperium, when it is due to catheterization-infection during labour or the puerperium. It occurs readily when frequent catheterization is necessary at this stage, but it can be avoided, as under other conditions, with practical certainty, by the use of prophylactic irrigation with 1 in 200 silver nitrate." In the matter of anaesthesia Professor Meyer does not run after strange gods, but cleaves to the time-honoured use of chloroform under certain conditions and in small quantities. The Freiburg method of inducing "twilight sleep" with small, frequent injections of scopolamine and morphine is damned with the faint praise implied by the use of small print. The author says: "But the method appears to be far from safe, at any rate for the child; its technique is very complicated, and necessitates, among other things, the constant presence of the physician; and it has been adopted but little outside the place of its birth." Hypnotism as an analgesic during labour is discussed by the author with even less respect, and in the two lines he devotes to this topic he dismisses it as a failure.

POST-MORTEM METHODS.

DR. J. M. BEATTIE has written an account of the *Post-Mortem Methods*³ he has found to be of practical service, and his book is meant to be used in conjunction with textbooks of pathology and bacteriology by students or medical practitioners called upon to perform obductions. Dr. Beattie lays great stress on the employment of a regular routine in the making of *post-mortem* examinations, if important points are not to be missed. Still more important is it that the pathologist should know as much as possible about the case before he examines it, in order that he may know what special points to look for and not overlook details that may turn out later to be of cardinal importance.

Dr. Beattie gives few details of morbid anatomy or morbid histology. After describing the general examination of the body and the modes of removing the separate viscera, he gives accounts of their examination in greater detail organ by organ. The second half of the book is devoted to medico-legal considerations, an outline of the bacteriological and histological examinations most generally useful, and a long chapter on the investigation of special cases, in which the reader is told the special points to be looked for at autopsies on cases of the commoner diseases. Dr. Beattie makes a number of quotations from Dr. Shennan's recent textbook for pathologists. He writes clearly and to the point; though he has succeeded in compressing a large amount of information into the volume, one may question whether it would not gain by expansion. The text contains a number of misprints; thus on p. 52, par. 2, line 1, "auricular" should be "ventricular"; "carnae," on p. 54, should be "carnea"; on p. 58 "diphtheria" should be "diphtheriae"; on p. 82 "pubis" should be "pubes"; "influenza," on p. 175, should be "influenzae"; on p. 195 "*Bilharzia haematobium*" represents an unhappy hybrid doubtless obtained by crossing *Bilharzia haematobia* with its homonym "*Schistosomum haematobium*." Throughout the text the word "aneurysm" is spelt "aneurism." The book should be of service to those for whom it has been written.

THE SEAMY SIDE.

NOWADAYS there is a great boom in what may be called biographical novels, in which the material and spiritual progress of the hero is traced from his infancy to his final marriage or grave, as the case may be. We say "final marriage" because so many of these heroes have preliminary experience of brief and irregular unions, or of the divorce court, or of both, before their creator, the author, thinks fit to draw his novel to an end. In

¹ A *Manual of Midwifery*. By Thomas Watts Eden, M.D., G.M. Edin., F.R.C.P. Lond., F.R.C.S. Edin. Fourth edition. London: J. and A. Churchill, 1915. (Med. 8vo. pp. 787; with 5 plates and 354 illustrations. 46s. net.)

² *Læroebog i Fødselskjøbenhavn*. By L. Meyer. In two volumes. Kjøbenhavn og Kristiania: Gyldendalske Boghandel-Nordisk Forlag. 1915. (Sup. roy. 8vo. pp. 459 and 380; 122 figures.)

³ *Post-Mortem Methods*. By J. Martin Beattie, M.A., M.D., Cambridge Public Health Series, under the editorship of G. S. Graham-Smith, M.D., and J. E. Purvis, M.A. Cambridge: The University Press. 1915. (Demy 8vo. pp. 239; 8 plates, 3 figures. 10s. 6d. net.)

addition, novels of this type run to great length. Their most notable exemplar, *Jean Christophe*, written by that brilliant French musical critic and man of letters, Romain Rolland, extends to ten volumes; yet the reader's interest is maintained to the end, for the hero has a character full of interest that goes on developing to the last, and the author's literary skill enables him to hold the reader's attention throughout. The ten volumes are not too many for their theme. The well-known playwright, Dr. W. SOMERSET MAUGHAM, has recently published a novel² composed on these lines, in which he traces the school-days and early career of Philip Carey, crippled with a clubfoot, who first fails in life as an artist and finally qualifies for medical practice. Dr. Maugham is to be congratulated on the skill with which he has reproduced the squalid gloom and tedium in which Philip and his friends seem habitually to have lived. His purple patches, such as they were, consisted in brief passages of passion with various women, presented by Dr. Maugham in unattractive lights to the reader. Other strong and abiding interests than these Philip did not apparently possess; his friends, when not actually vicious, were aural, and with one or two exceptions were selfish friends who failed him in moments of emergency. Philip himself did no less to those dependent on him, it is only fair to say. A most unpleasing description is given of the anxiety with which he waited to step into the shoes of his dying uncle, an anxiety which drove him to the undertaker before his uncle had died; and even when 30 years of age he was so lacking in self-control and in respect for others as to abuse the confidence of the young girl he himself intended to marry. The gloom lightens at the end of the book, for Philip is left on the hands of this sensible and competent young woman, who seems to be capable of making him marry her and keeping him straight afterwards; whether he is a valuable acquisition to the medical profession is a matter for the reader to decide. Many of the characters in the book leave one, as does Philip himself, with a slight feeling of nausea. No doubt such people exist, but was it necessary to bring them all together in the pages of a single volume to the exclusion of honest folk? An author has a right to choose his own atmosphere and setting for his tale, but does life consist of nothing but nastiness, envy, hatred, malice, and all uncharitableness, to the exclusion of such simple and common virtues as truth, honour, and natural affection? Dr. Maugham gives a vast amount of biographical detail in his closely-written account of the unfortunate Philip Carey. But the unwholesome Philip remains an uninteresting and unattractive figure that vividly recalls a stanza by a recent Cambridge writer of verse:

For your dull little vices we don't care a fig |
It is this that we deeply deplore,
You were cast for the common or usual pig,
But you play the invincible bore.

NOTES ON BOOKS.

BOOKS FOR THE LAYMAN.

THE public is always interested in its nerves. This interest exhibits itself in the large number of books on the mind and its disorders written for consumption by the lay public. These books have many characteristics in common. They deal largely in generalities and optimism; they often have some system of mental or physical therapeutics to boast; not a few of them are written by medical men. JAMES ALEXANDER'S book on the *Requirements of Blushing*³ has been written to meet the requirements of blushing fifteen. It contains an account of the origin and treatment of bashfulness, blushing, nervousness, shyness, stammering, stuttering, timidity, and adolescent fears. The line of treatment may be fairly summed up in the single word, "Don't."

In his book, *Nerve Control*,⁴ on the cure of nervousness and stage-fright, written for artists and performers, H. E. HUNT develops the method in which suggestion, itself the cause of nervousness, may also be used as its cure; man,

² *Of Human Bondage*. By W. Somerset Maugham. London: W. Heinemann, 1915. (Post 8vo, pp. 648, 6s.)

³ *The Cure of Self-Consciousness*. By J. Alexander. Newcastle-on-Tyne: A. Heil and Co., Ltd., London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd., 1915. (Died. 8vo, pp. 154, 5s. 6d. net.)

⁴ *Nerve Control. The Cure of Nervousness and Stage-fright*. By H. E. Hunt. London: W. Rider and Son, Ltd., 1915. (Cr. 8vo, pp. 127, 1s. net.)

as he says, is the master of his fate. Accordingly, if any one determines not to be frightened on the stage, platform, or pulpit, he will not be frightened when he finds himself there. The book is full of general advice and suggestions which should prove harmful to nobody.

A small manual on *Making the Most of Life*⁵ has been published by Messrs. O'SHEA and KELLOGG. It is an American work, meant for the instruction of the public at large. It sets out in popular language the benefits of exercise, the importance of a proper diet, and the dangers of unhealthy modes of life. It is highly didactic, and contains enough popular science thoroughly to confuse and impress the mind of the man in the street. It is well illustrated, and at the end of each chapter contains a number of questions which the reader should be able to answer if he has mastered what he has read.

Dr. CHARLES REINHARDT'S volume on *Mental Therapeutics*⁶ is an attempt to offer rational explanations of faith healing, hypnotism, somnambulism, telepathy, auto-suggestion, and the workings of the mind in general. Half the book is occupied by auto-biographical reminiscences of Dr. Reinhardt's experiences in these various phenomena. The second half of the book contains generalities on what Dr. Reinhardt calls the scientific aspect of his subject. The whole book is written for the general reader; it contains an uncritical survey of the statements taken to establish the truth of occultism, clairvoyance, telepathy, and faith healing. Sir Oliver Lodge has furnished an introduction to the volume.

In his racy volume on *The Secret of Human Power*⁷ Dr. HAYDN BROWN, writing *de omnibus rebus et quibusdam aliis*, gives us his thoughts about modern life in general. In the world in which he moves he sees much, alas! to give him pain. The education of children, the rising generation, the war, vicious circles in disease—these and many other subjects give him cause for sad reflection. He hopes, however, that the truth will survive; with Tennyson, he holds that

Self reverence, self knowledge, self control,

These three alone lead life to sovereign power |
or so, at any rate, we interpret his volume after perusing it.

⁵ *Making the Most of Life. The Health Series of Physiology and Hygiene*. By Professor M. V. O'Shea and J. H. Kellogg. New York: The Macmillan Co., 1915. (Post 8vo, pp. 305; illustrated, 3s. 6d.)

⁶ *Mental Therapeutics; or, Faith Medicine and the Mind*. By Charles Reinhardt, M.D.; with an introduction by Sir Oliver Lodge, F.R.S. Third edition. London: The London Publicity Co., Ltd. (Cr. 8vo, pp. 287.)

⁷ *The Secret of Human Power*. By Dr. Haydn Brown. London: G. Allen and Unwin, Ltd., 1915. Cr. 8vo, pp. 328; illustrated. 5s. net.

MILITARY PENSIONS AND GRANTS.

REPORT OF SELECT COMMITTEE.

THE Select Committee on Naval and Military Services (Pensions and Grants) appointed by the House of Commons on November 18th, 1914, issued its third report on September 10th.⁸

This report, which deals with pensions and grants to disabled officers, and officers' widows, orphans, and dependants, makes the following recommendations; they, however, apply primarily to combatant officers only.

Under existing regulations, the pensions paid to widows and children of naval and military officers are on three scales, which differ according to the circumstances under which an officer meets his death. In cases in Class I (killed in action) a gratuity is paid in addition to pension. The Committee considers that the regulations should be more elastic, and recommends the following classification for cases arising out of the present war:

Navy.	Army.
Class I.—Killed in action or died from wounds received in action, whether afloat or ashore, or by destruction of ship, drowning, or other violent death due directly and wholly to war service.	Killed in action or died from wounds received in action or from other violent death due directly and wholly to war service.

⁸ The price of the report is 1d. (net and not post free). It may be purchased, either directly or through any bookseller, from Messrs. Eyre and Spottiswoode, East Harding Street, E.C.; or Messrs. Wyman and Sons, Limited, 29, Breems Buildings, Fetter Lane, E.C.; and 54, St. Mary Street, Cardiff; or His Majesty's Stationery Office (Scottish Branch), 23, Forth Street, Edinburgh; or E. Ponsbury, Limited, 116, Grafton Street, Dublin; or from the agencies in the British Colonies and Dependencies, the United States of America, the Continent of Europe, and abroad, of T. Fisher Unwin, London, W.C.

Navy.

Class II.—Death from disease due to exposure or exertion on service or from injuries received in and by service so far as not covered by Class I.

Class III.—Died from disease, injury, or accident not coming under Class I or II.

The Committee recommends that the rates for lieutenants and sub-lieutenants in the navy and lieutenants and second lieutenants in the army be raised to the existing rates for the widows of captains in the army—namely, Class I, £100 a year; Class II, £75 a year; Class III, £50 a year; the additional gratuity in Class I being paid at existing rates.

In Class III an officer's widow is not, under existing regulations, entitled to pension unless he has served for a certain period, in the army ten years. The Committee recommends that, for the present war, this restriction should be waived, and that, where a deceased officer has not served long enough to qualify his widow for a pension, a gratuity of from one to three years' pay should be given, either in a lump sum or in instalments.

It is recommended that rates for children of all officers, up to and including captain in the navy and colonel in the army, be fixed at the rates now given to children of a colonel in the army, namely, Class I, £24; Class II, £20; Class III, £16.

Paragraph 5 of the report recommends that in cases of pecuniary need the Admiralty or Army Council should have power to give a further education allowance of £35 a year for a boy, £25 for a girl, from the ages of 13 to 18, with possible extension up to the age of 21. The present regulations for grants of pensions to officers' relatives (other than widows and orphans) the Committee considers are too rigid and should be revised.

The paragraph dealing with disablement is of great importance. Under existing regulations an officer, disabled by injuries received on service, is entitled to a wound pension in addition to the retired pay of his rank. The regulations in navy and army differ in detail; both are complicated. The rates vary from a maximum of £200 to a minimum of £54 15s. a year in the army and £46 in the navy. The existing rates do not vary according to the degree of disability. The Committee is of opinion that present rates of disability pensions for junior officers should be increased, and that the amount of pension given should, especially in the case of junior officers, vary with the degree of disability.

The scales of disability pensions recommended are given at length, for permanent and for temporary officers separately. The rates recommended for officers holding permanent commissions vary with rank, length of service, and amount of disability, the lowest rate recommended, in cases of serious disablement, being £100 a year, the highest £350.

As regards officers holding commissions in the Special Reserve and Territorial Force and those holding temporary commissions, it is recognized that few, if any, can have sufficient length of service to qualify for service addition to pension. In the case of such officers, therefore, the following recommendations are made:

Earning Capacity.	Sub-Lieut.		Lieut.	Lieut.-Commander.	Commander.
	NAVY. Midshipman. Cadet.	Subaltern.			
	ARMY. Subaltern.	Captain.	Major.	Lieut. Col.	
Totally destroyed ...	£150	£150	£300	£225	
Seriously affected ...	£100	£128	£175	£201	
Impaired ...	£75	£100	£125	£150	
Slightly impaired ...	In all cases a gratuity not exceeding £500.				

The Committee recommends that pensions and gratuities for wounds and injuries should be at the rate given under present regulations to army captains—for example, for each limb or eye lost by wounds, gratuity of £250 for the first year, with a pension of £100 in following years. Such pensions to be in addition to any other pension to which an officer may be entitled under existing regulations, but

Army.

Died from disease due to active operations in the field or otherwise directly attributable to military service, or from injuries received in and by service so far as not covered by Class I.

Died from disease, injury, or accident not coming under Class I or II.

not in addition to the new disability rates recommended in the report. No officer who, as the result of injuries received in action, loses the sight of both eyes, should receive less than £300 a year in all. The children of disabled officers should be eligible for the education allowances proposed in paragraph 5.

In concluding its report the Committee states that "the above proposals relate primarily to officers holding combatant commissions in the navy and army. The cases of other officers (including quartermasters and commissioned warrant officers in the navy), should be reviewed departmentally where necessary on similar lines," and paragraph 11 states that the new scales and conditions recommended should be applicable to cases arising out of the present war only. Cases which have already so arisen should be reassessed as from March 1st last.

MEDICAL SERVICES.

As it is distinctly stated, in the paragraph quoted, that the proposals relate primarily to officers holding combatant commissions, it would appear that the recommendations of the Committee do not directly affect the medical profession, except in the comparatively few cases in which doctors have taken combatant commissions, and the much larger number in which medical men are concerned through their sons serving as combatants.

These proposals, however, though not immediately applicable, concern by analogy the very large number of medical men who are now serving as officers of the Special Reserve, of the Territorial Force, and as holders of temporary commissions in the R.A.M.C.

Presumably the rates of disablement pension, widows' pension, etc., given to medical officers serving in this war will be not less than those recommended by the Committee for combatant officers of the same rank. But it is to be hoped that definite rates will be sanctioned for medical officers, and that orders to this effect will before long be published. The number of medical officers now serving must be very large; at the end of May Mr. Tennant gave it as over 7,000, of whom less than 2,000 were regulars; and it must be remembered that a large proportion of the medical officers of the Territorial Force and Special Reserve and not a few of those holding temporary commissions are older, many much older, than men of equivalent rank in the regular medical services. This consideration also applies, though to a less degree, to combatant officers. Among the officers of the R.A.M.C. and I.M.S. the great majority of the lieutenants and a large number of the captains are, as a rule, unmarried. But while many of the Territorial and temporary medical officers now serving are young newly-qualified men, probably unmarried, there are also a very large number of men of middle age, or thereabouts, who have left their usual work and responded to their country's call from patriotic motives. Many—probably most of them—are already heavy losers by their patriotism.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE WEEK'S SUBSCRIPTIONS.

The subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund received during the week have been as follows:

	£ s. d.	Salisbury Division.	£ s. d.
North of England Branch of Fund (per Dr. J. S. Don and Mr. A. S. Percival, Hon. Secs.)		B.M.A. (per Dr. L. S. Luckham) (third donation, total £15 15 7½)	
(twentyish donation, total £775 7s. 6d.)		Dr. Westrup ...	0 5 0
Dr. Arnison ...	3 3 0	Mr. R. B. Besty ...	0 10 6
Dr. Bays, collected by ...		Mr. J. W. Catford ...	0 5 0
Dr. Telling ...	3 3 0		

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Vocux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE APPEAL FOR SURGICAL INSTRUMENTS.

Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C. The Master acknowledges gifts from—

Dr. G. T. Schofield, Widnes.	The Canadian Red Cross Society.
Dr. Major Greenwood, London.	per Lieut.-Colonel Hodgkiss.
Lady Horne Drummond, per Dr. Dods Brown, Perth.	Canadian Red Cross Commissioner.

THE BRITISH ASSOCIATION.

ANNUAL MEETING IN MANCHESTER.

THE first act of Professor A. SCHUSTER, before delivering his presidential address to the British Association (reported in our issue of last week), was to propose a loyal address to the King assuring His Majesty that the association as a whole and every individual member thereof are wholeheartedly anxious to devote all their energies to assisting His Majesty's Government in the task of bringing the war to a victorious conclusion. In reply to this, a telegram was received from the King, gratefully accepting the resolution and "recognizing with deep appreciation the valuable services which are being rendered by men of science to bring the war to a final victory."

The effect of the war on the meetings last week in Manchester is shown by the fact that, while the number of tickets issued to members and associates in 1887, when last the association met in Manchester, was 3,833, this year the number did not reach 1,500, and the attendance at many of the more technical sections dwindled down after the first day very considerably, though the Sections of Economics and Educational Science, dealing with more general questions of immediate social interest, continued to be well attended to the end. Though most of the usual social functions were abandoned, the members had numerous opportunities during the week, of which large numbers took advantage, of visiting many of the works and public institutions in the district. The Section of Education organized a visit to the Sandlebridge Home for the Care of the Feeble-minded, and the Section of Anthropology visited the Roman Camp at Ribchester, where a meeting was held to open the newly built "Roman Museum." On Wednesday evening there was a reception by the Lord Mayor and Lady Mayoress at the Municipal School of Technology. It may be noted that in previous years it had been the custom for the president's banner to show the coat of arms of the town in which the meeting was held, with the name of the president, but on the present occasion the banner, hanging with its predecessors in the Reception Hall at the University, depicted a woman standing with one hand covering her eyes and the other stretching upwards. Surrounding her were cannon with a serpent writhing between, and in the background cypress trees, symbolic of mourning and death, the whole representing Science as weeping because of the war.

During the week a series of "citizens' lectures" were delivered at various places in and about Manchester. They were evidently highly appreciated and, on the whole, well attended, especially those which were more or less connected with the war. The subjects dealt with were: Evolution and war, by Professor F. W. Gamble; The strategic geography of the war, by Dr. Vaughan Cornish; The making of a big gun, by Dr. W. Rosenham; Daily uses of astronomy, by Mr. A. R. Hinks; Health conditions in the modern workshop, by Professor B. Moore; Formation of the sun and stars, by the Rev. A. L. Cortie; Some lessons from astronomy, by Professor H. H. Turner; and on Curiosities and defects of sight, by Dr. W. Stirling, Professor of Physiology in the University of Manchester. Professor Stirling's lecture, which was illustrated by lantern slides of experiments projected on the screen and by cinematograph films, dealt first with the structure of the organs of sight in the lower animals, then with the evolution of the eye, and next with the structure of the eyeball in man and the higher animals. After describing the mechanism of vision and defects of refraction, Professor Stirling dwelt on the importance of the care of eyesight during infancy and school life, and went on to consider the nature of colour vision and the importance of colour blindness in relation to railway signalling and at sea.

SECTIONS OF ECONOMICS AND EDUCATIONAL SCIENCE.

It is impossible in the short space at our disposal to give more than a brief survey of comparatively few of the numerous papers and discussions in the sectional meetings. As might almost have been expected under the circumstances of the war, the Sections of Economics, presided over by Professor W. R. Scott, and the Section of Educational Science, presided over by Mrs. Henry Sidgwick,

were perhaps the best attended. In the former section special interest was taken in the discussion on the promotion of industrial harmony, where two employers and two representatives of the Trades Union Congress and two economists addressed the section. It was significant that the meeting was totally unable to arrive at anything like agreement as to the means to be adopted to promote the desired harmony. There was also a large attendance at the discussion on the effects of the war on credit, currency, and finance, which arose on the consideration of a report prepared by a conference; the chief interest centred round the questions as to the ability of the country to meet the cost of the war, the methods of raising the money for the war, especially the proportion between the amount of money to be borrowed and the amount to be raised by taxation, and the question of paper currency. Professor Scott made the remarkable statement that if the cost of the war did not exceed a thousand million pounds a year, this country would be able to finance the war indefinitely if it put its back into it. In the Education Section an animated discussion arose on the subject of military training in schools, in which Professor BOYD DAWKINS and the Rev. A. A. DAVID, strongly dissented from the attitude taken by Mr. PATON, head master of the Manchester Grammar School, who thought that military training in schools would tend to produce in this country that very militarism which we are now fighting against in Prussia. Perhaps the most numerously attended of all the meetings of the week was the Friday meeting of this section. The audience consisted largely of women, and the subject of interest was the education of girls with reference to their future careers, the discussion being opened by Miss HALDANE, sister of Lord Haldane.

ENGINEERING SECTION.

In his opening address the President of the Engineering Section, Dr. HILF-SUAW, dealt at length with the organization of labour and the relations of employers and workmen, and various papers were read dealing with the drainage, gas, electricity, and water undertakings of Manchester, as well as numerous technical engineering questions. In the course of some notes on the Manchester Gas Works, Mr. NEWBIGGER said that coal-tar had hitherto been the chief source of toluene, but the great demand for the purpose of making the high explosive trinitrotoluene, T.N.T., had drawn attention to the fact that most of the toluene produced in the carbonization of coal to make gas remained in the gaseous form. Simple methods had now been devised for washing toluene out of the gas without unduly reducing the calorific value, and Manchester was now doing its share in producing this important munition of war.

SECTION OF AGRICULTURE.

In this section the President, Mr. R. H. REW, gave an address on farming and food supplies as affected by the war. In the course of his remarks he said that though a few cargoes of foodstuffs had been sunk by the enemy, the effect of the war on our food supply from abroad had, thanks to our navy, been practically negligible. At the same time British farmers had quietly added 25 per cent. to the acreage of wheat, 7 per cent. to the acreage of oats, had maintained the large area of potatoes of the previous year, and had largely increased the stock of cattle and sheep.

SECTION OF GEOGRAPHY.

In the Section of Geography several papers were read on geographical questions arising out of the visit of the association to Australia last year, and, in conjunction with the Section of Anthropology, there was an interesting discussion on the distribution of races in the Balkans. It was opened by Professor G. ELLIOT SMITH, who, after giving a detailed account of the successive intrusions of peoples and the grouping and regrouping of the various races in the Balkan peninsula, concluded that the most desirable solution of the difficult problems now presenting themselves would be the reconstitution of the Balkan League, and a confederation of Balkan States, so that peoples who had a common origin, but were separated in development and religion, could unite for their common interests. At the same time he recognized that though organization on ethnographical lines might be possible, it might not be advisable politically, and that a racial blending might be best.

SECTION OF ASTRONOMY AND PHYSICS.

In this section Sir F. W. DYSON, Astronomer Royal, who presided, gave an account of the manner in which, by the aid of the telescope and spectroscope, conclusions had been reached as to the construction of the heavens. Accurate measures of the light of the stars had been made by the application of the photometer to the telescope, and within the last few years photography had been used to determine stellar magnitudes, while the velocities of stars in the line of sight and their physical characteristics had been determined by the spectroscope. Now that the direction and the amount of the sun's motion were known, and more proper motions became known, it was reasonable to hope that better knowledge would be obtained of the streaming and distances of stars. At present little was known of the more distant portions of the stellar depths; for example, little more than guesses could be made at the distance of the Milky Way or its movements. At the same time the methods employed in the last few years seemed competent to produce a fairly good model, showing the co-ordinates, velocities, and effective temperatures of the stars, and the amount of light they radiated; with industry in the collection of accurate data, the material for the dynamical and physical study of the history and evolution of the stellar system would be greatly improved.

Professor A. FOWLER opened a discussion on the spectral classification of stars and the order of stellar evolution. The first classification made by Secchi, fifty years ago, divided the stars into four groups distinguished by their colour, the white being the youngest and the red the oldest; in this way the great majority of the stars could be classified. This classification, together with the later Draper system, was regarded as representing the actual stages of temperature and evolution, the temperature varying from about 10,000° C. for the earliest and hottest down to about 3,000° C. for the latest. Sir Norman Lockyer and others maintained, however, that the history of a star began with an actual nebulous mass which condensed into a red star, and for a time there was a rise of temperature with the condensation, so that there must be stars that were getting hotter as well as stars that were getting cooler. Thus the order of evolution might be very different from that suggested by the Draper classification.

In conjunction with the Chemistry section, a valuable but highly technical discussion was opened by Professor SODDY on radio-active elements and the periodic law, at which numerous experiments were described tending very largely to modify some of the current theories as to the constitution of the elements.

SECTION OF CHEMISTRY.

In this section the President, Professor W. A. BONE, was in the difficult position of having to take the place at the last moment of Professor Baker, who was unable to attend. Professor Bone dealt at some length with the importance of a more adequate scientific control of coal supply and coal consumption. The United Kingdom, he said, consumed on an average each year about four tons of coal per head of population, but strangely little was done by scientists to impress on the Government and the public the need for some systematic control. He believed that with proper public supervision it would be possible to save many millions of pounds in the annual coal bill—a saving that would redeem a large amount of the war loan. He suggested that a memorial should be addressed to the Government asking it to establish a central organization for the supervision of fuel consumption, to include a systematic chemical survey of the British coal-fields and experimental trial of new inventions for fuel economy.

A large number of papers were read dealing with the smoke nuisance, Manchester and Salford receiving special attention.

Mr. E. D. SIMON (chairman of the Manchester Smoke Abatement League) said that a reasonable estimate of the damage done in Manchester and Salford by smoke was that it amounted to nearly £1,000,000 a year. Something had been done by the pressure of public authorities to reduce the smoke from factories, but a large field remained for research with regard to domestic smoke. The most hopeful line was in securing that bituminous coal should not be burnt as such, but that it should be converted into products which could be burnt

smokelessly, and he suggested that the British Association should form a central committee to act in co-operation with town councils to deal with the problem.

Professor F. RANZEY (University of Louvain) spoke of the damage done to vegetation by smoke and vapours, especially sulphur dioxide, given out by factories, and he suggested methods by which the damage thus done could be discriminated from the damage that arose from faulty cultivation and sour or poor soil. Professor KNECHT exhibited and described some constituents of Manchester soot, and Mr. A. G. RUSTON showed by means of a series of lantern slides the effects of smoke on flowers, plants, and trees.

An address with a number of somewhat startling experiments, given by Professor DIXON on explosions of gases, attracted a large audience. Papers were also read by Dr. H. F. COWARD on the dilution elements of inflammability of mixed inflammable gases with air; and by Professor BONE on gaseous combustion at high pressures. Experimental demonstrations were given of a new cadmium vapour electric arc lamp by Dr. H. J. SAND and by Dr. J. W. POPE on liquid crystals.

SECTION OF GEOLOGY.

The presidential address of Professor COLE dealt mainly with problems of the earth's crust and its movements. He said that in spite of the tragedy of Messina about seven years ago, there was a feeling that Europe was a settled continent, but the vast interior of the earth was unseen and but little known, and in spite of the present superficial quiet, the inconceivable might happen any time. The more that was learnt of the causes now in action on the earth, the greater the mystery seemed. For example, the greatest change that ever came upon the globe, the moment when living matter first appeared on its surface, could not be realized. Matter was either dead or living—there was no intermediate state—but, he asked, was this life a surface concentration, a specialization of something that had previously permeated all matter, but had remained powerless because it was infinitely diffuse? In all such questions the geologist had to confess that he was very much beyond his depth.

The Age of the Earth.

One of the most important discussions in the section took place on Friday on radio-active problems in geology, with special reference to the age of the earth. The discussion was opened by Professor Sir E. RUTHERFORD, who mentioned some of the earlier methods put forward to determine the age of the earth, the estimates varying from twenty million years upwards, but he said that no geologist would think of accepting less than from forty to sixty million years. Kelvin's method was quite uncertain, while estimates from the rate of deposit of sedimentary rocks or the amount of sodium in the ocean could only give unreliable results. The most recent method followed on the discovery of the radio-active bodies, such as radium and thorium, and Sir E. Rutherford explained how from the presence of these bodies in the oldest rocks the age of the earth might be calculated. In the other direction, he said it would be safe to predict that the sun would continue to shine for more than nine million years, and possibly even for several hundred million years. In a paper on the same subject Mr. A. HOLMES said that time periods had been calculated on the assumption that the radio-active constants of uranium and its daughter-elements had not varied, and on this assumption it might be said that some period like fifteen hundred million years had elapsed since the crystallization of the oldest plutonic rocks in the earth's crust. The actual age of the earth would be much greater than this, for the oldest plutonic rocks were found to be intrusive into the pre-existing sedimentary or volcanic series. The most important problem for the geologist was now to determine the possible dependance of the rate of decay of uranium on time, pressure, and temperature. It is necessary to add that some of the members present, especially Professor Joly of Dublin, expressed their disagreement with some of the theories founded on the consideration of the radio-active bodies.

Antiquity of Man in Britain.

In the same section Professor Boyd Dawkins dealt with the geological evidence as to the antiquity of man in

Britain. The only proof offered of the Pliocene age of man in East Anglia was, he said, the roughly chipped flints found in the basal Pliocene strata, but he thought it had been proved that similar flints could be made, without the intervention of man, by the action of ice or torrents or rivers or the waves of the sea. The presence of man in East Anglia during the glacial period rested on even worse evidence. The evidence of the discovery on Pitdown of *Eoanthropus dawsoni*, which might be called the missing link between man and the higher apes, was, he believed, more reliable, and after examining the whole group of the remains he agreed that the find belonged to the early Pleistocene period. Thus man appeared in Britain at a period when he might have been expected to appear from the study of the evolution of the tertiary mammalia—namely, at the beginning of the Pleistocene age. In older strata he could only be represented by an ancestry of intermediate forms.

The geology of Manchester and district furnished material for an interesting address by Dr. G. HICKLING, who also read a paper on the micro-structure of coal. There was a well sustained discussion in conjunction with the Section of Geography on the classification of land forms.

SECTION OF PHYSIOLOGY.

The Physiological Importance of Phase Boundaries.

On Wednesday, September 8th, Professor W. M. BATLISS, in an opening address on this subject, said that a consideration of the arrangements present in living cells showed that the physical and chemical systems concerned operated under conditions very different from those reactions taking place between substances in true solution. The cell system, in other words, was one of many phases. Whilst parts of this system appeared homogeneous, yet they might be heterogeneous, and were in what was known as the colloidal state. Considering one phase only, the molecules at a surface were exposed at one side to the influence of similar molecules, but on another to the influence of molecules of a nature chemically unlike their own, and such phase boundaries were the seats of various forms of energy. Surface tension was the most obvious form. In relation to the contractile force of muscle it was found that surface tension decreased with rise of temperature—a fact which was not surprising when they remembered that the interface between a liquid and its vapour disappeared when the temperature rose to the critical point. It was significant to note this close association between surface tension and the contractile stress, for it was found that this property alone of muscle had a similar negative temperature coefficient; and within the limits of temperature between which the muscle could be regarded as normal, the contractile stress was greater the lower the temperature; and the same held good for the heat developed during the contractile stage. It was familiar, too, that tonus of smooth muscle increased with fall of temperature. Other facts probably explainable by these facts about surface tension had relation to the heart muscle, for all the phenomena connected with the output of blood by the heart could be satisfactorily explained by the hypothesis that the energy of the contraction was regulated by the length of the ventricular fibres during the period of development of the contractile stress. Surface tension, or phase boundaries, must necessarily be intimately related to the cell substances and molecular constitution. The phenomena of adsorption, electrolytic and chemical changes were also touched upon in this address. Certain aspects of enzyme action, too, were, it was said, suggestively explained by these views. On the whole, it might be concluded that more study of the phenomena at phase boundaries would throw light on many problems still obscure. It would probably not be going too far to say that the peculiarities of the phenomena called vital were due to the fact that they were manifestations of interchange of energy between the phases of heterogeneous systems. Life was incessant change or transfer of energy, and a system in static equilibrium was dead.

The Motor Area.

Dr. GRAHAM BROWN (Manchester) illustrated by the lantern the effects observed in a chimpanzee after operative removal of first the right, then the left post-central gyrus, and lastly, the right motor area. Paralysis lasted for six days, but within fourteen days the animal's actions had

become apparently again normal, and it could with much ingenuity execute even the fine movements associated with the opening of a door with a key. Such operations, therefore, had not caused loss of power for fine movements.

Thyroid and Adrenals.

Professor P. T. HERRING (St. Andrews) recorded the effects of thyroidectomy and thyroid feeding on the adrenin content of the suprarenals. The thyroidectomized cat gave suprarenal content which had little action; in the thyroid-fed, however, the content was relatively active. Much significance attached to the manner of collecting the gland substance, as also to the emotional state of the animal, since operative procedure itself altered the quantity, and excitement of any kind acted similarly. For testing the effect of the adrenin the glands were rapidly removed, minced, Ringer's solution added, and filtered whilst still hot; 2 c.cm. of this fluid were injected into the circulation of an animal and the effect on the blood pressure noted. Folin's method also was used as a test. Testing by gland weight relative to body weight showed little change in the cat. Rabbits were tried in a similar way. In this animal no effect followed thyroidectomy. This operation seemed to have little effect on the adrenin content, but in the thyroid-fed animal there was a more noticeable increase in the gland content. In these general results the possible influence of the posterior lobe of the pituitary gland must be borne in mind.

The Electro-cardiograph and Auricular Fibrillation.

Dr. C. E. LEA (Manchester), after illustrating with the lantern various curves gained by electrical methods, recorded their value as a means of diagnosis in a particular case, one of ordinary auricular fibrillation in a woman who had been under observation for over two years. All this time the pulse had been characteristically irregular, but could be readily controlled in rate by digitalis. Electrical curves verified the diagnosis previously made. On one occasion, however, though the pulse was just as irregular as ever, the electrical curved showed that the auricles had resumed activity, and were for the time not in fibrillation, though the rhythm was still markedly irregular. The patient was taking pilocarpine at the time. On no other occasion, before or since this observation, was a similar resumption of auricular activity shown. This case illustrated the fact that even though the pulse-rate and rhythm might show no apparent change, yet the auricles might resume their normal action, and possibly fibrillation was not so permanent and persistent as was commonly believed. Great variations in vagal tone could be demonstrated in these cases, and the question of vagotonia offered a fruitful field for investigation.

The Pathology of Diabetic Coma.

Dr. E. B. POULTON (London) recorded observations to show that the cause of diabetic coma was not essentially due to an acid quality of the blood—was not, in fact, a true acidosis. The blood in uraemia, for example, was more acid than was that of diabetes, as was also the blood during moderate exercise. The active poison in coma was not known. In this condition, however, there was a definite lowering in value of the alveolar CO_2 , and this condition itself could induce symptoms similar to those of coma. The estimation of the alveolar CO_2 formed a reliable guide to the onset of coma, and the latter could, with some definiteness, be predicted in this way.

The Physics of Phagocytosis.

Dr. J. TAIT (Edinburgh) observed that when the behaviour of invertebrate blood cells removed from the vessel and placed on a slide was studied, it was noted that many of them flowed outwards upon the glass surface so as to be reduced to a very thin and greatly expanded sheet. The fact that the movement was progressive and irreversible, and the further fact that on a greasy surface the same cells underwent no deformation, suggested that the expansive force was a capillary phenomenon, the cell substance spreading in the same way as a drop of water spread on a clean surface of stone or glass. For cells thus unstable on a non-greasy surface of foreign material the author suggested the name "thigamoocytes." Simple physical reasoning showed (1) that if a fluid were unstable on a slab of a given substance it would flow around or ingest a small particle

of that substance; (2) if it refused to ingest a particle of any given substance it would be stable on a slab of that substance. Experiments on thigmocytes showed that they conformed to both these results. The phenomenon of phagocytosis in the case of these cells at least appeared to be physical. Thigmocytes were non-amoeboid; consequently, power of amoeboid movement was not essential for phagocytosis. Many phagocytic cells—for example, mammalian polymorphonuclears—were stable on non-greasy foreign bodies and yet ingested non-greasy particles. It was shown, however, that on physical grounds stability of the cell on a slab of a given material was quite consistent with ingestion of a particle of that material. In other words, there was no *a priori* evidence against the extension to stable (amoeboid) leucocytes of the physical hypothesis regarding phagocytosis. Following out similar principles to these, new light might be thrown on a number of problems, such as the mechanism of amoeboid movement, the relation between opsonins and agglutinin, emigration of leucocytes, amitotic cell division, and blood coagulation.

Some Laws of Fat Absorption.

Dr. F. W. LAMB (Manchester) illustrated facts ascertainable by suitable staining methods, which showed that different fats varied in their reactions, and could, indeed, be recognized just by their particular staining qualities. It was shown that there was considerable fat absorption from the stomach, especially its cardiac end. In any given animal it was generally found that where there was evidence of fat absorption in the stomach, there was little similar evidence in the intestine, and vice versa; this was probably due to time factors.

Copper in Tissues.

Dr. POWELL WHITE (Manchester) stated that he found considerable quantities of copper in most tissues, the amount varying within rather wide limits in different tissues and in different animals, or such objects as seeds and oysters. Much interest was shown in the delicate test for copper. It was curious that this colour test, of extreme delicacy for this metal, was gained by an exactly similar manner for morphine (Oliver's test). Such a test, however, did not lend itself to quantitative methods, and for this purpose, in these estimations, the ferrocyanide method was used.

SUBSECTION OF PSYCHOLOGY.

Some interesting papers were read in this subsection; recent legislation in connexion with feeble-mindedness had evidently stimulated observation in this direction. From the family histories of fifty mentally defective children studied by Miss Agnes Kelley it appeared that the greater number of the fathers were casuals and hawkers. In only about half a dozen could the home conditions be described as good. Insanity was present in the family histories of 15 of the children. Other cases of mental deficiency were found in 30 of the histories, and epilepsy in 9. In a large proportion of cases the parents were such heavy drinkers that the mental defect was probably inherited. Throughout the whole of the pedigrees it was noticeable that, both physically and mentally, the general standard was below par. A visit was paid by many members to the Homes for Feeble-minded at Sandbridge, organized by the Incorporated Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded. The home had its origin in 1898, the outcome of a scheme formulated by Miss Dendy and the late Dr. Henry Ashby. Children under and over 16 are admitted, and there are now 267 inmates of both sexes. Under 16, day school work is the chief occupation; over 16, the boys work on the farms, and the girls help in the laundry, etc. The practical lessons learnt at this institution certainly facilitated the passing of the Mental Deficiency Act of 1913. Closely bound up with this work is that directed to the study of the child mind. Dr. Kimmings, who has examined the special interests of children in the war at different ages, found a distinct bellicose attitude in the girls of 10, depression at 11, and normal interests at 12. Boys were more warlike at 11, and showed less of the depression noted in girls. It was remarked how mature the ideas on such a subject as the war were at the age of 13, especially in girls, who in this respect were at least a year ahead of the boys.

SECTION OF ANTHROPOLOGY.

In the Section of Anthropology the presidential address by Professor C. G. SELIGMAN dealt with the early ethnological history of the Anglo-Egyptian Sudan, tracing, from a close examination of materials recently discovered and the beliefs and customs of the peoples, the various influences that have been at work in the past in Equatoria.

Egyptian Civilization and World Culture.

One of the most important discussions was that on the influence of ancient Egyptian civilization on the world's culture, opened by Professor G. ELLIOT SMITH, who gave numerous reasons for believing that the essential elements of the ancient civilization of India, Further Asia, Oceania and America were taken to these places by mariners trading from the Eastern Mediterranean from 800 B.C. and for several centuries afterwards. The highly complex and artificial culture thus spread abroad was largely from Egypt, with many accretions and modifications from the Phoenicians, East Africa, Arabia, and Babylonia; the final stream, with many additions from China, Japan, and elsewhere, continued for many centuries to play on the Pacific littoral of America. As proofs of these ideas were mentioned a large number of extraordinary practices and beliefs, such as mummification, the building of megalithic monuments, sun worship, making of idols, tattooing, wearing of linen, special metallurgical methods, intensive agriculture, phallic ideas and practices, the use of the boomerang, the use of precious stones and metals, and curiously arbitrary features in boat-building. The knowledge and practice of all these had evidently been spread by the ancient mariners along a well-defined route from the Eastern Mediterranean to America, where in this way had been planted the germs of the remarkable pre-Columbian civilization.

Environment and Chest Disease.

A paper was contributed by Dr. G. W. HAMBLETON on the influence of environment and occupation on diseases of the chest; he claimed to have shown at a previous meeting that chest types were not inherited as a rule but acquired owing to post-natal conditions. A large part of the male population was living, he said, under conditions that tended to retard chest development, and many otherwise good recruits for the army had been rejected through deficient chest measurements. Such persons could, by the application of proper scientific methods, without interfering with military training, be brought up to standard. Dr. Hambleton then went on to give his remarks about the chest a more general application; he expressed the belief that it should be possible to ascertain the conditions that brought changes in types of men, and a knowledge of these once placed on a scientific basis might make it possible to produce such types of men as were best fitted for various occupations, and thereby prevent the great loss of life that occurs from want of adjustment between constitution and occupation or environment.

Other papers were read on the origin of the alphabet, by Sir A. J. EVANS; on hereditary syndactylism and polydactylism, by Dr. J. MANSON (with skiagraph exhibit), and by Professor FLINDERS PETRIE, who gave a specially interesting account of ancient Egyptian jewellery, illustrated with coloured lantern slides. Among the reports presented were those of committees on Roman sites in Britain, the age of stone circles, the lake villages near Glastonbury, and the physical characteristics of the ancient Egyptians.

SECTION OF BOTANY.

In the Section of Botany the President, Professor W. H. LANG, gave an address on some aspects in the study of the form, structure, and development of the plant. The development of most plant individuals, he said, started in a single cell, but it had always been difficult to apply to plants the biogenetic law, originally founded on animal development, that "the ontogeny is a concise and compressed recapitulation of the phylogeny," and the characters of the embryos of plants had given little if any help on doubtful questions of phylogeny. He dwelt at some length on the initial development and morphology of the shoot and the problem of alternation of generations as seen specially in the fern. Taking the prothallus and the fern-plant as in a sense two individuals, it seemed almost necessary to assume that the specific substance of fern

could exist in two allotropic modifications. After discussing problems of the seed and its embryo, Professor Lang concluded: "We have to think of the plant as at once a physico-chemical mechanism and as a living being; to avoid either treating it as something essentially different from non-living matter or forcibly explaining it by the physics and chemistry of to-day. It is an advantage of the study of causal morphology that it requires us to keep the line between these two crudities—a line that may some day lead us to a causal explanation of the developing plant and the beginnings of a single science of botany."

A contribution which was regarded as of special interest to Manchester was a paper on the application of science to the cotton industry, by Mr. W. LAWRENCE BALLS, who has held the post of Botanist to the Agricultural Department of Egypt, and experimented largely in cotton-growing. He showed that before cotton-growing could be placed on a scientific basis it was necessary that the cotton spinner should be able to express in scientific terms the properties he desired in cotton, and that the grower should then know how to alter cotton in any desired direction. With the progress and application of research different cottons could be grown for different purposes and pure strains could be produced, and in this way cotton-growing might be made into an exact science. He suggested that the Manchester University should form a special department in order to link together scientists, growers, and spinners. The Vice-Chancellor, Professor WEISS, said he had no doubt the university would do everything it could if the growers and others in the cotton industry would find the necessary money, which he thought could be easily raised.

A valuable paper was read by Professor BOTTOMLEY on the formation of auxinones. He said that for the complete nourishment of plants there must be in the soil organic matter known as humus, and the substances in humus which really promoted growth had been named auxinones. Experiments had been going on for the last six years, and as a result of treating peat with certain bacteria a manure fifty times more valuable than two-year-old farmyard manure had been produced. Four potato sets, weighing altogether a few ounces, placed in a small box of moss-litter, and watered once a week with the extract from bacterized peat, produced 3 lb. of potatoes in eight weeks; and eighteen cucumber plants grown in nine parts ordinary soil with one part bacterized peat gave 5 cwt. 3 qrs. of fruit, while eighteen plants treated with well-rotted dung and bone meal only yielded 4 cwt. 1 qr. of fruit. The bacterized peat would soon be placed on the market, and could be produced for a few pounds a ton.

On Thursday afternoon an interesting series of demonstrations of various botanical specimens was given by a number of the members in the Botanical Laboratories of the university.

SECTION OF ZOOLOGY.

In the Section of Zoology, the President, Professor E. A. MINCHIN, took as the subject of his address the evolution of the cell, and put forward some original ideas which will be of the greatest interest to biologists. Hitherto, he said, the evolution of the cell had received slight attention, and study had been directed mainly to the most perfect form of cell as it occurs in the metazoa and higher plants. But the study of the protista revealed the fact that the cell, as seen in the higher animals and plants, with its complicated nucleus and cytoplasm, and its extraordinary changes as seen in the process of karyokinesis, could no longer be regarded as the starting-point for organic evolution. He believed that the evolution of the cell could best be studied in the protista, which showed much simpler forms of cells. He then explained at length the terms in ordinary use applied to the complete cell as seen in the higher animals, and proceeded to show that among the protista cells of gradually decreasing complexity were found, until bodies were reached which hardly deserved the name of cell. These living bodies consisted apparently of nothing but a minute particle of chromatin. The staining properties of chromatin, useful though they might be, could not be depended on as a criterion as to what was and what was

not chromatin, and no chemical tests were sufficient; the only test was the behaviour of the particle in the life-history of the organism. Careful study of the life-history of the lowest forms of protista had led Professor Minchin to a view diametrically opposed to that of Haeckel and others who held that the earliest forms of life were composed of a substance of the nature of cytoplasm, and that the nuclear substance or chromatin arrived later in evolution as a product of the cytoplasm. On the contrary, Professor Minchin gave many reasons for believing that the chromatin substance was the primitive constituent of the earliest living organism, the cytoplasm being a later structural complication. On this theory the earliest living body might be only an ultramicroscopic particle of chromatin. After alluding to the ingenious speculations of Mereshkowsky, who assumed a double origin for living beings from two sorts of protoplasm, Professor Minchin said that he regarded the chromatin as of primary importance, though in using the term "chromatin" he postulated no fixity of chemical nature for it. For the hypothetical primitive organism, consisting solely of a free-living particle of the nature of chromatin, he suggested the name "biococcus." The first step up from this would be possibly the acquirement of an envelope such as was seen in the simple forms of micrococcus, though the advance might equally take the form of an enveloping matrix of periplasm surrounding one or perhaps a colony of biococci. The next step might be the organization of the chromatin grains (biococci) into a definite nucleus giving for the first time a true cell for which the term "protocyte" was proposed. This became the starting-point for an infinite number of further complications in structure, together with a gradual development of the complicated processes of karyokinesis, until at last the typical cell as described in the books was reached. Professor Minchin agreed with those who derive bacteria—as primitive truly non-cellular organisms—directly from the biococci through ancestral forms, and not at all with those who regarded bacteria as degenerate cells, and claimed that his scheme co-ordinated a large number of isolated phenomena into an orderly sequence.

Several other papers dealt with special points in the life of the cell. Professor McBRIDE opened an interesting discussion on chromosomes and heredity, and was followed by Professor MARCUS HOGG on chromosomes and micro-kinetism. Reports were presented from various zoological stations, and a number of papers dealt with special points of interest to zoologists, a demonstration of specimens being given in the zoological laboratories.

CONCLUDING MEETINGS.

The concluding general meeting of the association was held in the Free Trade Hall on Friday, September 10th, when Professor R. A. SAMPMSON, Astronomer Royal for Scotland, delivered an address on the census of the sky, illustrating his remarks with many remarkable photographs of star groups, mainly from negatives taken by the late Mr. Franklin Evans. The lecturer showed that it was quite impossible to state the number of the stars except within the widest limits, but the calculation up to the present was between one and two millions. On the motion of Sir J. LAEMOR, M.P., the thanks of the meeting were given to Professor Sampson.

The meeting closed by votes of thanks being proposed by the President, Professor SCHESTER, to the Lord Mayor, the authorities of the university and other institutions, and the officials who had made the various arrangements for the meetings.

At the meetings of the general committee held during the week sums amounting to £968 were granted to the various sections for the purpose of research in selected subjects. It was officially stated that the number of members attending this year's meeting was 1,438, which under the special circumstances was considered very good. It was decided that the next meeting of the association should be held at Newcastle-on-Tyne on a date to be fixed later, and that Sir Arthur Evans should be the president. The president-elect is a Fellow of Brasenose College, Oxford, and has been Keeper of the Ashmolean Museum for many years; he is well known for his historical and archaeological researches. In response to a deputation from Bournemouth it was decided that the meeting of 1917 should be held at Bournemouth.

British Medical Journal.

SATURDAY, SEPTEMBER 18TH, 1915.

THE RUSSIAN VODKA MONOPOLY.

THE suppression of the sale of vodka in Russia was an event the dramatic quality of which appealed to the popular imagination, and the press was flooded with articles and letters more conspicuous for enthusiasm than accuracy. In our issue of January 23rd (p. 171) we drew attention to the clear account of the facts published in a Russian Supplement by the *Times*. That account should have helped to remove prevalent misconceptions, but since its appearance there has been no lack of proof that erroneous ideas are still entertained in many quarters, and the Temperance Legislation League has now caused to be published a pamphlet by Mr. Arthur Sherwell, M.P.,¹ which seems well calculated to enable a reader to grasp the essentials of the situation.

Mr. Sherwell begins by showing that although the ultimate responsibility for the re-establishment of a State monopoly of the sale of vodka rested on the late Tsar Alexander III, the execution of the project was the work of the late Count Witte, who carried it out when Minister of Finance in 1894. The motives actuating Count Witte were no doubt various. While a predilection for State or centralized control of industry and a desire to regularize if not increase the revenue accruing to the State can hardly have been absent from his mind, that he was also moved by an impulse to combat the social evil of alcoholism is proved not only by the purport of circulars issued to Treasury officials, but also by the coincident establishment of an elaborate system of State-aided "kuratoria" or temperance "guardianships," the function of which was to wean the people from habits of intemperance by the provision of counter-attractions. Some of these institutions, in particular the "People's Palace Tsar Nicholas II" established at Petrograd, were generously financed. The institution just named, housed in a building provided by a special grant of £100,000 made by the Finance Minister, offered varied attractions, among which dramatic entertainments at popular prices formed a large part, and in Petrograd an appreciable decline in the per capita consumption of vodka has been observed. Elsewhere the system has been hampered by lack of funds, and perhaps, as Mr. Sherwell thinks, by the too exclusively official complexion of the managing committees.

It is to be noted that, although the Government possessed a complete or virtually complete monopoly of the supply of vodka, it had no monopoly of its retail distribution. Indeed, in the last year for which statistics are available, less than half of the spirit shops were Government establishments. It is true that since 1894 there has been a very considerable reduction in the total number of spirit shops, but, since 1904, while the number of State shops has fallen by 2,000, that of private establishments selling on commission increased by more than 7,000.

With respect to the supposed consequences of the monopoly, the following results emerge: There has been a small increase in the per capita consumption

of vodka, chiefly within the last few years, but there is no reason to suppose that this change stands to the monopoly in the relation of effect to cause, in view of the exceptional social conditions which have prevailed since the war with Japan. In the second place, the increase of visible drunkenness is not evidence that the real prevalence of alcoholism has become wider, because, unlike their predecessors, the State shops sold vodka exclusively for consumption off the premises, and this must have tended to increase the amount of street drunkenness, men being no longer able to sleep off the effects of their drink in the shelter of the "kabak." Lastly, with respect to the revenue accruing to the State, it seems very doubtful whether, apart from some substantial increases of the selling price, the monopoly has yielded any actual net profit over and above that which would have been received under an ordinary excise system.

In any case, it is a patent fallacy to argue that an intemperate community will necessarily afford the State a higher income even with respect to the sale of alcoholic beverages. Students of English literature will be reminded of Berkeley's ingenious retort to the argument of Mandeville's "Fable of the Bees" contained in *Alciphron*, where the advocate of Mandeville's view, having incautiously admitted that "a sober, healthy man, therefore, in a long life, may circulate more money by eating and drinking, than a glutton or drunkard in a short one," finds a difficulty in meeting the retort, "Why, then, it should seem that he may be more beneficial to the public, even in this way of eating and drinking."

Turning to the effects of the recent prohibition, Mr. Sherwell points out that the drink problem has not been solved. In the first place, there has been a disquieting increase of illicit distillation and resort to the use of methylated spirit as a beverage. Dr. Novoselsky has given reasons for thinking that the mortality from drunkenness in Petrograd has developed in inverse proportion to the intensity of prohibitive measures. The table of deaths from delirium tremens in Petrograd, reproduced in the *Times* Russian Supplement for June 28th, seems to be the basis of Dr. Novoselsky's conclusion; but, even if deaths from delirium tremens were a fair criterion, which they are not, the table as published seems to us devoid of any statistical significance whatever. Nevertheless, the opinions of competent local observers must be had in mind.

A further obstacle is the unwillingness of local authorities to use their powers to prohibit the sale of other alcoholic beverages, including beer and wine, a circumstance which may have gone some way to neutralize the advantages of the imperial edict relating to the sale of vodka. Thus in Kursk, where, according to the *Novoye Vremya* of June 6th (1914), a new outbreak of disorder and intemperance has occurred; although the State vodka shops and the "third class" restaurants are closed, the authorities of the city, apparently for revenue purposes, have allowed "first class" restaurants, clubs, and wine cellars to remain open, and these have done an enormously increased trade; one "first class" establishment having become so democratic that its doors are open to all classes, including cabmen. It is concluded that simple prohibition cannot solve the problem, and that the provision of counter-attractions to alcohol on the lines followed in Petrograd is required.

It will be within the knowledge of most of our readers that such a system has been introduced on a modest scale in this country, as testified to by the small but growing number of licensed houses owned

¹ *The Russian Vodka Monopoly*. By Arthur Sherwell, M.P. London: P. S. King and Son. (Pp. 31, 3d.)

by trusts, and worked on the lines that the manager has no pecuniary interest in the sale of alcoholic drink. We have visited several of these houses, and invariably found them compare favourably with the average country inn. No obstacle is placed in the way of the traveller who desires to partake of fermented drinks, but he has not constantly before his eyes as the sole form of decoration the advertisements of So-and-so's whisky or somebody else's champagne. It would appear that the principal advantage of some form of public monopoly is the consequent extinction of private commercial interests, and that the establishment of such system is, at the most, a first step in the direction of reform which must ultimately be achieved by indirect persuasion under the form of carefully devised counter-attractions.

PRE-TRAUMATIC OBLIVION.

SIR PETER EADE'S experience, as quoted by Dr. Mercier the other day in the JOURNAL, in finding himself lying in a meadow immediately after, as far as his remembrance served, he was reading in the train, is an instance of what may be called pre-traumatic oblivion, an occurrence that is common enough. After a blow on the head severe enough to produce unconsciousness it is very frequent, it may almost be said to be the rule, for the injured person to find that he is oblivious not only of what happened during the time that he was unconscious, which is of course, but also that he has no memory whatever of anything that happened for a certain time previous to the blow on the head. In Sir Peter Eade's case it is very unlikely that he was first struck on the head and stunned and then shot out of the train. The probability is that his unconsciousness was produced by the fall on his head into the meadow; and yet he was oblivious not only of the fall, but of all that preceded it subsequent to a time when the train was travelling smoothly. This is, as has been said, the rule when unconsciousness is produced by a blow on the head. Not only is the blow forgotten, but all the experiences for a certain time before the blow was inflicted are wiped out of the mind and lost. The extent of this pre-traumatic oblivion varies much. It may be but a fraction of a second; ordinarily it is a few minutes; but it may extend to days, and even weeks. The late Professor Bain, after a fall which produced temporary unconsciousness, found that he had lost all recollection of everything he had experienced for a week or a fortnight before the fall. The memory of these pre-traumatic experiences sometimes returns, in more or less fragmentary manner, but more often it is permanently lost.

It is not difficult to frame a plausible hypothesis to account for these losses. It is generally admitted or assumed that every experience of which we are conscious produces a modification in the finer elements of structure in the cerebrum, though whether this structural change is to be thought of in terms of molecules, or in terms of dendrites, or of neurons, or other structural elements we do not know; but that the conscious memory of an experience answers to a structural modification of some kind all are agreed. Whatever the structural change may be, it is certain that it is produced by forces so immeasurably fine, so elusive, as only to have become appreciable by recent advances in science. The impact of light waves on the retina is altogether imperceptible, but we recognize by their effect upon a photographic plate that it is appreciable, and ponderous enough to stir material molecules and

shift them from their places. Some such stirring, some such shifting of the structure of the brain, takes place when sense impressions are conveyed to it by eye and ear. Since the structure of the brain is a physical structure, there is nothing inconsistent or extravagant in supposing it to possess the very common physical quality of elasticity—that is to say, in supposing that its structural elements not only oppose resistance to disturbance, but, when disturbed, tend in certain circumstances to resume their original positions. There is no doubt that when, under the action of sense impressions or otherwise, the structural elements of the brain are shifted into new positions, a considerable proportion of them—it may be the whole, or almost the whole of them—resume their original positions after a longer or shorter interval. To say this is only to say that we never remember all we see, or hear, or otherwise experience; that of much we experience we retain only a remnant, and that the process of forgetting begins as soon as the experience is over, and thereafter continues at a varying rate.

Many factors influence the fixing or obliteration of memories of experiences; many factors influence the rate at which the fixing or obliteration takes place. Vividness, repetition, vital importance of the experiences, the emotional state at the time, the degree of attention paid to it, and other factors, all have an important effect on the permanence or transience of a memory, and are well known to have this effect; but what is not usually recognized is the effect of sleep. Sleep has a twofold effect on memories. Some it fixes; some it wipes out. Every student knows that after a night's sleep he remembers better some things that he had a difficulty in committing to memory the day before. Every one of middle age will admit, when his attention is called to it, that though he can easily remember what he had for breakfast this morning, he cannot remember without a great effort what he had for breakfast yesterday, and cannot remember with any effort what he had for breakfast a week ago. We may conjecture that the effect of the superior anabolism during sleep is to fix in their new places those structural elements that have been widely moved, and to restore to their original places those that have been moved but slightly. However this may be, it is indisputable that sleep does have the effect of obliterating from our minds certain recently acquired memories; and it is difficult to think of this effect in terms of cerebral structure except by supposing that the shifted elements, not fixed in their new positions, but still retaining a tie with the old, still hankering conservatively to return whence they came, have their return facilitated by the conservative influence of sleep. In such a conjecture there is nothing extravagant, nothing inconsistent with the little we know of nervous and mental action. All that is assumed is that the effect on the brain of an experience is to shift certain structural elements to new positions, without, however, severing the ties that held them in the old; and that these ties, strong and elastic, tend day by day and month by month to drag the elements back into their old positions, and so obliterate the memories of experiences. And we know that in fact the memories of all experiences weaken and fade, and some disappear altogether; while those that have been longest formed and have survived longest are the least likely to be obliterated.

Now imagine a brain, in course of experiencing new impressions and of registering these impressions in its structure, to be violently shaken by a blow on the skull. The whole delicate structure will be

thrown out of gear, temporarily or permanently as the case may be, and the immediate result is the total abolition of consciousness. Soon, however, if the blow be not too severe, the shaken elements return to their places, and become capable of taking on their proper functions; and consciousness returns. But in the general shake-up some arrangements may be so badly shaken that they are altogether obliterated. Which are these most likely to be? Surely those that are the most recently formed, or that are only in process of formation; that are not fully organized; those whose new positions are, from novelty and recentness of formation, the most insecure. This is a plausible explanation of pre-traumatic oblivion. The shake-up catches the structural elements before they are securely fixed, even with temporary security, in their new positions, breaks up the incipient new organization, and destroys the physical basis of the memory of these recent experiences; but it leaves unaffected those of longer standing, which have had time to settle down and become inured to their new positions.

THE WAR EMERGENCY COMMITTEE.

THE War Emergency Committee, which meets at the house of the British Medical Association in London, transacted some important business at its meeting on September 15th, as will be seen from the report published in the SUPPLEMENT. The policy of the Committee is to urge all medical practitioners of military age and physically fit to enrol themselves with it, undertaking to come up for whole-time service when called upon to do so. The importance of the business done here largely in the means which have been taken to help medical men to take this course with the least inconvenience to the public and loss to themselves, and to the greatest benefit of the military medical services. For England, Wales, and Ireland it is estimated that out of every three men under 40, fit or unfit for military service, at least one is required to serve in the army as a whole-time commissioned medical officer; this estimate has been reached after very full consideration of the needs of the army as stated to the Committee by the War Office, and the needs of the civil population.

Among the points to which attention has been directed are the position of the resident staffs of civil hospitals and that of men of military age doing war work at home. A letter has been addressed to the governing bodies of hospitals pointing out the urgency of relieving from their hospital duties those junior members of their resident and visiting staffs eligible for commissions in the R.A.M.C. The British Hospitals Association, to which this letter has been communicated, has discussed the matter with the Director-General A.M.S., and as a result a scheme has been prepared, which is printed at page 453. Under it the members of the resident staffs of the hospitals connected with recognized teaching schools may be granted honorary commissions in the R.A.M.C. They will be called up to take general service with the R.A.M.C. after three months' residence, and may be so called up before the expiration of that period, if required, on forty-eight hours' notice. The War Office undertakes, on the other hand, that not more than one-third of the number of residents shall be called up on forty-eight hours' notice at any one time.

With regard to military work at home, the Committee has asked the Director-General not to retain or accept for work in military hospitals at home medical practitioners of military age physically fit

for military service, but to encourage such practitioners to accept commissions in the R.A.M.C. The Committee has been informed that the War Office is discouraging younger men who are physically fit for active service from engaging for home service only, and that the whole question of men of military age doing military work at home is under serious consideration. The question raised is, we understand, held to include not only medical officers, but also non-commissioned officers and men of the R.A.M.C., the hope being that much of the work done by male orderlies may in future be carried out by women.

Another matter which has been cleared up is that of the age of medical officers accepting temporary commissions. In future no medical man under 45 years of age will be employed unless he undertakes general service obligations for a year, and is found physically fit for duty at home and abroad, nor will any man under this age be re-engaged after the expiration of his first contract unless he offers for general service. The effect of this is that the age for general service has been advanced by five years; at the same time it has been decided not to accept for home service any man over 55 years of age, and this means a reduction of the age by five years.

The War Emergency Committee has made an appeal for the establishment throughout the country of local War Emergency Committees, and already 87 such committees, covering approximately 83 Divisions of the Association, have been established. This, however, leaves 87 Divisions in which, so far as is known, no such committee has been appointed.

It will be seen that the aim of the Committee is that the name of every medical man of military age and fit for service in every locality should be registered, and that each should be invited to enrol himself as ready to accept a commission for whole-time service at home and abroad when advised that it is his duty to do so. Each local Committee is advised of the number it should furnish on the basis of equal distribution through all districts. Opportunity is afforded to each individual to state whether he would prefer that when the need arises for men to be called up for service from his locality the selection should be made by the central or the local War Emergency Committee. In the advice that is given as to the arrangements which should be made for the carrying on by the local profession of the practices of practitioners who accept commissions, the precedent set by the Scottish War Emergency Committee, which meets at the Royal College of Physicians of Edinburgh, has been followed. Three classes of practices are distinguished—namely, town practices, combined town and country practices, and country practices—and the suggestion is that the remuneration should be divided in proportions varying with the nature of the practice. At the same time it is strongly advised that Insurance Committees in every district should be asked to discourage, as far as possible, the transfer of patients from a doctor absent on military duty, and that Panel Committees should arrange that no practitioner should take over as a panel patient any insured person on the list of a doctor absent on military service until twelve months after the latter's return.

The Secretaries of the Scottish and Irish War Emergency Committees are supplied with copies of all documents issued by the War Emergency Committee for England and Wales, but, at the request of the Irish Medical Secretary and Dr. Hayes, the circular issued to individual practitioners last month has been sent to all practitioners in Ireland.

SANITATION IN THE ANTILLES.

IN the tropical West Indian islands, as elsewhere, the proper disposal of human excreta is a problem of the highest importance to medical men engaged in local sanitary administration. In Grenada, one of the Windward Islands lying off the coast of Venezuela between the Caribbean Sea and the Atlantic, this question has recently been examined by Dr. Angus Macdonald, medical officer in charge of the International Health Commission of that island, who read a paper on the subject at a meeting of the local members of the British Medical Association, held at the invitation of the Colonial Surgeon, Dr. E. F. Hutton. According to Dr. Macdonald, ankylostomiasis, or hook-worm disease, is the great danger to be apprehended here. It is a disease of soil infection, and is spread by man. The spread is due to the rustic habit of defecation in any corner of the plantation, grass patch, cane field, or bush; this infects the soil for a longer or shorter period, and the barefoot individual of any age, race, or sex may easily be infected therefrom. In discussing the sanitary measures required for the prevention of this soil infection, Dr. Macdonald is careful to keep theoretical perfection apart from what is practically attainable. In urban districts the excreta should, he says, be disposed of by water carriage, at Grenada through drains into the sea. In rural districts this is not possible, and three other methods must be considered. The first of these, human carriage, requires the use of latrines with movable receptacles emptied by hand as required. Their contents are habitually employed to enrich the soil, and so infection of the soil is perpetuated. The second method, that of natural deposit *in loco* already alluded to, ensures the maximum pollution of surface soil and water, and must be discouraged firmly. The third method, that of original permanent disposal in the deep-pit privy, is Dr. Macdonald's method of choice. Destruction by burning or by chemical disinfection, theoretically admirable, is not a practical proposition outside public institutions for reasons of trouble and expense. The deep-pit closet, on the other hand, once it is constructed, needs no attention until in the course of years it becomes filled up, and then it may be either emptied, or covered up with soil and abandoned. Dug in gravel or sand, or at Grenada in tuff, cinder, or clay, the pit may be 10 ft. deep or more, and measure 6 ft. by 4, if rectangular. Its sides may be lined with brick or stone dry set; the bottom is left unlined, the top should have a storm-water wall a foot above ground, and this will support the suitable wooden hut above the pit. Instead of the dry earth or ashes usually recommended, Dr. Macdonald advises the use of equal parts of salt and sand to throw over the deposits in these closets. The salt keeps flies away, and tends to destroy the hook-worm ova. If for any reason it is necessary to instal bucket privies, or privies with shallow pits or trenches, employment of the salt and sand mixture is still recommended; the occurrence of soil infection through wash-outs by storm water, so common in the tropics, will be very hard to avoid. Dr. Macdonald has made out an excellent case for the deep-pit system for disposing of excreta, and writes with the authority of extensive practical experience.

SMALL-POX VACCINE FREE FROM BACTERIAL CONTAMINATION.

REMARKING that in spite of much effort no method has been perfected, up to the present time, for propagating the vaccine virus of small-pox or cow-pox in a pure state, Noguchi gives an account¹ of his own successful experiments in this direction. The method of propagating this virus universally practised to-day consists in transmitting the virus from the skin of one calf to that of another. In spite of all antiseptic and aseptic precautions, the fresh

product yielded by the vaccine vesicles contains a not inconsiderable number of different bacteria. The product is always ripened, or partially sterilized, by exposure to strong glycerine solution in a refrigerating chamber for from one to three months. But this process of ripening, though it tends to reduce the activity of the vaccine virus itself, does not destroy all the contaminating bacteria, although those that remain alive are not pathogenic organisms. Noguchi gives a full account of his experiments, and illustrates them with a large number of excellent photographs and microphotographs. He shows that a vaccine virus freed from all associated bacteria by means of suitable disinfecting agents can be propagated thenceforward in a pure state in the testicles of rabbits and bulls. The virus thus cultivated appears capable of indefinite transfer from one animal to another without loss of efficacy; sixty passages of a pure strain have been made in rabbits in thirteen months. Once the vaccine strain has grown accustomed to its environment in the testis, its activity equals that of a strain obtained in the usual way by growth on the skin. The multiplication of the vaccine virus within the testicle reaches its maximum on the fourth or fifth day after inoculation. Human beings, whether on vaccination or revaccination, react to the pure testicular strain of vaccine virus in an entirely typical manner, and just as they do to the ordinary skin strain of virus. Noguchi states that the ordinary virus used for vaccination against small-pox, although it may be contaminated with bacteria, is for all practical purposes to be regarded as pure; the contaminating micro-organisms are practically negligible. But he points out with justice that a really pure virus is preferable; and his experimental work seems to show that he has found a method of preparing it that is satisfactory from the commercial as well as from the scientific point of view.

THE MUNICIPAL MANAGEMENT OF TUBERCULOSIS.

WHILE London is still waiting for the materialization of the combined efforts of the Local Government Board, the County Council, the Insurance Commissioners, and the borough councils to set up tuberculosis dispensaries in the metropolis, the more coherent organization of the various bodies concerned in the city of Birmingham has been able to present a complete report of its work in the year 1914. The information embodied in this report will enable a fair estimate to be formed of the probable amount of work which will fall to future municipal undertakings and as to the relative amount of success which may be expected. In one respect the report is perhaps disappointing, in that it gives no indication as to the cost of the undertaking, nor is any mention made of the arrangements which are presumably in force with regard to the payment for insured cases. Upon both these points the London borough authorities have not as yet come to any uniform decision. It would seem that very few cases of tuberculosis escape notification in Birmingham. During the year 1914 there were 3,317 cases of pulmonary tuberculosis reported and 1,059 deaths, representing a case mortality of 32 per cent., but among the population as a whole the mortality did not exceed 1.20 per cent. Thus it may safely be affirmed that by far the larger number of notified cases recover. Both the pulmonary and non-pulmonary forms of the disease were found to be most prevalent in the poorer districts. Reports made on special forms by qualified nurse-visitors are submitted to the chief tuberculosis officer, working with his assistants at an anti-tuberculosis centre, on receipt of notification from the medical officer of health. These reports have revealed the extent to which overcrowding has to be dealt with, and the relation between case incidence and defective ventilation. For the rectification of these evils it is necessary to have recourse to the assistance of charitable agencies. Isolation or segregation, the improvement of ventilation, the adjustment of labour conditions, and the provision of adequate food and

¹ H. Noguchi, *Journ. L. Soc. Med.*, New York, 1915, xxi, 539.

clothing can all be met to a limited extent, but the demand far exceeds the supply. It has been found that the introduction of hygienic methods into the home makes but little headway until some of the inmates have had personal experience of sanatorium life. Hence as many as possible are recommended for admission into one of the three available institutions if only for educational purposes. Of the 377 beds in these sanatoriums, 68 are reserved for early cases, while another hospital with 45 beds is used for acute cases only. To facilitate the examination of contacts, who show no great willingness to undergo the process, attendance is given in the evenings, and the whole-time staff of doctors is assisted by a part-time staff, and by them most of the evening work is done. Of 727 persons so examined, no fewer than 282 were found to be tuberculous. Cases are followed up, after undergoing the period of treatment that may be prescribed for them, by trained tuberculosis visitors, and it is through their agency that the household reforms which constitute the main feature of domiciliary treatment can be effected and maintained. The report is very full and comprehensive, and touches upon many points, such as the milk supply and other matters relating to the origin and spread of the disease. Some illustrations are appended showing the arrangements for open-air treatment as at present devised, from which it appears that its value is recognized for other conditions than those of tuberculosis, and that physicians and surgeons alike are treating cases on open verandahs and balconies in the different hospitals in the city.

OCCUPATION AND SYPHILITIC NERVOUS DISEASE.

Dr. G. E. RENNIE reports¹ two interesting cases of nervous lesions in patients with positive Wassermann reactions, in whom the distribution of the lesions appeared to be connected with the occupational overuse of certain groups of muscles. The first patient had been a tram driver for several years, and was left-handed. At work on three successive days he nearly ran over a child, upset a water-cart, and nearly killed a second child, each time suddenly pulling up sharp. In the next few days he felt nervous, and had numbness in the left hand, and intense headache with vomiting and clonic convulsions on the left side of the face and the left arm. The symptoms cleared up rapidly under the influence of mercury and iodide; Dr. Rennie suggests that they were due to a syphilitic cortical lesion, and that the localization of the lesion was determined by the man's left-handedness and sudden occupational overstrain. The second patient was a miner working with hammer and drill. The hammer was used in the right hand, the drill was steadied, and rotated between the hammer blows, by the left. He had lightning pains and a girdle pain, but came to hospital on account of weakness and wasting in the hands and wrists, particularly the left. There was wrist-drop on the left side, and wasting of the muscles of the hand and the extensors of the wrist on both sides. Both hands were numb; no reaction of degeneration was found. Dr. Rennie argues that it was the occupational overuse of the hands, and particularly of the left hand, that determined the incidence of the syphilitic nerve lesion for which the patient came under observation. Both these patients appear to be instances of Edinger's *Aufbrauch-krankheiten*, or exhaustion diseases, of the peripheral or central nervous system. Edinger was at work on this theory in 1894, and published a full account² of it ten years later. This exhaustion theory points out that nervous lesions are likely to declare themselves for choice in any part of the nervous system that is over-worked. Thus an alcoholic tapster, no doubt from often going up and down the cellar steps, was attacked by alcoholic neuritis in the legs; recovering from this, and

becoming an alcoholic waiter carrying heavy piles of plates, he got an alcoholic neuritis affecting the arms, and particularly the shoulder muscles. A publican, after amputation of one arm, suffered from alcoholic peripheral neuritis in the other; no doubt because, having but one elbow to lift, he worked it double tides. In the case of tabes dorsalis, Edinger argued that the incidence of the main symptoms was often determined by occupational overuse. If the tabetic patient is a postman, he will complain first of ataxia in the legs; if a tailor, of ataxia in the hands and arms. It was found that a tailor with tabes, complaining of ataxia in the legs, lived on the fourth floor and went up and down stairs several times a day. Tabetics with optic atrophy and blindness perform lead quiet sedentary lives, and so, it is argued, are spared many of the other common tabetic symptoms. The Argyle Robertson pupil is habitually an early sign of tabes, because the pupillary light reflex is so constantly active and at work in daily life: one may presume that the loss of this light reflex would be a sign of late onset in tabetic troglodytes. Be this as it may, there has been recorded the case of a tabetic patient whose occupation was to hold up frames containing eggs to the light, and to judge of their goodness or badness by their translucency, working through so many thousand eggs a day. In this patient the tabes declared itself in the form of optic atrophy and blindness.

COMMITTEE ON HEALTH OF MUNITION WORKERS.

THE Minister of Munitions of War, with the concurrence of the Home Secretary, has appointed a Committee "to consider and advise on questions of industrial fatigue, hours of labour, and other matters affecting the personal health and physical efficiency of workers in munition factories and workshops." The members of the Committee are: Sir George Newman, M.D. (chairman); Sir Thomas Barlow, Bt., K.C.V.O., F.R.S.; Mr. G. Bellhouse, Factory Department, Home Office; Professor A. E. Boycott, M.D., F.R.S.; Mr. J. R. Clynes, M.P.; Mr. E. L. Collis, M.B., Factory Department, Home Office; Dr. W. M. Fletcher, F.R.S., Secretary of Medical Research Committee; Professor Leonard E. Hill, M.B., F.R.S.; Mr. Samuel Osborn, J.P., Sheffield; Miss R. E. Squire, Factory Department, Home Office; and Mrs. H. J. Tennant, with Mr. E. H. Pelham as secretary. The Committee will hold its meetings at the offices of the Board of Education, and all communications should be addressed to Mr. Pelham there.

THE NATURAL ENEMY OF THE FLY.

To many there is a particular mental gratification in achieving an end by taking advantage of one of the processes of Nature rather than by reaching it through their arrest by some method which may be termed artificial. To such we commend an observation communicated to the last meeting of the Académie des Sciences by the Director of the Pasteur Institute in Paris. The search for the natural enemy of the domestic fly has not hitherto been very successful. The mould *Empusa* kills the flies it attacks, but no practical method of infecting the pestilent insects has been devised. The fly, as is well known, lays its eggs in manure, particularly horse manure, and M. Roux says it prefers the fresh droppings. The natural enemy of the fly, he says, is fermenting horse-dung. The eggs cannot withstand a temperature of 60° C., but fresh horse-dung, if kept well covered up from the cold, quickly ferments, and during fermentation the temperature rises to between 60° and 70° C. Therefore, M. Roux advises that horse-droppings should not be thrown on top of the manure heap, but that a hole should be made in it and the fresh dung shovelled in and covered over. It is a simple plan, and so little troublesome that the average stableman might probably be induced to follow it without much persuasion. The idea of the

¹ *Medical Journal of Australia*, April 24th, 1915.
² *Zentralbl. med. Wiss.*, 1904, pp. 1653, 1800, 1921.

manure "working" and killing the flies' eggs would probably appeal to him, and the farmer could not object that the fertilizing value of the manure was diminished.

THE WASTE OF ABILITY.

PROFESSOR RUTHERFORD paid a striking tribute in *Nature* last week to Henry Gwyn Jefferys Moseley, who was killed in the Dardanelles on August 10th. He was the son of the late H. N. Moseley, Professor of Zoology at Oxford, and during the last four years of his life had done work of fundamental importance in the study of radiation and of the structure of the atom; he made the discovery, of great and far-reaching importance, both on the technical and experimental side, that the properties of the element are defined by its atomic number. Sir Ernest Rutherford concludes his tribute with the following sentence, which will find an echo in many minds: "It is a national tragedy that our military organization at the start was so inelastic as to be unable, with few exceptions, to utilize the offers of services of our scientific men except as combatants in the firing line. Our regret for the untimely end of Moseley is all the more poignant that we cannot but recognize that his services would have been far more useful to his country in one of the numerous fields of scientific inquiry rendered necessary by the war than by exposure to the chances of a Turkish bullet."

MR. H. G. PLIMMER, M.R.C.S., F.R.S., Pathologist to the Zoological Society, has been appointed Professor of Comparative Pathology in the Royal College of Science.

THE arrangements for the exhibition of various forms of apparatus which have been found most useful in the treatment of fractures met with in the war, which is to be held at the house of the Royal Society of Medicine, 1, Wimpole Street, W., from October 8th to 11th, are proceeding satisfactorily. They are under the management of a committee consisting of Mr. Charles H. Fagge, M.S., Lieutenant-Colonel F. F. Burghard, M.S., Major Robert Jones, F.R.C.S., and Mr. J. Y. W. MacAlister, who is also acting as Honorary Secretary for the committee. Exhibits are only accepted through the consulting surgeons of district commands, and those desiring to send in any apparatus should first submit it to the consulting surgeons of the command, who, if they consider them of sufficient importance, will recommend them to the committee.

Medical Notes in Parliament.

Compulsory National Service.—On the reassembling of Parliament, on September 14th, the greater part of the time of a session which only occupied about an hour and a half was taken up by an inconclusive discussion on compulsory national service, raised on the motion for the adjournment. In reply to a suggestion that the House should meet in secret session, in order that facts with regard to the conduct of the war which it was not expedient to make public to the country at large should be known to members of the House, the Prime Minister said that he had received no indication of any general desire for such a session, and expressed the opinion that, under the conditions in which parliamentary life in these days is conducted, it was certain that imperfect, incomplete, inaccurate, and distorted accounts of what had taken place would be given, and that no commensurate object in compensation for that great evil would be gained. With regard to the principle of compulsory service, he said that when the Government, without undue delay, but with as much deliberation as the gravity of the subject demanded, had arrived at its conclusions, they would be presented to the House and would become the subject of parliamentary discussion. On the second day of the session, after the Prime Minister had made his statement on war expenditure, which, he said, now amounted to rather over three and a half millions

sterling a day net, discussion turned mainly on compulsory service, except when Mr. Balfour was giving an account of aerial defence. Mr. Asquith said that, adding to those serving in the navy and army or called up to serve at the outbreak of war, the numbers who had since enlisted, "an aggregate of not far short of three millions of men, first and last," had offered themselves to the country. Recruiting during the thirteen months had kept at a fairly steady figure, but there had been signs of falling off during the last few weeks. Though the total casualties already amounted to over 300,000, the rate of recovery from wounds was happily such that the net wastage was very considerably less. The response of the country in respect both to recruits and munition workers had vastly exceeded any standard dreamed of before the war, but the war, as it proceeded, constantly raised the standard, making new requirements, and demanding new sacrifices in men, in munitions, and in finance. Mr. Amery alleged that drafts recently sent to the front included a large proportion of ineffective unable to march, or to see well enough to shoot; and Sir R. Cooper said that within the last six weeks one battalion alone had recruited ten men previously discharged as permanently unfit for service. Mr. Amery, in view of the failure to break through in the West and the creak in the Dardanelles, urged that the time had come to devise means for finding more fit men, and that it was the duty of the Government to make up its mind about national service. Sir I. Chiozza Money maintained that Germany was stronger now than when the war began nearly fourteen months ago, and urged that the opposition to compulsory service was due largely to prejudice. Mr. S. Walsh, a Labour member, while maintaining that if the voluntary system was abandoned the House must be completely satisfied that the existing situation rendered that course necessary, added that if it were shown that compulsion was necessary for the preservation of the State, conscription must be accepted. Under the voluntary system nearly a quarter of a million men a month had been enlisted, and the evidence that compulsion was necessary must be unassailable. In the House of Lords, on the same day, Lord Kitchener said that as the new armies became trained and ready to take the field, considerable reinforcements had been sent out, and Sir John French had reported that the units were well officered and commanded, and had efficient equipment in good order. Other armies would quickly follow for service abroad. There had recently been a falling off in the numbers coming forward to enlist, and this had accentuated the anxiety felt with regard to the provision of men to keep the armies up to their strength during 1916. The returns under the Registration Act would afford a basis for calculating the numbers that would be available for the army after providing for the necessary services of the country as well as for munition works. The decision, which would, he hoped, soon be reached, as to how an adequate supply of men was to be maintained, would be founded on the military requirements for the prosecution of the war and the protection of our shores.

Total Army Casualties.—In reply to Mr. Hogge, who asked for the total number of casualties for the first complete year of the war, and whether means had been taken to announce further casualties at regular intervals, Mr. Tennant said: The practice which has been indicated as desirable in regard to statements of total casualties has been to give them from time to time when the exigencies of the military situation permit, and not at regular intervals. There are still objections to making periodical announcements of the aggregate casualties; and my noble friend considers it desirable that discretion should be reserved to the Government as to when such statements may be made. Subject to the above remark, I may inform the House that the total casualties for the first year of the war—that is, up to August 21st—arc as follows:

	Officers.	Other Ranks.
Killed; died of wounds, etc. ...	4,965	70,992
Wounded ...	9,973	241,086
Missing ...	1,501	53,466
	16,439	365,544
Total ...	...	381,983

THE WAR.

NOTE ON THE CAUSE OF DEATH DUE TO HIGH-EXPLOSIVE SHELLS IN UNWOUNDED MEN.

SURGEON-GENERAL W. F. STEVENSON, C.B., writes: M. ARNOUX, a French civil engineer, has suggested recently (*Le Journal*, July 6th, 1915) an interesting theory as to the immediate cause of death in certain cases reported from the front in this war of men who were killed by the bursting of high-explosive shells in their immediate neighbourhood, without having been actually struck by any fragments of the missiles. These men were found fixed in the positions occupied by them at the moment of death—"in the lifelike attitudes they were in at the last instant of life."

M. Arnoux bases his theory on what was seen to have happened to a pocket aneroid barometer carried by an officer who had been exposed to an explosion of the kind referred to, and was put out of working order by the force of the concussion. M. Arnoux had the aneroid repaired and placed it under the reservoir of an air pump in order to ascertain by experiment what atmospheric pressure would be required to cause the index to register the same as that produced by the explosion. It is unnecessary to enter into the details of his calculations on this matter, but, presuming them to be correct, he found that the dynamic pressure exerted by the surrounding air on bodies within a few yards of the exploding shell had amounted to over "10,000 kilos to the square metre. . . . Men standing close to the exploding shell would be blown into the air or dashed against the ground with great violence, but in the case of men supported by leaning against a tree, the side of a trench, a wall, etc., only the static decompression (*depression statique*) of the surrounding air could affect them. "What," asks M. Arnoux, "would be the effect on the human organism of so powerful and so sudden a decompression? It would," he answers, "be similar to that which causes the deaths of aeronauts who make too rapid an ascent or of workers in compressed air caissons who leave their caissons too quickly and without taking proper precautions for their slow decompression," namely, the sudden escape from the blood in the form of bubbles of the air and carbonic acid gas which it had absorbed while subject to the high atmospheric pressure in the caissons. *Post-mortem* examinations and experience have proved this to be the cause of sudden deaths in caisson workers. If, after some hours' work in a caisson, a man is suddenly exposed to the ordinary atmospheric pressure by his removal without sufficient care to ensure gradual "decompression" by passing him through a series of compartments of less and less air pressure, the air and carbonic acid which have been absorbed by the blood during the time of his work under the high pressure of the caisson are suddenly discharged into the blood stream as bubbles—the blood, in fact, developing a condition of effervescence—which block all capillary circulation throughout the body and produce immediate death.

M. Arnoux's theory—and a theory only, for he has brought forward no evidence whatever to prove it—is, then, that the same thing happens to victims of the high-explosive shell as happens to the caisson worker; that the sudden and enormous increase of atmospheric pressure produced on a man's body by the explosion is capable of producing such an absorption of air and carbonic acid by the blood as would produce death by their rapid discharge into the blood stream—in fact, air embolism. But the conditions of the two cases are quite different; the high pressure produced by the explosion is only of a moment's duration, that of the caisson has lasted for some hours. The absorption of the gases by the blood in the latter case is not sudden; it does not occur immediately the pressure is applied, but increases directly as the time of exposure to it is prolonged. Is it possible that a sudden increase of atmospheric pressure lasting only for a fraction of a second, no matter how great it might be, could so charge the blood with gases that their discharge into the blood stream when the pressure ceases would cause death in the same manner as a too rapid return to ordinary atmospheric pressure does in caisson workers?

Indeed, one may go further and ask, Is it likely that any absorption at all of gas by the blood occurs in the case of the shell explosion?

Perhaps some expert scientist will answer these questions. To me, judging by the little evidence we have, it would seem that the effects of high explosive shells on men who are not wounded by them or their fragments are to be seen, not in causing sudden death as met with in caisson workers, but by producing concussion of the brain and interference with the functions of nerve centres which are essential to life, and the interruption of which means instant death. I have seen many men come from the front who have been exposed to these explosions; all their symptoms and all their accounts of their experiences tend to confirm this belief, for it is to the less severe injuries to these centres that the symptoms of men who recover and come home all point. M. Arnoux sets out to explain some cases of the lifelike attitudes of dead men which have been reported from this war, and considers that it is to the suddenness of the occurrence of death that their fixed positions are due. But most people will have read accounts of cases of this kind, and possibly may have seen pictures of them in illustrated papers before "high explosives" were used in war.

ARMY MEDICAL PROCEDURE.

The temporary enrolment of civilian practitioners in the ranks of the Royal Army Medical Corps is not, as some suppose, an emergency procedure consequent on the sudden outbreak of the existing war, but a fully pre-arranged plan which included the granting, as on the present occasion, of military titles to these "special enlistments." For a good many years past an Expeditionary Force has had a paper existence, and the authorized establishment of all medical units which would form part of such force the instant it was mobilized has always included a certain proportion of civilian medical men.

The idea of course was to provide for the needs of this force without disturbing too much the medical arrangement made for the benefit of troops not directly concerned with its movements, and it is made feasible by the fact that a great deal of the knowledge required for work in the army is common both to civilian and military practitioners.

The plan has the advantage of allowing the strength of the Royal Army Medical Corps to be kept down to a minimum during peace, and such disadvantages as it presents are likely to become obvious only when it is extended beyond its originally intended limits.

So long as the proportion of civilian medical men to the total strength of the corps in officers is small, and so long as it is possible to retain a civilian medical practitioner at the unit to which he was originally appointed, any disadvantages naturally inherent in the plan are readily overcome. The medical and surgical knowledge of the civilian practitioner fits him from the beginning to undertake with ease all the strictly professional work of the unit to which he is attached, and with a little tactful assistance from its regular officers—including the quartermaster, sergeant-major, and senior sister, if any—he is likely soon to acquire sufficient knowledge of its special routine to make him, in respect of all bedside and allied duties, an efficient executive officer.

The case alters, however, if the number of units that have to be staffed is very large, and where, as in present circumstances, the field operations endure so long that it may become necessary to shift men not infrequently from one unit to another. Then not only must the men who are thoroughly trained and experienced in all branches of military administrative medical work be scattered over a very wide area, but the body of civilian practitioners, however high a degree of professional talent it may collectively represent, loses a certain measure of its utility in respect of the special duties that it has undertaken. For an individual medical man who has been sufficiently long with a given unit to become a thoroughly efficient member of its staff by acquiring sound practical knowledge of its routine, temporarily loses a part of his efficiency on transference to a unit of a different kind.

Though the medical authorities of the army endeavour to employ all civilian practitioners on the kind of work for which they are best fitted by their previous experience, and though the latter are permitted to express a preference

for one kind of work rather than another, they are liable to be employed either at home or abroad in any position that can properly be filled by a medical man. Consequently, a civilian medical practitioner who desires to become a thoroughly efficient member of the corps that he has joined must extend his knowledge beyond that with which he was fully equipped when he entered the army.

Military medical formations are numerous—general hospitals, stationary hospitals, casualty clearing stations, field ambulances, hospital ships, ambulance trains, motor ambulance convoys, and sanitary and regimental appointments; but even without entering them a medical man can learn a good deal of the routine and organization of all of them. It is well worth his while to do so, not only because of the liability which has been mentioned, but also because some knowledge of the general organization of the medical department of the army, and of its inter-relationships with other departments and divisions of an expeditionary force, greatly increases the interest of the time passed by him in the capacity of a soldier. For that matter, too, knowledge of this kind may often enable a man better to understand the bearing of the regulations to which he is subjected, and prevent him feeling ill-used by any orders he may receive.

To acquire this knowledge or a fair amount of it has never been difficult since the various textbooks relating to the work of the Royal Army Medical Corps, as also regarding field operations as a whole, are very clearly written and easily read. But it has been particularly easy during the past few months, since, in view of some of the considerations which have been set forth above, and in anticipation of existing circumstances, the Director-General of the British Army in the Field issued in the spring an order to the effect that all Commanding Officers of medical units should take every possible opportunity of instructing the officers under their command not only in the general organization and functions of the unit in which they were serving, but also in regard to the formations to which they were liable to be transferred.

The memorandum in which this order was conveyed recognized that the conditions of active service imposed heavy restrictions on theoretical teaching, but pointed out that in every unit ample opportunities for the imparting of general instruction were likely to occur from time to time. This has in fact proved to be the case, and in many units short courses of lectures and demonstrations have been provided. Moreover, as far as can be gathered, the suggestion made in the memorandum in regard to the instructional work has usually been adopted, this being to the effect that the list of subjects which follows should be taken as a guide to the kind of knowledge to be imparted.

- (a) The general organization of the army in the field and the working of its administrative services.
- (b) The general organization of the medical service of field formations and its modifications under various tactical conditions.
- (c) The system of evacuation and the general organization of the medical service on the lines of communication.
- (d) The sanitary problems of field formations and of the lines of communication.
- (e) Map-reading and field sketching.
- (f) The organization, interior economy, and equipment of medical units. The various sources (medical, ordnance, and A.S.C.) from which equipment is supplied, and the methods of replenishment.
- (g) Discipline, pay, personal documents, records and returns.

THE PERSIAN GULF EXPEDITION.

DISPATCHES.

DISPATCHES have been published in India on the operations in Turkish Arabia, in April last, by Major-General C. I. Fry on the action of Shaiba on April 12th; a second by Major-General Melliss, who took over command on the night of April 12th from General Fry, and a covering dispatch from General Sir John Nixon, in command of the whole force. Among the officers specially mentioned in these dispatches are the following medical officers:

Major-General Fry's Dispatch.

Medical.—I cannot speak too highly of the behaviour of the Medical Department in all its ranks. There was

no flinching during the bombardment, and perfect steadiness, and their work was done in a most efficient manner under the able direction of Lieutenant-Colonel J. Hennessey, R.A.M.C. As I have already noted during this campaign, the Army Bearer Corps and Hospital Corps behaved excellently. I would particularly bring to notice the good work done by Major J. G. Foster, R.A.M.C., and Captain R. E. Wright, I.M.S., No. 3 Field Ambulance, who were working in the fort section of the defence, and were most exposed to fire.

Major-General Melliss's Dispatch.

Lieutenant-Colonel H. O. B. Browne-Mason, R.A.M.C., acted as my Assistant Director of Medical Services during the operations of 13th and at the battle of 14th. His arrangements for evacuating the large number of our wounded during the battle of Barjisijah showed marked ability and organizing power. I feel greatly indebted to him.

2nd Norfolk Regiment.—Lieutenant M. Burnett, R.A.M.C., for conspicuous courage, attending to the wounded in the open in the firing line under very heavy fire, where his work necessitated his being very exposed. He lost his life in the firing line doing so, and his work was beyond praise. Third Class Assistant Surgeon J. V. Fernandez, I.S.M.D.

110th Mahratta Light Infantry.—Captain R. Knowles, I.M.S.

117th Mahrattas.—Lieutenant N. K. Bal, I.M.S., for conspicuous bravery in attending wounded men under a heavy fire in the open. He attended the wounded of the 22nd Company 3rd Sappers and Miners, as well as those of his own regiment.

119th Infantry.—Captain J. J. Harper Nelson, I.M.S.

Medical Services.—Captain R. E. Wright, I.M.S., displayed exceptional ability in handling his subdivision of No. 3 Field Ambulance throughout the day. He displayed particular initiative in proceeding to the firing line of the 18th Brigade under a heavy fire, and by ascertaining personally the position of the groups of wounded, was able to conduct a detachment of Jaipur transport carts direct to the place where they were most required when speedy evacuation was most essential. He afterwards superintended the main advanced dressing station at South Mound in a most efficient manner.

Captain F. C. Fraser, I.M.S., displayed great coolness in bringing his subdivision forward under heavy shell and rifle fire, and was in close touch with the 16th Brigade throughout the day. I was particularly struck with the steadfast behaviour of the Army Bearer Corps men of this subdivision, and attribute it in great part to his excellent example and leading.

R.A.M.C.—Lieutenant-Colonel J. Hennessey, Major J. G. Foster, Major F. C. Lambert.

I.M.S.—Major L. Cook, Captain H. E. Stanger-Leathes, Lieutenant L. A. P. Anderson.

I.S.M.D.—Assistant Surgeon A. E. Phauve, Sub Assistant Surgeon Sunder Singh, Sub-Assistant Surgeon Sheikh Mahomed Dada Sahib.

Army Bearer Corps.—Bearers Samedin, Subhan Singh, Gariba, Dhonde, Ram Charan, and Rafawa.

Army Hospital Corps.—Ward servants Abba Pira, Gangaram Gainu; sweepers Mohan, Nathu Singh; water-carriers Bharda, Gainu Balu, Raja Piussal, Sheikh Amur.

General Sir John Nixon's Dispatch.

Colonel P. Hehir, I.M.S., Acting Deputy Director of Medical Services, materially assisted the operations by the ability and untiring energy which he displayed in the working of the important department over which he at the time was presiding.

Major H. A. Bransbury, R.A.M.C., commanded the sections of No. 19 Combined Clearing Hospital that carried out the evacuation of the wounded after Shaiba, attending himself to all cases (over 1,100 wounded, including those of the enemy) as they arrived, displaying much initiative and resource.

Fourth Class Assistant Surgeon H. N. Murphy, I.S.M.D., was attached to No. 19 Combined Clearing Hospital, during the evacuation of wounded from Shaiba, worked with untiring energy and marked intelligence, proving himself to be very capable and reliable.

Others of the medical services I consider worthy of

* Lieutenant Burnett was gazetted Captain from March 30th.

commendation are Lieutenant-Colonel H. M. Anderson, R.A.M.C., commanding No. 3a British General Hospital up to April 21st; Lieutenant-Colonel G. B. Irvine, I.M.S., commanding No. 9 Indian General Hospital; Lieutenant-Colonel D. G. Collins, R.A.M.C., commanding No. 3a British General Hospital after April 21st; Lieutenant-Colonel F. J. Palmer, R.A.M.C., surgical specialist, No. 3a British General Hospital; Major H. K. Brown, I.M.S., commanding No. 19 Combined Clearing Hospital; Captain C. C. Shaw, I.M.S., No. 19 Combined Clearing Hospital; First Class Assistant Surgeon W. H. Brown, I.S.M.D., Medical Store Dépôt.

HONOURS.

ROYAL NAVY.

On September 13th the Admiralty published a list of honours conferred upon officers and men of the Royal Navy, including ten appointments to the Distinguished Service Order and eighteen grants of the Distinguished Service Cross, also a large number of the Conspicuous Gallantry Medal and Distinguished Service Medal. Among those decorated with the Military Cross are two French naval officers. One medical officer's name appears in the list, that of Surgeon B. A. Playne, R.N., who receives the D.S.O. for the following services:

Surgeon Basil Alfred Playne, R.N., R.N.D. For gallantry and good service during operations near Gaba Tepe from April 28th to May 1st, 1915. On several occasions he rushed across the open (the communication trench being incomplete) into the fire trenches and attended the seriously wounded, regardless of the severity of the enemy's fire; on one occasion he carried a wounded officer on his back from the fire trench to the communication trench under heavy fire. His conspicuous bravery not only inspired the stretcher-bearers to perform fine work, but gave confidence and spirit to all ranks. He was again several times brought to notice for gallant deeds when attending wounded on May 3rd and 4th.

ARMY.

On September 15th the War Office issued a further list of awards to officers and men, which included the following members of the medical service:

Captain Hugh G. Monteith, R.A.M.C., attached to the 2nd Duke of Cornwall's Light Infantry, receives the D.S.O. for conspicuous gallantry and devotion to duty in picking up and attending to the wounded under heavy fire in the actions near St. Jean and Wieltje, east of Ypres, between April 23rd and 27th, 1915, when the casualties in the battalion to which he was attached were very heavy.

Lieutenant William B. Keith, M.B., R.A.M.C.(T.F.), 1st Home Counties Field Ambulance, is awarded the Military Cross, for conspicuous gallantry at Hooge on the night of April 23rd-24th, 1915. When a shell killed two stretcher-bearers who were bringing in a wounded officer he went out to assist, and under a heavy fire brought the wounded officer into the dressing station. He has performed many acts of a like nature, and has consistently shown coolness and resource under fire.

TERRITORIAL FORCES.

The *London Gazette* of September 10th notifies that the Territorial Decoration has been conferred upon twenty-two officers, including the three following medical officers:

Surgeon-Major John F. Gordon-Dill, M.D., Norfolk Yeomanry.

Surgeon-Major George Mackie, M.B., Shropshire Royal Horse Artillery.

Lieutenant-Colonel Arthur Cary, R.A.M.C., 2nd South-Western Mounted Brigade Field Ambulance.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died.

Surgeon David Revell Bebell Siveight, R.N., is reported to have died in the Dardanelles on September 5th. He was educated at Fettes College, Trinity College, Cambridge, and Edinburgh University, and took the B.A. Cambridge in 1902 and the M.B. and Ch.B. at Edinburgh in 1910. After qualifying he served as house-surgeon successively in the eye wards and in the out-patient department of Edinburgh Royal Infirmary, and then went into practice at Murrayfield, Edinburgh. He joined the navy as a temporary Surgeon on January 25th, 1915, and was attached to the Royal Naval Division Field Ambulance. His death adds one more to the list of famous Rugby international football players who have fallen in the service of the country. He played for four years,

1899 to 1902, in the Cambridge football fifteen, being captain in the last two years, and in that of Edinburgh University for four years more, 1905 to 1909, captaining that team also for two years. He represented Scotland in twenty international matches, including those against the "All Black" New Zealand fifteen and the South African fifteen, and captained the English Rugby team which went to Australia in 1904. In 1909 he was also amateur heavy-weight boxing champion of Scotland.

ARMY.

Died of Wounds.

Lieutenant C. M. Harris, R.A.M.C., is reported to have died of wounds in Flanders, in the casualty list published on September 10th. He was attached to the 7th Battalion Royal Scots Fusiliers, and was reported as wounded in the casualty list published on August 15th. (We cannot trace this officer in the *Army List* or *Medical Register*; possibly the initials are incorrect.)

Wounded.

Major R. Kelsall, I.M.S., Flanders.
Captain J. H. Magoveny, R.A.M.C. (Special Reserve), Dardanelles.

Captain O. Teichmann, R.A.M.C.(T.F.), Dardanelles.
Lieutenant J. Brown, R.A.M.C. (temporary), Dardanelles.
Lieutenant G. B. Pearson, R.A.M.C.(T.F.), Dardanelles.
Lieutenant L. H. Skene, R.A.M.C. (temporary), Dardanelles.

DEATHS AMONG SONS OF MEDICAL MEN.

Jephson, John Noble, Major 6th Battalion Royal Munster Fusiliers, second son of the late Deputy Inspector-General William Holmes Jephson, Army Medical Department, formerly of the King's Dragoon Guards, died at Mirdos on August 29th, of wounds received at the Dardanelles on August 16th. He was born at Bangalore on October 8th, 1864, educated at Kelly College, Tavistock, and entered the Manchester Regiment as Second Lieutenant on February 7th, 1885. He joined the Indian Army in 1889, being posted to the 5th Bengal Light Infantry, became Major on February 7th, 1903, and retired on December 2nd, 1905. He then joined the Devon Territorials, as Commandant of the 4th Wessex Brigade, R.F.A., resigning this command shortly before the war. Returning to duty when the war broke out, he was appointed Major and second in command of the 6th Royal Munsters, landed with his regiment at Suvla Bay, and took part in the fighting there from August 6th to the 16th, when he was shot in the head while leading a charge. He leaves a wife and two sons.

Kearney, James John, Royal Gloucester Hussars, son of the late J. F. Kearney, M.R.C.S., killed in the Dardanelles, August 21st.

King, S. W. Thacker, Second Lieutenant 4th Battalion Cheshire Regiment, son of Dr. R. Thacker King, of Wyt Kirby, Cheshire, killed in the Dardanelles in August. He got his commission on February 22nd.

A CORRECTION.—We are glad to learn that the announcement of the death, from wounds in Flanders, of Lieutenant E. Roberts 7th East Yorkshire Regiment, the son of Dr. E. Roberts of Leeds, is incorrect. Lieutenant Roberts was wounded, but he is now rapidly convalescing.

MEDICAL STUDENTS.

Dobbin, George F. Second Lieutenant 6th Battalion Royal Irish Fusiliers, killed at the Dardanelles on August 10th, aged 20. He was the second son of Mr. J. L. T. Dobbin, of 115, Morehampton Road, Dublin, was educated at Strangeways School, Dublin, and entered Trinity College, Dublin, as a medical student in 1912. He was in the O.T.C. at college, and got his commission on September 29th, 1914.

Duggan, John Lewis, Lieutenant 5th Battalion Royal Irish Regiment, fifth and youngest son of George Duggan, of 5, College Street, Dublin, killed in action in the Dardanelles on August 16th, aged 20. He was educated at Dublin High School, and entered Trinity College, Dublin, as a medical student in 1912. He got his commission on January 28th, 1915. His elder brother—Captain G. G. Duggan, of the Royal Irish Fusiliers—fell at the same time, dying of wounds on August 17th.

NOTES.

REST HOSPITALS.

THE National Advisory Committee on War Output announces that by arrangement with the War Office and the Ministry of Munitions a series of parties representing workmen employed in the various munition areas will pay visits to the front; eight such parties, consisting of seven representative workmen, have been arranged, and one Labour member of the Parliamentary Munitions Committee will be attached to each party. The first party, consisting of members of the National Advisory Committee and three members appointed by the Parliamentary Committee, reached general head quarters in France on

August 27th, and issued a report of their observations on September 13th. The main part of the report is concerned with the requirements of the army in the field, which, it is stated, are "enormously in excess of all previous calculations," and an appeal is made to munition workers on behalf of their fellow-workmen in the trenches, who, to preserve our homes and our liberties, have to endure hardships and privations. The report contains a striking tribute to what has been done for the safety and comfort of the troops. After mentioning the good feeling which existed between officers of all degrees and their men, the report states:

Members of the party were much impressed with the care and attention which is evidently devoted to the safety and comfort of the troops both in the trenches and behind the front. In the trenches every ingenious device, in the way of dug-outs and shelters, has been contrived to protect our men against the enemy's fire and make their days and nights as comfortable as possible. Behind the firing line we visited an open-air rest hospital, where men were given a fortnight's treatment. There are about 1,200 patients in the hospital, and a very high percentage are able to return to the colours after their course of treatment. The hospital is splendidly organized and has formed a model on which similar institutions have been founded from time to time; the cooking arrangements would do credit to a first-class hotel, and dental and ophthalmic departments are attached and are kept exceedingly busy. Football and cricket are provided for the patients, elaborate arrangements for cleaning and repairing clothing and accoutrements exist, and after treatment the men are generally returned to their regiments sound in mind and body. This humanitarian side of the war is doing noble work in relieving the strain of campaigning.

HOSPITAL RESIDENTS.

As the result of an interview with Sir Alfred Keogh, Director-General A.M.S., the British Hospitals Association has received the following details of the scheme under which the resident staffs of hospitals are granted honorary commissions in the Royal Army Medical Corps:

1. This scheme is only applicable to hospitals connected with recognized teaching schools (not post-graduate schools).
2. All candidates for commissions must be registered medical practitioners.
3. They must be physically fit for general service.
4. They shall be called upon to take general service with the Royal Army Medical Corps after three months' residence, and shall be liable to be called up for service before the expiration of that period, if required, on forty-eight hours' notice.
5. As far as practicable, not more than one-third of the number of residents will be called up on forty-eight hours' notice at one time.
6. Each candidate shall, on being approved for a temporary honorary commission, receive a grant of £20 as an allowance for the purchase of uniform. This is part of the grant of £30 issuable on taking general service.
7. No resident can be entered into that any residents called up for service will be replaced by the War Office.
8. Applications for temporary commissions should be made to the War Office by the hospital authorities concerned, who will vouch for the candidates whose names they submit.
9. The authorities of any hospital who wish to avail themselves of this scheme should inform the War Office of the number of beds maintained in the institution, and the number of residents employed.

SCOTLAND.

Extended Hospital Accommodation for the Wounded.

Fonab Castle, Pitlochry, has been given by the proprietor (Mr. Alister C. Sandeman) as a convalescent home for wounded soldiers for the duration of the war, and work will be begun in it on the expiry of the six months' tenure of Bonskeid House in the same district. Fonab Castle will be managed by the Pitlochry Women's Red Cross and Voluntary Aid Detachment, under Miss Ferguson, commandant.

Kicr House, Dunblane, which during last winter was occupied as a hospital for wounded Belgian officers and men, has now been reopened as a Voluntary Aid Detachment auxiliary hospital in connexion with the Red Cross organization. The hospital is under the charge of Dr. Hosack Fraser of the Bridge of Allan, and there are some twenty-four patients in it, most of whom are convalescents from the Dardanelles. Colonel and the Hon. Mrs. Stirling have placed the house at the disposal of the authorities.

One-half (100 beds) of the accommodation of the new Children's Hospital at Yorkhill, Glasgow, has been allocated by the War Office for the reception and treatment of wounded officers, and constitutes the first hospital in Scotland set apart for this special purpose. It is to be called the Yorkhill War Hospital for Officers, and the buildings, no less than the grounds, are admirably suited

for the object in view. The other half (with 100 beds) of the hospital is occupied by children under 12 years of age.

An ambulance train with 100 wounded soldiers arrived in Aberdeen on September 4th. The patients, who were all from the Dardanelles, were placed in the base hospitals at Oldmill and in the Central Higher Grade School. Another contingent of 100 wounded soldiers arrived at Springburn Hospital, Glasgow, from France. Most of the men, both at Aberdeen and Glasgow, belonged to English regiments.

The Provost and magistrates of Moffat have granted the use of the Proudfoot Institute as an auxiliary Red Cross hospital, and the opening ceremony was performed on September 7th by Lady Cross, Marchbankwood, Provost Huskie presiding. There are two wards, one for twenty-five and the other for fifteen patients; there is a large library and a billiard-room, and (as Lady Cross added), there are the famous Moffat mineral waters available for those to whom they may be useful. There are also fifteen wounded soldiers at the Ivybank Voluntary Aid Detachment Hospital at Nairn.

Scotland, therefore, is doing her share in the provision of hospital accommodation for the wounded in this crisis in the United Kingdom's history.

The ambulance train, to which reference was made in the JOURNAL of September 11th, p. 418, was visited by over 40,000 persons in Glasgow and by 25,000 in Edinburgh. The funds of the Red Cross Society (Scottish Branch) will therefore benefit to a considerable amount, for the charge for viewing the train was 1s.

NEW RED CROSS HOSPITAL AT ENGLEFIELD GREEN.

A pavilion hospital for wounded sailors and soldiers has been erected on Crown property at Englefield Green, a mile or so from Egham, and almost on the south-eastern border of Windsor Great Park. On September 11th, in the presence of the Princess Christian, who has greatly interested herself in the project, the hospital was informally opened and handed over to the War Office. Sir Alfred Keogh represented that department on the occasion, and the British Red Cross Society, which has contributed £10,000 towards the undertaking, was represented by the Hon. Arthur Stanley. The 120 beds which the hospital comprises are arranged in six pavilions, which have been built in a semicircle facing southwards; each pavilion has a canvas-covered verandah projecting some 8 ft. from the floor of the ward, so that the patients can be wheeled into the open to enjoy a view which embraces some of the finest prospects in Surrey. In addition to these pavilions, there are twenty-seven other buildings in the camp. These comprise mess-rooms, kitchen, stores, dispensary, and private apartments for the resident medical officers, matron, and nurses. One covered octagonal building, like a bandstand in appearance, is for use as a recreation and dining room during summer. The buildings are all constructed of well-seasoned pitch pine, and their yellowish brown hue with decorative green gives a feeling of warmth and cheerfulness to the camp. In one building is an operating theatre, and attached to it an exceptionally well equipped x-ray room, with every required unit of installation, including the most precise localizing apparatus. The interiors of all the buildings are lined with asbestos; they are heated by gas radiators and slow combustion stoves, lighted by electricity, and connected up by telephone. A plentiful supply of baths has also been provided, and the drainage has received special attention. The commandant of the hospital is Sir William Taylor, K.C.B., formerly Director-General of the Army Medical Service, and the assistant commander is Major Buckley, R.A.M.C. These two officers, who will reside in the camp, will be assisted by five local practitioners. Save for the male orderlies, who are members of the St. John Ambulance Brigade, the remainder of the staff, including the quartermaster and the superintendent of the x-ray department, are ladies. It says much for the energy of all concerned that the building, which is to be known as the Princess Christian British Red Cross Hospital, has only been twelve weeks in erection.

CASUALTIES AMONG GERMAN ARMY DOCTORS.

From an investigation by a medical journal in Berlin of the first 200 casualty lists it appeared that of 603 medical men then lost, temporarily at any rate, to the German army the causes were as follows: Slightly wounded 220,

severely wounded 66, dead 167. Of the deaths, 1 was due to gas poisoning, 46 were due to disease, and 120 were due to casualties in the field. Further, 1 medical man was ill, 55 were prisoners, and 119 were missing. Two of the prisoners and 23 of the missing had returned; and, by the subtraction of these 25 from the grand total of 628, the total loss, as above stated, was estimated at 603. The loss of the well-known authority on tuberculosis, Cornet, whose death was due to typhus contracted from Russian prisoners, has been followed by that of Professor Lüthje, whose name is associated with the disorders of metabolism. He was only 44 years old when he died on June 9th. In his case also death was due to typhus contracted while he was attending Russian prisoners.

Ugeskrift for Lægegy for August 5th gives the following particulars, published in the *Berliner Aerztekorrespondenz*, showing the casualties in the German medical profession. Killed 227 (including 72 deaths from disease), severely wounded 82, slightly wounded 261, prisoners 70, and missing 93; total, 733.

MEDICAL OFFICERS WANTED.

59th Divisional Casualty Clearing Station.

The 59th Divisional Casualty Clearing Station, now stationed at Derby, requires three medical officers. Those desiring to serve with a unit of this nature should apply to the Officer Commanding, 59th Divisional Casualty Clearing Station, 91, Siddals Road, Derby.

Wessex Field Ambulances.

Officers are called for to fill establishments of the six Wessex field ambulances—namely, 21st and 31st, head quarters Exeter; 22nd and 32nd, head quarters Plymouth; 23rd and 33rd, head quarters Southampton. Applicants, who should be registered practitioners, physically fit, and under 45, will receive commission as lieutenants, and promotion after six months' service to captain. These units are at present camped on Dartmoor and in the New Forest. Apply to A.D.M.S., Wessex Division, Exeter.

Ireland.

DISPENSARY DOCTORS AND THE WAR.

At the New Ross guardians' meeting last week one of their medical officers, Dr. Shorton (Duncannon) applied for twelve months' leave of absence, as he had received a commission in the R.A.M.C., and also asked the guardians to allow him half his fixed salary whilst away. The guardians granted the leave, refused the salary, and appointed Dr. Sheridan (insurance doctor, New Ross) as substitute, subject to the sanction of the Local Government Board, at the salary Dr. Shorton had been receiving.

Dr. F. Creighton Fitzgerald, medical officer of Newtownbutler (co. Fermanagh) Dispensary District, in Clones Union, aged 70, late High Sheriff of co. Fermanagh, has asked the guardians for a year's leave and half-pay, provided he could get another doctor to act for him at his present salary, in order that he might volunteer for military service. The members present expressed high approval of the doctor's decision, and it was decided to summon a special meeting to deal with his application.

MEDICAL CERTIFIERS AS SUBSTITUTES FOR POOR LAW MEDICAL OFFICERS.

The Local Government Board (Ireland) has written to the Kilmacothomas (co. Waterford) Board of Guardians acknowledging the receipt of replies to questions respecting the proposed appointment of Dr. Bryan Foley as substitute for Dr. O'Byrne, Medical Officer of the workhouse, and of the Kilmacothomas Dispensary District, during his absence on vacation. The Board points out that Dr. Foley is Medical Officer of the Bonmahon Dispensary District, and, in addition, acts as certifier under the National Insurance Acts for the Bonmahon, Kilmacothomas, Kilmacodon, Tramore, Waterford Rural, and Woodstown Dispensary Districts, with a total area of 132,532 acres, and a population of 17,982. In view of all the duties that devolve upon him, the Board is not prepared to approve of the employment of Dr. Foley as temporary medical officer of the workhouse and Kilmacothomas Dispensary District, and desires that the medical officer should be requested to nominate a practitioner who would be prepared to reside in Kilmacothomas while acting as temporary medical officer. His attention should at the same time be drawn to Article 28 of the Dispensary Rules, and he should be cautioned not to relinquish the dis-

charge of his duties until the Local Government Board has approved of the arrangements made in regard to his substitute.

The Local Government Board, in a letter to the Thomastown Guardians (co. Kilkenny), also refused to sanction the appointment of Dr. R. E. Griffin, Kilkenny, as substitute at Knocktopher district in the absence of Dr. T. G. O'Brien, on the grounds that he held the office of medical certifier under the Insurance Acts for nine dispensary districts, with a population of 36,640. The guardians decided to advertise for a doctor, preference to be given to a lady doctor.

England and Wales.

VISIT OF THE KING AND QUEEN TO WEST OF ENGLAND HOSPITALS.

THE King and Queen, last week, made a short tour in the West of England to visit the principal military hospitals.

A visit was first paid, on September 7th, to Bristol, where the Royal party went to the hospital at Southmead, where part of the 2nd Southern General Hospital (I.F.) is established. Between four and five years ago the building of a detached surgical wing to the Bristol Royal Infirmary was begun as a memorial to King Edward; it was opened by their Majesties in June, 1912, and when the present war broke out it was at once set aside for military purposes. The Bristol Board of Guardians offered the use of their new workhouse infirmary at Southmead, then approaching completion, and it was taken over; since then temporary wards have been erected to make up a double strength military general hospital. At Bishop's Knoll, in the private house of Mr. R. E. Bush, who has defrayed all expenses, there is an annexe containing 100 beds, and 100 more beds have been maintained by Miss Mawe and her friends at the Royal West of England Sanatorium, Weston-super-Mare. At Charlton Park the Countess of Suffolk has provided 30 beds, and at Merthyr Guest Hospital, Templecombe, Lady Theodora Guest, 15. The 2nd Southern General Hospital is connected with many other hospitals, mainly voluntary aid institutions, in the counties of Gloucester, Somerset, and Wilts, providing altogether 2,150 beds. The total number of patients treated in the hospital itself since the beginning of the war is 13,725. The rate of mortality has been 0.54 per cent. Their Majesties were received at Southmead by Lieutenant-Colonel Paul Bush, F.R.C.S., C.M.G., Officer Commanding the 2nd Southern General Hospital; Lieutenant-Colonel J. Michell Clarke; and the matron, Miss Harvey. Members of the Territorial Nursing Service and of the Women's Voluntary Aid Detachments were present. The King and Queen visited ten wards, and then proceeded to the Infirmary, where Lieutenant-Colonel Prowse, F.R.C.S., and Miss Baillie, the principal matron, were in attendance. After going over the hospital, their Majesties visited the open-air ward, and then, accompanied by the Lord Mayor, went to Beaufort Military Hospital at Fishponds, where they were received by Lieutenant-Colonel Blackford. The hospital, which contains 400 beds, was inspected and its situation much admired. The Royal party afterwards went to Temple Mead Station, where the King awarded certain decorations to wounded soldiers.

Their Majesties reached Exeter on September 8th, and first visited No. 1 Hospital, established, as is described in the JOURNAL of August 28th, in the West of England Eye Infirmary, where they were received by Miss Buller, Deputy County Director, V.A.D., and the medical officer in charge, Mr. A. L. Candler, F.R.C.S. Their Majesties next went to No. 5 Hospital, in the College Hostel for Women and Congregational Church Schools, near the Castle, where they were received by the medical officer in charge, Mr. Brennan Dyball, F.R.C.S., and the other medical members of the staff.

On the same day the King and Queen went to Plymouth, and after the inspection of troops by the King their Majesties visited Keppel Place Hospital, where they were received by Lieutenant-Colonel A. G. Kay, R.A.M.C. (A.D.M.S. Plymouth), commandant, Major Steele, R.A.M.C., and the Military Hospital commandant, Lieutenant-Colonel Weston, R.A.M.C. On the following day their Majesties inspected the Royal Naval Hospital, where they were received by Surgeon-General W. H. Norman and Surgeon-General Johnson; from there they

went to the Salisbury Road Hospital, where they were received by Lieutenant-Colonel Webber, R.A.M.C., (officer in charge of the 4th Southern General Hospital), and the commandant, Major Wilson, R.A.M.C. From there they went to the Hyde Park Hospital, of which Major Whitmore, R.A.M.C., is commandant, and the Ford Hospital, of which Major G. C. Sandford, R.A.M.C., is commandant.

On September 10th their Majesties ended their tour by a visit to the Red Cross Hospitals at Torquay. They first went to the Town Hall, where, in part of the new Municipal Buildings, including the large Assembly Hall, 125 beds have been provided. They were received by the county

director (Mr. J. S. C. Davis), the assistant county director (Dr. Quick), Dr. Sylvia Payne, the officer in charge, and Drs. Whitewick, Winter, Crowley, Cumming, and the matron. Men from the convalescent hospital at Rockwood, as well as from the Torbay and the Western Hospitals, parts of both of which have been set aside for wounded men, were present. The Royal party then went on to Stoodley Knowle, which is used for wounded officers; it is the house of Colonel C. R. Burn, M.P., and the Hon. Mrs. Burn, and has accommodation for twenty patients. Mr. A. H. Ward, the officer in charge, Mr. J. L. Payne, visiting surgeon, Mr. L. Bennett, radiographer, Mr. T. G. Fenton, otologist, Mr. P. Rhodes, dental surgeon, and others were presented to their Majesties, who afterwards visited the wards. Before leaving Torquay the King, in thanking the Mayor, said that he had visited something like one hundred hospitals, and therefore regarded himself somewhat as an expert, and he could say that he had never seen a hospital better managed or one quite like that in the Town Hall.

PRESENTATION TO PROFESSOR RUTHERFORD MORISON.

An interesting ceremony took place in No. 1 Theatre of the Newcastle-upon-Tyne Royal Infirmary, on August 18th. On that occasion as many as possible of Professor Morison's house-surgeons met together for the purpose of asking the professor to accept a life-size medallion in bronze which had been erected in the theatre where he worked.

Dr. G. W. Harbottle, who was Professor Morison's first house-surgeon, presided, and explained that it was the unanimous wish of every one of his house-surgeons that some permanent memorial should adorn the hospital for which their teacher had done so much, and be an incentive for those who followed him to carry on the traditions of the School of Surgery which he had founded.

Mr. G. Grey Turner in making the presentation said:

We apologize, Sir, for the delay in the holding of this ceremony, due not only to the war emergency, but to

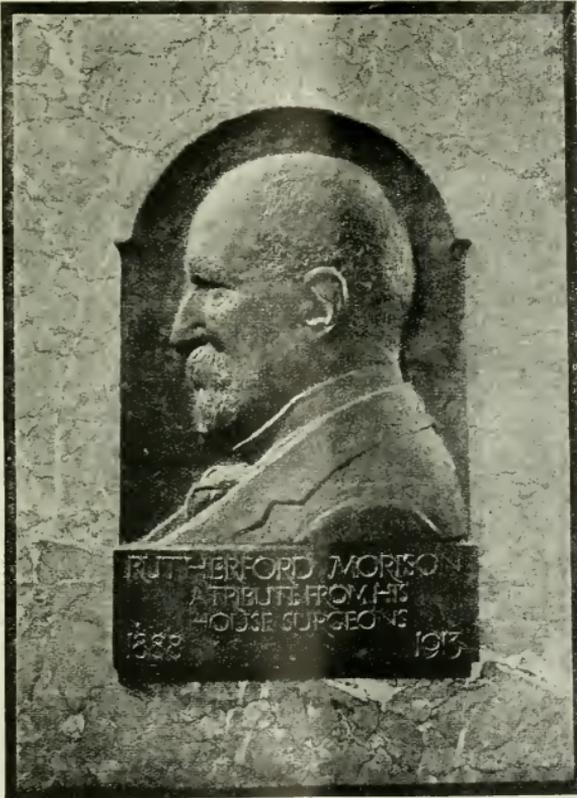
other circumstances over which we also have had no control. That there are so few present is due to the exigencies of the times, and to the fact that since the memorial was mooted death has robbed us of two of our number, Dr. James Smith and Mr. Howard Hunter,* while many are serving in the forces in various parts of the world or on the sea. All are present in spirit to do homage to their teacher and friend. We are all proud of your world-wide influence on surgery, and yield to no one in our admiration of your work for our school, but to-day we are concerned with that closer relationship which as house-surgeons we have been privileged to enjoy.

The lessons we have learnt from you are proving invaluable. Many of us first learnt the salutary value of hard work and how it might be lightened by enthusiasm and its usefulness increased by a cheery optimism. Your example of system and thoroughness we can never over-estimate, while your insistence on the importance of principles has been the foundation of much of any success that we have enjoyed. Your devotion to hospital work has set a standard which, though sometimes a little hard to follow, we all recognize as ideal. As part of the profession we feel the value of the work you have done for our calling, and we are constantly reminded of that happy relationship of the surgeon with the practitioner which you inculcated, and which has been a useful example for us all. As beginners we have one and all felt the untold value of your help, and we all know that your generosity was never appealed to in vain. There are few

of us that have not had recourse to your professional skill, if not for our persons, at least for our families and relatives, and our indebtedness will always remain. You, Sir, might be disappointed if I did not say that we have all felt the value of your chastening, but your honesty of purpose and absolute fairness always supplied the balm with the sting, and we gratefully acknowledge the lessons impressed in this way. All these considerations make us look back to the time of our association with you as the most valuable and happiest periods of our lives. It is, therefore, with the very greatest pleasure that we ask you to accept this medallion as a token of our admiration and gratitude for your valuable teaching, esteem for your worth, and affection for those qualities which have endeared you to us all.

In replying, Professor Morison said it was impossible for him to express all that he felt. There was not one of his house-surgeons of whom he could not say that he had been on terms of intimate friendship. He felt that if his house-surgeons had learnt as much from him

* Killed in Flanders.



as he had learnt from them, it might, after all, be worth while commemorating their association. He thanked them most deeply for their handsome gift, of which he should always feel proud.

On the same occasion Dr. Aliver Parkin asked the Professor to accept a group photograph of all his house-surgeons as a personal memento which he could always have before him. He emphasized the great value of a house-surgery under such a teacher, and endorsed the feelings of regard and affection which had been expressed by the previous speakers.

Professor Morison replied, after which the company took tea together in the staff-room.

The medallion is the work of Mr. Ernest G. Gillick, of Chelsea, and is a most successful piece of portraiture.

MATERNITY WARDS AT CARDIFF HOSPITAL.

AN ANONYMOUS donor has presented £5,000 to the King Edward VII Hospital, Cardiff, for the establishment of a maternity flat to be built over the Butc wards. The donor, in a letter transmitting the money, said that he was pleased to do something for Sir William James Thomas's great scheme for a complete national school of medicine for Wales. Apart from what the wards might do to save many valuable lives, such an establishment was necessary to meet the requirements of a teaching hospital, which, the writer ended, "I fervently hope yours will be, in a real and complete sense, in the very near future." The chairman, Colonel Bruce Vaughan, in announcing the gift, said that it would enable the hospital to fulfil a promise made to the Marchioness of Bute so far back as 1911, and to carry out the resolution of the board of management on July 14th last—a resolution based on the report of a subcommittee which had met the chairman (Dr. Robinson) and representatives of the Health Committee of the Cardiff City Corporation to discuss the report of Dr. Walford, the medical officer of health, on the establishment of a maternity centre or centres for Cardiff. By the resolution of July 14th the hospital was committed to provide twelve beds. It would now be able to inform the Health Committee that through the generosity of an anonymous donor it could promise to devote, when the wards were built, eighteen beds to this purpose.

In moving a vote of thanks to the donor, Dr. Ewan Maclean (Major R.A.M.C.T.) said that the need for beds to be devoted to this purpose had been felt to be urgent for years.

Correspondence.

MEDICAL SERVICE IN THE HIGHLANDS AND ISLANDS.

SIR,—I do not complain of the general tone of your Edinburgh correspondent in taking notice of my letter of August 25th written in reply to Dr. Mackenzie's criticism of the procedure and proposals of the Medical Service Board as published in the *Scotsman* of August 23rd. On the whole, it seems to be admitted that the purposes entrusted to the new Board are of a benevolent nature, that at the least they offer the prospect of improving the conditions and status of general practice in the area defined, and your correspondent even contemplates the possibility of "measures and arrangements" being "evolved which will prove a charter of emancipation for practitioners resident in the Highlands and Islands." All this is much. The only difference between us is that I consider the charter is already secured.

For nearly seventy years the profession has been agitating without ceasing for the attainment of security of tenure for parochial medical officers. Governments have come in and gone out, private members have endeavoured to pass the required bill into an Act, but never was the measure accomplished until this modest little medical service statute of 1913 conferred the boon on medical officers to parish councils in the Highlands and Islands of Scotland. Let the chronicles of oppression, of duress, of strain and trial endured by many Highland practitioners for generation after generation be examined, and who can deny that security of tenure signifies professional emancipation?

It is notorious that, coupled with the uncertainty of

appointments, insecurity of livelihood—of the "living wage"—was a pressing anxiety in many a struggling doctor's home. To quote a well known Gaelic phrase: "The very stones of the forest tell the tale." The second volume of the Minutes of Evidence of the Dewar Committee record pathetic instances enough.

What is now the actual result? A net income of £300 per annum (after payment of rent and other details) is guaranteed to every practitioner entering into arrangement with the Board. His income is not limited to that amount. Herein lies economic emancipation.

Tenure and income are both secured. Starting from this basis, I willingly proceed to meet your correspondent's desire for information regarding Dr. Mackenzie's cardinal objection.

No. (2). The scheme is to be opposed or postponed because the time given for consideration is too short, and many medical men are serving with the forces. The main outlines of the scheme have been before the profession and the public since the recommendations of the Dewar Committee were published in January, 1913. Medical associations, as well as individuals, have had abundant time in the interval to place their views before the Board. The interests of men absent with the forces will in the meantime be in no wise prejudiced, and it is difficult to divine any objection to Governmental subsidies for their substitutes while the principals are honourably employed in the service of their country.

3. As far as I can discern, remuneration will be assessed upon work actually performed; ability and attention to duties will naturally be rewarded, and "mediocrity and inefficiency" will be guarded against by the much-opposed system of inspection.

4. Clerical work is simply not made of greater importance than medical service. It is a cheap and absurd assertion to hold the contrary.

5. There is no Lowland area in the Highlands. It is a self-evident contradiction in terms. Discrimination would lead to very curious conundrums. Geographically, how discriminate? Ethnologically, how discriminate? Are we to have Celt and Saxon differently classified for medical service? Pict, Scandinavian, Celt of the blonde type, Celt of the melanotic type? Or is it to be a tribal distinction in which the various clans will advance their claims in time-honoured fashion? Or is it to be a religious preference in which the "Wee Frcees" will fight their battles over again against a host of worldly sects? Or, finally, is language to be the test and the Sassenach be despoiled? Will your Edinburgh correspondent be inclined to come in and lend a hand in deciding?

6. There will be no "interference with the liberties and rights of individual medical men." They are entitled to guard their own freedom, and the so-called "scrutiny" is only such as income-tax officials are privileged to exercise for purposes of business accounting.

To me, Sir, it appears—and I am speaking entirely on my own responsibility—to be no validity in the objections set forth.

The Board are charged with a legal duty under the Act. The members are persons of irreproachable character and standing. They have acquainted themselves with the "complicated and delicate problems" to which reference has been made, and they are required by their office to allocate the funds at their disposal without any further delay. The war, in fact, renders their performance more urgent than in peace time. Suspension would probably lead to a great boon being diverted into other channels, and for my part I would warn my brethren against that risk. To your Edinburgh correspondent I would respectfully offer these observations with a motto which, doubtless, he will understand:

'A sheanshain co theireadh é!

—I am, etc.,

Fort William, Sept. 11th.

A. C. MILLER, M.D., F.R.S.E.

INFANT FEEDING.

SIR,—Dr. Charles Cameron's address, published in your issue of August 21st, with reference to the position of the proprietary foods in the feeding of infants, cannot but call forth approval from all those interested in infant welfare. There was, however, one remark of his that I would beg

leave to criticize. The remark in question is as follows: "It does not matter whether we use the cow's milk undiluted with the addition of a little sodium citrate, and we shall then obtain both the good effects and the bad effects of a diet of cow's milk in the purest and most pronounced form, or whether we dilute the milk by the admixture of water or barley water and add very small amounts of sugar. . . . In every case the result which we shall attain will be very much the same."

To my mind the results are absolutely different. I contend that the use of diluted milk during the first nine months of life is one of the chief causes of constitutional ill health of infants, and Dr. Cameron's picture of the baby with the flabby muscles, pale face, distended abdomen, offensive motions, excessive sweating, and profuse micturition is typically that of the "diluted milk plus sugar" baby.

I have never yet—and I am inclined to think many will agree with me—seen a child who has been fed from birth with a good quality whole citrated milk appear at the end of nine months as Dr. Cameron suggests it might. While realizing that the mere negation of his statement is of no value in proving my point, yet the experience of many goes to show that in whole citrated milk we have a method of feeding that has satisfied in the fullest sense the hopes of those of us who have looked for a feeding process which shall as nearly as possible approach the ideal.

The whole question of milk dilution needs revision. The profession originally advised dilution in order to overcome the caseinogen difficulty, and with it they advised the addition of cream and sugar. From that has been evolved the now almost universal method of adding water or barley water, with no subsequent addition of cream but frequently with the addition of a large amount of cheap sugar. Such a method ends, in nine cases out of ten, in constitutional disaster. Seeing that in sodium citrate we have a substance which makes whole milk feeding a possibility, the necessity for diluting passes away, and one can confidently assert, in appealing for the more extended use of whole milk, that the results fall very little short of those attained when the natural food has been available.—I am, etc.,

Leeds, Aug. 27th.

C. W. VINING, M.D.

SHOCK DURING OPERATIONS UNDER CHLOROFORM.

SIR,—Sir Lauder Brunton's suggestion that shock plays an important part in deaths under chloroform recalls to me some experiences I had in a Tokyo hospital in the Seventies. Many eyes had to be enucleated through previous neglect by the old school of Japanese doctors. We never had a death from chloroform, but when the optic nerve was being cut it was quite usual to see sudden pallor come into the face of the unconscious patient. I began to give chloroform more freely just before severing the nerve, and found the effect was very satisfactory, no signs of shock being perceptible.—I am, etc.,

Hanley, Staffordshire,
Sept. 1st.

HENRY FAULDS, L.R.F.P. and S.

A-NOCI-ASSOCIATION.

SIR,—It was careless of me, as Dr. Allen remarks, not to have carried my criticism forward to the no less defective third syllable of this clumsy name. Well, I did not think the term worth much critical attention. It is neither etymological, nor elegant, nor descriptive; it is ill begotten and deformed—for example, the false caesura "u-ass." Let us discard it, and produce something neater and better.—I am, etc.,

September 13th.

INNOCEUS.

SIR,—Your correspondents desire, with good reason, to change the word "anoci-association," and suggest "innoci-association" or "innoc-association" as less objectionable. But as what Dr. Crile has succeeded in doing is not in associating the brain cells with innocent or innocuous impulses, but in dissociating them from noxious impulses, would not "noci-dissociation" or "noccu-dissociation" be more expressive?

But I can suggest a better term still. Dr. Crile in his book on the emotions says that anoci-association differs from anaesthesia in that it signifies a process which

protects the brain cells not from some noxious impulses but from all. I suggest, therefore, that the word "pan-anaesthesia" would be at once expressive, euphonic, and etymologically unobjectionable.—I am, etc.,

Edinburgh, Sept. 13th.

W. B. DRUMMOND.

THE TOURNIQUET IN WAR.

SIR,—In the JOURNAL of July 24th Captain Ward has a very useful letter on the use of tourniquets in war. When on duty in Japan in 1907, I talked to the military surgeons there on this very subject. They fully appreciated the uses as well as the dangers of tourniquets. To each tourniquet was attached a piece of very cheap thin red cotton cloth about 3 ft. by 1 ft. This blew about in the wind, or was, anyhow, very easily seen, so that tourniquet cases were under constant observation, and were examined very frequently. I have referred to this in my report, "Sanitation in Japan" (Mysore Government Press).—I am, etc.,

JOHN SMYTH, M.D., Colonel, I.M.S.

MEDICAL STUDENTS AND COMBATANT COMMISSIONS.

SIR,—We must all sympathize very much with junior or intending medical students who are in doubt as to whether their duty lies in remaining at their work or in offering themselves for combatant service.

It would no doubt lessen their difficulty if the War Office could say definitely that it is in the national interest that no medical student should relinquish his studies. The War Office is unwilling to do this, and one can easily imagine that there are many medical students well fitted by temperament and physique to make good combatant officers who should in the national interest not be discouraged from accepting commissions.

But this fact throws upon those of us who are responsible for medical education, and can foresee the serious death of doctors with which the country will be faced after the war, the duty of encouraging the entry into our medical schools of as many young men as possible who, while fit for service as medical practitioners, are not specially qualified for military duty.

It may become necessary, if the war is greatly prolonged and the ranks of the profession are still further depleted, to devise some means of opening wider the somewhat narrow door into medicine. The proposal set forth in your columns by my colleague, Dr. King Brown, might be helpful to those students who have already started their medical course. In any case the members of our profession throughout the country will be doing a national service by pointing out to well-educated young men who for any reason are unable to enter the army, that the country has great need of additional doctors, and that the medical session commences in October.—I am, etc.,

London, W., Sept. 11th.

LACRISTON E. SHAW.

Obituary.

DR. LEVI FARNDON, late of Maidenhead and London, died at his residence in Ardini Road, West Norwood, on August 27th. Dr. Farndon was born in June, 1846. He took the diplomas of L.S.A. Lond. in 1879, and L.R.C.P. Lond. in 1892. In the earlier part of his medical career he practised in London, but in consequence of ill health removed to Maidenhead, where he carried on a general practice for seventeen years. His kindness and generosity will scarcely be forgotten by the poor and needy with whom he came into contact.

DEPUTY SURGEON-GENERAL ARDEN HELME BEAMAN, Madras Medical Service (retired), one of the rapidly diminishing number of Mutiny veterans, died at The Pines, Barnstable, on August 24th, aged 86. He was born on December 10th, 1828, and entered the Indian Medical Service as assistant surgeon on June 10th, 1854, becoming surgeon on June 10th, 1866, surgeon-major on July 1st, 1873, brigade-surgeon, on the institution of that rank, on November 27th, 1879, and retired on August 1st, 1882.

Except for a brief spell in his early years as civil surgeon of Rajamundri, his whole service was spent in military employ. He was medical officer successively of the 28th, 27th, 39th, 4th, and 37th Madras Native Infantry. He served in the Mopla insurrection of 1855, and was present in the action against the insurgents at Marur, and as medical officer of the 28th Madras Native Infantry throughout the Mutiny, in the United and Central Provinces. Although his regiment did not take part in any of the principal actions or campaigns of the Mutiny, they shared in several minor affairs; among others he was at Hishingabad in the Central Provinces when the European refugees from the States of Gwalior and Indore came into that station.

BRIGADE SURGEON HENRY BLACK PURVES, Bengal Medical Service (retired), died suddenly at Malvern on August 14th, aged 72. He was born on July 2nd, 1843, educated at Edinburgh University, and took the L.R.C.S. and L.R.C.P.Ed. in 1864, also subsequently the F.R.C.S.Ed. in 1884. Entering the Indian Medical Service as assistant surgeon on October 1st, 1865, he became surgeon on July 1st, 1873, surgeon-major on October 1st, 1877, and brigade surgeon on June 16th, 1889, retiring on December 4th, 1895, with one of the extra compensation pensions for that year. The *Army List* assigns him no war service. Most of his service was spent in civil employ in Bengal, where he filled many important appointments, being civil surgeon successively of Darjiling, Bardwan, Dakka, Patna, and Howrah, as well as superintendent of the vernacular medical schools at Dakka and Patna.

COLONEL FERDINAND CAMPION BACHELOR, of the New Zealand Expeditionary Force, died at Dunedin, New Zealand, on September 4th. He was educated at Guy's Hospital, and took the diplomas of M.R.C.S., L.S.A., and L.R.C.P.Ed. in 1871. He graduated M.D. Durham in 1885. He went to New Zealand and settled at Dunedin, where he was honorary surgeon and gynaecologist to the Dunedin Hospital and lecturer on midwifery and gynaecology in the Otago School at Medicine. He filled the post of president at the Intercolonial Medical Congress of 1896, and was the author of many papers on surgery and gynaecology.

COLONEL JOHN MATHW JONES, Army Medical Staff (retired), died at Bryn Tyron, Church Walks, Llandudno, on August 30th. He was born on January 2nd, 1853, educated at University College, London, at Liverpool, and at Edinburgh University, and took the diploma of L.R.C.P.Ed. in 1876, and that of L.R.C.S.Ed. in 1878. Entering the army as surgeon on March 6th, 1880, he became surgeon-major on March 6th, 1892, lieutenant-colonel on March 6th, 1900, and attained the rank of full colonel on September 18th, 1907, retiring on January 2nd, 1910. Before entering the army he served as a civil surgeon in South Africa, in the Zulu campaign of 1879, receiving the medal and clasp, but he appears to have seen no war service during his thirty years in the army. When the war broke out he rejoined for duty, and was employed as A.D.M.S. at Plymouth till invalidated on account of ill health.

LIEUTENANT-COLONEL JOHN JOSEPH LAMPREY, R.A.M.C. (ret.), died at Putney on September 6th, aged 65. He took the diplomas L.R.C.P.I. and L.R.C.S.Ed. in 1874, and that of L.S.A. in 1876. He entered the army as surgeon on August 4th, 1877, retiring as surgeon-lieutenant-colonel on February 24th, 1897. Most of his service was spent in West Africa, where he served with the Ashanti expedition to the Gold Coast in 1881, was senior medical officer in the West African Settlements in 1883-4, and as a member of the Anglo-French Boundary Commission for delimiting the frontiers of Sierra Leone, in 1891-2. He was a Fellow of the Royal Geographical Society, and had written many articles and papers on West Africa.

A REVISED copy of the notice on incendiary bombs, as to which an illustrated article was published in the *JOURNAL* of May 29th, may be obtained in the form of a placard from the British Fire Prevention Committee, 8, Waterloo Place, London, S.W.

The Services.

THE EXAMINATION OF RECRUITS.

IN the *Royal Pay Warrant* (1914), paragraph 364, the fee for examining recruits of the regular forces is stated to be 2s. 6d. On June 26th, 1915, the Command Paymaster of the Southern Command issued a notification to the A.D.M.S., who transmitted it to recruiting medical officers. Similar notifications have, it is understood, been issued in other commands. The notification stated as follows:

In view of the fact that very few claims for fees for examination of recruits are received in this office in order, will you kindly note as follows:

1. The claims should be rendered at the end of the recognized quarters in all cases where the doctor's employment is continuous.
2. Recruits of the Territorial Force should not be included in Army Form 0.1661, the fees for the Territorial Force being payable by the County Associations.
3. The dates of examinations should be entered in rotation on Army Form 0.1661.
4. The scale of payment is as follows:
Before and up to September 16th, 1914, 2s. 6d. per man (Art. 364 Pay Warrant).
From September 16th, 1914, to March 12th, 1915, 2s. 6d. per man, but not exceeding 24s. per diem (C.R.S.C. 2 10580).
From March 13th, 1915:

Men.	...	...	...	...	2s. each.
1 - 4	...	...	...	...	10s.
5 - 9	...	...	...	...	20s.
10 - 19	...	...	...	...	30s.
20 - 29	...	...	...	...	40s.
30 - 40	...	...	...	...	Maximum 40s.

(S.C.C.O. 507 1915.)

It will be distinctly to the advantage of all concerned if the above points are attended to, as useless correspondence which takes up the doctors', the recruiting officers', your own, and my time, will be obviated, and the doctors will receive their fees earlier.

Fees for the medical examination of recruits for the Territorial Force are payable by the County Association under para. 747 Territorial Force Regulations. If in any case expenditure for the Regular Army cannot be separated from that for the Territorial Force, the whole will be charged against the Association funds.

TERRITORIAL FORCE.

EXCHANGE DESIRED.

CAPTAIN, R.A.M.C.(T.), at present with Field Ambulance (T.) in France, wishes to exchange to Territorial General or Casualty Clearing Hospital, either at home or in France. Captain's pay and allowances.—B. W., c.o. Editor, *BRITISH MEDICAL JOURNAL*.

Medical News.

DR. W. H. WILCOX, physician to St. Mary's Hospital, and senior scientific analyst to the Home Office, has been appointed consulting physician and toxicologist to the Mediterranean Expeditionary Force, with the rank of lieutenant-colonel. Dr. Wilcox began his duties some weeks ago.

A MEMORIAL to the late Dr. Hugh Dewar was unveiled in the Aberdeen Public Gardens, Portobello, Edinburgh, on September 5th. It bears the following inscription: "This fountain has been erected in remembrance of Dr. Hugh Dewar, Portobello, by his grateful patients and numerous friends, who deplore the loss in the prime of manhood of a kind friend and skilful and beloved physician. His quiet charity was known to the needy. 1866-1914."

A BED was dedicated recently at the Worcester Infirmary bearing over it the following inscription: "In memory of George Edwin Hyde, M.R.C.S., L.R.C.P., Hon. Surgeon to this infirmary 1876-1898, and Hon. Consulting Surgeon 1898-1914. This bed was endowed by his sons and daughters, April, 1915." The ceremony was performed by the Chairman, after Mr. T. Bates, consulting surgeon to the hospital, had paid a warm tribute to Mr. Hyde's qualities as a surgeon and a man.

ACCORDING to the *Deutsche medizinische Wochenschrift* the war is responsible for the disappearance of two medical papers. The first is the *Allgemeine Wiener medizinische Zeitung*, established sixty years ago, and the second is the *Prager medizinische Wochenschrift*, established forty years ago. Both papers were in financial

difficulties before the war, and the fall in the number of subscribers and of advertisements due to the war left these papers no alternative but extinction. The second paper was the official journal of the Germano-Bohemian Medical Society in Prague.

The attack on the French military medical arrangements for dealing with the wounded, so far as it was a political manoeuvre, was stopped by a very eloquent speech by the Premier, in the course of which he said that all the facts had been fully placed before and fully discussed by the proper Committee of the Chamber, and effective measures taken to repair the defects revealed. So far as the attack was a real expression of public apprehension, anxiety was quieted by the statement of M. Charles Bernard, who, with others, had been sent by the Committee on Hygiene to make detailed inquiries. He said that the service was found to be in good working order and in possession of well-appointed hospitals.

The French Foreign Minister has formally intimated to the Académie des Sciences that considerable deposits of carnotite, a mineral yielding radium, have been discovered in Colorado, and that the experts who have examined the ore consider that the yield will be so large that the price of radium will fall to less than a quarter. The radium market has been rather a puzzle for some years; as is well known, the chief deposits worked in early days were in Austria and the price was more or less settled by the Austrian Government and financiers in that country. Later the American yield has steadily increased, and the price has tended to decline, but the market before the war was understood to be more or less controlled by an international syndicate.

SIR PETER EADE, who died on August 12th, aged 89, left unsettled property of the gross value of £22,132, including personality of the net value of £17,092. He bequeathed £1,000 to the Norfolk and Norwich Hospital, and the same amount to the Children's Convalescent Home, Great Yarmouth, and directed that the residue of his property, after the deduction of certain legacies, was to be divided equally between these two institutions. Among the other legacies were included £100 to the Norwich Jenny Lind Infirmary for Sick Children, also £200 to the Great Hospital, St. Helens, Norwich, with a request to the trustees, without any trust being imposed upon them for such purpose, to consider whether such a sum could not be best applied for the medical department of that hospital; £100 were bequeathed for the providing of a Lord Mayor's Chair for Norwich; £500 to the vicar and churchwardens of St. Giles, Norwich, towards the cost of erecting the parish hall, etc., and £200 to the Church House. Sir Peter Eade left to the Norwich Castle Museum an Egyptian mummy case, a bronze figure of Osiris, and an oil painting by Ladbroke.

M. AND MME. VICTOR HENRI have studied the variations in micro-organisms, chiefly in the *Bacillus anthracis*, brought about by ultra-violet radiation. They exposed an aqueous suspension of sporing anthrax to ultra-violet rays for varying periods (some minutes), and afterwards to subculture. The majority of the organisms were killed, but those which survived developed certain modifications in form. They state (*Archives d'électricité médicale*, June, 1915) that they have obtained two new forms of the anthrax bacillus, one a coccoid form taking the Gram stain, and the other a thin filamentous form not taking the Gram stain. Both the normal anthrax organism and the new coccoid form failed to develop in media containing either ammoniacal salts or acid amines; they developed in media containing peptone. The filamentous form, on the other hand, developed also in the presence of ammonium lactate or acid amines. The normal anthrax organism developed less strongly in media containing sugar than in the same media without carbohydrates; the coccoid form showed no appreciable difference, and the filamentous form developed much better with carbohydrates. From these and other experiments the authors venture upon a theory to explain the more or less profound biochemical and biological modifications brought about by ultra-violet rays. They had previously discovered that if such an organism as the *B. coli* were irradiated for a short time (3 to 5 seconds) a modification was produced, persisting at least for two hours, and on repeating the brief irradiation every two hours the organism was at length killed; the total duration of the isolated irradiations was equal to that of a single long irradiation which was immediately bactericidal. They suppose that, under the influence of a brief irradiation, the microbe of anthrax loses its power of secreting proteolytic ferments while retaining its power of producing amolytic ferments.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, Aitoulay, Westroad, London; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY and BUSINESS MANAGER (ADVERTISEMENTS, etc.), Ardenclote, Westroad, London; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medicines*, Westroad, London; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

DR. J. NUMA RAT (Stonchaven, St. Kitts, B.W.I.) asks for advice in the treatment of persistent hiccough with which a middle-aged professional man has been afflicted for three years; he suffers from dyspepsia and dilated stomach.

DR. T. LUSON (Wilton Lodge, Norbiton) is anxious to hear of a farm on gravel or sandy soil, with bracing air, where a young man who is a draughtsman, but would like to work on the farm, would be received as a paying guest at about £1 a week.

DIPHTHERIA CARRIERS.

DEVONENSIUS, M.D., M.O.H., asks for a reliable method of curing diphtheria carriers. Everything possible in the way of local antiseptics has been given and tried, and also additional injections of antitoxin, but without avail. Reference to any literature on the subject would be welcomed.

THE NOMENCLATURE OF DISEASE.

S. M. O. (Narford Hall Camp, Swadlowham, Norfolk) writes: The regulations of the R.A.M.C. require that all illnesses shall be classified according to the *Nomenclature of Diseases* of the Royal College of Physicians. Attempts to buy this only bring the reply that the publication is now out of print, and has been replaced by the *International List of the Causes of Death*, a work that is of no use to me. I shall be very much obliged if any of your readers can let me have a copy of the *Nomenclature* for which they have no use.

*. The *Nomenclature* is now under revision.

"THE CIGARETTE HABIT."

"MONK" asks for suggestions as to the treatment of a severe case of "cigarette habit." The patient is aged 39 years, and smokes from twenty-five to thirty cigarettes daily. He realizes that the habit is doing him great harm, and has attempted at various times to give himself. The effect of abstinence is, however, great mental depression—so much so that the physical effects have seemed the lesser evil, and he has always resumed his habit after a shorter or longer interval. The substitution of a pipe for the cigarettes only aggravates his symptoms, as he is a "wet" smoker, and inhales whenever and whatever he smokes.

INCOME TAX.

M.R.C.S., L.D.S. writes: Having taken a partner, I sent to the surveyor of taxes a return of the net profits of the practice for the first year, deducting the expenses from the fees actually received. He refuses the return, demanding one based upon the total bookings less the expenses incurred. Is there any redress? The latter mode of assessment would adversely affect both partners.

*. The legal position is that the new firm has "succeeded" to the practice or practices carried on by the former proprietors, and the assessment for 1915-16 should be calculated by reference to the average profits of the three previous years. The basis of "cash takings" is theoretically incorrect, but is accepted where the practice has been in existence some years, so that the year's cash receipts approximate to the value of the year's total bookings. Our correspondent's statement as to the effect of taking the cash receipts as the basis of assessment *ipso facto* shows that it is inadmissible; but if, as we understand, there has been a "succession" to an existing practice, it might be possible to take the previous three years' cash receipts and expenses of that practice.

J. P. C. has in the past three years derived an increasing income entirely from public appointments, and has paid tax on the yearly income. He inquires whether he can obtain any repayment in view of the fact that the amounts of "yearly income" have exceeded the average of previous years.

*. Salaries received from public authorities are assessable on the amounts accruing for the year of assessment, and our correspondent accordingly does not appear to be entitled to any repayment of income tax. Where the amount of the income cannot be stated beforehand—for example, as in the case of vaccination fees—the authorities would probably admit a claim to assessment on the average under Schedule E, Rule 4, and as a matter of practice they appear to acquiesce in a

request for the inclusion of public fees or salaries in the general return of a local practitioner, but J. P. C.'s case seems to stand outside both these classes.

ANSWERS.

M.B.—From £60 to £80 a year would be a fair salary for a Poor Law district such as described by our correspondent, if he is allowed extra fees, and the details of work submitted fairly represent the whole of the duties of the medical officer.

QUANTITATIVE DETERMINATION OF PEPSIN.

D.—In their *Lehrbuch der Physiologie des Menschen*, 1913, Zuntz and Loewy recommend Gutzner's method for the quantitative determination of pepsin. Fibrin is made to swell up by immersion in 0.1 per cent. HCl. This is stained red with carmine; it is readily dissolved by pepsin, when the carmine is set free into the solution. The depth of colour of the solution after a given time affords a means of estimating the amount of fibrin digested, whereby the amount of pepsin at work may be calculated. This method, as modified by Roaf, and other valuable methods of estimating pepsin, are fully described in Professor Halliburton's *Essentials of Chemical Physiology*, eighth edition (London, 1914, Longmans, Green, and Co.), which our correspondent would do well to procure.

COLLAGEN.

J. S.—Collargol, consisting of black-coloured suspensions of colloid silver containing from 1 to 15 per cent. of the metal, has been very extensively employed as an antiseptic on the Continent since its use was first suggested by Créde in 1897. The most surprising cures were attributed to it ten, or even five, years ago. Cases of septicaemia, erysipelas, acute endocarditis, acute arthritis, pneumonia, enteric fever, and puerperal infections of all sorts were said to have recovered after intravenous injections, inunctions, or even enemata containing collargol had been administered. The claims made for it during the last few years have been more temperate. It is extensively employed for the treatment of gonococcal infections of the eye and the urinary tract by direct application. It continues to give good results in certain cases of septicaemia and even pyaemia, 10, to 25, to 100 c.c.m. of the 2 per cent. solution being given by intravenous injection. Patients with gonococcal arthritis have improved after deep injections of collargol near the affected joints. Used superficially it has the disinfectant quality of staining the skin. In the form of ointment (1 to 5 per cent.) it has been used for treating burns, wounds, ascites, and gonococcal arthritis.

LETTERS, NOTES, ETC.

RESEARCH IN ANTISEPTICS.

MR. F. W. GAMBLE (Member of the Scientific Advisory Committee of the Pharmaceutical Society) writes: You only refer to Dr. Hale White's inquiry into rather less than full justice to the *British Pharmaceutical Codex*. The French *Codex Medicamentarius* describes liqneur de Labarraque as containing 6.34 grams of available chlorine per litre (that is, 0.634 per cent.). Solution of chlorinated soda of the *British Pharmacopoeia* contains not less than 2.5 per cent. by weight of available chlorine. The *British Pharmaceutical Codex* therefore correctly describes Labarraque's solution as "about one-fourth the strength of the B.P. preparation," and your reply errs in stating that liqneur de Labarraque is between four and five times as strong as the B.P. preparation. Eau de Javelle is prepared in the same manner as liqneur de Labarraque, using carbonate of potash instead of crystallized carbonate of soda. See *Officine du Répertoire Général de Pharmacie Pratique*, Dorvault, p. 363; also Redwood's *Supplement to the Pharmacopoeia*, p. 805.

The formulas for the solution officinale d'hypochlorite de soude (liqneur de Labarraque) in the *Codex Medicamentarius* and for the solution of chlorinated soda in the *British Pharmacopoeia* are compared in the following table; the proportions of chlorine given in the *Codex* and the B.P. respectively are those quoted by Mr. Gamble:

	<i>Codex</i> .	B.P.
Chlorinated lime ...	100 grams	100 grams
Sodium carbonate ...	200 "	150 "
Distilled water ...	4,500 "	1,000 millilitres

With regard to eau de Javelle, the matter seems to be mainly of archaeological interest. According to Thorpe's *Dictionary of Applied Chemistry*, vol. ii (1912), p. 26, "the first to suggest the industrial application of chlorine to bleaching was Berthollet, in 1785, and in 1789 was produced the liquor called 'Eau de Javel,' manufactured by passing chlorine into a solution of potash." At p. 31 we read: "Hypochlorite of potash (chloride of potash or Eau de Javel). This liquor was first made in 1785 at the Javel Works, near Paris, and was the first bleaching compound known. It was then made by passing chlorine into a solution of potashes (crude potassium carbonate) in eight parts of water. This liquor is rarely

made at the present time, as it has been replaced by the cheaper soda compound, which has now mostly usurped its name." The next paragraph is headed "Hypochlorite of soda (Eau de Labarraque, usually called Eau de Javel)."

EXAMINATION OF RECRUITS.

DR. H. DE CARLE WOODCOCK (Leeds) writes to express the hope that as the need for men in the forces is becoming more urgent, greater discrimination is being exercised as to causes of rejection. "I have," he writes, "in mind one O.T.C. candidate who failed to obtain a commission on account of heart disease, which he had not got, and another who was refused because of a cervical rib; the number is great of those who have been rejected because of unimportant varicose veins, or even varicocele." He concludes his letter by suggesting that really serious conditions—for example, pulmonary disease—are sometimes overlooked.

MEASLES.

DR. R. GIRDWOOD (Wigan) writes: After careful observation in a number of epidemics I have come to the conclusion that measles is a toxæmia, and the "pneumonia" so often present a "septic" one. The "pneumonia" cases with the most virulent type in being most often present in the most acute form, and the most virulent type in being most often present in the most acute form. This pneumonia is, in my opinion, probably an "insufflation pneumonia" set up by the insufflation of septic bacteria, from the condition of oral sepsis so frequently present. The treatment I follow is to keep the mouth as aseptic as possible and give lib. ammon. acid. and i. ferri persulf. in mixture; I find that if one gets the case early enough pneumonia does not complicate the case so often.

POLLICITES AND VENESECTION IN GAS POISONING.

DR. WILLIAM BRAMWELL (Liverpool) writes: Perhaps one of the most noteworthy instances I have yet read of in connexion with German gas poisoning is that set forth in the following statement by Dr. Walter Broadbent (The Times, however, which did not draw attention to the fact that the big linned poultice placed over the whole back. The men constantly asked for the poultice to be repeated." Dr. Broadbent, however, gives no physiological reason for the evident benefit of this procedure. I know a man, a sufferer from chronic tubercular turgescence, who can never attend a chemical laboratory the atmosphere of which is more or less impregnated with gas, though having his malady pass instantly from the chronic to the acute state, with most distressing nasal congestion. This, I think, is a mild pathological picture of what actually happens in the lungs in gas poisoning. The result of the experiments of Sir Edward Schafer appear to be sufficiently conclusive that: "The only visible change is in the lungs, which even after the shortest exposure to a fatal dose are intensely red and congested, either all over or in innumerable patches. . . . The liver and abdominal organs have a normal appearance; they are not especially congested; indeed, the intestines are usually bloodless, although the veins at the back of the abdomen are full of blood." And this, in my opinion, is the explanation of the benefit derived from the linned poultice, which relieves the congestion by drawing a considerable quantity of blood from the lungs to the tissues lying immediately outside. India-rubber hot-water bottles, therefore, to the feet and other surfaces of the body, and particularly to the abdomen, it seems reasonable to supplement and add to, for everything that would be cleaner, more convenient, and keep hot longer than the poultice, and with no danger of the injuries and distressing clamminess which always takes place when a poultice is going cold, the simple heat in these cases appearing to be all that is required. The ancient physicians who died empirically and blindly for everything beneficial effect, except in those cases which had already been bled from a wound. And it would be well if army surgeons would carefully observe whether the anæmic are as great sufferers from gas poisoning as the plethoric, for gas poisoning may, after all, bear the same relative fatality to the alcoholic plethoric as does pneumonia. It is probable, too, that many lives would be saved in this latter disease were the inebriate bled as a routine system of treatment. Such physiological and pathological reasoning, therefore, would perhaps justify the surgeon in adopting this method of cure for sufferers in some cases in his endeavours to alleviate the sufferings wrought by this cruel system of warfare.

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NOTE.—It is against the rules of the Post Office to receive *postes restant* letters addressed either in initials or numbers.

SURGERY ON THE GALLIPOLI PENINSULA.

By JOHN MORLEY, CH.M., F.R.C.S.,
CAPTAIN R.A.M.C.(T.F.); MEDITERRANEAN EXPEDITIONARY
FORCE;

HONORARY SURGEON, ANCONA'S HOSPITAL, MANCHESTER, AND
MANCHESTER CHILDREN'S HOSPITAL; LECTURER IN
CLINICAL ANATOMY, MANCHESTER UNIVERSITY.

It would be hard to find a more striking contrast than that between the administrative problems involved in the treatment and evacuation of wounded from our front in Flanders on the one hand, and from the Gallipoli Peninsula on the other. In Flanders good roads and abundant motor transport to the railhead have permitted evacuation to be on the whole so rapid that all cases requiring operative treatment can be removed, if not to a base hospital, at least to some stationary hospital or casualty clearing station out of the zone of artillery fire, without any such delay as would be prejudicial to their prospects. On the southern end of the Gallipoli Peninsula, during the three and a half months that the present writer has been stationed here, and up to the date of writing (August 21st), the situation has been as follows:

The front line of our trenches extends across the peninsula in an approximately straight line. The field ambulances working with the British forces at the southern end of the peninsula collect their wounded from the regimental aid posts, and evacuate them, first by hand and for the latter part of the journey by horse or motor ambulance, to the casualty clearing stations. The more important of the clearing stations, and the one with which our field ambulance has had to deal, is situated near Lancashire Landing. A very serious drawback from the surgical point of view lies in the fact that the dust inevitable in a great base camp during these long months of dry weather is blown up in great clouds by the prevailing breeze, and often makes operative work during the daytime almost impossible.

From the clearing station the wounded are embarked on lighters at a landing stage that is perforce used also for the unloading of ammunition and supplies for the army. These lighters are towed by steam pinnacles to the hospital ship that lies a mile or two off the shore, and, without changing stretchers, are slung on to the ship by cranes. Except during and shortly after an action, the wounded are sent off to the hospital ship twice in the twenty-four hours. The hospital ships fill up in "peace times," as the weeks of siege warfare by artillery and sniping in the intervals between assault are called, in a week or ten days (after an action much more rapidly), and then leave for Egypt or Malta, taking three or four days respectively to reach the base. Minor cases are not taken to the hospital ships at all, but are either detained in the field ambulances or sent in small boats to be treated in stationary hospitals.

This brief account of the general position is given to show how circumstances have forced a good deal of surgical work on to the field ambulance, to which the writer is attached. The army medical authorities as a rule discourage surgical enterprise in field ambulances. The importance of speedy evacuation of wounded is ever most prominently before their minds, and they prefer that the field ambulance should devote its energies primarily to evacuation and only secondarily to treatment, and that all but the most urgent operative measures should be deferred until the casualty clearing station, or even the base hospital, is reached. The advantage of this system, by which the most experienced surgeons and best surgical equipment can be concentrated at the clearing station or further back, is obvious. But the advantage is dependent on two conditions: That circumstances should be favourable as regards absence of shell fire and dust, and that the wounded should be brought down from the firing line so quickly as not to prejudice the results of operations. The second condition involves no difficulty here, for wounded reach the clearing station within two or three hours from the trenches, but, as we have seen, there is no escape from shell and dust, and these disturbing elements are so serious at the clearing station as often to reduce operative work to a minimum. The hospital ships, no matter how well staffed and equipped, cannot entirely solve the problem,

because there must usually be some delay at the clearing station, and it is often twelve hours or more from the infliction of their wounds before patients can be got on board. Though this would formerly have been considered early enough, the experience of this war has taught us that for badly soiled wounds twelve hours is far too long to wait.

When the field ambulance came ashore at the beginning of May, within a fortnight of the historic landing of our army, we were fortunate in securing a site on the Aegean shore, less than a mile from the Lancashire Landing. Here a series of little gulleys, dry during the summer, fall steeply away from the plateau to end on the cliff below, which drops sheer some 60 ft. to the sea. The deepest of these gulleys, by dint of much excavating and levelling with picks and shovels, was so altered in two days that it could house 40 stretcher cases. A deep little bay off the main gully, with walls worn smooth by the torrential rains of winter, formed an operating theatre readily screened from the patients (see photograph), and the whole place, when roofed over with tenting and wagon covers, gave us an improvised field hospital, invisible to the Turks, that enabled our A Section tent subdivision to get to work.

The road along which our field ambulance evacuated wounded from the regimental aid posts through the advanced dressing stations to the casualty clearing station does not pass by this cliff hospital, but runs a quarter of a mile inland. From the dressing station only those wounded who need operation or rest and observation for a day or so are diverted to the cliff. The main stream of cases passes straight down to the clearing station. In the comparatively quiet weeks of trench warfare our tent subdivision can deal with all the cases passing through our field ambulance that require early operation. Such cases are sent on via the clearing station in one, two, or three days' time, as seems advisable. When a considerable action takes place we can, to the extent of our capacity (40 cases), relieve the clearing station of some of the urgent cases, which are apt to be crowded down on them in such numbers as to make some delay in giving them appropriate treatment almost inevitable.

So much has been written on the treatment of wounds from the western theatre of war, that one can hardly pretend to say anything fresh on the problems that confront us. In a general sense, however, it may be of value to describe the principles on which various classes of wounds have been dealt with in our "dug-out" hospital.

LACERATED WOUNDS.

The considerable experience of soiled and lacerated wounds that one gets in an industrial town such as Manchester has long convinced me that for such cases no antiseptic lotion can possibly, by its mere application to the soiled tissues, ensure healing without suppuration. In a contused and lacerated wound, such as we get from bombs, high explosive shells, and often from shrapnel, nothing short of complete excision of the soiled and devitalized tissues can be relied on to secure the healing by first intention that should always be regarded as our ideal. This local excision of soiled tissues is of no avail when once enough time has elapsed to permit the multiplication of organisms in the wound, and then invasion of the lymphatics; to put it in another way, the prospect of securing primary healing of these wounds varies inversely with the time that elapses between the infliction of the wound and operation. Another factor of no less importance is the completeness with which excision of the wound is possible. If no vital part is involved the operation can be complete; and, given early operation (say within two to four hours) and sound technique, results will be uniformly satisfactory. But if the presence of some important vessel, nerve, or other organ in the wound prevents complete excision, results become less satisfactory at once.

The conditions to be dealt with vary so widely with the locality and nature of the wounds that one can hardly describe a uniform technique. Local infiltration with eucaine and adrenalin is preferred to a general anaesthetic whenever possible. The surrounding skin is cleaned and dried with spirit and painted with tincture of iodine. Iodine is swabbed into the wound and a clean excision made of the contused tissues, every care being taken to avoid contact of the new clean surface of the wound with

the parts excised. The wound is then swabbed out thoroughly with a solution of hydrogen peroxide, closed as far as the local conditions permit, and drained. In a case where our ideals have been achieved (as regards early operation and thoroughness), there will be no fear of suppuration, and, of course, none of gas gangrene or tetanus. The drainage tube or tubes can be removed in forty-eight hours, and the wound will heal by first intention. But since we can only hope for an approximation to the ideal in most cases antitetanus serum is always given, and where a complete excision has not been possible the wound is not closed, but lightly packed with gauze soaked in hydrogen peroxide, which is changed once or twice in the twenty-four hours.

By these means not only are such tragedies as gas gangrene and tetanus avoided, but in cases where no limb is lost or permanently put out of action, the shortening of convalescence by avoidance of suppuration is of the greatest value from the point of view of the army. By dissecting out superficial lacerated shell and shrapnel wounds and converting them into linear sutured incisions, I have frequently sent back to duty in ten days, with their wounds soundly healed, men who would otherwise have been condemned to a convalescence of at least four or six weeks, while the slow process of suppuration and granulation went on. I am convinced that the importance of very early operation as a time-saving factor in these cases is not sufficiently realized. A recent official pamphlet, entitled *Hints on War Surgery*, issued to medical officers, contains the statement: "Shell wounds are septic, and should be treated by free irrigation and drainage." Our experience in this field ambulance shows definitely that such teaching as this, though undoubtedly true of many and perhaps most shell wounds, loses sight of an often attainable ideal, and is only true of all cases when operation is unfortunately delayed.

AMPUTATIONS.

The same principles guide us in cases of shattered limbs, where the need for amputation is not in doubt. Amputation is performed as early as possible, and, as a rule, through healthy uninjured tissues. A great deal depends on securing primary union, and that it is an attainable ideal in most cases our experience here shows. It is my custom to keep all amputations (and as far as possible most other major cases) under observation for two or three days after operation, so that before losing sight of them we can see the course the wound is taking, and it is usually found to be healing by primary union at the end of this period.

In cases of very severe injuries to the limb, as where a shell has blown off one leg, and perhaps lacerated the other, shock is profound, and it is often a difficult matter to judge whether the patient will stand operation or not. It is my custom, with a badly shocked patient, to give morphine on arrival, if not already administered, and copious saline infusions into the axillae. About an hour after the saline infusion is usually the most favourable time for amputation, and by this means one avoids waiting an indefinite time for reaction from shock. But in spite of all precautions many patients with these terrible injuries succumb to shock, often without operation being feasible.

HEAD INJURIES.

The extent of injury to the skull by a penetrating bullet varies remarkably. In some cases the bullet drills a clean hole of entrance and exit. More often there is considerable splintering and fissuring of the skull. But these bullets at short range appear to have a disintegrating effect on the semifluid brain matter that is altogether out of proportion to the injury to the bone, if one may judge by the large quantity of brain matter that frequently escapes.

In clean penetrating rifle bullet wounds involving the brain, unless there is some urgent indication, such as signs of compression, I do not as a rule trephine, but merely shave the scalp locally and sterilize the wounds of exit and entrance with iodine. The majority of these cases die within the first forty-eight hours, and those with a large escape of disintegrated brain matter are the most rapidly fatal. But occasionally one is surprised by a rapid revival in some case that one had regarded as almost moribund.

The head is almost the only part of the body where shell and shrapnel often offer a better prognosis than rifle

or machine gun wounds, by reason of their lesser tendency to penetrate the skull. Shrapnel bullets from a shell that bursts rather high have no great velocity, and will often cause a local depressed fracture without penetrating the brain, and fragments of high explosive shell, if they have travelled some distance from the burst, are often partially resisted by the scalp and skull. It is in these compound depressed fractures, without laceration of the dura, that I have obtained the most satisfactory results. The essential points are early operation, complete excision of the contused edges of the scalp wound, removal of all depressed and soiled fragments of bone by trephining where necessary, and the rounding off of the gap in the skull with gouge forceps. The wound is drained as a precautionary measure, but suppuration is rare if operation has been early, and one can easily remove the tube in forty-eight hours. Concerning the late results of these cases, one has, of course, no opportunity of forming a judgement here.

PENETRATING ABDOMINAL WOUNDS.

These wounds fall into two fairly distinct categories:

1. Rifle or machine gun wounds, with an equally small wound of entrance and exit.
2. Penetrating shrapnel or shell wounds, or rifle bullet wounds with wound of entrance only, or with a large wound of exit.

1. It can generally be assumed, where the wound of exit, like that of entrance, is the typical small puncture of the modern rifle bullet, that the bullet will have drilled through the intervening viscera, causing holes no greater than those in the skin, and that the redundant mucosa of the stomach or intestines will plug up the holes, and prevent the escape of their contents until plastic adhesions have completed the healing process. If the stomach is distended at the time, or if the patient drinks freely, or is roughly handled, there may be enough escape of stomach or intestinal contents to set up general peritonitis. But given morphine and rest, with nothing by mouth for the first twenty-four hours, the great majority of these cases make an uninterrupted recovery. The chief exceptions are cases of death from internal haemorrhage, where the bullet has caught a large blood vessel. The question has been a good deal discussed whether these cases of "clean" rifle wounds of the abdomen should be kept at rest under morphine in some advanced dressing station close to the trenches or brought down to the main dressing station where the operative work of the field ambulance is performed. My own feeling is decidedly in favour of the latter course. The chief difficulties in carrying the patients will be encountered in the twists and turns round the traverses of the narrow trenches through which they must in any case be brought before they reach the advanced dressing station; and I do not think that (after a dose of morphine) an extra hour's journey on a carefully carried stretcher down an open road will add perceptibly to the risk, though I hold it of importance that these patients should be hand-carried all the way, and not put into a jolting ambulance van on uneven and shell-pitted roads. The advantage of bringing them at once to the main dressing station, or field hospital, where the best trained nursing orderlies are concentrated, and where, should indications arise, operation can be performed without delay, is sufficiently obvious. The routine treatment that we adopt for these cases consists in morphine, the Fowler position, nothing by mouth for twenty-four hours, and saline when necessary. The saline is usually given by subcutaneous infusion into the axillae, as rectal salines might involve danger of leaking from a perforation in the colon. The patient is allowed to rinse his mouth out frequently with water, and is warned of the danger of drinking any. One injection of saline at the end of twelve hours will generally tide him over without great thirst to the end of the first twenty-four hours, when fluids are first given by the mouth. Given these precautions general peritonitis will rarely supervene, and for this class of case rapid recovery without any need for operative interference may be expected as a rule.

2. Penetrating shell and shrapnel wounds of the abdomen, on the other hand, involve an infinitely graver prognosis. The jagged sharp fragments of metal thrown off by a high explosive shell have often great penetrating power, and cut terrible rents in the hollow viscera which no plastic adhesions could possibly heal. Indeed, I have



A DUG-OUT OPERATING THEATRE, GALLIOLI.

(Official photograph circulated for the Press Bureau by the Central News.)

seen several cases where the gut has been practically divided by a small fragment of shell.

The following was a striking instance of the penetrating power of these shell fragments:

Lieutenant D. was one of seven men wounded by a "Jack Johnson" shell that also killed two other men outright. He was admitted less than half an hour after the explosion with an apparently insignificant wound on each buttock, neither of which would admit more than a finger tip. There were signs, however, of general "peritonism" with haematuria. The abdomen was opened without delay, and it was found that one of the fragments had passed up through the pelvis, making a tear 2 in. wide in the peritoneal surface of the bladder, had lacerated the small intestine in over a dozen places, traversed the stomach, and lodged somewhere in the liver. Resection of 2 in. of small intestine had to be performed, with end-to-end anastomosis. The bladder and stomach were sutured, and the bladder sutured and drained supra pubes. The patient rallied well from the operation, but died after forty-eight hours of general peritonitis.

Only less grave are the injuries inflicted in the abdomen by shrapnel bullets. There is a good deal of variation in the size of the bullets from Turkish shrapnel. The heaviest shells carry round leaden bullets almost as large as walnuts; the 75 mm. field guns throw bullets the size of small marbles. But even the smallest of these cause wounds in the intestines and stomach that are vastly more severe than those left by the conical rifle bullet. It may be regarded as a rule to which there are few exceptions that if a shrapnel bullet penetrates the gut, general peritonitis will supervene unless it is prevented by timely operative interference.

Operation consists in opening the abdomen by an appropriate incision, suturing all perforations, or resecting gut where it is too badly damaged for mere suture, ligaturing bleeding vessels, and swabbing the peritoneum dry. In ordinary cases, where operation is performed within six hours or so, I usually close the peritoneum completely, and

content myself with draining the abdominal wall, as it is there, if anywhere, that suppuration may occur.

I do not propose at present to deal statistically with the prognosis in these cases, but it may be said with general accuracy (assuming early operation) that the prognosis is bad in proportion to the number of perforations rather than the amount of extravasation of intestinal contents, and that perforations of the colon are the most fatal of all. Where there are many perforations the operation is necessarily long and tedious, and this is an additional handicap when one has often to operate at night in our "dug-out" theatre, with a cool breeze blowing down on to the exposed viscera. But early operation gives them their only chance, and though I have had many disappointing cases, I have never regretted operating. Some few have recovered that would otherwise have had no chance, and in nearly all the fatal cases the injuries disclosed at operation have been so grave that the prognosis, apart from surgical help, must have been quite hopeless.

I have placed in the same category with shell and shrapnel wounds those in which a rifle bullet at long range has penetrated the abdomen, but has not emerged. Without the evidence of a wound of exit one has no means of telling whether the bullet has turned over in its course and cut through the viscera broadside on. The right course in such cases is to keep them under observation for a short time, and, if there are definite signs of peritoneal irritation, explore. An early operation does not in any case prejudice their chances, and in some cases will save life. Similarly where a rifle bullet has caused a large wound of exit one must be guided by the degree of tenderness and rigidity in deciding whether operation is necessary. Needless to say, the primitive conditions under which these operations in the field must be conducted render it all the more important that they should not be undertaken by officers who are not thoroughly familiar with the technique of modern abdominal surgery.

THREE CASES OF GUNSHOT WOUNDS OF LARGE ARTERIES, WITH TRAUMATIC ANEURYSM.

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The chief interest in the first of the cases here reported lies in the fact that it is possible for a perforating wound of the aorta, albeit small, to be inflicted without death resulting. This man, who had his aorta shot through, lived for three weeks after the wound, and died from concurrent injury to the lung.

CASE I.—Perforation of the Aorta, about an inch above the Aortic Valve, by a Shrapnel Bullet: Traumatic Aneurysm.

Sergeant B., aged 33, was wounded on October 27th, 1914, by shrapnel, and was admitted to No. 4 Scottish General Hospital, under my care, on November 4th.

On admission he was pale and anxious-looking, obviously very ill, and rather short of breath. There were several small wounds over the left shoulder and chest, the most conspicuous being situated below the clavicle. The whole left chest was much swollen, the tissues being infiltrated with blood, and the skin discoloured by ecchymosis. Owing to the great infiltration of the chest wall repeated physical examination was entirely negative. Skiagrapha revealed no foreign body, but there was always a marked want of definition, involving even the ribs. Captain Kiddie, who personally superintended the taking of the plates, suggested pleurisy with effusion as a possible cause of the want of definition.

The external wounds improved rapidly, the effusion of blood in the chest wall slowly diminished, the temperature was generally about 99° F., and the pulse little above normal; the patient took his food fairly well.

On one or two occasions breathlessness became rather pronounced, and slight cyanosis would then develop, but on the whole the patient progressed favourably until November 17th, when, impelled probably by breathlessness, he crawled to the bottom of his bed, was given a dressing-gown by another patient, and tried to crawl on a chair close at hand. The nurses' attention was immediately attracted, but the patient collapsed before they could reach him, became deeply cyanosed, and had to be lifted back to his bed. Restoratives were applied, and tracheotomy was considered by the orderly officer, who, finding no evidence of tracheal obstruction, did not perform it. The pulse remained good, but the struggle for breath and cyanosis remained pronounced, and the patient died shortly afterwards.

Necropsy.

On post-mortem examination the left pleural cavity was found filled with blood, much of which was liquid. At the apex there was a small detached portion of lung adherent to the pleura, and at the base a larger detached portion adherent to the pleura and diaphragm, but the rest of the lung was torn away from these portions, much damaged, and compressed by the blood. Death would appear to have been due to a fresh haemorrhage, caused by further tearing of the lung from the portion attached to the base.

Attention was next turned to the heart, which was slightly enlarged and fatty, but otherwise normal, and then to the aorta. Distinct from the mouths of several small vessels which were conspicuous on the inner surface of the aorta when it was opened up for inspection, there was an obvious small perforation of the aorta on either side. On the inner surface of the vessel the little holes were quite distinct, patent, and irregular in outline, while on the outer surface the track of the punctures could not be traced. On the outer surface, however, opposite one of the points of puncture, there was a cherry stone, filled with minute laminated clot. Careful search did not reveal any fragments of shell.

So far as one could see, the man might have lived indefinitely in spite of the aortal wound. The point is one to be noted by the medical jurist, who is prone to assert dogmatically that certain injuries cannot have been inflicted because the victim is still alive. While little or no attempt at healing appeared to have been made by the inner coats, the outer seemed to be quite capable of preventing escape of blood into the surrounding tissues.

The little aneurysm was situated in the coats of the aorta, which formed its walls, and to that extent might be regarded as being of the dissecting type. There was, however, no evidence of lateral extension.

It is not easy to explain the extensive damage to the lung. Had the chest been penetrated by several large pieces of shell the lung would doubtless have been torn by them, but, as a matter of fact, no metal was found, either

in the x-ray photographs or in the subsequent careful post-mortem examination. While small fragments of metal might easily have been overlooked, notwithstanding such examination, large pieces could not be. Probably, therefore, the condition of the lung was one of rupture and consequent haemorrhage and collapse. Such rupture might be caused by the patient receiving a violent blow on the chest from a large piece of shrapnel after the shell had exploded, and this theory would also explain the great bruising and infiltration of the chest wall with blood. Had the lung collapsed entirely at the time of the injury the patient would probably have died immediately, but the presence of clot of varying age and of liquid blood in the pleural cavity make it tolerably certain that there were repeated haemorrhages, accompanied by increasing compression of the lung.

One other point illustrated by this case and the next is the remarkable penetrative power possessed by small fragments of shell. It is difficult to realize that such fragments may possess sufficient momentum to penetrate the chest wall and bury themselves deeply in the tissues.

CASE II.—Traumatic Arterio-Venous Aneurysm of Common Carotid Artery and Internal Jugular Vein.

Sergeant R., aged 32, was wounded on May 3rd, 1915, at Ypres, by a small splinter of shrapnel which struck him on the right side of the neck about the level of the cricoid cartilage. Immediately a thin jet of blood spurted out, which drenched his clothes. A comrade at once caught the puncture between his finger and thumb and pinched it, thereby arresting the bleeding, and then applied a field dressing. The neck, however, began to swell, and this swelling increased as the patient was conveyed to a field dressing station, and thence to a field hospital, until finally it had extended up over the right side of the face, the eye becoming closed. The patient was transferred to hospital at Boulogne, and remained there for eleven days. While there skiagraphs were taken of the neck, but no metal was detected. By this time the swelling had begun to decrease; the face and neck were markedly discoloured. As the general swelling subsided, a tumour became apparent in the neck, and pulsation was observed. The patient was transferred to Stobhill on May 15th, when he came under my care. On admission he had a pulsating swelling over the line of the carotid which was most prominent above the level of the cricoid. There was no evident scar, but the skin over the most prominent portion was slightly stretched.

In addition to the marked pulsation a distinct thrill could be detected, particularly to the outer and posterior aspect of the swelling. The patient stated that he had been suffering from headache due to the transmission of the beating to his head, but that this headache was now much less intense, and that he was sure the swelling was steadily decreasing in size. He was therefore kept under observation for three weeks, but, while his general health improved, the swelling not only did not decrease, but became larger and more pointed, the skin over the most prominent portion being now glazed. A diagnosis of rapidly enlarging arterio-venous traumatic aneurysm was made, and operation was decided upon.

Operation.

On June 5th an incision was made below the swelling in the line of the carotid artery, and ligatures were placed on the carotid artery and internal jugular vein. A second, oblique, incision was then made above, just below the tip of the mastoid process, and the origin of the sterno-mastoid muscle cut through. The internal jugular vein was then ligatured close to its point of emergence from the skull, and the branches of the carotid artery were then ligatured. The upper and lower incisions were then united by an elliptical incision surrounding the portion of glazed skin, and the involved area was exposed. The artery and vein were now found to be much damaged, and adherent to one another and communicating with the skin over a large aneurysmal sac partly in the substance of the sterno-mastoid muscle. All the structures were much matted together. The sterno-mastoid muscle was next divided for the second time, but low down in the neck, and the separated portion of muscle, containing part of the aneurysm, was removed with the mass. It was hoped that removal of the skin over the mass would be sufficient to separate the vessels, but such was not the case. The vagus nerve had also been damaged, and was firmly adherent to the mass. While separating it, the sac was opened into, and very free haemorrhage occurred. The opening had therefore to be closed by digital pressure, and the mass separated rapidly from other less close adhesions; the smaller distended branch vessels were caught and divided, and then, finally, all sources of blood having been cut off, the vagus was carefully detached and the mass removed.

After-History.

The patient made a slow but steady recovery; he exhibited no cerebral symptoms, nor did he suffer appreciably from shock. He now (August) feels very well, and is beginning to go about.

(I wish to express my thanks to Major Pringle for his kind advice and assistance in this case.)

Description of Specimen.

The specimen removed shows a large sac—even now, after shrinkage in preservative, fully 1 in. in diameter—which projects into and distends the sterno-mastoid muscle on the one hand, and on the other comes to within a quarter of an inch from the skin surface. The portion of the aneurysm in the muscle presents a distinct sac wall, composed of the dilated coats of the vessels, while that which projects toward the skin surface has no true wall, and is occupied by a dark red thrombus.

In this case, as in the last, while there is a perfectly distinct history of wounding, no metal was found, either by x-ray examination or at the operation. The presumption is, therefore, that the penetrating fragment was a very small one, and so was overlooked. It is possible, however, that it penetrated quite beyond the area examined. The complex nature of the aneurysm will be noted, that part which projected into the sterno-mastoid muscle having a true sac wall derived from the coats of the damaged and distended vessels, while the portion which projected toward the skin was of the purely traumatic type, there being no true sac wall.

It is remarkable that this man should have suffered such grave injury to his carotid artery, internal jugular vein, and vagus nerve, and yet have complained only of headache due to the throbbing of the aneurysm. So far as he is aware, he never lost consciousness.

It is significant of the changes in methods of warfare that while the two cases reported above were caused by shrapnel, the patient in Case III was wounded by a rifle bullet.

CASE III.—Traumatic Femoral Aneurysm.

T. B., a Boer, was shot on February 8th, 1900, the bullet, presumably a Lee Metford, entering the thigh at the junction of the middle and lower thirds of the femur, in the line of the femoral artery, and coming out about 6 in. higher up, on the outside of the thigh. The wounds of entrance and exit were alike in appearance. The patient was brought to the Military Stationary Hospital, Orange River, where I was stationed as a civil surgeon, on April 8th, 1900, and placed under my care. The history given was that he had been supposed to be suffering from fracture of the femur, with great throwing out of callus, and that he had been treated by massage without effect.

On examination the whole limb was found to be oedematous, while a large swelling existed on the front and inside of the thigh, extending from above the wound of entrance to about the apex of Scarpa's triangle in front, and to 3 in. below the groin on the inside, where the swelling was most prominent. The swelling was very tense and hard in front, but it presented slight fluctuation on the inside. Pulsation of the femoral artery could be faintly but distinctly made out below Poupard's ligament, and a slight thrill was also occasionally detected over the swelling. Pulsation of the popliteal or tibial arteries could not be detected, but the oedema was quite sufficient to account for this, even had pulsation been present. The patient complained of pain and discomfort over the whole limb.

Operation.

The operation was performed on April 12th. An incision, 4 in. long, was made over the most prominent part of the swelling. Immediately the skin had been incised dark blood clot presented, while dark-colored blood flowed from the upper end of the incision. The clot was removed in large masses, both fresh and old, some portions having become organized. About four pints of clot were removed. As the tourniquet did not entirely control the bleeding and it was impossible to determine the bleeding point within the sac, the superficial femoral was ligatured through a fresh incision, and then the remainder of the clot was turned out and the cavity packed with iodoform gauze.

After-History.

The patient was collapsed after the operation, but quickly responded to restoratives. The oedema had very markedly decreased by next day, and on the day following had almost disappeared. The patient made an uninterrupted recovery, the temperature never rising much above normal.

The aneurysm in this case was of the regular traumatic type, in which, the vessel having been wounded—and extensively wounded—the blood is poured into the surrounding tissues, which are stretched and compressed thereby. There was, therefore, no true sac wall, the blood being confined by the compressed surrounding tissues and by blood clot. The diagnosis of fracture, with great effusion of callus, made in another hospital should not be lightly set aside as ridiculous, since the hard nature of the swelling, its slow increase in size, and the entire absence of pulsation might easily mislead.

The Governor reports that in the two weeks ending September 9th, 7 cases of plague occurred in Mauritius, with 2 deaths.

THE TREATMENT OF WOUNDS IN WAR.

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A YEAR after the beginning of the present European war all surgeons who have had experience of recent military surgery agree that our preconceived notions on the subject require considerable modification. Since the war began I have worked in an Indian General Hospital, seeing and treating every variety of injury produced in modern warfare. The purpose of this paper is to call attention to the importance of certain methods of treatment and to describe some modifications of practice which, in my hands, have given very gratifying results after unusually short convalescence.

With the exception of some perforating wounds of soft parts, practically all wounds met with are septic, the majority suppurating freely. The kind of wound to which I particularly wish to draw attention is the large lacerated wound of soft parts with considerable loss of skin, often accompanied by compound comminuted fracture of the long bones—for example, the so-called explosive exit type. This is the type of injury which causes the most permanent disability, the subsequent usefulness of the limb depending very largely on the nature of the treatment adopted.

All surgeons are agreed on the desirability of procuring free drainage at the earliest possible opportunity. To attain this end the entrance wound is enlarged if necessary, and a rubber drainage tube passed along the track of the wound. Free drainage is then taken for granted, although the object of the tube is only too often defeated by placing a thick pad of dressing, such as gauze or cotton-wool, over the wound. What happens is that at first the discharge flows freely into the dressing, but the discharge is of a viscid character, and capillary attraction soon fails to make the fluid permeate into the dressing as fast as it is exuded from the wound. In a short time, varying according to the amount of the discharge, drainage comes to a standstill. Pus accumulates in the wound behind the tube, dammed back by a sodden, practically impermeable, mass of dressing, and the surgeon, on removing the latter, is greeted with a flood of pus, a most disappointing and disconcerting end to an honest effort to secure free drainage.

If further proof be required, take a dressing partially soaked in pus and run a gentle stream of water over it. It will be seen that where the dressing is covered with pus the water runs over it as over the back of a duck, and with an equal amount of penetration in either case. If water behaves like this, what of viscid pus? Of course, in time a certain amount of pressure will arise behind the pus, but let us hope, for the sake of the patient, that this seldom amounts to anything appreciable. To get over this difficulty, I have for some time treated these cases without anything in the way of dressings in contact with the wound; the method adopted is as follows:

A piece of perforated zinc sheeting is bent, so as to form an arch of suitable size over the wound. Some wool is arranged to absorb any discharge after it has left the wound. The zinc sheeting arch is fixed in position by a bandage at its extremities only, and covered with two thicknesses of gauze. The wound is now inside a little chamber, open freely to the air; there is nothing to hinder the exit of discharge, and it is protected from flies or dust by the gauze, which acts as an efficient filter. The free access of oxygen seems to be of distinct benefit, and of greater value than the occasional application of hydrogen peroxide, though there is no reason why this should not be used as well. In the case of a limb it is at times of great help to sling the limb by flannel strips to a Balkan splint, the discharge dripping into a mass of cotton-wool placed on a mackintosh sheet on the bed beneath.

As to the results obtained, at the end of forty-eight hours the discharge diminishes to an extraordinary extent. At the end of a week or ten days there is only a scanty, thin, sero-purulent discharge, which continues until the wound heals completely. From the commencement the wound should be irrigated from time to time with saline—either normal or hypertonic, or some weak antiseptic lotion. In severe cases continuous irrigation may be called for.

The position of the drainage tube is, of course, very important. The tube and patient must be so arranged that the utermost recesses of the wound are reached, and that full advantage of gravity is taken to assist the flow of discharge towards the mouth of the wound. Sometimes this ideal state cannot be reached, but much can be done by care and experiment. A mistake frequently made is to drain a wound with a tube, and although the tube is not carrying off all discharge by the action of gravity alone, to imagine that free drainage has been attained by the insertion of such a tube. If the drainage is not perfect it is soon manifest; if a wound so treated continues to discharge freely after three or four days, then there is only one cause for it—namely, a foreign body; for example, a large slough, dead bone, pieces of shell or portions of clothing, etc. The wound should be explored and the cause removed.

As to the lotion employed, Sir A. Wright's arguments seem convincing; it really makes no material difference whether a sterile or a weak antiseptic solution be employed; the irrigation depends for its good effects entirely on the mechanical action of lavage of the surfaces, and its antiseptic action only affects those micro-organisms present in the pus, leaving those in the walls of the wound unaffected.

Secondary Suture of Septic Wounds.

Until recently it was thought that nothing could be more fatal than to sew up a wound in the slightest degree septic. Practical experience has shown that this is far from being so. Once a wound has been brought by the

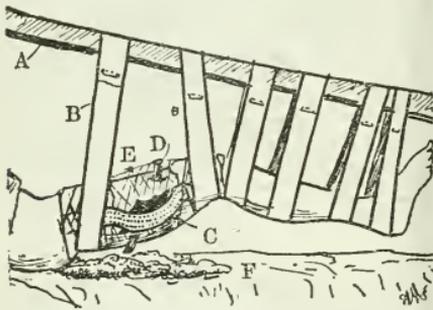


FIG. 1.—Wound of thigh. Leg slung to Balkan splint. Wound, without dressing, allowed to drain into dressing in bed. A, Balkan splint; B, dannel drain eluting leg; C, perforated zinc; D, rubber drainage tube; E, one layer of gauze over perforated zinc; F, cotton-wool to receive discharges from wound.

treatment above described to a suitable condition, secondary suture will give almost the same union as that of an aseptic incision.

For secondary suture of septic wounds, the following conditions are necessary:

1. Absence of any foreign body. If there be a compound fracture, the discharge must be almost purely serous, which will not obtain as long as any dead bone is present.
2. The wound should be of such a nature that healing by granulation would be a lengthy process.

These conditions are generally present, in a wound treated in the method above described, in from five to ten days, according to the nature of the wound. The operation is performed under an anaesthetic. The lacerated muscle is united by deep sutures of strong catgut inserted mattress fashion. If the loss of skin is great, free under-cutting must be resorted to, and the edges brought together by coarse silk-worm gut mattress sutures. It is important to use mattress sutures of coarse gut, as they often have to be left in for ten days or more. Fine gut inserted in the ordinary way will cut out at the end of eight or nine days. Before the sutures are applied, the wound must be thoroughly cleansed by gentle swabbing out with ether, followed by rectified spirit. Any tendon or fascia seen lying loose in the wound should be clipped away, as it is a most frequent source of long-continued suppuration. The skin sutures are removed as soon as union is certain,

namely, about the tenth to the fifteenth day. No drainage is employed. The deep sutures are absorbed.

Skin-Grafting.

When the skin edges cannot be brought together by undercutting, without undue tension, skin-grafting should conclude the operation. By the following method a wound, however large, can be completely covered in and healed after eight days. The subsequent scar is soft and flexible, leaves scarcely any deformity, and is freely movable on the subjacent tissues. Healing by granulation, on the other hand, often means (1) very slow healing—perhaps two to four months; (2) a deep, puckered, unsightly scar; (3) adhesions of the cicatrix to the underlying muscles and tendons, causing deformity and disability of the limb. The technique is as follows: The surface from which the grafts are to be taken is prepared the previous day. The front of the thigh is a suitable spot. It is first washed with soap and water and shaved. It is then thoroughly rubbed over with ether followed by rectified spirit. A sterile dressing is then put on.

The operation is commenced by thoroughly cleansing the wound by sponging with ether followed by rectified spirit, special attention being paid to the edges of the skin, all sodden epithelium being removed. The surrounding skin is painted with tincture of iodine, care being taken that this does not reach the wound. The graft site is then exposed and once more cleaned with ether and alcohol. The grafts are then cut from the dry skin with an ordinary sharp razor, the size varying somewhat with the extent of the surface to be covered, an average graft

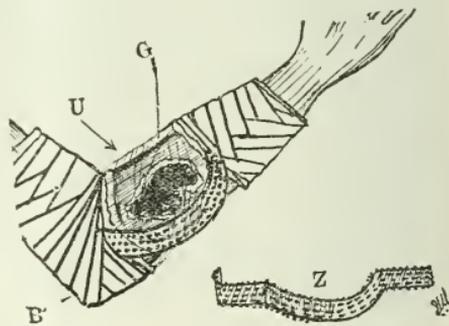


FIG. 2.—Wound of forearm. Perforated zinc shield in position for skin-grafting. Z, shield alone showing shape adapted to arm; U, ulcer; G, one layer of gauze; B, bandage, fixing ends of perforated zinc.

being about 1 sq. in. The graft should be about the thickness of stout brown paper. The surface from which the graft has been removed should appear dead white with numerous freely bleeding points all over it. The graft is immediately placed on the raw surface of the wound and spread out with a couple of probes. This is repeated until the whole area has been covered. Finally, gentle pressure is exerted with a dry swab to get rid of any air bubbles or blood between the grafts and the wound and to ensure accurate contact in all places. No dressing is placed on the grafts, but the site is protected, as is also that from which the grafts have been taken, by a piece of perforated zinc sheeting, just as above described for the treatment of septic wounds. There is no need to scrape the granulations or to cause bleeding by rough handling. Provided that there is no active inflammation, slight suppuration is no contraindication, the pus escaping between the grafts.

On the second day the grafts are unchanged in appearance, except that a little pus or serum may appear between them and they are a little swollen. To the touch they can be felt quite firmly in position and adherent to the underlying granulations. By the eighth day the wound is completely healed up, all the grafts having invariably "taken," and each graft being united to its neighbours and to contiguous margins of the wound.

As to the source from which the grafts were taken, a scab forms under which the epithelium is regenerated. This scab falls off about the twentieth to the twenty-fifth

day. A general anaesthetic is usually required to graft any area larger than a five-shilling piece, but for smaller areas I have used local anaesthesia with success.

Summary.

To sum up, I am of opinion that the above described treatment for septic cases has the following advantages:

1. Simplicity.
2. A saving of expense by cutting down dressings to a minimum.
3. Better results than those obtained by other methods.
4. Ununited fractures tend to unite rapidly when once the superficial wound is healed.
5. A very much shorter convalescence for the patient.

In conclusion I may say that the substance of this paper is based on the treatment of many cases which have remained from start to finish under my own personal care.

ON THE RECRUDESCENCE OF LOCAL SEPSIS IN COMPLETELY HEALED WOUNDS

AS THE RESULT OF SOME SURGICAL INTERFERENCE
OR PASSIVE MOVEMENT.

By C. J. BOND, F.R.C.S.,

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MEMBER OF THE NATIONAL MEDICAL RESEARCH COMMITTEE.

THERE are reasons for thinking that cases are occurring in the military hospitals in the country in which some slight surgical interference—for instance, an incision for the removal of a piece of shrapnel under strict antiseptic conditions—has relighted a violent local reaction in the neighbourhood of a recently healed wound. Further, I have records of several cases under different surgeons in which, after all incisions and sinuses round a compound fracture involving the elbow or hip or other joint had completely healed, even such a simple procedure as passive movement of the joint under an anaesthetic has lighted up quite a violent reaction, the reappearance of the old sepsis, and the formation of local abscesses, although no incision was made nor any solution of skin surface produced.

Struck by the frequent absence in many cases of guiding signs, either local in the condition of the tissues, or general in the condition of the patient, which can be relied on as accurate indications that the original septic process has quite died down, and that all pathogenic organisms in the neighbourhood of the fracture and along the track of the wound have been completely killed off in any given case, we have lately tested this point in some cases by dropping the piece of shrapnel or the fragment of bone removed at the time of operation directly into a culture tube, and I hope to record these results on a subsequent occasion. I wish now, however, to express the opinion that if observations on these lines were carried out by surgeons on an extended scale as a routine procedure, valuable information would probably be obtained on some points in the life-histories of pathogenic organisms in their relation to the body tissues which are now obscure. For instance, we want to know more about the conditions under which pyogenic organisms can dig themselves into the tissues and remain quiescent in sheltered situations without causing any local or general symptoms and without losing their virulence, just as the malaria organism is supposed to bury itself in the bone marrow or the tubercle bacillus to become encapsuled in a lymph gland.

To what extent is the capacity of such organisms to remain alive and virulent the result of the formation of the barrier of fibrous or granulation tissue which surrounds them, or is it aided by the concomitant presence of a foreign body or some devitalized piece of tissue—for example, a fragment of bone—within the uneven surfaces of which the cocci can more readily defend themselves against phagocytic attack?

Is the time interval of essential importance, and, if so, how long after the complete healing of a wound under ordinary conditions may we suppose that the cocci or

bacteria which caused the original sepsis can retain their virulence and their capacity for renewed activity?

How does the surgical interference, the incision, or the passive movement under an anaesthetic bring about the renewed activity of the organisms and the reappearance of the local sepsis? For it is quite clear that this result is due to the lighting up of the activity of organisms already present in the tissues, and not to the introduction of a fresh infection. The fact that passive movement without skin incision can bring about the result is conclusive evidence on this point.

Does the fresh mechanical injury operate by breaking through encapsulating barriers of tissue cells or by lacerating capillaries or lymphatics plugged with the cocci or their spores? Such suggestions seem only partially adequate to explain what happens. For, although the injury may set free the organisms, it also causes a refushing of the local area with blood serum, and this might be expected to inhibit the growth of any organisms liberated amongst tissues which have themselves recently experienced and recently recovered from infection, and which should therefore have acquired some degree of immunity against subsequent attack.

The routine examination of the cultural characters of the reactivated organisms and a comparison between these and the characters of the original infection would probably throw light on this problem.

Meanwhile, some highly practical questions also arise. It would, for instance, seem desirable to allow a longer interval of time to elapse after the sound healing of a wound before undertaking any renewed surgical interference in some cases than in others, and at present we do not know how to distinguish the cases in which the longer interval is necessary. Some guidance can be derived from a previous bacteriological examination of the serous fluid withdrawn by a needle from a joint or cavity in the neighbourhood of which the foreign body lies embedded. Thus, in the case of a piece of shrapnel embedded in the cartilage of the outer condyle of the femur and removed from the knee-joint of a soldier at the Leicester Royal Infirmary two months after the healing of the wound, a few cubic centimetres of the serous effusion aspirated from the joint some days before operation proved to be sterile. In this case the piece of metal removed from the cavity in the bone and dropped direct into a cultural tube failed to give any growth of organisms.

In this case also previous attempts to use the joint had brought on considerable effusions on repeated occasions, but these were evidently due to the mechanical effect of the foreign body, which projected slightly into the joint cavity, and not to infection.

Some indication that danger of renewed sepsis does exist may also, I think, be gained at the time of operation from a close scrutiny of the condition of the tissues immediately surrounding the foreign body. If, on cutting down, the piece of metal is found in a distinct cavity, which also perhaps contains some grumous fluid, then it is probably wise to take steps to sterilize the cavity and to drain, instead of completely closing the possibly reinfected wound.

In conclusion, I should like to add that the renewed septic process which I am here describing is no more slight reaction, or swelling or effusion which subsides with rest and time. It represents a violent reaction on the part of the tissues against a renewed virulent infection. It ends in local suppuration, and in some cases has been sufficiently serious to threaten the limb or even the life of the patient.

FROM statistics published by our Italian contemporary, the *Avvenire Sanitario*, it appears that in the whole of France there were before the war some twenty thousand practitioners. Paris alone had more than three thousand; next came Lyons, Nice, Dijon, Marseilles, and Montpellier. Of the Parisian doctors, five or six earned from £8,000 to £12,000 a year; ten or fifteen from £4,000 to £5,000, while eight hundred earned £400 to £600, and twelve hundred about £320. The rest averaged £160. Of the practitioners in the rest of France, only seven thousand earned professional incomes of more than £280. The others eked out a living by other means, including politics. As French parliamentarians are paid £600 a year, it is not surprising that so many doctors in France take to politics. The present Chamber of Deputies has about eighty medical members.

TRENCH NEPHRITIS: A RECORD OF FIVE CASES.

By NATHAN RAW, M.D., M.R.C.P.LOND.,
LIEUTENANT-COLONEL, R.A.M.C.;
WITH THE BRITISH EXPEDITIONARY FORCE.

IN THE BRITISH MEDICAL JOURNAL of July 17th, 1915, there appeared a short description of what was called a new disease occurring amongst soldiers who had been for a considerable time in the trenches.

Certainly from my own clinical hospital experience I had not met with such a symptom-complex, and as the etiology of this condition has up to the present remained uncertain, a careful record of cases is desirable.

CASE I.

A soldier, aged 33, was sent down from the front suffering from acute nephritis. He had been in the trenches for seven weeks, and had often been up to his waist in water. He stated that the onset was sudden, and that he first noticed a feeling of chilliness and swelling of face and feet. The urinary changes were characteristic; there was suppression of urine for the first twenty-four hours, and, afterwards, very small quantities (not measured) accompanied by great pain in the back and constant vomiting.

On admission to hospital he presented a typical clinical picture of acute nephritis. Analysis of the urine gave the following results: Specific gravity 1025, smoky, albumin present in large quantity. Microscopically, blood corpuscles, hyaline, and blood casts were seen. No specific micro-organisms could be isolated. Under careful treatment the albumin rapidly disappeared, the symptoms passed off, and he made a complete recovery, the attack only lasting twelve days. He had not previously had any kidney trouble.

CASE II.

A soldier, aged 33, was a much more severe case. He had been in the trenches for several weeks, and had been exposed to very bad weather. On admission he had almost complete suppression of urine, and it was with great difficulty that urinary secretion could be induced. Only after hot pack and hot mustard and linseed poultices had been applied to his loins was there any secretion of urine. It was loaded with albumin, with numerous hyaline casts, but no blood. No distinctive organisms could be isolated.

He remained in a state of eclampsia for three days, with strong convulsions, but these subsided, and he made an excellent recovery. His blood pressure on admission was systolic 230, diastolic 190, soon considerably reduced.

CASE III.

A soldier, aged 27, admitted in a serious condition; continuous vomiting and semi-unconsciousness; urine very deficient, specific gravity 1028, granular casts, albumin, no blood. Headache severe, with general anasarca.

Hot packs and injections of pilocarpine had an excellent effect, the urine increased in quantity, and the albumin was reduced to 1.1 grains per ounce. In sixteen days the albumin had disappeared, and he was well enough to be sent home.

CASE IV.

A soldier, aged 24; had been in the trenches for some weeks, and had been frequently very wet. His condition was much the same as Case III. The urine secreted was only 18 oz. in twenty-four hours, and it was loaded with albumin and granular casts.

The attack, although very acute, passed off rapidly, and the albumin quite disappeared.

CASE V.

A soldier, aged 42. No previous renal trouble. Had been in trenches for several weeks.

On admission he was only passing 10 oz. of urine in twenty-four hours, highly concentrated, and containing a large quantity of albumin and casts; no blood and no special organisms.

Treatment with hot packs and diuretics had the desired effect, and he soon made a quick recovery.

CONCLUSIONS.

1. There seems to be some association between life and conditions in the trenches and the disease.

2. None of these patients had any previous kidney trouble, and they all made a good recovery from what seemed to be a serious lesion of the kidney structure.

3. Bacteriological examinations were negative, and one is inclined to think that some infective process—giving rise to a toxin with a selective action on the renal epithelium—is the cause of this unusual symptom-complex.

ARTIFICIAL PNEUMOTHORAX:

MANOMETRIC ABBERRATIONS.

By FREDERIC C. COLEY, M.D.,
PHYSICIAN, NORTHERN COUNTIES HOSPITAL FOR DISEASES OF
THE CHEST.

HAPPY is the operator who, on first entering the needle in a primary case, sees the manometer registering -14 to -16 c. in inspiration and -6 or -8 in expiration, and then going on with steady and ample oscillations in time with the patient's regular breathing, the pressure rising very gradually as nitrogen enters the pleural cavity. But things do not always go on in this encouraging way, and the operator who has well impressed upon his mind a wholesome fear of gas embolism will often find the aberrations of the manometer providing him with anxious problems.

A slight *minus* pressure inspiration, becoming less in expiration, may be produced by the point of the needle not actually entering the pleural cavity at all, but pushing the parietal pleura before it. It would obviously be dangerous to force in gas in such circumstances. But anything between the normal ample oscillations and the abortive manometric readings last described may be produced when the point of the needle is in a very small "pocket" in the pleura surrounded by adhesions. A pocket of very moderate size may give fairly normal manometric readings at the outset, but the pressure rises very rapidly with the entrance of gas in comparatively small quantity. We may hope for adhesions to give way, yielding either suddenly or gradually to gas pressure, but the smaller the space into which gas enters the less chance there will be of this taking place. For a given pressure to the square inch the pull upon the surrounding adhesions must be small when the space containing gas is small, increasing as the pressure is exerted over a larger area. It follows that when the "pocket" is very small the prospect of benefit is small; and the risks are increased. The indication is to abandon the attempt to induce a pneumothorax at that point; puncture somewhere else may be more successful.

In a primary operation, where the pleura is fairly free from adhesions, 500 c.cm. of nitrogen will not produce a *plus* pressure, even in expiration. And it is not, as a general rule, advisable to exceed this quantity at first. The exception is in haemorrhage from a cavity. It is then imperative to induce a complete pneumothorax at once, if possible, because to do so is the most effectual means of restraining haemorrhages. The risk from haemorrhage is greater than that from rapidly filling the pleura with gas.

On first inserting the needle in a primary case a *plus* pressure in expiration is proof that the needle has gone through into the lung.

The reading found at the commencement of a secondary operation (or "refill") will be the pressure left at the conclusion of the previous operation, modified by what has since taken place. Usually the pressure will have fallen, owing to absorption of gas. But the occurrence of pleural effusion (which takes place in a considerable proportion of these cases) may actually raise the intrapleural pressure. The rule, therefore, that a *plus* pressure in expiration implies that the needle has gone through into the lung, only applies to a primary operation before any gas has been injected, but it is then a rule absolutely without exception.

There will be no movement of the manometer at all if the opening of the needle is in consolidated lung. But what may be called the typical pulmonary oscillations will be likely to occur when it is in a bronchial tube, or a cavity either tuberculous or bronchiectatic, or the space formed by the fusion of emphysematous vesicles. In the circumstances, the oscillations will approximate to an atmospheric mean—that is, the *minus* pressure in inspiration will be equal to the *plus* pressure in expiration, or nearly so. The amplitude of the oscillations will depend partly upon the nature of the space entered by the needle and partly upon the character of the respirations, whether tranquil or laboured. But when the patient speaks the expiratory effort with a closed glottis produces, while it continues, a greatly increased pressure. And this is greater still in coughing. I may remark in passing that the same thing happens also when the needle is in the pleural cavity after gas has been injected. So that it is

wise always to keep a watch for the approach of a cough, and to pinch the tube leading to the manometer when that is observed. Otherwise it is quite possible for some at least of the water in the manometer to be violently forced out. Which is a somewhat annoying accident, because the lumen of the manometer is sufficiently narrow to make the recharging it with liquid and getting rid of air-bubbles a somewhat troublesome business. Of course, the nitrogen should also be cut off immediately when a cough is imminent, because the act of coughing is very apt to displace the needle. When the patient has done coughing for the present, communication with the manometer should be reopened; but, until its readings are found to be satisfactory, no more gas should be admitted.

In doing a "refill" it is, of course, quite possible to meet with an atmospheric mean pressure in the pleural cavity if the final pressure at the previous operation was higher. But an atmospheric pressure should always be regarded with some suspicion, and special care must be taken to be sure that the point of the needle is in the right place. For this purpose, keeping a record of the depth reached by the needle, for use at subsequent operations, may be useful; but it is not wholly free from possible fallacies.

When it is found that the admission of a large quantity of gas does not raise the pressure, it is evident that this can only be because the gas is escaping as fast as it enters. This, of course, indicates that the opening of the needle is not in the pleural cavity, but in the lung. It has been suggested to scent the gas with peppermint or the like, in the expectation that the patient would recognize the odour in his own breath if the gas should be escaping in that way. In my experience this suggestion has not proved to be of any practical value.

On first inserting the needle, whether in a primary operation or a refill, we may find no movement of the manometer. This may be due simply to our having underestimated the thickness of the chest wall. In that case a little further insertion of the needle might produce normal oscillations. But it is far more often due to the opposite—namely, to going right through into lung. This is certain to happen if the puncture chances to be made at the site of an adhesion. And it may very easily happen anywhere near an adhesion, unless the needle is entered very slowly and cautiously, with the eye on the manometer all the time. On this account (as well as for other reasons) I am opposed to the practice of dispensing with local anaesthesia in refills, and entering the needle with a sudden stab. It by no means follows that the point which was free from adhesions at the first operation will be necessarily clear on the next occasion. This remark applies with especial emphasis when the puncture is made posteriorly, for there the lung may come into contact with the parietal pleura in spite of the presence of a very considerable quantity of gas, especially when the patient is lying on his back. The slight traumatism of the first operation would be very favourable to the production of an adhesion in such conditions. It is often difficult, if not impossible, to recognize the existence of such adhesions by auscultation.

It sometimes happens, when the needle is being entered for the first time, that the manometer leaps up to a normal minus pressure of 14 or 16, and there remains stationary. This is so far satisfactory, that it is a clear indication of the absence of adhesion at the point of puncture. The opening of the needle has been, at least momentarily, between two free pleural surfaces, in what may be called the potential pleural cavity. But it would be extremely unsafe to send in gas while the manometer is motionless. For though the minus pressure shows that the open end of the needle has been where we wish it to be, through the costal pleura, and pushing the visceral pleura before it, the absence of oscillations suggests that it may not be there still. It may be that some movement of the patient has caused the needle to be slightly withdrawn, so that its opening is now in the chest wall. It is more likely that it has gone through into the lung. It is therefore safer first to withdraw it until we are quite sure that its point is in the intercostal space. Then it may be very cautiously and slowly advanced again, the eye being fixed on the manometer. If still no oscillations occur it is probable that the lumen of the needle is blocked with blood. It is, of course, quite possible that this obstruction might be cleared away by injecting nitrogen. But the attempt would be very risky. In the absence of oscillations there

can be no proof that the open end of the needle is between the parietal and visceral pleura; and while this is uncertain, to inject nitrogen is to risk the possibility of gas embolism. In such circumstances it is recommended to clear the needle by passing in the stylet. But to do this with the ordinary Saugman needle is by no means free from danger. For with that instrument it is impossible to make way for the passage of the stylet without opening communication with the external air, which is, for more reasons than one, more dangerous than admitting nitrogen. To obviate this I have devised a needle with a stylet working through an airtight stuffing-box, as in Potain's aspirator. Only in Potain's instrument the stuffing-box simply plugs into the mount of the needle, which rarely produces an airtight joint. And besides, it is somewhat apt to tumble out at inopportune moments. In my instrument, therefore, the stuffing-box screws into the mount of the needle, with a leather washer to make a perfect joint. As supplied by the manufacturer, the stuffing-boxes in such instruments are provided with a packing made of leather or india-rubber. Leather is damaged by boiling, and india-rubber deteriorates by time, so that neither is reliable. I prefer a packing made of cotton-wool soaked in sterilized vaseline. This is perfectly airtight, and can easily be renewed whenever necessary. The leather washer for the joint should not be boiled. It may be soaked in B.P. glycerine of carbolic acid, not carbolic oil, which sterilizes nothing, not even itself. This special needle is made by Messrs. Allen and Hanbury of London, and by Messrs. Brady and Martin of Newcastle.

In using this needle, it is convenient to insert it without having the stuffing-box attached, because it is only occasionally that the stylet is required. It can easily be attached, with the needle *in situ*, if the occasion to use it arises.

In the absence of such a special needle, rather than use a stylet without a stuffing-box, it is far safer, in the circumstances just described, to withdraw the needle and reinsert it after clearing it thoroughly; or, better still, use a fresh needle. The slight additional traumatism of a second insertion is far less objectionable than the risks involved in making an open communication with the external air.

An abnormality which is at first somewhat puzzling is this: In the course of induction of a pneumothorax the pressure rises on the admission of a very small quantity of gas. But on shutting off the nitrogen and watching the manometer, we find that in the course of a minute or two it falls again. On repeating the process several times, we see that the pressure falls less after each admission of gas, so that eventually there is a permanent rise of pressure. I have seen this in three or four cases. In one the fall of pressure only took place when the patient took very deep breaths. No doubt this is due to gas being admitted into a small "pocket" surrounded and limited by adhesions, except for a narrow communication leading to a large intrapleural space. At the next operation it will be wise to attempt to enter this larger space directly. If auscultation and percussion do not help us to locate this larger space with sufficient clearness x rays may be found very useful. Some little care may be needed to distinguish between the phenomena just described and the manometric signs presented when the needle is in the lung. But in the lung there can never be a minus pressure during expiration; and the admission of gas will never produce a permanent rise of pressure.

A CASE OF ROTATORY NYSTAGMUS WITH RECOVERY UNDER OPTICAL TREATMENT.

BY

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In June, 1914, a girl, aged 7 years, was brought to me on account of defective vision. There was a slight convergent strabismus of the left eye, but the most striking objective sign was the presence of concomitant rotatory nystagmus, involving both eyes equally, and alleged to have existed from birth. The child was very fair and somewhat deaf, the latter being a sequel to otitis media acuta two years before. The visual acuity of each eye was $\frac{5}{20}$.

contact with the frænum lingue. I showed the case to four of my colleagues here, and as none of them had ever seen or heard of anyone who could perform this feat, I thought it might be of interest to put it on record.

HONG KONG. F. O. STEPMAN, M.D.Lond.

Reports

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

BRISTOL ROYAL INFIRMARY.

A CASE OF TETANUS: RECOVERY.

(By A. COLBY TINGEY, Lieut. R.A.M.C., M.R.C.S., etc.,
late House-Surgeon.)

On January 5th, 1915, the patient, a carrier aged 39, had his right foot crushed by a heavy log falling on it.

On admission to the infirmary he was found to have a deep wound on the dorsum of the foot, beginning at the cleft between the big and second toes, and extending upwards about 4 in. There was a comminuted fracture of the first metatarsal and proximal phalanx of the big toe, the bones being broken into small fragments. The second metatarsal was also fractured in one place. A general anaesthetic was administered. All loose pieces of bone were removed and the wound swabbed with 1 in 20 carbolic. The skin wound was closed in part and a rubber tube put in for drainage.

On January 9th the wound was very septic, and the foot was kept for several hours in a lysol bath daily until January 19th. On January 12th the big and second toes were found to be becoming gangrenous, and were amputated under a general anaesthetic.

At 6.30 a.m. on January 19th the patient found that his jaw was stiff, and he was unable to eat any breakfast. On examination marked trismus was found; the teeth could only be separated half an inch; risus sardonicus was present. No pain was complained of. At 10.30 a.m. 3,000 units of antitetanic serum were given intravenously. The serum was not repeated. Subsequently the patient was given 15 minims of a 3 per cent. solution of carbolic acid every four hours. He was nourished on fluids only. On January 23rd the trismus was worse, and the patient could only separate his teeth a quarter of an inch. Marked rigidity of the muscles of the back and abdomen was present. The patient became very depressed about his condition. On January 24th the carbolic injections were increased to 20 minims every four hours.

On January 27th the nurse reported that the patient had a severe spasm at 8.40 a.m.; it lasted about five minutes, and in the course of it he became very cyanosed. He had another marked spasm in the evening of the same day, but it only lasted a few seconds. The carbolic injections were increased to 30 minims every four hours. At night 40 grains of chloroform in 4 oz. of olive oil were given per rectum. The patient passed a comfortable night. The same dose of chloroform was repeated on January 28th and 29th. The patient had no more severe spasms. On January 31st the jaw muscles began to relax and he was able to feed himself. On February 3rd he was able to protrude his tongue and was generally better. On February 5th the carbolic injections were stopped. The treatment did not at any time cause carboloria or other signs of poisoning. The temperature remained subnormal throughout. On February 16th the patient was discharged. The wound on the foot was then in a healing condition.

Although it would certainly be rash to attribute recovery in a case of tetanus to the method of treatment adopted, yet one may perhaps be allowed to infer that the injections of carbolic acid cut short the duration of the disease, seeing that the patient was free from all discomfort fourteen days after the onset. The chloroform was very useful as a sedative when the symptoms were most severe.

The case illustrates the uselessness, where tetanus organisms are concerned, of employing 1 in 20 carbolic for the purpose of cleansing wounds.

I am much indebted to Mr. Rendle Short for permission to publish the details of this case.

Reviews.

INJURIES TO JOINTS.

THE publication of a series of Oxford War Primers has been commenced by the issue of five volumes—three on surgery, one on medicine, and one on the training of stretcher-bearers. The general object of the series has been well expressed by Major ROBERT JONES with particular application to his own subject in the preface to his book on *Injuries to Joints*. "The object of this little book," he says, "is to attempt to give some help in the diagnosis and treatment of injuries of joints in a form which will be useful to the hundreds of practitioners who have left the quiet paths of private practice for the more eventful career of military surgery."

Major Robert Jones's volume is one of the most valuable contributions to surgery so far produced by the war. It will be of the highest value to the military surgeon but of almost equal value to the civil practitioner, for, as a practical surgeon of long experience has observed to us, if the volume were to be thoroughly studied by every house-surgeon, not a little disability, temporary and permanent, would be prevented among the industrial population.

The book falls into two parts—the first five chapters in which general principles are discussed, and the remaining six in which they are applied to particular joints and particular varieties of injury. It is to the first five that we would particularly direct attention, because if their significance is fully grasped the rest becomes easy to any man trained in the practice of modern surgery. No doubt a great many readers will search the book for practical "tips," and they will find them in plenty. But if they adopt them without understanding the why and the wherefore they will, we are sure, disappoint the author, who is always careful to explain the aim and object of everything he recommends to be done. Moreover, no two cases are quite alike, and unless the reason is understood the application may fail. The author is always asking the young surgeon to use his knowledge of anatomy, physiology, and pathology, and his common sense. The science without common sense is no good, neither is common sense without science. Their combination make up the whole art and mystery of the management of joint injuries, from a common sprain or tennis elbow to a severe gunshot wound.

In the first chapter, which contains an outline of general principles, it is said that the practitioner's two chief difficulties are to decide what is the most appropriate immediate treatment, and when and how to commence moving the injured joint, especially after the more serious injuries. The solution of the first, we are told, is found in accurate diagnosis of the injury, and in forming a clear idea of the mechanical and physiological factors which enter into the processes of repair. As an illustration, an ordinary sprain of the ankle, caused by jumping on to the edge of a cleft of earth and violently twisting the foot inwards, is taken. The surgeon finds that, though the ankle is very painful, it will bear gentle but firm handling. The history points to an injury about the external malleolus, and the inference is that there is a rupture of one of the three slips of the external lateral ligament of the ankle, or perhaps an avulsion of a scale of bone from the tip of the malleolus, which, though technically a fracture, is for all practical purposes a sprain. Pressure with the finger over each division of the ligament in turn will find a point of extreme tenderness, and so the exact nature of the injury is located. The treatment carried out should be with the definite object of getting the torn ends of the ruptured ligament to unite by first intention—that is to say, by immediate rather than by delayed union. By appropriate simple treatment it must be made impossible for the patient to put tension on the torn ligament when walking, but the foot must not be kept fixed, for "the physiological exercise of the foot will prove a better stimulus to the normal processes of circulation and repair than even the best massage."

Movement, he says, is always bad for an actively inflamed tissue, using the term "inflamed" to mean tissue actively hyperæmic as the result of a lesion, such active

¹ *Injuries to Joints*. By Robert Jones, Ch.M., F.R.C.S.E. and L.D., Director of Military Orthopaedic Hospital, Liverpool, etc., Major R.A.M.C.(T.). Oxford War Primers. London: H. Krowle, and Hodder and Stoughton, 1915. (Fcap. 8vo, pp. 187; 29 figures, 3s. 6d. net.)

hyperaemia being part of the process of healthy repair. Speaking on the starting pains of injured bones and joints, he says that when a patient is awake and the injured part is not completely fixed, he unconsciously keeps it at rest by means of his muscles—a nerve-muscle effort which is in itself exhausting. When the patient falls asleep his nerve-muscle system sleeps also; the injured part deprived of the muscular guard moves, a spasm of pain ensues, then a reflex contraction of the muscles, which again causes pain, and the patient is awake. Such starting pains, therefore, are proof to the surgeon that he has failed to attain efficient fixation.

With regard to permitting voluntary movement, Major Jones lays down the general principle that pain is the index. Pain is Nature's method of controlling voluntary movement which may be harmful, so that early active movement which causes no pain can seldom be harmful, and is often beneficial. Therefore, fix a joint so that the one particular laudible movement cannot be performed. The harmless movements will make for good nutrition and rapid repair. Passive movement performed by a second person, regardless of warnings by pain, should never be resorted to unless the surgeon knows exactly what he wants to do and why. It should be limited to forcing a free path for movements obstructed by adhesions. When these are broken down under an anæsthetic the process should be thorough and carried out by one firm movement; afterwards the joint should be put through its full range of movement once a day, and once only, until the patient can perform the movement voluntarily. "I would again emphasize the fact that repeated to-and-fro movements are liable to cause unnecessary damage, increased reaction and effusion, and an increase of pain."

The author then goes on to consider pain and stiffness in relation to diagnosis and treatment, and lays down two general rules, which are: "(1) Pain on movement in every direction suggests a lesion in the joint or in parts intimately connected with it; (2) Freedom of movement in one or more directions, but not in all, suggests a lesion of some groups of structures outside the joint proper." Again and again he insists on the necessity of gentle handling both in diagnosis and treatment. He points out the dangers of too early or too rough passive movement in connexion with fibrous cicatrices in soft parts, and says that the same doctrine applies even more strongly where the process of repair includes ossification. In a case of fracture into a joint or of a bullet having traversed the joint and ploughed up the osseous cartilages, the line of treatment must be directed towards obtaining healing of the breach of surface on each bone separately and allowing the union from one to the other to be as slight as possible. When sufficient time has elapsed for repair to have commenced slight movement should be allowed. "Part of the treatment of ununited fracture of a long bone is to manipulate the seat of fracture roughly, so as to produce fresh exudation and vascular activity and to excite osteogenic processes. It is therefore obvious that violent movements of a joint, instead of securing non-union between opposing surfaces, may have the opposite effect."

The last chapter of this part of the book deals with contraction of scar tissue and compound injuries about joints; and here again the author insists that the surgeon must take a long view and not be satisfied in securing an early healing of the wound if that is attended by the serious disadvantage of leaving the limb in an awkward position. In the remainder of the book injuries of the joints of the upper limb, of the spinal column, of the joints of the lower limb, and of the ankle-joint and foot, are separately discussed, and the treatment of various conditions fully explained.

The book, as has been said, is full of tips. One is the use of a pad in certain conditions, as, for instance, in dislocation of the outer end of the clavicle upwards, consisting of many folds of sticking plaster, sticky side out. Such a pad adheres to the skin, does not shift, and acts as a local splint. Another tip is the "contrast bath," depending on the same principle as the alternate hot and cold douche so useful in many chronic conditions of muscles and joints. All that is required are two buckets, one with the hottest water the patient can bear, and the other with the coldest that can be procured. The foot or wrist is plunged first into the one and then into the other as fast as the patient can change them, for five or ten minutes. "The

effect is to cause the small vessels to dilate and contract rapidly. The treatment thus acts as a species of gymnastics for the muscles in the vascular walls. Besides relieving the pain the result is an improvement in the physiological efficiency of the tissues at fault. This is not achieved to anything like the same extent by hot air and the various electric treatments."

But the book is also full of aphorisms, though the author is too modest to set them out in that form. Such a one is, speaking of treatment after adhesions have been broken down, "The passive movements should be carefully regulated, the active should be unlimited." Others are: "So long as callus is tender on pressure or manipulation, it is safe to say it is not too hard to be twisted or forced by manipulation so as to adjust an erroneous or imperfect reduction." "Fully matured fibrous tissue has no more tendency to contract than any other tissue, and as a scar takes a long time to become composed of fully matured tissue, extension of the scar must be prolonged." "The bandage in the hands of the surgeon is an important part of the apparatus for retaining the joint in the required position. The bandage is not a mere means of keeping a dressing in position, but should be regarded as a modified splint."

The volume is well printed on a small octavo page with rounded corners and bound in a serviceable khaki limp cloth. The only quarrel we have with the publishers is that they have used heavy glazed paper fatiguing to the eyes, and so thick that the volume is twice as bulky as it need have been. The answer will probably be that the thick, glazed paper has been used for the sake of the illustrations—reproductions of photographs which are quite well done. But a thin paper would have been much more fitted to meet service conditions, and this ought to have been the primary consideration. Its use would have necessitated drawings instead of photographs, and good drawings are, of course, more expensive than photographs, but it is a pity to spoil the ship for the sake of a ha'porth of tar. A senior officer of the Army Medical Service recently asked us why publishers used heavy, glossy paper, and quoted uncomplimentary remarks of railway men who had to handle his baggage. The reason is, we have no doubt, that given above, but why should not the Oxford Press set an example by using Oxford India paper, more especially in an enterprise which must have appealed to the patriotism of the distinguished authors who have written these primers for it?

NOTES ON BOOKS.

DURING the last 200 years Russia has learned much from Germany, and suffered much. Peter the Great's ambitious schemes for the regeneration of Russia and the reorganization of her government, at the beginning of the eighteenth century, came before the Russian people were ready for them. Accordingly, when he needed men of education and ability to carry out his will unhampered by any connexion with the order of things he wished to destroy, Peter fell back on the German barons of the recently conquered provinces of Estonia and Livonia. In this way the German ruling class got a footing in Russia, and their power and activity have spread there ever since. How far this has been to the detriment of Russia is made plain in DE WESSELSITZKY'S pamphlet on *Russia and Democracy*, a little book that should be read by all who are interested in the future of the East. It is a great ally in the past and future development of our great ally. German princes and German States are here shown to have used Russia indifferently as stalling horse, whipping boy, and milch cow for more than two centuries, constantly retarding her progress and rebellion by advocating a reactionary policy. The author gives good historical reasons for believing that the complete de-Germanization of Russia is the only safeguard for her future independence and progress.

The seventh edition* of HUTCHISON and COLLIER'S well known *Index of Treatment* has recently appeared, and within eight years of the issue of its first edition; no

* *Russia and Democracy: The German Chamber in Russia.* By G. de Wesselsitzky. With a preface by H. Cnst. London: Published for the Central Committee for National Patriotic Organization by W. Heinemann, 1915. 2s. 6d. pp. 104. (In next issue.)
Index of Treatment. By Various Writers. Edited by R. Hutchison, M.D., F.R.C.P., and J. Sherrin, F.R.C.S. Seventh edition, revised and enlarged. Bristol: J. Wright and Sons, Limited; London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited, 1915. (Demy 8vo, pp. 1129; 78 figures. 25s. net.)

further witness to the merits of the book need be required. The new improved and enlarged edition appears without the name of Mr. Collier on its title-page; Mr. Collier's place as editor has now been taken by Mr. SHERREN. All the articles have been thoughtfully revised, and in many cases they have been rewritten; several new articles have been added, including an account of radium-therapy by Dr. Hayward Pluch, and an essay on the treatment of the psycho-neuroses by Dr. Crichton Miller. Except in the headlines, a new font of type has been used throughout the volume, which gains considerably in clearness and ease of reference as a result. Comparison with the sixth edition, published four years ago, shows that a considerable amount of judicious pruning has been carried on throughout the book, which has none the less increased by a hundred pages. We cannot do more than recommend it in terms of high laudation; it is a volume that should be in the hands of every practitioner of medicine.

The title, *Medical Annual Synoptical Index to Remedies and Diseases*, 1905 to 1914,* explains both itself and the want that it supplies. A list of drugs has been added, giving the doses in imperial and metric measure, in accordance with the *British Pharmacopoeia*, 1914, and indicating the alterations which have been made. There is also an article comparing the measures of the *British Pharmacopoeia* and the Apothecaries' Scale. The editor defends the older method, and is not afraid of declaring that the metric system is ill-adapted for dispensing the small quantities of which the medicinal doses consist. The metric system is universally used on the Continent for scientific calculations, but the editor maintains that it should not be argued that medical prescriptions should follow the same lines. That argument is based on the false hypothesis that a medical prescription involves calculation. We are further reminded that the Americans, both a scientific and a practical people, use the decimal system for commercial purposes, while, on the other hand, apothecaries' weight is employed for prescribing because it is more simple and admits of greater accuracy.

CIVIL PRACTICE TO-DAY IN FRANCE.

EXPERIENCES OF AN ANGLO-FRENCH PRACTITIONER

The declaration of war found our season in full swing, but from one day to the next two out of three of my fellow practitioners under 42 had disappeared without any leaving-taking formalities. Of the remainder, five out of eight were elderly, not to say aged, men, not addicted to general practice. Of the outlying villages within a radius of fifteen miles many were, and still are, wholly deprived of medical assistance except such as is obtained from this centre. When it is borne in mind that many of these villages lie high up on the flanks of the mountains at an altitude which may be as much as 2,000 ft., the difficulty of providing any sort of medical aid in emergencies can be imagined, especially as telephonic communication between private persons was forthwith prohibited outside urban areas. This difficulty, however, was overcome in some measure by turning to account the privilege accorded to mayors of communes of communicating with each other. Within the last month or two this restriction has in great measure been removed, subscribers being allowed to telephone within the department. On the other hand, the proclamation of the state of siege rendered it incumbent on every one to obtain a police permit to wander outside the district by road or rail; but this restriction was soon found to be impracticable, and a number of permanent permits were conceded, especially to officials and medical men.

So much for civil medical practice, but a further hindrance presented itself in that the services of every valid, though elderly, medical man were enlisted to provide staffs for the numerous "formations sanitaires," or auxiliary hospitals for the wounded, who began to arrive early in September. There was a great shortage of skilled surgical assistance at first, and had it not been for the abnegation of an English surgeon, who happened to be in the town and consented to remain, the situation would have been unenviable both for the wounded and for the medical men, few of whom had much experience of practical surgery. The work entailed by these hospitals

was heavy, and left the few remaining practitioners little leisure to attend to ordinary practice.

These auxiliary hospitals were installed in schools, hospitals, asylums, and in such of the hotels as were available for the purpose. These hospitals comprised from 25 to 100 beds, and the cost was met in part by a Government allocation of 2s. a head a day, and in part from private donations and funds belonging to various Red Cross societies. Of this allocation, four-fifths went for the maintenance charges, and the remaining fifth was reserved for pharmaceutical requirements, dressings, and so on, including x rays. The allowance was sufficient in respect of hospitals established by Red Cross societies, since any shortcomings could be met from their funds, but it was a tight fit when no other financial assistance was forthcoming, especially when winter brought extra expense in the matter of heating. The operating theatres had to be organized as best might be, the medical officers having to provide all instruments and fittings; this they were able to do, thanks only to the generosity of their wealthy patients. In certain centres military hospitals were organized by the authorities in addition to the "formations bénévoles," or voluntary institutions. Where it was found impossible to provide a civil medical staff, doctors from other towns who had been mobilized—that is to say, who had been called to the colours—were requisitioned for the purpose; but all hospitals, civil or military, were placed under the surveillance of a military medical officer appointed for the district, whose duty it was to ensure that the patients were properly attended to, and to see that records of cases were properly kept and the returns duly made.

Considerable hardship was caused by the requisitioning of the municipal hospitals, since this meant the exclusion of civil cases, both surgical and medical, and considerable pressure had to be brought to bear to secure accommodation for urgent cases.

The mayor of this town, a medical practitioner, was one of the first to go to the front, and he gladly availed himself of my offer, though a foreigner, to act as his locumtenent. This was no small undertaking, for, in addition to a large general practice, he is public vaccinator for all the surrounding districts, inspector of epidemics (roughly speaking, a sort of medical officer of health with very limited powers), inspector of nurseries, and insurance referee. His practice extended ten or twelve miles round in a very mountainous district, where roads are few and bad. Early in the war all valid horses were requisitioned, and soon afterwards all private and public motor cars, which, for that matter, would not have been of much assistance, seeing that all the chauffeurs had been sent to the front. One's only resource, therefore, was the cycle or motor cycle; and incidentally I should like to bear witness to the inestimable services rendered me by my 4-h.p. motor cycle with side-car. It climbs anything in reason, costs little to keep up, is very robust, and almost as stable as a motor car.

To one whose professional experience has been limited to what I may call seasonal practice—weak chest, rheumatism, gout, and the like—general practice of the class with which I was now called upon to deal is apt to be rather trying. One gets an urgent call to some isolated, picturesquely situated, but inaccessible spot, as likely as not late in the evening or early in the morning, with scant information as to what is wrong, so that one has to be prepared for everything. It may be a labour that has baffled the resources of the local midwife, or a dislocated hip or a perforated gastric ulcer or meningitis. Even when the patient has been visited it takes hours to fetch the medicine or appliances, and the only assistance is such as can be rendered by willing but unskilled, and possibly weeping, relatives. One difficulty for a foreigner like myself is that outside the towns the peasants mostly speak patois, and many are quite unable to express themselves in classic French. If, however, they persist in talking patois, I reply in English, so we get along somehow.

Not the least of my troubles is prescribing. Under ordinary conditions there are several English chemists, that is to say, pharmacies provided with British assistants who are familiar with British pharmacy, but when the Anglo-American visitors fed the country the British

* The *Medical Annual Synoptical Index to Remedies and Diseases* for the ten years 1905 to 1914. Bristol: John Wright and Sons, Ltd., London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd., 1915. (Demy 8vo, pp. 467. 8s. 6d. net.)

* By Ministerial order no mobilized medical man is allowed to be appointed to a post in his own district, but the order is one which has been evaded on a large scale.

assistants followed suit, so that it was no longer possible to prescribe British fashion or to order British pharmacopoeial preparations. Since French preparations do not correspond to ours, and as the French *Codex* contains no titrated solutions of alkaloïds nor any dilute acids or compound products, inasmuch, moreover, as liquids are dispensed by weight and not by volume as with us, prescribing becomes a delicate and complicated process. If we want to order a compound syrup of the glycerophosphates we must order it in detail, and how many of us are equal to the task? If we order an infusion we must specify the strength, and the same with tinctures. The difficulty is enhanced by the fact that drugs are described under their French and not their Latin names, so that *senega* becomes *polygale*, *bucchu bucco*, *cinchona quinquina*, and so on. Last but not least, drachms and scruples have to be abandoned in favour of grams and centigrams, and however theoretically perfect the metric system may be, it is rather tricky in inexperienced hands.

To give a concrete idea of what my work is like, let me describe it. It happens to be the epoch for compulsory vaccination and revaccination (paid at the rate of 1 franc a head—or, rather, per arm—irrespective of distance). On receiving an intimation that I propose vaccinating on a given date, the mayors of the various communes issue printed notices to that effect. The vaccinations are done at the school buildings or Mairie, usually in the same block of buildings, and the schoolmaster (who is usually the mayor's secretary) takes down the names. The vaccine is furnished to the order of the prefecture by a central institute. Careful antiseptic precautions are taken to avoid infection, and I may note *en passant* that even the peasants are alive to their importance, and would promptly criticize any carelessness in this respect. In about a dozen districts I did between eight and nine hundred vaccinations. There does not appear to be any prejudice against vaccination in France; on the contrary, there seems to be an impression that the process is protective in the widest sense of the term.

Advantage is taken of the presence of the doctor in these outlying districts to obtain advice, by all and sundry, for an average fee of half a crown, or five shillings if a visit be necessary. One woman, living in an isolated farm half an hour's walk from the main road, had been in bed two days, having "ricked" her side when digging potatoes. The abdomen was greatly distended and hard and did not move on respiration; she had high fever, and was plainly very ill. The tenderness made exploration of the viscera impossible, and she gave no history pointing to the nature of the mischief. I had her brought down to the municipal hospital, where an exploratory operation was done, and she was found to have a huge perforated gastric ulcer. She was so deeply poisoned that she died on the table. As it happened, I, who was to have administered the anaesthetic, arrived rather behind time, so the patient was already under ether. When the mask was removed for me to apply my Junker's inhaler (chloroform), I saw that she was dying. Now, French surgeons have a dread of chloroform, and had I got there in time to administer it, the death would assuredly have been attributed to the chloroform.* The next day I was asked to see a woman who had been bitten by a dog. The teeth had penetrated the back of the hand and had torn out the tendon of the extensor indicis in its entirety, together with a fragment of the muscle. On my way back I was summoned to an old woman who had been knocked down by a reckless cyclist, fracturing the surgical neck of the humerus—a diagnosis which I verified next day by the x-rays in town. The next day I was called 17 kilometres into the mountains to a youth, 17 years of age, presenting symptoms of meningitis. As I had been warned what to expect, I was provided with the means of practising lumbar puncture, and the cerebro-spinal fluid proved to contain the *M. intracellularis*. The father was dispatched to the county town, 25 kilometres distant, for some serum, which was duly injected on several occasions, but the patient succumbed ten days later in spite of temporary improvement. I reported the circumstances to the prefecture, expecting that special inquiries would be set on foot as to the source of the infection, but disinfection of the premises was all

that was thought necessary, no doubt because war conditions rendered it impracticable to do more.

Once a month there is an inspection of nurslings in the various hamlets. No woman is allowed to take a nursing unless she can produce a medical certificate of health and a certificate of moral character from the mayor. She is then provided with a book with counterfoils on which are noted details of the infant's progress when seen by the medical inspector, and details of any illness and its treatment. The annexed certificate is torn out, filled in by the medical inspector and forwarded to the prefecture. The women assemble in the Mairie (having been duly notified of the date and hour), where the babies are undressed and weighed and the increase of weight inscribed on a chart. They are invited to ask for medical advice if required, and any mother inscribed on the list of the Assistance Publique is entitled to a consultation *gratis*. A sheet of tissue paper is provided for each baby in order to avoid contact with the scales and possible contagion.

Indigent patients apply at the Mairie for a ticket entitling them to one visit or consultation by a local practitioner, and the chemist supplies the medicines at the cost of the commune—much the same process as applying to the relieving officer at home. The visits within the town limits are paid—Fr. 1.50 (1s. 3d.)—with an allowance per kilometre outside the borough of 4d. on the level and 7½d. in the mountains. In the latter case the patient has to provide the carriage. Country visits to the peasantry are paid at the rate of about 1s. 3d. per kilometre, carriage fare in addition.

The privilege accorded by law to wine growers to distil a certain (but apparently uncontrolled) quantity of alcohol without payment of duty (known as "eau de vie de marc," from the fact that it is made from the "marc" (residues) of the grape), independently of the fact that it deprives the State of millions a year of revenue, is the cause of much chronic inebriety, consequently one meets with many enlarged or cirrhotic livers. Pulmonary tuberculosis is also very common, and occupies a large space in the mortality returns. At this altitude (nearly 1,000 ft.) the grape does not ripen, and the wine is therefore horribly tart. This, however, does not affect the taste for it, and among the working classes the average consumption per (male) head must be between two and three quarts a day—quite enough in the long run to determine symptoms of chronic alcoholism, since the wine contains from 6 to 7 per cent. spirit. Drunkenness is uncommon, but inebriety, even among the women, is rife.

The peasants are an intelligent, robustly independent set of men, many, probably most, of them owning their farms. They work very hard and their women folk share in their labour. One consequence of this addiction to outdoor work is that they have neither time nor energy to keep their houses in order. The latter are simply filthy—unwashed floors, blackened walls, and dust everywhere. As they have a superstitious horror of fresh air, the windows are few and small, and are kept rigorously closed. Manure heaps fester at the very door, so that flies are a terrible nuisance. This is forbidden by law, but as it lies with them to apply the law to each other it is a dead letter.

THE DESTRUCTION OF FLY LARVAE IN HORSE MANURE.

IN THE JOURNAL of May 1st last (p. 768) an account was given of a series of valuable scientific investigations undertaken by the United States Department of Agriculture with the object of ascertaining the most suitable means for destroying fly larvae in horse manure without injury to its fertilizing properties. They had been reported in an official bulletin of the department (No. 118), and we are now indebted to Dr. F. C. Cook, who has charge of this work, for a further bulletin (No. 245), which deals with a continuation of these experiments during last year. The results of the first series showed that the only chemical which fulfilled the necessary requirements of being efficient, non-poisonous, economical, non-injurious to vegetable life, universally procurable, and easy of application, was ordinary commercial borax. Whilst the Commission was fully convinced of the efficacy of this chemical, if properly used, it is admitted that the recommendation to limit the dosage of borax to 0.62 lb. per

* One can understand the feelings of French surgeons in respect of chloroform, seeing that anaesthetics in French hospitals are given by the sisters or by any first year's student who happens to be there. Obviously in such hands ether is vastly preferable to chloroform.

10 cubic feet of manure, and to apply such treated manure to the land at the rate of 15 tons to the acre, in order to make certain of no injurious effect on vegetation, might not be universally carried out through carelessness. It was therefore thought advisable to try and discover some material which would not have this disadvantage. The bacteriological, chemical, and entomological investigations were carried out as before, except that, in addition, some concrete pits were utilized, and cages for collecting flies were provided for some of the open pile experiments. The substances tested were both inorganic and organic, the latter including volatile and non-volatile agents as well as some plant materials. Under the first heading arsenical dip, chloride of lime, lime sulphur and sulphuric acid were used, but the only effective substance coming within the requirements was arsenical dip, and this was condemned on account of its poisonous properties. The objections to chloride of lime are stated to be the large quantity required, its action in drawing off ammonia, its probable toxic effect on bacteria, the irritating action of liberated chlorine, and its high cost. The investigators, therefore, turned their serious attention to organic substances, their hopes of success being apparently founded on the very reasonable argument that, as inorganic applications are likely to prove toxic to plants when excess is established in the soil, organic substances, on the other hand, if volatile, will disappear, or, if non-volatile, will decompose and probably assist in forming useful instead of harmful compounds. Aniline, in dilutions extending to 1 to 500, nitrobenzene, particularly when emulsified with fish oil soap, in the ratio of $\frac{1}{2}$ lb. to 1 lb., and added to 10 gallons of water, and pyridine, 1 to 500, are shown to be effective larvicides and apparently harmless to manure, but their toxic nature makes them difficult to handle and the cost is said to be prohibitive. Beta-naphthol, cresylic acid, para-dichlorobenzene, formaldehyde and oxalic acid proved very unsatisfactory as larvicides. The researches with plant material were found to be the most satisfactory. Corn cockle (*Agrostemma githago*), which is abundant in wheat swards, and agave (*Agave lecheguilla*), which is very plentiful in Texas and Florida, were tried on account of their saponin content, and met with moderate success, as was also the case with larkspur (*Delphinium*) and stramonium. "Blackleaf 40," a strong extract of tobacco, ox-eye daisy, and pyrethrum were ineffectual. The Commission, however, appears to think that the desired success was attained as a result of the experiments made with hellebore. The varieties used were the white (*Veratrum album*) and the green (*V. viride*), the former being an importation from the neighbourhood of the Pyrenees, and the latter being indigenous to swampy lands in America. Both are used as insecticides against root pests. An average of twelve experiments showed a larvicidal action of 95.5 per cent.; no ill effects were produced on plants or on chickens scratching and picking amongst manure so treated, and the substance was found to be completely decomposed within thirty days. It must be powdered, mixed with water ($\frac{1}{2}$ lb. to 10 gallons), thoroughly stirred, and then allowed to stand for several hours before applying it with a watering-can to the manure on removal from the stable. This proportion is sufficient for 8 bushels, a liberal estimate of the manure yielded daily by a horse being 2 bushels. It is stated that the comparative cost works out at 5 or 6 cents per lb. for borax, and at 11 cents per lb. for hellebore (powdered roots). Such a favourable comparison, however, could scarcely be expected to obtain in this country, the white variety of root being listed at 11d. a lb. for 28 lb. lots, to which must be added the cost of grinding, whilst there is practically no difference in the cost of borax. There would probably also be considerable difficulty as regards supply, so that hellebore does not seem likely to come into use over here. It is recommended that borax should be universally used for "the treatment of outhouses, public dumps, refuse piles of all kinds, cracks and crevices, floors of stables, and any accumulation of organic material which offers a favourable place for the deposition of eggs," but that, in view of careless handling, it "seems best" to use hellebore for treating manure. The report contains two excellent photographs, showing the economy of larvicidal treatment in reference to bulk, an untreated pile being absolutely collapsed and disintegrated, through maggot infestation, and a treated one being quite unaffected in this respect.

The Commission is to be congratulated on the excellent work so far accomplished; the results attained clearly show the value of true scientific research into the means available for solving the problem of how to deal successfully with the fly pest. Whatever the ultimate agent may prove to be, larvicidal treatment has now been shown to be both sound and practical.

MEDICAL DEFENCE UNION.

The annual general meeting of the Medical Defence Union was held at the County Hospital, Bedford, by the kind permission of the Board of Management, on September 16th, at 4.15 p.m.

The chair was taken by Sir JOHN TWEEDY, LL.D., F.R.C.S., the President, and he was supported by members of the Council and members drawn from the town and county. The attendance was fair, considering the numerous professional engagements with which medical practitioners are overburdened in consequence of the war and the absence of so many on active military service. The minutes of the last annual meeting were read, approved, and signed. The usual statutory resolutions were passed *nemine contradicente*, and Sir John Tweedy, Dr. Rigden, and Dr. Gunton Alderton, who retired under Article 23, but who offered themselves for re-election, were re-elected, no other nominations being made.

The report of the Council was approved, and a vote of thanks to the President and Council was passed unanimously. The value of the work of the Council is again fully proved by the report just issued, and it is satisfactory to find that due and important progress has been made. The war has increased the duties devolving upon the Council, as numerous matters arising out of it have required to be dealt with. The adjustment of partnership disputes has again been a feature in the work of the Union, and several arbitrations have been conducted. The Union does not litigate in actions between medical practitioners apart from exceptional circumstances, the work of medical defence being sufficiently onerous in respect of protection from the public.

The report of the Solicitor is interesting and should be read by every registered practitioner, who will then realize the perils and dangers of medical practice which should be guarded against. The total number of cases placed by the Union in the hands of Mr. Hempson during 1914 was 110, and of these 36 were directed to the support of members in actions for libel and slander, either defended or instituted on their behalf under circumstances affecting their professional honour and reputation. Twenty-two concerned actions in which questions of malpractice were raised; 5 related to the prosecution of unqualified practitioners and the suppression of unqualified practice, and 47 referred to matters falling within the heading of personal and miscellaneous. Of these 47 cases, 21 referred to matters arising out of the National Insurance Acts, in which legal intervention was necessitated; 9 to the support given to members in connexion with appointments which they held and where their interests were imperilled; 12 to the adjustment of partnership dispute, and 5 were cases arising out of inquests, etc. Mr. Hempson gives excellent tabular statements in his report showing the number of cases placed in his hands since his appointment and the actual legal costs involved. It is interesting to note that the legal expenditure for fifteen years, during which he has held an official position as solicitor, amounted to nearly £16,000, the average cost per case being £174.

We congratulate Sir John Tweedy, the President, and the Council of the Medical Defence Union upon the valuable work which they have accomplished and for the excellence of the results obtained. Without the assistance of societies such as the Union many members of the profession would have been very hardly hit in the past; and it behoves every registered practitioner to reap the advantages of a skilled and efficient organization which will protect him in matters affecting his professional life. The fact that Sir John Tweedy is the President is a testimony in itself to the high status and reputation of the Medical Defence Union, and the support which a man of his position in the profession affords it is a proof of its worth and excellence.

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THE REPORT OF THE DRUG TARIFF COMMITTEE.

AN outline of the long-expected report of the Departmental Committee on the Drug Tariff is published in the SUPPLEMENT for this week; its recommendations were published in full in the SUPPLEMENT for last week, p. 131. The Committee consisted of Sir Rowland Bailey, Chairman; Dr. John Adams, Member of the Council, and Dr. Alfred Cox, Medical Secretary, British Medical Association; Mr. James P. Gilmour, Member, and Mr. W. J. Uglow Woolcock, Secretary, Pharmaceutical Society of Great Britain; Dr. J. F. Tocher, Aberdeen; Mr. R. V. Vernon of the Treasury; and Mr. S. P. Vivian, Assistant Secretary of the Insurance Commission, England. Broadly speaking, its report is a complete justification of the attitude which the British Medical Association has taken up on behalf of the profession in respect of the drug tariff. After reading the memorandum of evidence put in by the witnesses for the British Medical Association and the conclusions of the Committee, one is bound to infer that the evidence of the Association has had a very marked effect on the mind of the Committee. The Association pointed out that the present tariff was so complex and so full of anomalies and inconsistencies, that it seemed quite impossible to deduce any definite principles on which it might be supposed to have been based. Even the ostensible guiding principles set forth in the preface to the tariff were so freely departed from on every page that they proved unworthy of the name of basic principles. This charge against the tariff is fully borne out by the Committee, which admits that "the effect of the system may almost be said to show a different rate of charge on every particular quantity of every particular drug. It has rendered the tariff incapable of proper adaptation to meet the needs of changing circumstances. Assuming that the ultimate yield of the tariff, when originally constructed, was fair, the fact remains that the yield, being the net resultant on balance of a large number of varying circumstances, could only continue to be fair so long as the circumstances were unchanged. The original balance, being based not upon any constant law but solely upon the circumstances of prescribing by practitioners at some particular time, would be destroyed as soon as those circumstances altered. This, we believe, has, in fact, happened; and we are satisfied that the habits of practitioners in prescribing have been modified and are likely still to be modified to such an extent as to render inaccurate any calculations based upon the nature of those habits at any given time." The Association also pointed out that the system was so chaotic that on a single prescription it was possible that the chemist might gain a profit at seven points: (1) The discount he got from the wholesale chemist. (2) The percentage profit on the primary price in the tariff. (3) The additional percentage profit on smaller quantities than the ounce. (4) The profit obtained by levelling up fractions to the next halfpenny. (5) Profit derived from the fact that one halfpenny was the minimum charge per ingredient. (6) Dispensing fee. (7) Emulsifying fee.

The Association's plea was not so much that the profit gained by the chemist was exorbitant as that the system was too complex and illogical for the real state of affairs to be revealed except by an elaborate actuarial calculation. It was pointed out that the medical profession was asked to economize so as to keep the drug bills down to a reasonable level, but that owing to the anomalies of the tariff a practitioner who was an economical prescriber in his own surgery might appear to be very extravagant with his insurance patients on the same prescriptions; that economy depended not only on the items ordered but on a detailed knowledge of a whole series of complicated and arbitrary details of the official tariff. The Association's plea for a sharp and clear demarcation between the cost price of drugs to the chemist and his reasonable and adequate trade profit and professional dispensing fee has been conceded in its entirety. The Committee proposes to sweep away the whole of these complexities and inconsistencies and to reduce the pricing of a prescription to two items:

(a) The bare cost of the drugs calculated to two places of decimals of a penny. The Association had asked for the substitution of the nearest single place of decimals instead of a gradation to the nearest halfpenny.

(b) The dispensing fee, which is calculated on the time and skill required in dispensing the various types of prescriptions, plus a fixed allowance per prescription of 0.8d. for establishment charges.

The establishment charges must cover the rent, rates, taxes, non-professional assistance (professional assistance is paid for in the dispensing fee proper), lighting, heating, corks, labels, wastage, packing expenses, etc., as far as they are properly chargeable to the insurance dispensing part of the business. The Association witnesses took the line that they could not judge what percentage of trade profit the chemist might reasonably expect to make, not having the necessary data in their possession. The Committee, basing itself on the results of an investigation made by a firm of chartered accountants, has determined what it considers a proper establishment charge on the basis of the profits obtained for this class of work before the commencement of medical benefit. This investigation led to the figure of 0.8d. per prescription, which figure allows a very slight increase on the trade profit formerly obtained without taking into consideration the increased turnover. It is interesting to note that the three members of the Committee with pharmaceutical interests dissent from the amount allowed for the establishment charges, without, however, giving any indication as to what the figure should be. It is to be regretted that the members of the Committee should not have been united on this matter as on nearly all others, seeing that the point in question is one which could only be settled by an investigation such as that promoted by the Committee and carried out by Messrs. Peat, a firm of standing in business circles. In Appendix VII of the report is a table of calculations made by Messrs. Peat, showing how the chemists' remuneration would have been affected had the tariff charges now recommended by the Committee been in force since the inception of medical benefit. Examination shows that the total drug bills may be expected to be reduced by 78 per cent. if the habits of doctors as regards prescribing remain as they were in 1913-14.

The Committee's scale of dispensing fees seems to be more rational than the present scale. Those processes which take up a great deal of time are paid for generously, while others are reduced in price. The most important point of all is that every act of

dispensing is paid for, whereas on the present system pills, capsules, confections, lozenges, ointments, blisters, tablets, suppositories, etc., included in the list carry no dispensing fee. All drugs of any sort will, at any rate, carry a dispensing fee of 1d. exclusive of the establishment charge, while stock mixtures or other liquids stocked in bulk will carry 1d. Extemporaneously prepared mixtures and other liquid preparations will take a dispensing fee of 2d. independent of quantity. The extra dispensing fee for large bottles is thus abolished. On the whole it may be said that the chemist will exchange a somewhat high account which must be always delayed in payment and may never be paid in full, for a moderate bill which can be paid directly and which he is absolutely certain of receiving in full. He will also save an immense amount of difficult clerical labour in the pricing of his prescriptions, since this is to be done by the expert staff of the Insurance Committee. One further advantage gained by the chemist will be that he will no longer be financially interested in the method of prescribing, and therefore will no longer have the odium and trouble of initiating proceedings against practitioners under the obnoxious Regulation 40.

The whole report reflects great credit on the members of the Committee, who have successfully attacked a financial and administrative problem of great complexity, and have extracted order out of chaos, with an obvious desire to bring forth a settlement which shall be just and equitable to all parties concerned.

TREATMENT OF CEREBRO-SPINAL SYPHILIS BY MERCURIALIZED SERUM.

THE resistance of tabes, tabo-paralysis, and general paralysis to antisyphilitic treatment has long been the despair of the syphilologist and the neurologist. It is true that in cases which are not too far advanced some improvement occasionally occurs after intense mercurial treatment, but the great majority of cases are not amenable to antisyphilitic drugs when administered by any of the ordinary routes; indeed, some authorities have stated that these conditions are made worse by such treatment. Tabes, tabo-paralysis, and general paralysis were therefore regarded as parasymphilitic affections, and, although syphilitic in origin, beyond the scope of antisyphilitic treatment.

The discovery, by Noguchi and others, of the *Spirochaeta pallida*, in its typical form, in the brain of general paralytics and in the spinal cord of tabetics threw a new light on the pathology of these affections and gave cause for hope for further success in treatment. It appears that they must now be regarded as cases of true cerebro-spinal syphilis and not parasymphilitis. Mott introduced the term "parenchymatous syphilis" to distinguish them from cerebro-spinal syphilis of vascular origin. To explain the failure of mercury and arsenic to influence parenchymatous syphilis, when introduced by the usual routes, it has been suggested that the cells covering the choroid plexus exercise a selective action and do not allow these drugs to pass from the general circulation to the cerebro-spinal fluid. The method of direct intraspinal treatment introduced by Marinisco was founded on this hypothesis. Both a dilute solution of neo-salvarsan and serum taken from a patient after intravenous injection of salvarsan or neo-salvarsan have been used. The latter method is assumed to depend on the presence of antibodies in the serum, produced by the preliminary intravenous

injection of salvarsan, since the amount of original or altered salvarsan present in the quantity used for intraspinal injection must be infinitesimal. Owing to the irritation caused by direct injection of the arsenical preparations treatment by "salvarsanized serum" has obtained most support. Swift and Ellis of New York, in 1912, tried this method in cases of tabes, and in the following year Robertson of Edinburgh used it in general paralysis. Since then intracranial injections have been tried in general paralysis.

The results of treatment by salvarsanized serum in parenchymatous syphilis are doubtful, although temporary improvement has been reported by several observers. The question naturally arises whether better results could not be obtained from the use of intraspinal injections of mercurialized serum or some preparation of mercury. This question has recently been studied by C. M. Byrnes, of the Johns Hopkins University, who, after a year's unsatisfactory experience with salvarsanized serum, has devised a method of treatment by what he terms "mercurialized serum." In the preparation of his serum Byrnes employs aluminate of mercury, for the reason that this is the form in which mercury is supposed to exist in the blood after ordinary mercurial treatment. When an inorganic salt of mercury comes into contact with albumin coagulation occurs with the formation of albuminate of mercury. This is soluble in excess of albumin, so that the addition of more serum forms a clear solution. It was found that approximately 0.02 gram of mercuric chloride solution added to 2 c.cm. of serum caused complete precipitation, and that 4 c.cm. of serum was required to dissolve the precipitate. Thus 6 c.cm. of serum will hold 0.02 ($\frac{1}{50}$ grain) of mercuric chloride converted to albuminate in solution, a larger quantity than is required for therapeutic purposes. After experimenting with very small doses, Byrnes found that 0.0013 gram ($\frac{1}{500}$ grain) or even 0.0026 gram ($\frac{1}{250}$ grain) could be given safely. The technique is as follows: (1) Sufficient blood is withdrawn to yield from 12 to 30 c.cm. of serum; this is centrifuged and the serum removed; (2) 1 c.cm. of a solution of mercuric chloride in distilled water, made to contain 0.0013 gram to 1 c.cm., is added to 12 c.cm. of serum; (3) to the serum thus prepared is added salt solution up to 30 c.cm., if diluted serum is to be used; if a concentrated solution is required this is omitted; (4) the mercurialized serum is heated to 56° C. for half an hour; (5) lumbar puncture is performed with the patient in bed; pressure readings are taken and the spinal fluid withdrawn till the pressure falls to 30 mm. The serum is then administered by gravity at body temperature, and the foot of the bed raised.

Byrnes has used this method in 32 cases, comprising 13 of tabes, 14 of general paralysis, 2 of tabo-paralysis, and 3 of cerebro-spinal syphilitic meningitis. In tabes there was improvement in the gait and also in the gastric and bladder symptoms. Some cases of general paralysis were also improved, and in one case of tabo-paralysis the grandiose ideas are said to have disappeared, and the mental state of the patient to have become apparently normal. Favourable results were obtained in the cases of meningitis. The diminution in cell elements of the cerebro-spinal fluid was more rapid than after treatment by salvarsanized serum.

It will be noted that Byrnes's method by "mercurialized serum" differs from that by "salvarsanized serum" in that it consists of direct treatment by means of a preparation of mercury dissolved in serum, instead of indirect treatment by serum containing

hypothetical antibodies. In this respect it would appear to be the more rational form of treatment, for the quantity of mercury present in serum withdrawn from a patient after intense mercurial treatment has been found to be quite insignificant, and the amount of antibodies present in such serum must be problematical. It also has the advantage of being a simpler procedure, since it avoids the preliminary intravenous injection required for salvarsanized serum.

The introduction of mercury into the subdural space had been previously tried by Ravaut, who used the perchloride and the cyanide in two cases, but the results were disappointing. This led Byrnes to seek for a non-irritating preparation similar to that in which mercury circulates in the blood (albuminate). In the usual doses this form of mercury was found to be quite as powerful as the inorganic preparations, and it has since been used for intravenous injection in ordinary cases of syphilis by L. Thompson, who regards it as a useful method when rapid results are required. The initial dose given in his cases corresponded to $\frac{1}{15}$ grain of mercuric chloride, and this was increased to $\frac{1}{3}$ grain. Further results of this form of mercurial treatment will be awaited with interest.

THE MEDICAL WAR EMERGENCY ABROAD AND AT HOME.

The account which a correspondent gives at p. 473 of the work of a civil practitioner in France to-day will be read with interest, and may give rise to some salutary reflections. The area to which it refers is far removed from the actual fighting line, but we get a vivid impression of the working of universal military service as it affects the medical profession. Upon the man who stays at home—the elder man—fall heavy duties: He must help in the treatment of the wounded in an auxiliary hospital; he must attend to another medical man's widely scattered practice, and must undertake official obligations as to vaccination, and so on, throughout a big district. All this work has somehow to be crowded into the week, and the substitute has to cover long distances on a motor cycle over roads with bad surfaces and difficult gradients. The cheerful spirit of the writer is admirable, and that he has rather understated his tribulations we know from several private letters received during last winter and spring, when the hard work, and the broken weather, and the consequent exceeding badness of the mountain roads, occasionally drew from him a complaint of his hard lot. With such an example before us it would not seem that too much is being asked of the medical profession in this country. Though many practitioners may have been hardly worked, there has not been any evidence of a really serious shortage in the attendance on the civilian population. In view of the disconcert from the medical point of view which civilians in France appear to be putting up with, it can hardly be too much to ask the British public to endure cheerfully the slighter inconveniences they are likely to suffer, so that medical practitioners in this country who are of military age may hold themselves prepared to take service if called upon to do so. The reflections which a study of the facts with regard to France may arouse will be strengthened in their application to this country by a perusal of the stirring address given by Colonel Littlewood of Leeds at a meeting held recently at Wakefield, and reported in the SUPPLEMENT for this week. Colonel Littlewood will be known to most of our readers as the distinguished civil surgeon who, a couple of years ago, retired from the staff of the Leeds General Infirmary. He remained *à la suite* of the 2nd Northern General Hospital, and, owing to the illness of Colonel Dobson, he is now administrator of that hospital. Colonel Littlewood does not mince his words. He sets out in most uncompromising terms the nature of this great

emergency, and what he conceives to be the duty of the medical profession. We doubt not that his winged words will have great influence in the North of England, where he is so well known. Their influence will be reinforced by the results of the meeting at Leeds on September 16th, which was addressed by Sir Clifford Allbutt, a member of the War Emergency Committee which meets at the house of the British Medical Association in London. He told the meeting that the district should furnish twenty-six more men for the army, and though no definite decision was made there and then, and was not, indeed, to be expected, the meeting unanimously resolved that a list should be drawn up of men retired or partly retired, or senior partners, who would be prepared to take charge of practices, or help in conducting practices during the absence of men on service. Sir Clifford Allbutt deprecated anything like a disposition on the part of senior men to stand on their dignity as to what kind of practice they would undertake. Thereafter a committee was formed consisting of representatives from each several district of the Division to advise with doctors offering themselves for service, and to arrange for a written guarantee that their practices would be carried on for them, and restored to them intact at the end of the war. This also was carried unanimously. A discussion followed on the question of the keeping of records under the Insurance Act, and on a division it appeared that the opinion of the majority of the meeting was that, though the keeping of these records was tiresome, it was not in fact a serious difficulty. The scheme of enrolment and the form of agreement between the practitioner going on service and his local colleagues (SUPPLEMENT, September 18th, p. 130) proposed by the War Emergency Committee seem to have met with general acceptance among the medical profession, and every fit man of suitable age should sign the form issued by that Committee.

THE PRACTICES OF MEN WHO DIE ON SERVICE.

At a meeting of the Executive Subcommittee of the War Emergency Committee, held at the offices of the British Medical Association on September 20th, it received information as to a plan evolved in Nottingham for safeguarding the interests of the families of local practitioners who may lose their lives while serving the country as military medical officers. In the Nottingham area, counting those who have already gone and the quota which that area has just been asked to furnish, there will soon be a considerable number of medical men on active service; and the secretary of the Nottingham Committee, Mr. A. M. Webber, F.R.C.S., who has himself applied for a commission, urged on his Committee the desirability of some special arrangement being made in the event of a medical man dying on service. Mr. Webber expressed the opinion, which was shared by the Committee, that all the men who had gone would be more easy in their minds if they knew that some definite plan was in force for looking after the interests of their families in the event of their decease. The plan which commended itself to the Nottingham Committee was that the local War Emergency Committee should appoint a small subcommittee, consisting of a few men of high standing in the local profession, who should undertake to act as professional advisers to and collaborators with the legal executor of any man who died on service. In such an event their duty would be either to sell the practice on the best terms available to the men who were already doing the work, or to see that the practice was carried on until some period after the war when practices again become easily saleable. The responsibility would undoubtedly be very great, but the Nottingham medical men felt that anything that could be done to relieve the minds of those of their number who had gone, or were going, on active service should be done, and small committees were accordingly appointed for both the city and the county. The plan was strongly approved

by the Executive Subcommittee in London, and is one which seems well worthy of consideration by every local War Emergency Committee, with a view to its extension to every area in the country.

TREATMENT OF TYPHUS WITH TYPHOID VACCINE.

In the *Wiener medizinische Wochenschrift* for June 5th Dr. W. Mollow, senior physician to the Alexander Hospital in Sofia, has given an account of his experience of typhus and typhoid fever, and of the results of vaccination with Besredka's sensitized typhoid vaccine in both diseases. Early in 1915, many Bulgarian Macedonians, who had served in the Serbian army, and had been taken prisoners by the Austrians, were sent back to Bulgaria. Among these 140 cases of typhus occurred, but it did not, however, break out as a rule before the patients had reached Bulgaria. The first batch of patients admitted to hospital were chiefly suffering from typhoid fever, some were also suffering from relapsing fever, and only a few from typhus. But towards the end of January there were no new cases of typhoid fever, whereas there was an increase in the incidence of typhus. Several cases at first diagnosed and treated as typhoid fever ultimately turned out to be typhus. In the meantime these cases had been treated with Besredka's sensitized typhoid vaccine, with strikingly beneficial results. This observation led to the prescription of typhoid vaccine in cases of typhus, recognized as such from the outset, and again the results were very good. Dr. Mollow gives details of several cases illustrated by temperature charts, which show how intravenous injections of the vaccine caused a fall of temperature by crisis or lysis. The improvement in the general condition following these injections was also striking, but it was not clear why a typhoid vaccine should be so potent in cases of typhus in which the agglutination test for typhoid fever was negative. Though there may at present be no rational explanation for this phenomenon, Dr. Mollow points out that it is not unique, and that diphtheria antitoxin has been found to have a beneficial effect on erysipelas, and a sensitized *coli* vaccine has strikingly benefited cases of typhoid fever and sepsis.

AN ANCIENT AUSTRALIAN.

WHEN the British Association met in Australia last year Professor J. T. Wilson, of the University of Sydney, was in a position to show to the members of the Anthropological Section a fossilized human skull found in the bed of a creek, Darling Downs, Queensland. The condition of fossilization was exactly the same as that of the remains of certain extinct marsupial animals found in the same locality—remains which belong to a deposit which geologists regard as having been laid down during the Pleistocene period. There seems to be no ground for doubting the genuine antiquity of the human skull thus brought to the notice of anthropologists; it is the skull of a youth who lived in Queensland when Enrope was passing through a period of glaciation. For the first time definite evidence of the existence of man in Australia during the Pleistocene period has been obtained. The manner in which the discovery was made is both interesting and instructive. It was found fully thirty years ago by a stockman; it ultimately found its way to Sydney, where it was discovered a very short time before the visit of the British Association. The anatomists and geologists of Australia, stimulated by the success which had attended the efforts of their colleagues in Europe, North America, South America, and South Africa, began a systematic search for human remains, with any claim to antiquity, in the private collections throughout the country, with the result that public sympathy was enlisted and a document of first-rate importance—the "Talgai skull" it has been named—has been rescued from oblivion. We learn from *Nature* (September 9th, 1915) that the Talgai skull has been

purchased by the Hon. Joynton Smith and presented by him to the museum of the University of Sydney. When shown to the members of the British Association, the skull was encased in a mass of matrix, which hid its chief features; only the palate and teeth could be clearly seen. The dentition was incomplete; the stage of eruption was that which we expect in a youth of 14 or 15 years of age. The palate and teeth, however, exceeded all modern dimensions. The canine teeth, although large, had none of the simian features which characterize the dentition attached to the skull found at Piltdown by Mr. Dawson; the teeth and palate appeared to represent such a form as we may expect to find in the more primitive type of Australian native. Professor Wilson being unable, on account of military duties, to undertake a systematic examination of the skull, handed it over to Dr. Arthur Smith (brother of Professor Elliot Smith), who at present is filling Professor Wilson's chair. Dr. Smith has succeeded in removing the matrix from the skull, and we may expect his full report at no distant date. In the meantime he claims for the Talgai skull an importance equal to that which anthropologists attach to the human remains found at Piltdown and Heidelberg. At the present time every one is necessarily more interested in problems connected with the present and future of our race than in those which pertain to our history in the distant past. Nevertheless, the discovery of the Talgai skull is worthy of note even at the present time, for it is more likely than any discovery yet made to throw light on the time and manner in which modern races of men became differentiated into their present forms and varieties.

SLEEPING SICKNESS AND WILD GAME.

An interesting experiment as regards the prevention of sleeping sickness is about to be carried out in Nyasaland. It is proposed to throw open a large area of territory for free shooting, and a thorough endeavour is to be made to clear this of tsetse flies by driving out or killing off the game. Natives are to be encouraged to hunt in every way. Several years ago a smaller area in the Ngara subdistrict was thrown open, but after a considerable period of time was closed again because the natives were not disposed to avail themselves of the privileges offered except in a very irregular way. The present area, however, is much larger, and the fact that the shooting is free is to be widely advertised. Time alone will show to what extent the game will be reduced by such measures. The result will be influenced considerably by the nature of the country and the number of people who take advantage of the privilege. It is to be hoped, however, that the experiment will succeed, and if it does the knowledge acquired will be of the greatest value for other places.

"A PUFF IN A PENCIL."

In reply to a paragraph under this heading which appeared in the *BRITISH MEDICAL JOURNAL* of August 28th (p. 335), we have received a letter from the firm on whose way of calling the attention of the medical profession to the virtues of a special brand of tea which they sell we felt it our duty to comment. The writer, after saying that it is not his purpose to enter a defence of the general publicity methods of his firm, goes on to state that "the instance under discussion has been, in effect, endorsed as acceptable by more than 33 per cent. of those to whom the offer of the pencil has been made, for in this proportion they have availed themselves of it to the extent of many thousands, and as there has followed a daily stream of acknowledgements, often very kindly expressed, I assume the recipients consider that, in this instance at any rate, they have not been 'led astray.'" We can almost fancy we hear the voice of Aetolycus declaring Trust to be "a very simple gentleman." We had no idea there was such widespread ignorance of the ways of the world among the

members of a profession which is in closer contact with the facts of life and human character than any other. The writer insists that "the essence of commerce is *service*," and this end he believes his firm attains through the pencil, which is merely a reminder "never . . . accompanied by any hint of obligation expressed or implied." It is obvious that the pencil or any other gift is a "reminder," and in that very fact lies the objection, from the professional point of view, to this form of advertising. The tradesman has his own code of commercial ethics, and as long as he does not use dishonest methods or make false statements he has a perfect right to proclaim his belief in the superior value of his wares. What we find fault with is the attempt by such concrete "reminders" to induce unsuspecting doctors to help the sale of those wares.

EXHIBITION OF FRACTURE APPARATUS.

The exhibition of various forms of apparatus that have been found useful in the treatment of fractures met with in the war will be opened at the Royal Society of Medicine, 1, Wimpole Street, by Sir Alfred Keogh, K.C.B., Director-General Army Medical Services, at 3 p.m. on Friday, October 8th. The principal exhibits will be brought from Boulogne by officers of the R.A.M.C. Surgeons in the various commands are invited to send exhibits, and those desiring to contribute should communicate with the consulting surgeon for their command. The exhibition will remain open until the evening of Monday, October 11th. On Sunday visitors will be admitted on presentation of their visiting cards. On other days the exhibition will be open from 10.30 a.m. to 5.30 p.m. On Friday, Saturday, and Monday, Colonel Sir Almoth Wright will give demonstrations of his most recent researches into the drainage of wounds.

THE CASUALTY RETURNS FOR THE FIRST YEAR.

The statistics of the total casualties, for the first year of the war, of the British forces engaged, given by Mr. Tennant in the House of Commons on September 14th, and those for the Dardanelles, which he gave on September 16th, enable a rough calculation to be made as to the proportion of those killed or who died of wounds to the wounded. The general proportion appears to be about 1 to 3½, but when the two areas of operations are considered separately, it would appear that the ratio was a little higher in the Dardanelles than for the force in France. The German losses in the war with France in 1870 showed a ratio of killed to wounded of 1 to 3.1; in the British forces in the Boer war the ratio was 1 to 3.9, and in the Russo-Japanese war it was 1 to 3.6 for the Japanese, and 1 to 5.5 for the Russians. There seems to be an impression that the ratio of officers to men killed in the Dardanelles is unusually high. The figures do not appear to bear this out. The ratio on the total figures is about 1 to 14, and on those for the Dardanelles about 1 to 15.

Medical Notes in Parliament.

The Budget.

The chief interest of the session so far has centred in the Budget introduced on September 21st, the third since the outbreak of war. Mr. McKenna said that in 1913-14, the last year of peace, the revenue and expenditure nearly balanced at about £198,000,000. On the existing basis of taxation the revenue might be put at £272,000,000, and the expenditure at £1,590,000,000; it was obvious that the deficit could not be met by taxation alone. The country had responded magnificently to the call to subscribe to the recent war loan, and on some future occasion it would be necessary to borrow again. The dead weight of the national debt at the close of the year might be estimated at £2,200,000,000; four and a half months ago, in his speech on the Budget he then introduced, Mr. Lloyd George had said that the triple task this country had

assumed in the war was—to keep the command of the sea, to maintain an army, and to assist our Allies by furnishing them with supplies and aiding them in financing their purchases in countries other than our own. The expenditure on all these heads had since then increased, and the country had now to contemplate a navy costing £190,000,000, an army costing £715,000,000, and external advances to the amount of £425,000,000. Taking the whole period until March 31st (1916) the best estimate which could be formed of the total daily rate of expenditure on all services from now onwards was upwards of £4,500,000, and in the later weeks of the financial year it might rise to more than £5,000,000.

After referring to the greater burden every new tax imposed upon the Board of Inland Revenue and on the Office of Customs and Excise, he said that the new taxes to be proposed were of such a nature that the departments would be able to give effect to them promptly and efficiently. The principal head of the new taxation was under income tax; he proposed to add 40 per cent. to the existing rates, but to give special relief to an income which had fallen more than 10 per cent. As the 40 per cent. rate of increase would be for a full year, in the remaining six months of the current year only 20 per cent. increase would become due. It was proposed to reduce the exemption limit from £160 to £130, and to reduce the abatement from £160 to £120. While the exemption limit would become £130, the abatement would be £120 where it was previously £160, and £100 where it was previously £150 or £120. Hitherto income tax for the full year had been payable in January, but in future, in the case of persons liable to direct assessment in respect of trade, profession, or husbandry, it would be payable in half-yearly instalments on January 1st and July 1st. This would be a postponement of payment, and not a device for getting tax paid at an earlier date. For employees of all descriptions both assessment and collection would be quarterly, but this change would not take full effect until next year. Relief was proposed from the additional income tax in the case of any individual proving that his actual income from all sources for the year was less by one-fifth than the income on which he had paid the tax. This was an endeavour to redress the hardship upon the individual who, this year, having a very small income, was nevertheless assessed on the average of the three preceding years, when he had a large income, and found that he was called upon to pay 3s. 6d. in the £ income tax in respect of income which he once enjoyed, but now no longer possessed. Where the income was less by one-fifth it was proposed that he should be relieved of the whole of the 40 per cent. increase, and where the deficiency did not amount to one-fifth, but was more than 10 per cent., repayment of a proportionate part of the additional duty would be allowed. The total effect of these changes in 1915-16 would be to increase the revenue by £11,274,000, and in a full effective year by £44,400,000. It was proposed also to revise the super-tax scale applicable to incomes in excess of £8,000. At present any excess over that amount was chargeable at the rate of 2s. 8d.; henceforth the charge would be 2s. 10d. between £8,000 and £9,000, 3s. 2d. between £9,000 and £10,000, and 3s. 6d. on the surplus of all incomes above £10,000. This would yield £2,150,000 this year, and £2,685,000 in a full effective year. Mr. McKenna then quoted some examples of the effect of the proposed changes. A man with no children earning £2 15s. a week would be directly assessed, and would pay 12s. 1d. quarterly; a man with no children earning £3 a week would pay 18s. 11d. quarterly; a man with no children earning £4 a week would pay £2 6s. 2d. quarterly. Any such man showing that he did not earn such a sum as to make him chargeable under that tax in a whole year would be entitled to repayment. At the other end of the scale a man with £5,000 a year would pay £1,029, which, combining super-tax and income tax, was a virtual rate of 4s. 1½d. A man with £10,000 a year would pay with income tax and super-tax £2,529, a virtual rate of 5s. 1d. in the £. A man with an income of over £10,000 would pay £2,529 on the first £10,000, and 7s. in the £ on all excess over £10,000. Thus a man with £20,000 a year would pay £5,029 in tax, a virtual rate of 6s. in the £, and a man with £100,000 a year would pay £34,029, a virtual rate of 6s. 10d. in the £.

The next source of additional revenue was the taxing of excess profits; the tax would be 50 per cent. without

deduction of income tax and just over 60 per cent. with such deduction.

The duty on sugar would be increased from 1s. 10d. a hundredweight to 9s. 4d., but contemporaneously the Royal Commission on Sugar Supply, which now supplies the whole of the sugar to the consumers of the country, would reduce its price to the refiners and dealers by amounts ranging from 2s. 6d. to 3s. a hundredweight. The effect of the double action would be to raise the cost of sugar about 5s. a hundredweight, or 1d. in the pound, in the case of granulated sugar. The price of lump sugar would rise a great deal, not on account of the tax, but on account of the shortage of supply. The duties on tea, tobacco, cocoa, coffee, chicory, and dried fruits would be increased by 50 per cent., and there would be an increase on motor spirits of 3d. a gallon, raising the existing rates of 3d. and 1½d. to 6d. and 4½d. Mr. McKenna said that he proposed to double the patent medicine duty, at present 1½d. in the shilling; he expected an addition to the revenue from this source in a full year of £250,000.

In view of the need to maintain our foreign exchanges and cut down expenditure on imported luxuries, he proposed to impose an *ad valorem* duty of 33½ per cent. on motor cars, motor cycles, and parts thereof, kineama films, clocks, watches, musical instruments, plate glass, and hats. The estimated total additional revenue for this year from these various sources was £11,500,000, and in a full year £25,070,000. Adding the estimated yield of the new inland revenue taxes, £77,085,000, the estimated total yield from new taxation was £102,155,000. In addition, changes in postal, telegraph, and telephone rates were estimated to yield an increase of revenue of £4,975,000. The postal changes had been recommended by the Retrenchment Committee, and all its recommendations had been adopted with the exception of that advising an addition of ½d. to the penny postal rate for inland letters. The halfpenny postage, including post cards, would be entirely abolished. The inland letter rate of 1d. would in future carry a letter not exceeding 1 oz.; under 2 oz. the stamp must be 2d., and 1½d. for every additional 2 oz. Sixpenny telegrams would be abolished; the new charge would be 9d. for twelve words, and 1½d. for each additional word. For inland parcels an addition of 1d. a parcel would be made. In respect to telephones, flat rates would be increased from £17 to £20 a year in London and from £10 to £12 in the provinces. The subscribers' penny call would not be changed, but the trunk service charges and those made in call offices would be increased. In addition, the rates for press telegrams would be largely increased.

A brief discussion ensued, during which certain free traders expressed disapproval of the import duties; the resolutions imposing the new duties and for altering the rates of income tax and increasing the postal and telegraph rates were agreed to before the House adjourned.

The following, extracted from the official statement issued on the evening of September 22nd, shows the rates on incomes of the amounts specified wholly earned, under the old tax 1915-16, the new tax 1915-16, and the proposed tax, 1916-17:

Incomes Wholly Earned,

	£200	£500	£1,000	£1,500	£2,000
Old 1915-16	3 0 0	26 5 0	75 0 0	131 5 0	200 0 0
New 1915-16	7 4 0	35 0 0	90 0 0	157 10 0	240 0 0
Proposed 1916-17	8 8 0	42 0 0	105 0 0	183 15 0	280 0 0

These figures do not take into account allowances in respect of life insurance premiums and children, which in many cases will substantially reduce the tax payable and the virtual rate.

Military Mental and Nervous Cases.—In reply to Mr. Anderson and other members the Under Secretary of State for War stated, on September 16th, that uncerifiable soldiers sent to buildings attached to county asylums were not in any way dealt with under the Lunacy Acts, but remained under the control of the Secretary of State for War. Each case was the subject of special consideration

by general physicians and neurologists, and was placed under the care of the most appropriate specialist in the appropriate institution. The continuation of the system in the future must depend upon the accommodation and the number of specialists available. In reply to Sir Henry Craik, he said that the medical profession was most anxious that none of the practices of inspection which otherwise applied to asylums should apply to these cases.

Naval and Military War Pensions Bill.—The discussion of this bill, adjourned in the House of Lords on July 23rd, was resumed on September 16th, when the bill was read a second time, the Government undertaking to introduce amendments providing for the reinstatement of representatives of the Soldiers' and Sailors' Families Association, for the inclusion on local committees of persons who have been engaged on similar work, and the appointment by the Statutory Committee of a special subcommittee comprising representatives of employers and labour to provide for the care of disabled officers and men.

Nursing of Insane Male Patients.—In reply to Mr. Peto, on September 16th, Mr. Bruce, Under Secretary for the Home Office, said that for many years women had been employed in some asylums in nursing male patients who were not dangerous or otherwise unfitted for female care, and, provided precautions were taken, the practice was approved by the Board of Control, which had found its results satisfactory. Since the outbreak of war, in consequence of the difficulty of obtaining suitable male substitutes to replace attendants who had joined the forces, there had been some extension of the practice, but in every case within proper limits and without any harmful results. Careful consideration had been given to the representations of the National Asylum Workers' Union, but the Secretary of State regretted that he was unable to comply with the request that he should ask asylum authorities to discontinue the practice.

Swine Fever.—Mr. Acland stated, on September 16th, in replying to Sir John Sparc and Sir Walter Essex, that the recommendations contained in the final report of the Departmental Committee on Swine Fever had in the main been adopted and brought into operation in respect to the revocation of certain restrictions on the movement locally of swine. The procedure to be adopted as to serum treatment in swine fever outbreaks would be published almost immediately, and would be operative from September 26th. Any further action must be based upon experience acquired.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE WEEK'S SUBSCRIPTIONS.

The subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund received during the week have been as follows:

S. Essex Division, B.M.A. (per Dr. J.E. Maxwell, Joint Hon. Sec.)—	£ s. d.	Dr. Lloyd	£ s. d.
Dr. Perkins	0 10 6	Dr. Stovinj	0 10 6
Dr. Floyd	1 1 0	Dr. Killard-Leavey ...	0 10 6
Dr. Walker	0 10 6	Mr. E. D. H. Carpenter	(sixth donation, total
Dr. Hinks	0 10 6	£5)	1 0 0
Dr. Watson and	0 10 0	South Australian Belgian	Doctors' Relief Fund
Wacher	0 5 0	(fourth donation, total	£27)
Dr. Prentis	0 5 0	Mr. Alfred Freer ...	0 5 0
Dr. Adams	0 10 6	Mr. E. Nash	1 1 0
Dr. Bruce Poole ...	0 10 6	Mr. G. H. Morgan ...	1 1 0
Dr. Forreth and Dr.	1 1 0	Messrs. Francis and Co.	1 1 0
Noruan	0 10 6	Mr. J. Fawcett	0 12 6

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C.

THE WAR.

OPERATIONS IN THE DARDANELLES.

THE DIFFICULTIES OF THE MEDICAL SERVICE.

Sir Ian Hamilton's New Dispatch.

EVERY ONE will have read the new dispatch of Sir Ian Hamilton describing the operations in the Dardanelles, but there are a few points to which it seems well to call attention here. His first dispatch left off at the point where, on May 5th, our troops had forced their way forward for some 5,000 yards from the landing places at the point of the peninsula. There followed three days of severe fighting, which resulted in a gain of 600 yards on the right of the British line, and 400 yards on the left and centre. The gain, though small, was important, and for the next two days the enemy made obstinate counter-attacks which were all repulsed, while in the northern zone the Australian and New Zealand Army Corps strengthened their grip. On May 11th, for the first time for eighteen days and nights, it was found possible to withdraw the 29th Division from the actual firing line and to replace it by the 29th Indian Infantry Brigade and by the 42nd Division, which had completed its disembarkation two days previously. "The withdrawal gave no respite from shells, but at least the men were, most nights, enabled to sleep." What this condition of affairs must have meant for the medical service can easily be imagined. The nature of the fighting inevitably involved heavy casualties, and as the total advance brought the front line less than 6,000 yards from the landing places at the point of the peninsula, there can have been few, if any, places where casualty clearing stations, to say nothing of field ambulances, could have been established in situations secure from long-range artillery.

On May 20th, at 5 p.m., the appearance of white flags and red crescents from the enemy's line was followed by an interview, half way between the trenches, between a Turkish staff officer, two medical officers, and a company commander of the enemy and Major-General H. B. Walker, commanding the Australian Division. The staff officer proposed a suspension of arms for the removal of dead and wounded. As the officer had no written credentials he was informed that neither he nor the General Officer Commanding Australian Division had power to arrange a suspension of arms, but that at 8 p.m. an opportunity would be given of exchanging letters on the subject; meanwhile hostilities would recommence after ten minutes' grace. At this time some stretcher parties on both sides were collecting wounded, and in front of other sections men with white flags came out to collect wounded. It was observed that the Turkish trenches opposite ours were packed with men standing shoulder to shoulder two deep, and that columns were on the march in the valley up which the Turks were accustomed to bring their reinforcements. Towards evening the enemy's concentration continued, and everything pointed to their intention of making use of the last of the daylight to get their troops into position without being shelled by our artillery.

"A message was therefore sent across to say that no clearing of dead or wounded could be allowed during the night, and that any negotiations for such a purpose should be opened through the proper channel and initiated before noon on the following day. Stretcher and other parties fell back, and immediately fire broke out. In front of our right section masses of men advanced behind lines of unarmed men holding up their hands. Firing became general all along the line, accompanied by a heavy bombardment of the whole position, so that evidently this attack must have been prearranged. Musketry and machine-gun fire continued without interruption till after dark, and from then up to about 4 a.m. next day."

At about 4.30 a.m. on May 21st musketry fire had died down to normal dimensions, and as the Turks seemed anxious to bury their dead, and human sentiment and medical science were both of one accord in favour of such a course, a suspension of arms was arranged from 7.30 a.m. to 4.30 p.m. on May 24th, and the procedure laid down was correctly observed on both sides. After that the fighting continued from day to day. On June 4th the gallant

Manchester Brigade of the 42nd Division suffered very heavily, and in the evening that division had to be extricated with loss from the second line of Turkish trenches.

"From the date of this battle," says Sir Ian Hamilton, "to the end of the month of June, the incessant attacks and counter-attacks, which have so grievously swelled our lists of casualties have been caused by the determination of the Turks to regain ground they had lost, a determination clashing against our firm resolve to continue to increase our holding." On June 28th the Border Regiment rushed a small redoubt known as the Boomerang, and the 87th Brigade captured three lines of Turkish trenches. The 4th and 7th Royal Scots captured the two Turkish trenches allotted to them, but further to the east, near the pivotal point, the remainder of the 156th Brigade was unable to get on. Later the 86th Brigade, dashing over the trenches captured by the 87th, pushed on with great steadiness and took two lines of trenches, while the Indian Brigade managed to secure, and place into a state of defence, a spur running from the west of the farthest captured Turkish trench to the sea. "Our casualties," the dispatch says, "were small—1,750 in all."

In a general summing up Sir Ian Hamilton says:

"During the whole period under review the efforts and expedients whereby a great army has had its wants supplied upon a wilderness have, I believe, been breaking world records.

"The country is broken, mountainous, arid, and void of supplies; the water found in the areas occupied by our forces is quite inadequate for their needs; the only practicable beaches are small, cramped breaks in impracticable lines of cliffs; with the wind in certain quarters no sort of landing is possible; the wastage, by bombardment and wreckage, of fighters and small craft, has led to crisis after crisis in our carrying capacity, whilst over every single beach plays fitfully throughout each day a devastating shell fire at medium ranges.

"Upon such a situation appeared quite suddenly the enemy submarines. On May 22nd all transports had to be dispatched to Mudros for safety. Thenceforth men, stores, guns, horses, etc., had to be brought from Mudros—a distance of forty miles—in fleet sweepers and other small and shallow craft less vulnerable to submarine attack. Every danger and every difficulty was doubled."

Sir Ian Hamilton records his "admiration for the cool courage and unflinching efficiency with which the Royal Navy, the beach personnel, the engineers, and the administrative services have carried out these arduous duties." The casualties, he says, among the Royal Engineers engaged in the working of the telegraphs, telephones, and repair of lines, have been unusually high, and as an instance he mentions that the central telegraph office at Cape Helles (a dug-out) was recently struck by a high explosive shell; the officer on duty and twelve other ranks were killed or wounded and the office entirely demolished. The best photograph we have seen of a dug-out, showing what can be done with it, is that produced this week to illustrate a paper by Captain John Morley of Manchester, which shows such a place in use as an operating theatre.

It is quite evident that during the time covered by Sir Ian Hamilton's dispatch the Army Medical Service had to carry out its duties under very serious disadvantages; not only was the number of wounded large in relation to the confined area, but it must have always been very difficult, and sometimes practically impossible, to find any place where the wounded could be safely treated on shore. On these difficulties Sir Ian Hamilton makes the following comment:

"The Royal Army Medical Service have had to face unusual and very trying conditions. There are no roads, and the wounded who are unable to walk must be carried from the firing line to the shore. They and their attendants may be shelled on their way to the beaches, at the beaches, on the jetties, and again, though I believe by inadvertence, on their way out in lighters to the hospital ships. Under shell fire it is not as easy as some of the critically disposed seem to imagine to keep all arrangements in apple-pie order. Here I can only express my own opinion that efficiency, method, and even a certain quiet heroism have characterized the evacuations of the many thousands of our wounded."

His praise will be read with keen satisfaction by the profession at home, more especially as it knows that

many of the medical officers employed on these dangerous duties a year ago or less engaged in civil practice.

That the difficulties encountered by the medical service at previous landings recurred during the landing at Suvla Bay is clear from the correspondence from Mr. E. Ashmead-Bartlett, published fully in the *Daily Telegraph* of September 20th. He mentions the difficulty of water, of which the medical service, it may be observed, requires more than others, not only for the wounded to drink, but also for the proper treatment of wounds. Immediately after the troops had landed, the infantry ammunition and water had to be taken ashore, but the enemy's shrapnel was bursting on all sides; he frequently sent an 8 in. high-explosive shell close to the beaches, scattering rocks and earth and fragments of steel in all directions. "Streams of wounded arrive from the firing line, those who are able to walk hobbling down to the beaches, and others being carried on stretchers." The day was as hot as a furnace, but in the cool of the evening thousands were searching for a drop of water, thousands of wounded were wending their weary, suffering way to the beaches, waiting their turn to be conveyed to the hospital ships outside the bay. The picket boats, he says, at every beach in Gallipoli, and at all the islands, form the ultimate means of communication between the sea and the shore. "The lot of their crews is not to be envied, for they work under continuous shell fire. At Anzac, Helles, and Suvla Bay the enemy constantly shells the landing-stages, and day and night these picket boats are exposed to shrapnel and common shell. But the work never stops. There is a still more arduous time coming for the destroyers, trawlers, and picket boats this autumn and winter, when the gales come rolling up from the south-west, but I fancy that these hardy sailors from the North Sea and our seamen in the destroyers will take a ship through any sea, provided they can lay her up alongside of something in order to discharge her cargo."

The following table, constructed from the replies given by Mr. Tennant in the House of Commons at various dates, shows the total number of casualties, and from it can be calculated the rate of increase in the number of wounded to be treated:

Casualties in the Dardanelles.

	Up to May 31.		Up to June 30.		Up to July 18.		Up to Aug. 21.	
	Off'rs	Men.	Off'rs	Men.	Off'rs	Men.	Off'rs	Men.
Killed ...	496	6,927	541	7,543	562	7,537	1,130	16,478
Wounded ...	1,134	23,542	1,257	25,557	1,375	28,508	2,371	59,257
Missing ...	92	6,445	135	7,901	154	8,486	373	8,021
	1,722	36,914	1,933	40,501	2,091	44,531	3,874	83,756
	38,536		42,434		46,622		87,530	

It will be seen that the number of wounded down to May 31st was 24,676, that it was increased by 2,138 during the month of June, by 3,069 during the first eighteen days of July, and by 31,745 between that date and August 21st.

The position in respect to the difficulty in establishing casualty clearing stations does not appear to have changed materially since we published a note on the subject on August 14th. The wounded are got on board the hospital ships as quickly as possible by means of tugs and picket boats, supplemented, no doubt, by this time by the barges and motor boats provided by Mr. John Masfield through the British Red Cross. These hospital ships may be described as additional casualty clearing stations, and also as first line hospitals for the force ashore, the base hospitals being at Mudros on the Island of Lemnos, at Alexandria, at Malta, where the number of beds now available is very large, or even at home. The Joint Committee of the British Red Cross and the Order of St. John, in addition to its work on the peninsula and at Lemnos, is providing comforts of various kinds for the hospitals in Malta and also to hospital ships. Among other such enterprises it is arranging to set up a plant for making soda-water in connexion with one of the hospitals at Malta for the supply of all the institutions there.

THE PROPORTION OF RECOVERIES AMONG THE WOUNDED.

[From an Occasional Correspondent in France.]

It is not easy at the present time to obtain figures showing the proportion of the wounded in the French armies as a whole who recover sufficiently to return to the front, such as those published recently in the *BRITISH MEDICAL JOURNAL* (September 11th, p. 414) for the German and British armies, but it may not be without interest to place on record the statistics of a particular region kindly communicated to me by Dr. Baradat, chief medical officer to the Privas area. Privas is the chief town of the Department of the Ardèche, which borders the Rhone below Lyons on the western side. The graphic tables devised by Dr. Baradat to show the incidence of varying proportions of invalids are extremely ingenious and clear. In the early stages of the war, when the wounded began to crowd into the distant hospital centres, the general feeling was that the gallant fellows had discharged their duty to their country and were entitled to be nursed and then coddled, with the result that their sojourn in hospital was apt to be unduly prolonged. At that time, too, the proportion of soldiers accorded protracted terms of convalescence was extremely high. This soon attracted the attention of the military authorities, who recognized the necessity of instituting some form of control over individual hospital centres. When Dr. Baradat appeared on the scene at Privas he began by compiling tables showing the average period of hospital treatment in each "formation" in his district, and, having done so, he could see at a glance which formations called for inspection. It was in December that this tendency to stagnation in hospital reached its height, and at that time the average proportion of the wounded returned to their depôts as fit for further service was only 22.4 per cent. (94 out of 419). Under the influence of frequent inspection during the January-February period the proportion of men returned as "fit" rose to 64 per cent., and in the February-April period to 85 per cent. (852 out of 993), with a corresponding reduction in the proportion of convalescents and of men discharged from the army as unfit.

Speaking from my own experience in various voluntary hospitals, I am enabled to state that the instructions were in no way harsh, but merely tended to prevent stagnation in the hospital services. In almost every instance in which I thought it proper to append a note recommending that the man should be sent home for prolonged convalescence or discharged, the suggestion was accepted, and it is hardly necessary to add that we civil surgeons always erred, if at all, on the side of indulgence. It follows that the men returned by us as "fit" were really in a good state of health, possibly not in all cases such as to warrant their return to the fighting line, but at any rate enabling them to be of service in the auxiliary services.

GERMAN EXPERIENCE OF MEDICAL COMPLI-CATIONS IN MODERN WARFARE.

Die Deutsche medizinische Wochenschrift published on April 8th a series of brief notes on the most common medical casualties of the present war, and on the methods of treatment advocated as most suitable by well-known authorities in Germany. According to Dr. Moritz of Cologne, the most common pulmonary diseases among soldiers were pneumonia, pleurisy, and tuberculosis. For pneumonia he recommended optochin (ethylhydrocuprein hydrochloride) in doses of 0.2 gram, given six to eight times a day. This treatment sometimes caused auditory disturbances and amaurosis. For pleurisy artificial pneumothorax sometimes afforded relief, and for tuberculosis open-air treatment was to be recommended. According to Dr. FINDER of Berlin, relapsing catarrh of the nose and throat were very common owing to the insanitary conditions to which the soldiers were exposed. Diseases of the accessory

¹ A derivative of cupreine, an alkaloid which occurs in cuprea bark along with quinine, to which it is allied. Sir Almonro Wright has shown that the compound acts powerfully on pneumococci *in vitro*, cured mice infected with the disease, and rendered human blood bactericidal. In man the results were negative, probably because in man pneumonia is attended by coagulation of lymph in the air spaces, whereas in mice the infection takes the form of a septicaemia (see Martinale and Westcott's *Extra Pharmacopœia*, where references are given).

sinuses played an important part, and were most frequently due to influenza and coryza.

According to Dr. A. Schmidt of Halle, great mental strain was often responsible for severe gastro-intestinal disturbances, the most common of which were atony, subacidity, motor insufficiency, and acute intestinal catarrh. Vegetables rich in cellulose, whole potatoes and coarse bread should be avoided; and papaverin, atropin, and charcoal should be prescribed. According to Dr. Richter of Berlin, wounds and excitement were apt to provoke or increase diabetes; and early in the war it was noticed that progress of the disease occurred in almost every case of diabetes. In the case of nervous glycosuria, antineurasthenic treatment, not a rigorous diabetic diet, was indicated. True traumatic diabetes was seldom observed, but traumatic gout was exceedingly common. Chills, nervous excitement and exhaustion, and tiring marches frequently provoked acute attacks of gout, the subjects of which were no longer fit for service. Exophthalmic goitre was also found to develop as a sequel to great mental strain. Chills and infections were largely responsible for acute nephritis, which was also often a sequel to sore throats. In this connexion the amount of albumin in the urine was of no certain value as a guide to the progress of the case.

Dr. Weintraud of Wiesbaden considered that acute articular rheumatism and the allied diseases of the joints were not common, and that septic infections and sore throats ran an exceptionally mild course. According to Dr. Brugsch of Berlin, the demands of modern warfare constituted an unexpectedly severe strain on the vascular and nervous systems, and provoked mental instability and insufficiency of the whole vasomotor system, with a fall of blood pressure and dilatation of the heart. Recovery was exceedingly slow.

TYPHOID INOCULATION IN THE GERMAN ARMY.

In the *Deutsche medizinische Wochenschrift* for July 8th a correspondent has given the following account of inoculation against typhoid fever and cholera in Flanders. Only in a few cases did any severe local or general reaction follow typhoid inoculation, and then only as a sequel to the second injection. The reactions culminated on the day of the injection, and had disappeared three days later, except for slight tenderness at the site of injection. Among more than 40,000 persons thus treated only a few were incapacitated from work. In about 25 cases the inoculation was followed by diarrhoea, which did not last long. Persons subject to bronchitis and pulmonary tuberculosis suffered more than others from the reaction, which was accompanied by increased expectoration. Since the introduction of typhoid inoculation in Flanders the disease had disappeared, but the epidemic had already begun to die out before wholesale inoculation was introduced. The exact value of this measure could not, therefore, be gauged. It was found that the inoculated had no reason to dread the "negative phase," and in spite of the insanitary conditions and abundant opportunities of infection, there were no extensive outbreaks of typhoid among the inoculated. There were, however, several cases of diarrhoea, fever, and enlargement of the spleen among the inoculated. The symptoms were clinically indistinguishable from those of typical typhoid fever, but in most of these cases bacteriological examination revealed the paratyphoid B bacillus. The reaction to inoculation for cholera was, as a rule, less severe, but in many cases the local and general reaction was accompanied by diarrhoea. The correspondent concludes by asserting that in other respects the health of the German troops in Flanders was as good as ever.

Dr. B. Johan, of the Pathological Institute of Budapest, reported in the same issue of the same journal that, in conjunction with Dr. M. K. John, he had prepared and tested a typhoid vaccine which, he claimed, caused a less severe reaction than the Pfeiffer-Kolle vaccine. Though this was the vaccine most commonly used it often provoked a most severe reaction—rigors, a temperature of more than 104° F., vomiting, diarrhoea, and headache, all developed within a few hours of the injection. As these symptoms appeared so early, Dr. Johan attributed them to soluble poisons in the vaccine and not to poisons still contained in the dead bacteria. He assumed that the

soluble poisons must either have been thrown off by the bacteria during their growth (exotoxins), or had been set free from the bacteria during the preparation of the vaccine (endotoxins). He argued that, as recent investigations had shown, immunity is not an antitoxic but a bacteriolytic process; a satisfactory vaccine could be made out of bacteria without their toxins. Accordingly, Dr. Johan prepared a vaccine without soluble poisons in the following manner: Bacteria killed by heat were washed by centrifugalization, repeated three times. In addition to the dead bacteria, the vaccine contained only physiological saline solution and 0.25 per cent. carbolic acid. This vaccine, which contained 1,500 million bacilli to the cubic centimetre, was tested on more than 2,000 persons, including children, and was found invariably to provoke a slighter reaction than Kolle's vaccine. As this contained the same number of bacilli, and was made from the same original growth of typhoid bacilli, the comparative reactions of the two vaccines were all the more instructive.

In a supplementary note on the vaccine prepared by Dr. B. Johan, Dr. M. K. John emphasized the difference in the reactions provoked by this and the Pfeiffer-Kolle vaccine. The general disturbances caused by the former were very slight indeed, and whichever vaccine was used the agglutination test was found to be invariably positive within twelve to fifteen days of the second injection. In most cases the agglutination was a little more complete in the case of the Pfeiffer-Kolle vaccine, and on this account it was considered advisable to give three injections of Johan's vaccine. Dr. John insisted that there was no relation between the violence of a reaction and the degree of immunity conferred; and that the weakness or absence of reaction was not, therefore, to be interpreted as a fault, but rather as a virtue, of a vaccine.

GERMAN EXPERIENCES OF WAR SURGERY.

INJURIES TO THE SPINAL CORD.

At a meeting of the Verein für wissenschaftliche Heilkunde of Königsberg, Dr. Michaelis reported the case of a patient wounded by a bullet, which inflicted a small wound of entry in the back of the neck, somewhat to the left of the middle line, and at the level of the fourth cervical vertebra. There was no wound of exit, though the lower jaw on the left side was badly shattered. A day after the infliction of the wound both arms and legs were paralysed, but there was no paralysis of the bladder. The paralysis of the right arm and leg soon began to disappear, leaving only slight weakness of the right arm. A skiagram showed slight injury to the fourth cervical vertebra at the junction of its body with its arch. Viewed from in front, the bullet could be seen lying behind the much shattered horizontal ramus of the left lower jaw. No active treatment was attempted during the first fortnight, as it was hoped that the paralysis of the left arm and leg would disappear spontaneously. Treatment of the fractured vertebra by Glisson's extension apparatus was impracticable owing to the fracture of the jaw. The fragments were united by bronze wires, and the bullet was removed. As there was no improvement in the paralysis of the left side after a month, laminectomy was performed, on the assumption that the paralysis was due to pressure on the cord by a fragment of bone, or to peripharyngitis, with local oedema of the cord. The arches of the third, fourth, and fifth cervical vertebrae were removed, but no loose fragment of bone could be found. There were, however, signs of peripharyngitis. To the left of the middle line the dura was adherent to the fourth cervical vertebra over a small area. This adhesion was severed. After the dura had been opened, and a considerable quantity of cerebro-spinal fluid had escaped, a narrow groove was seen passing across the cord from behind and to the left, forwards and outwards. This wound of the cord, which had been gouged by the bullet, was closed by catgut ligatures, passing upwards and downwards, so as to unite the upper and lower margins of the groove. The wound in the dura was then closed and the operation completed. Three days later the movements of the left big toe were regained, and during the following days the paralysis of the left leg

¹ *Deut. med. Woch.*, July 8th.

gradually receded upwards. Eleven days after the operation there were active movements about the ankle, and three days later the patient could also move his legs slightly about the knee. Movements of the left arm did not begin to return till about four weeks after the operation, when first the thumb, then the fingers, and finally the rest of the arm began to regain the power of movement, the paralysis gradually receding upwards. Though the use of the left leg was almost completely restored, that of the arm remained much impaired. Dr. Michaelis, while insisting that the operation was very successful, admitted that the reason for this success was not perfectly clear. It might have been due to relief of pressure on the cord, which, in its turn, might be traced to the drainage of cerebro-spinal fluid. The improvement might also have been largely due to the closing of the groove in the cord.

At a meeting of the military surgeons in Strassburg, Dr. Levin² said that he had often seen paralysis of the bladder and intestine, as well as sensory disturbances, disappear spontaneously, and marked improvement in other symptoms occur, even in cases in which there was evidence of complete transverse section of the cord (*vollständige Querschnittläsion*). It was, therefore, unwise early in the case to diagnose total division of the cord, and to give an unfavourable prognosis. Brown-Séquard's unilateral lesion did not run such a favourable course as the total transverse lesion (*Querläsion*). In some cases of injury to the cord there were only a few isolated symptoms. Thus, in one case, in which certain nuclei of the medulla were involved, the symptoms were paralysis of the recurrent nerve, and unilateral atrophy of the tongue. In another case the symptoms consisted of difficulty in swallowing, loss of the patellar reflexes, and static-atactic manifestations. In a third case, weakness of the legs, diminution of the tendon reflexes, and diffuse sensory disturbances were observed.

Dr. Guleke said that he had come to the conclusion that it was often extremely difficult to learn the extent to which the cord had been injured, and that he was therefore in favour of early operation as a rule, for though this principle led to superfluous operations, it also saved the lives of many who would otherwise have died. He had performed 20 laminectomies, and in none had any harm been done. He did not advise this operation in cases complicated by severe pneumonia, meningitis, open and much infected wounds or "urosepsis." Haemothorax, on the other hand, was no contraindication, but when it was present the operation should be performed under local anaesthesia. In ten of his cases the cord was completely crushed, and they all terminated fatally. In five other cases death was due to sepsis. There were, therefore, only five recoveries among his 20 cases; but he was certain that three of the patients who recovered would have died had not the operation been performed. In these 3 cases splinters of bone or bullets were found in the cord, which they had much injured.

DIAGNOSIS OF GAS PLEGMON BY X RAYS.

Early in 1915³ Dr. Payr called attention to the importance of distinguishing between superficial and deep gas phlegmon. When it was subcutaneous, multiple superficial incisions were often sufficient, whereas when the gas phlegmon was deep-seated, extensive incisions were usually inadequate, and had, as a rule, to be followed by amputation. This view has recently⁴ been endorsed by Professor M. Martens, who added that the relatively benign, superficial gas phlegmon was far less common than the malignant, deep-seated type. As far less radical treatment was necessary for the one than for the other, it was of the greatest importance to distinguish between the two: to amputate for superficial gas phlegmon on the supposition that the disease was deep-seated was bad practice. In most cases the differential diagnosis could be made clinically or during an operation, but in doubtful cases the x rays were of the greatest value in detecting and localizing gas. Though this method of diagnosing gas phlegmon had but recently been employed, Professor Krause of Bonn had several years ago shown that subcutaneous emphysema was demonstrable by the x rays. The first patient to be examined in this connexion by Professor Martens was a dentist, who had been wounded

below the knee by a fragment of shell. The x rays showed an extensive layer of gas under the skin, covering the tibia, and bubbles of gas were also demonstrable between the various layers of muscles. The boundaries of the gaseous infection could be clearly seen. In spite of high fever and great swelling of the limb, the patient refused amputation, and insisted on the operation being limited to deep incisions. The further progress of the gas phlegmon was arrested, and the temperature fell; but, as so often happens, Professor Martens says, in such cases, gangrene set in, and the leg had to be amputated at the knee. Professor Martens had found the x rays useful in revealing the extent and depth to which gaseous infection had spread, and in indicating the best site for incisions and the most suitable level for amputations. In addition to their prognostic, diagnostic, and therapeutic advantages in gas phlegmon the x rays had, he said, a medico-legal value. A wounded soldier, who had been sent home, brought charges against the medical authorities for having amputated his right arm against his wishes and for insufficient reasons. He stated that he had been only slightly wounded, that he had been given a general anaesthetic, and that he had awakened without his arm. He had been operated on by a foreigner, against whom he brought a charge of malpractice, as well as against the senior surgeon in charge of the hospital in which the amputation had been performed. A skiagram which had been taken of the wounded limb clearly showed a fragment of shell and a fracture of the lower end of the humerus, separating the epiphysis from the diaphysis, which was displaced forward. The fracture involved the joint and was probably compound. In front of the fracture a dark shadow was cast by infiltration of the tissues with blood. The skiagram was also showed lighter points, which were attributed by Professor Martens and several other x-ray experts to the presence of gas phlegmon. Consequently it was agreed by medical experts that amputation of the limb was the only means of saving the patient's life, more especially as it was proved that gangrene of the skin had already set in.

THE TREATMENT OF THE WOUNDED IN THE FIELD.

Professor Körte of Berlin, who has been attached as consulting surgeon to the army in the West and later to the army in the East, has lately published in pamphlet form a lecture on the care of the wounded, which he gave on April 11th. Owing to the host of publications by military surgeons at the various fronts now appearing, he advises his colleagues always to state the locality where, and the conditions under which, their experiences were gained. Without such particulars, generalizations were apt to be misleading. He had found the organization of the medical service satisfactory, and he warmly recommended the policy of not attempting to make use of every medical officer in the field as a surgeon. In the treatment of wounds, including those inflicted under the dirty conditions of trench warfare, swabbing the skin around the wound with alcohol or tincture of iodine was found to effect satisfactory disinfection. In the case of bullet wounds, infection was usually so slight that immobilization and the early application of dressings were sufficient to ensure the patient's uneventful recovery. On the other hand, wounds inflicted by artillery were always to be regarded as infected. In his opinion, phlegmon, gas phlegmon, and tetanus were due to primary wound infection; secondary wound infections were rare under proper treatment. The modern infantry bullet, provided it did not strike sideways or inflict a wound at point-blank range, was more humane than the old infantry bullet. Like many other surgeons, he had not once seen a definite dum-dum wound.

RESECTION OF THE INTESTINE FOR METASTATIC ABSCESS OF THE MESHENTRY.

At a meeting of military surgeons in Berlin⁵ Dr. Ulrichs recorded the case of a soldier, aged 22, who was wounded on September 24th by a French infantry bullet, which entered his right shoulder. After his discharge, which occurred before the wound of exit, just below the right scapula, had completely healed, he developed osteomyelitis of the left fibula. Accordingly, on December 24th, osteotomy was performed, and on January 6th a gluteal abscess on the right side was opened. Towards the end of

² *Deut. med. Woch.*, July 8th.

³ *Muench. med. Woch.*

⁴ *Berl. Klin. Woch.* for July 1915.

⁵ *Deut. med. Woch.*, April 8th.

January occasional attacks of severe abdominal pain were accompanied by acceleration of the pulse and slight fever. There was no vomiting, and aperients were followed by normal evacuations. On February 4th the abdominal wall was rigid, and next day there was marked resistance in the right, lower abdomen. Laparotomy was therefore performed, though a definite diagnosis had not been made. A much inflamed coil of small intestine was found, with a thickened, phlegmonous mesentery. Thirty-eight cm. of the small intestine, which was neither twisted nor kinked, were resected. While the corresponding portion of mesentery was also being resected as near its attachment to the posterior abdominal wall as possible, an abscess in its substance was opened. The abscess was closed, the ends of the intestine were reunited, and the wound in the abdominal wall was sutured. Dr. Ulrichs suggested that in this case, in which recovery ultimately took place, the bullet wound of the shoulder must have been infected, and have been responsible for the metastatic, septic thrombo-phlebitis, the osteomyelitis, and the abscesses of the gluteal region and of the mesentery.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed.

CAPTAIN HUGH COCHRANE STORRIE, R.A.M.C., killed in France on September 12th. He was the second son of Mr. Storrie of Paisley, where he was born twenty-eight years ago. He entered Glasgow University in 1903, and after a brilliant career as a student, graduated M.B., Ch.B. in 1908. Soon after graduation he became house-surgeon to Sir George Thomas Beatson at the Western Infirmary, Glasgow. In the following year he was house-surgeon with Mr. Peter Paterson, house-physician with Dr. John Cowan, and later resident assistant in the Special Diseases Section at the Royal Infirmary, Glasgow. Later he held indoor and outdoor appointments at the Royal Glasgow Maternity Hospital. Soon afterwards he entered the fever service of the Metropolitan Asylums Board, and during his period of work in London studied at University College, and in 1913 graduated M.D. at Glasgow. He joined the Special Reserve R.A.M.C. on September 16th, 1914, and went to France with the 2nd Queen's (Royal West Surrey). A. H. G. writes: It is hard to think that Storrie is gone; the medical profession has lost a worthy man. He devoted himself to his work with great ardour and enthusiasm; unswerving in his devotion to a lofty ideal of duty, he forsook the comforts of life at home to help suffering humanity on the field of battle. He was most painstaking and conscientious in the discharge of all his professional work. In the Royal Infirmary, amongst the residents, he was often the consultant. If Storrie said, "Better take the case in," it came in. Now that our friendship has been broken by death, new duties remain, in the remembrance of his self-sacrifice, his fearlessness, and his influence for good. Storrie was a staunch friend and a wise physician; we can ill afford to lose such men. Of him it may truly be said, "Nunquam non paratus."

Died of Wounds.

Lieutenant John Clarke, R.A.M.C.(T.F.), reported as having died of wounds in the Dardanelles on September 9th, was the third son of Mr. W. Clarke, of Ballymena, county Antrim. He was educated at Belfast and at Edinburgh University, and took the Scottish triple qualification in 1906, after which he went into practice at Abergeorge, near Cardiff. He joined the 3rd Battalion of the Monmouthshire Regiment as Lieutenant and medical officer on October 24th, 1914, and when wounded was serving with the 1st Welsh Field Ambulance.

Died on Service.

Lieutenant Stephen Barry Walsh, R.A.M.C., whose death in France is reported, was educated at the Catholic University, Dublin, and took the B.A. at the Royal University, Ireland, in 1903, the M.B., B.Ch., and B.A.O. in 1905, the M.D. in 1909, and the D.P.H. Camb. in 1913. After acting as resident physician of the Mater Misericordiae Hospital, Dublin, as clinical assistant at the Royal London Ophthalmic Hospital and at the Throat Hospital, Golden Square, he became medical inspector of schools

and assistant medical officer of health at Merthyr Tydfil; later he was appointed school medical officer at Gillingham, Kent. He took a commission as temporary Lieutenant in the R.A.M.C. on November 1st, 1914.

Captain Arthur Verge, of the Australian Army Medical Corps, died at Alexandria, on September 4th, of dysentery contracted at the Dardanelles. He was the second son of Austral Verge, of Macleay River, New South Wales, and was educated at Sydney University, where he took the M.B. and Ch.M. in 1905. He was afterwards house-surgeon and house-physician of the Sydney Hospital. Later on he became house-physician in the Skin Department of the Edinburgh Royal Infirmary, and took the F.R.C.S. Edin. in 1908. On his return to Australia he became assistant dermatologist to the Royal Prince Alfred Hospital, Sydney. He accompanied the Australian contingent to Europe as medical officer of the 6th Regiment, Australian Light Horse.

Major John O'Leary, I.M.S., reported to have died in Egypt, was born on May 16th, 1878, educated at Queen's College, Cork, and took the M.B., B.Ch., and B.A.O. of the Royal University, Ireland, in 1901. He entered the I.M.S. as Lieutenant on September 1st, 1902, became Captain on September 1st, 1905, and Major on September 1st, 1914. He served in the Tibet war of 1903-04, receiving the medal. Since November 18th, 1907, he had been medical officer of the 8th Bengal Cavalry, but was serving in Egypt as Commandant of No. 124 Indian Field Ambulance.

Lieutenant Joseph McGowan, R.A.M.C., is reported to have died of dysentery at Malta. He was a native of Kierkintilloch, and was educated at Glasgow, where he took the M.B. and Ch.M. in 1895, and the M.D. in 1905. He settled in practice about seventeen years ago at Grangemouth, where he was medical officer of the North District, Grangemouth Parish Council, and also to the Shipping Federation. He took a great interest in public affairs, was for many years a member of the School Board, of which he was thrice Chairman, and was also Chairman of the local Liberal Association. He was a member and elder of the West United Free Church. He joined the R.A.M.C. with a commission as temporary Lieutenant on April 14th, 1915. He leaves a widow and three children.

Wounded.

Captain C. T. Edmunds, R.A.M.C., Dardanelles.

Captain G. S. Pirie, R.A.M.C. (Special Reserve), Dardanelles.

Captain J. R. R. Trist, R.A.M.C. (Special Reserve), Flanders.

Captain A. G. W. Compton, R.A.M.C. (Special Reserve), Flanders.

Lieutenant T. A. Flynn, R.A.M.C.(T.F.), Dardanelles.

Lieutenant F. S. Bedale, R.A.M.C.(T.F.), Dardanelles.

The name of Captain Edmunds, R.A.M.C., has appeared in the casualty lists at least twice before. He was reported as missing in the retreat from Mons, in the list published on September 5th, 1914, and as wounded in that of September 30th.

MEDICAL STUDENT.

Cameron, Donald R. C., Lieutenant 11th Battalion Highland Light Infantry, son of Mr. Donald R. Cameron, L.D.S., of Langside Road, Glasgow, killed in France, aged 29. He was educated at Stanley House School, Glasgow Academy, the Glasgow Dental College, and Glasgow University, where he was in the O.T.C., and was in his final year as a student of medicine, when he took a commission as Second Lieutenant in the I.L.L.I. on September 24th, 1914.

DEATHS AMONG SONS OF MEDICAL MEN.

Garrard, Stanley Charles, Second Lieutenant 14th Battalion Rifle Brigade, youngest son of the late William Garrard, F.R.C.S., of Melbourne, killed in France, August 28th. He got his commission on March 19th, 1915.

Hudson, A. F., Corporal Gordon Highlanders, son of Mr. A. B. Hudson, M.R.C.S., of Victoria, British Columbia.

Moreton, Archibald Herbert, 8th Light Horse, Australian Imperial Force, second son of Frederick Moreton, M.R.C.S., of Geelong, Victoria, killed in Gallipoli peninsula in August, aged 24.

O'Carroll, Frank Brendon, Second Lieutenant 6th Battalion Royal Dublin Fusiliers, youngest surviving son of Dr. O'Carroll, of Merrion Square, Dublin, killed in Gallipoli peninsula, August 10th. He was born on July 18th, 1895, educated at St. Mary's College, Rathmines, and at Shrewsbury, where he was in the O.T.C., and entered University College, Dublin, in 1913. His commission was dated September 24th, 1914.

Scriven, John Barclay, Lieutenant-Colonel commanding 21st (Empress of India) Lancers, was a son of the late Surgeon-Major John Barclay Scriven, I.M.S., killed in action on the Indian frontier. Colonel Scriven was born on April 3rd, 1869, entered the army as Second Lieutenant in the 5th Lancers on October 3rd, 1888, became Lieutenant on March 26th, 1890, Captain on May 4th, 1899, and Brevet Major on August 22nd, 1902. He was appointed Major in the 21st Lancers on October 17th, 1906, and succeeded to the command as Lieutenant-Colonel on September 7th, 1914. He served in the South African war, in Natal, the Orange River Colony, and the Transvaal, took part in the actions of Elandsplaagte, Lombard's Kop, and Rietfontein, and in the defence of Ladysmith, when he was wounded; was mentioned in dispatches, and received the Queen's medal with four clasps, the King's medal with two clasps, and a Brevet-Majority. After the war he served in the South African Constabulary from March 22nd, 1901, to March 21st, 1906.

NOTES.

HONOURS.

In addition to the officers mentioned last week upon whom awards for distinguished service had been conferred, the Distinguished Conduct Medal was conferred upon 138 non-commissioned officers and men, including six belonging to the medical services:

Corporal G. Gallagher, R.A.M.C., and Sergeant J. H. Heap, R.A.M.C., of the 16th Field Ambulance; Private W. Hughes, R.A.M.C.(T.F.), 11st East Lancs F.A.; Private A. P. Inglis, R.A.M.C.(T.F.), 13rd Lowland F.A.; Private H. Meakins, R.A.M.C., attached 2nd York and Lancaster Regiment; Private H. Price, R.A.M.C.(T.F.), 12nd East Lancs F.A.

MEDICAL OFFICERS WANTED.

21st North Midland Field Ambulance.

Two or three medical men are wanted to take commissions in this unit, now under canvas at Watford. For foreign service only. Apply, Lieutenant-Colonel Dawson, Officer Commanding, Watford.

Home Service Field Ambulance (T.F.).

Medical officers under 55 years of age are wanted for this ambulance. Full outfit allowance provided. Applications to No. 4865, BRITISH MEDICAL JOURNAL OFFICES, 429, Strand, W.C.

22nd East Anglian Field Ambulance.

There are vacancies for four medical officers in this unit to replace officers proceeding overseas. Pay and allowances as in the regular army, with promotion to the rank of captain after six months' service. Apply to Lieutenant-Colonel G. Blake-Masson, O.C. 22nd East Anglian Field Ambulance, 44, Crown Street, Bury St. Edmunds.

England and Wales.

A WORKMEN'S HOSPITAL AT BLAINA.

The Blaina and District Cottage Hospital at Nautygly, Monmouthshire, was built in 1910 at a cost of about £5,600, provided by the colliery workmen through voluntary deductions from their wages. It soon became evident that more accommodation was required, and three years ago the representatives of the workmen on the committee determined on an extension at a cost of £6,500. The colliery men have been joined by those of the urban council and gasworks, the Co-operative Society, and members of the N.U.F., and it has been decided to allow outsiders to participate in the privileges on payment of £1 a year. The extensions and the rearrangements of the original buildings have raised the number of beds from 11 to 25, and in addition a new operating theatre, with sterilizing, anaesthetic, and x-ray rooms, has been provided. The operating theatre has a northern light, the floor is of white terrazzo. The two new wards have bath, lavatory, and kitchen accommodation, and an outpatient department has been provided, as also additional accommodation for the staff. Detached from the general building is an engine-house, battery-room, and mortuary. The building is lighted electrically throughout, and is heated with low-pressure hot water, with the exception of the operating theatre, which has special steam radiators. The consulting staff consists of Major W. J. Greer, R.A.M.C.(T), Mr. J. A. Lee, F.R.C.S. (laryngologist), and Dr. Coulter (ophthalmologist), of Newport. Dr. W. T. Ewan, of Blaina, attends daily, and all the local medical men give their assistance. The nursing staff consists of the matron, two nurses, and

three probationers. On an average, about 100 operations are performed annually.

At the opening ceremony of the enlarged building, Mr. John Wyke, chairman of the Hospital Committee, who presided, said that of the £6,500 required £3,200 had already been paid, owing to the workmen having agreed to a double poundage for a year. He asked them to realize that the upkeep of the establishment would need a larger revenue than formerly.

Major W. J. Greer, in declaring the hospital open, praised its construction, and said that, in particular, the x-ray installation was one of the most complete that could be got in any hospital. Mr. E. W. G. Richards, the architect, presented Major Greer with a gold key with which to open the door leading into the new portion of the hospital. Mr. Manning then presented a silver inkstand and pen on behalf of the Hospital Committee, bearing the following inscription: "Presented to W. Jones Greer, Esq., F.R.C.S.L., L.R.C.P., by the Blaina and District Hospital Committee, as a token of respect and esteem, and to commemorate the occasion of the opening of two new wards and theatre, September 15th, 1915." Major Greer returned thanks, and the company then inspected the new wards and other rooms.

HEALTH OF LIVERPOOL.

Owing to the war the annual report for 1914, by Dr. Hope, the Medical Officer of Health and President of the Liverpool Medical Institution, was later in appearing than usual. It affords, however, interesting reading, and sets forth steady progress in all that concerns the hygienic condition of the city. The birth-rate, which it is to be hoped will show a steady increase in the future, was 30 per 1,000 of the population, against 30.4, the average of the past five years. The death-rate was 19.5 per 1,000, which is lower than the average 21.8 for the past ten years.

It is interesting to note that in July a whole family was infected with plague, and there were three deaths. The source of infection could only be surmised. The number of rats destroyed was 24,938. There were only two cases of small-pox, and both patients recovered.

Enteric fever claimed 177 individuals, of whom 44 died, and 79 per cent. were treated in the city hospitals. Shellfish were considered to be the source of infection in some of the cases. The ravages of alcohol are striking. Coroners' juries returned a verdict of excessive drinking in 125 cases, and 52 were females; and the statement that alcohol is responsible, directly and indirectly, for more deaths than any other poison or microbic cause cannot be gainsaid.

Diarrhoea was the cause of death in more than one-half of those infants that died under 12 months old. Among those who died within three months of life the mortality of children artificially fed was fifteen times as great as that of children breast-fed. Every medical practitioner should impress upon the mother the importance of suckling her offspring, and point out forcibly to her the risk to the life of her child if she shirks her responsibility in this respect. Liverpool for some years has had sterilized milk depôts, and by this valuable agency, there is no doubt, much infant life has been preserved. But it should never be forgotten that human milk is "living" milk, and no artificial substitute, no matter with what care it may be elaborated, can take its place without risk to the infant's health and power of resistance to infantile disorders. Infantile mortality was 139 per 1,000 in 1914 and 132 per 1,000 in 1913. Measles accounted for 517 deaths, and whenever possible hospital accommodation was provided, although it would appear that the mothers frequently refused it when offered. The female sanitary service supplies a most important link between the school medical inspection and the homes of the children, and much benefit has accrued to the health and well-being of the rising generation.

The question of the removal of the central abattoir—a perennial subject which has agitated medical men in Liverpool for many years—to a more suitable position is still in abeyance. But no one who has given the subject even the slightest consideration can approve of the continuance in its present situation of a slaughter establishment inseparably associated, as all such establishments must be, with offensive trades that may easily endanger the health of the community.

Ireland.

MEDICAL APPOINTMENTS TO THE VICEREGAL HOUSEHOLD.
His Excellency the Lord Lieutenant of Ireland has made the following medical appointments to the Viceregal household:

Physicians in Ordinary: E. MacDowd Cosgrave, M.D. Univ. Dubl., President Royal College of Physicians of Ireland; James Craig, M.D. Univ. Dubl., F.R.C.P.I., King's Professor of Practice of Medicine, School of Physic, Trinity College, Dublin.

Surgeons in Ordinary: F. Conway Dwyer, M.D. Univ. Dubl., President Royal College of Surgeons in Ireland; Edward H. Taylor, M.D. Univ. Dubl., F.R.C.S.I., University Professor of Surgery, School of Physic, Trinity College, Dublin.

Surgeon to the Household: W. L. de C. Wheeler, M.D. Univ. Dubl., F.R.C.S.I.

Surgeon Consultant in Ordinary: H. C. Mooney, M.B., B.Ch., R.U.I., F.R.C.S.I.

Surgeon Dentist in Ordinary: G. J. Goldie, L.D.S., L.R.C.P. and S.Ed.

SOUTH DUBLIN UNION AND CHILD MORTALITY.

At the last meeting of the South Dublin Union a lady guardian called attention to the system which, she said, was growing up among the women who had children at nurse. The children were neglected, and when they were dying they were brought into the workhouse so that they might be buried at the expense of the guardians. She thought the relieving officers or the lady inspectors ought to visit these women and see that the children were not neglected. She had seen at the crèche a crowd of children actually dying. The chairman said he was glad the matter had been mentioned. The guardians had frequently been condemned for the high death-rate among children. Her statement showed that it was not the fault of the guardians, but of the parents who sent the children out to die. A lady guardian suggested that those women who neglected the children should not be allowed to take any more children. In the master's journal it was stated that since last report fifteen children were admitted to the workhouse for medical treatment.

Correspondence.

SURGEON PROBATIONERS, ROYAL NAVY.

Sr.—Many inquiries have reached me concerning the position of senior medical students, now serving in the navy as surgeon probationers, who desire to complete their professional course with a view to speedy qualification. By the kindness of the Medical Director-General, I am enabled to state that the following instructions have been issued from the Admiralty:

(a) Surgeon probationers are to be granted reasonable leave of absence to attend their final examinations (Order of January 1st, 1915).

(b) If the period of leave granted (which has been fixed at three weeks) is not sufficient, the request of a probationer to be demobilized for any period he likes is never refused.

In the present emergency it is desirable that the fifth-year students now on duty with the fleet should without delay become qualified for commissioned service. Their places might be taken by less advanced students who have passed the second professional examination, and have received special instruction in "dressing" and in other "first-aid" methods of dealing with the wounded. Many of these men are eager to leave their studies and do service in the war. Some might find their opportunity by offering to take six months' duty as surgeon probationers in the navy. They would thus liberate senior men who have already served for that period or more; and they might expect to be liberated in turn by their juniors, in time for the summer session.

I am assured that the Admiralty desires to co-operate with the medical authorities in minimizing the difficulties attaching to the "probationer" service. One of these difficulties—the undue interruption of the studies of men whose early qualification is a pressing need—would become less serious under the system of short service and frequent rotation which I here suggest.—I am, etc.,

DONALD MACALISTER,

President of the General Medical Council.

University of Glasgow, Sept. 21st.

MEDICAL STUDENTS AS MILITARY SURGICAL ASSISTANTS.

Sr.—Surely the proper and most effective method of making use of medical students of eighteen months' standing or upwards (excepting perhaps fifth-year students) is to utilize them as military surgical assistants. Let them have a short course of surgery (say three months) with special reference to military requirements, and then give those that are fit commissions in the R.A.M.C. as temporary second lieutenants with at least the pay and allowances of those of this rank in the combatant branches. They would form a grade very similar to that of the military assistant surgeons in the army in India.

Students of under eighteen months should at once concentrate on anatomy and military surgery (the preliminary sciences and physiology can well wait until the star of peace returns), and as soon as possible be given commissions also.

I believe that such men would in practice be far more useful than many of the older men who are now being appointed to commissions in the R.A.M.C. By adopting this method a large addition would be made to the commissioned ranks of the R.A.M.C. at an early date.

I totally disagree with Dr. King Brown's suggestion that medical students should become privates in a special corps under the R.A.M.C. This would be simply wasting good material; and why should they be privates when their education and attainments fit them for commissioned rank?—I am, etc.,

J. E. ROBINSON, M.B., B.S. Lond., D.P.H.

Weymouth, Sept. 11th.

MEDICAL EDUCATION OF WOMEN.

Sr.—As the number of women studying medicine is increasing every year, and is likely to increase rapidly now, it is right that women who are thinking of beginning should know, before they decide to study in Edinburgh, that it is only the "Edinburgh degree" that is given to women, not the "Edinburgh training."

In a paragraph in the JOURNAL of September 4th, p. 377, it is said, "The Edinburgh School of Medicine for Women provides all the classes required for a complete curriculum." That is true enough, but it is very disappointing for a woman after she has begun the course and it has become almost impossible to change, to find that there are many classes held in the University, and many clinics given in the Royal Infirmary, to which she has no access, and for which she has no equivalent. Then again, it is only through obliging male students that she can find out what the professors who are to be her examiners are teaching. Last, and not least, she has no choice of clinic in the Royal Infirmary. She may, it is true, take out her classes at any of the other Scottish universities, or, indeed, "in any University of the United Kingdom, or in any Indian, Colonial, or Foreign university recognized for the purpose by the University Court, or in such Medical Schools or under such teachers as may be recognized for the purpose by the University Court."¹ If she chooses not to study in Edinburgh, she may get a more thorough training and better opportunities of seeing and doing, but then it is still not the "Edinburgh training."

A medical missionary said to me that women who were thinking of going to the mission field should study at one or other of the new English universities, because there they got the best opportunities of doing surgical work. I understand that women have very good opportunities in Glasgow, Aberdeen, and St. Andrews (with Dundee).—I am, etc.,

R. MARY BARCLAY, M.A., M.B. Edin.,

Cambridge Teachers' Diploma.

Edinburgh,
September 5th.

GAS POISONING.

Sr.—Is chlorine gas poisonous? Although it may be classed among the irritant poisonous gases, still it is not so poisonous as people think. Over forty years ago Tyneside was a great centre for the manufacture of soda ash and bleaching powder, and perhaps there was more bleaching powder made on Tyneside than any other part in England. It is still made, but to a much smaller extent. In the manufacture of bleaching powder, although it was customary to regulate the amount of chlorine gas so as

¹ Edinburgh University Calendar, 1914-15.

to waste as little as possible when the chamber doors were taken down to pack the bleaching powder, still occasionally something went wrong, and the maker found that he was going to get a weak powder under market strength, and crammed the gas into the chamber until it was full and overflowing. At the present time bleaching powder is made principally by large works, and I should think that they will take all due precaution to pass as little chlorine into the air as possible. In the smaller works a bleaching powder chamber may be about 30 ft. long by about 20 ft. broad, and about 6 ft. high, but in the larger works the usual size is about 60 ft. by 30 ft. by 5 ft. Does it do harm to the people? No; nothing of the kind. It soon mixes with the air, and the direction of the wind always comes to the rescue, and an effort is made to keep it off the dwellings as much as possible. Both sulphurous acid and chlorine gas do harm to vegetable life, especially if much gas gets into the atmosphere. They do not appear to do any harm to human life if in moderation.

How many men has Tyneside killed with chlorine gas? I only know of one death. It arose out of a drunken freak. A man boasted with his companions, when he and they were drinking, that he could stand more gas than any other man. He was taken to a chamber full of gas and the door was taken down, and consequently he was immersed in chlorine; perhaps they were too drunk to pull him out of the gas.

There is no doubt that persons not accustomed to chlorine may have a choking and a spasm of the glottis if exposed to a double dose. I have seen it often, but in ten or fifteen minutes or more they were all right. Give them air. Give them a stimulant. My brother, Dr. J. Aitchison, Newcastle-on-Tyne, when a young medical student, was called in haste to attend a man who was unconscious, and dying from suffocation. This man was convalescent from typhoid fever; he was getting his supper at the time, with a shovelful or more of bleaching powder under the table brought to disinfect the house. My brother, using his own expression, found him black in the face, and unconscious. He thrust his penknife into his windpipe, and in a few seconds the man rallied. He then sent for my father to bring a tracheotomy tube. This man got better, or was well the next day—laughing and joking; he wished the tube to be taken out. To use a coroner's expression, he died a natural death many years afterwards.

In *A Treatise on Poisons*, by the late Sir Robert Christison, Professor of Materia Medica in the University of Edinburgh, the following passage occurs:

Although this gas is very irritating to an unaccustomed person, yet by the force of habit one may breathe with impunity an atmosphere much loaded with it. I have been told by a chemical manufacturer at Belfast that his men can work in an atmosphere of chlorine, where he himself could not remain above a few minutes. It is not probable, however, that the above is an unhealthy one; for several of this gentleman's workmen have lived to an advanced age; one man, who died not long ago at the age of 80 years, had been forty years in the manufactory, and I have seen in Mr. Tennant's manufactory at Glasgow a healthy-looking man who had been also about forty years a workman there. It is an interesting fact, that during the epidemic fever which raged over Ireland from 1816 to 1819, the people at the manufactory at Belfast were exempt from it.

My father often advised men who were threatened with phthisis to work at bleaching powder chambers, and as far as I am aware they all got well. Among the most poisonous gases in chemical works are nitrous fumes (nitric peroxide, N_2O_4), used in the manufacture of sulphuric acid. Christison says that nitrous acid vapour is a very violent and dangerous poison when inhaled. He mentions that a chemical manufacturer in endeavouring to remove from his store-room a hamper in which some bottles of nitrous acid gas had burst, breathed the fumes some time, and was seized in four hours with inflammation of the throat and stomach. At night the urine was suppressed, the skin then became blue; at last he was seized with hiccough, acute pain in the diaphragm, convulsions and delirium, and he died twenty-seven hours after the accident. Another case he mentions proved fatal in two days, and the symptoms were those of violent pneumonia.

My father had an experience of a batch of men dying in agony in a few days and at different times. They were sent in to clean the bottom of a sulphuric acid chamber

which required repairing. After running off the acid and clearing the gas out of the chamber for some days, they went into the chamber to remove the lead sulphate which is always lying at the bottom of a sulphuric chamber, and this stirred up nitrous fumes. Every man died gasping for breath.—I am, etc.,

THOMAS AITCHISON, M.B. Edin.
Willington Quay-on-Tyne, Aug. 18th.

INFANT FEEDING.

Sir,—I think that Dr. Vining and I regard the subject of the artificial feeding of infants from very different points of view. Dr. Vining is one of those who looks for, and even hopes that he has found, an artificial diet which is universally and invariably successful. By refraining from adding a proportion of water to the milk and by omitting the usual addition of sugar, he claims to have passed at a bound from disaster to success. I wish I could share in this faith, but to me everyday experience proves it false. Cow's milk without excessive addition of sugar should certainly be the diet of choice for all normal and healthy children—a diet which I should like to call the standard diet, and which should never be abandoned except on the advice of a medical man. Moreover, the use of whole citrated cow's milk has a powerful action in controlling the increased fermentation in the intestine which is set up by a diet too rich in starch or sugar. Nevertheless, it seems to me beyond question that whole milk is often ill digested by young infants suffering from infective disorders of all sorts, and that in a considerable minority of children its habitual use is accompanied, not indeed by excessive fermentation, but by increased intestinal putrefaction, the symptoms of which I endeavoured to describe.

In all cases I would urge the importance of the close study by medical men of the nature and origin of digestive disturbances in infancy, in the hope that we may learn more and more effectively to control them by the therapeutic modification of the diet in the direction indicated by the symptoms. To adopt the position that any one form of diet always "suits" and never gives rise to ill symptoms is to deny the necessity for the existence of any study of the digestive disturbances of infants at all. If the routine use of whole citrated milk is always successful, the doctor may well leave the whole business to any intelligent nurse or mother who can be trusted to measure accurately and to enforce scrupulous cleanliness.—I am, etc.,

London, W., Sept. 19th.

H. CHARLES CAMERON.

DIAGNOSIS OF GOUT.

Sir,—In the BRITISH MEDICAL JOURNAL of August 14th, p. 278, Dr. Bramwell criticizes my letter which appeared the previous week. As an earnest advocate of the revival of counter-irritation in its more powerful forms, I should like to know on what evidence he bases his sweeping assertion that it is futile and harmful in diseases in which micro-organisms play a prominent part. My experience, extending over more than sixteen years, is quite the contrary. I do not even except pulmonary tuberculosis. Skillfully used in suitable cases, continuous counter-irritation is of great value and perfectly safe.

I make thousands of minute punctures in the skin with needles and paint over them a mixture of croton oil, cantharides, and almond oil. A crop of pustules appears within from twenty-four to forty-eight hours. I have benefited patients when vaccines have failed.

In my opinion this treatment heightens the power of the system to form antibodies. Moreover, it is now well known that the leucocytes have the power to carry poisons of all kinds from all over the system to hyperaemic areas produced by heat or irritants, and also to pustules and abscess cavities. The principle of the treatment is practically identical with that of the seton, the blister followed by savin ointment and the fixation abscess. An instructive article on the latter appeared in the *Medical Press and Circular* of May 5th.

Dr. P. W. Latham and I have published several articles on continuous counter-irritation (*Lancet*, April, 1901; *Fractitioner*, January, 1912, etc.).—I am, etc.,
Bournemouth, Aug. 15th.

W. J. MIDELTON.

Obituary.

JOHN HENRY DAUBER, M.B. OXON., F.R.C.S.I.,

SUBROON, HOSPITAL FOR WOMEN, SOHO, LONDON; LIEUTENANT-COLONEL, R.A.M.C.(T.).

LIEUTENANT-COLONEL JOHN HENRY DAUBER, M.B., F.R.C.S.I., R.A.M.C., East Anglian Casualty Clearing Station, to whose death on the transport *Royal Edward* we have already made brief reference, was the eldest son of the late Mr. John Stockdale Dauber, of King's Lynn, Norfolk. For some twelve years he had been attached to the Sussex Yeomanry, and when war broke out was mobilized. It was then found that the Sussex Yeomanry had two surgeons, whereas the War Office only permitted of one. Dauber and his colleague tossed a coin as to who should remain, and Dauber lost. He had nothing permanently to do for some time, but after an interval became attached to the Eastern Command. Early this year, as second in command under Colonel Gibb, he formed the East Anglian Clearing Hospital. Owing to the somewhat sudden death of his colonel from pneumonia, Dauber took command.

Dr. Dauber received his medical education at the Middlesex Hospital and at the King's and University Colleges. He took the diplomas of L.R.C.P. and M.R.C.S. in 1890, graduated M.A. Oxon. in 1892, and M.B., B.Ch. in 1894. He became a Fellow of the Royal College of Surgeons of Ireland in 1899. He was associated with the Soho Hospital for Women for many years. He had a long period in the out-patient department, but some ten days before he left England on his ill-fated voyage to Gallipoli he was appointed surgeon to in-patients. He worked harmoniously with his senior, Mr. Mansell Moullin, who of late years allowed him many beds in the hospital. He took an active interest in the rebuilding of the hospital seven years ago, and was also a member of the committee of the hospital concerning the new by-laws and regulations, under which the appointment of gynaecological surgeons, with modern surgical equipment, was created to supersede the old position of obstetric physicians. He gave much time to the general work of the hospital, which was to him a labour of love, and did not hesitate to visit a severe case several times a day. His loss will be keenly felt in the hospital. He was also President of the Chelsea Clinical Society. Whatever Dauber undertook to do he did with all the energy and enthusiasm of his nature. He was one of the original members of the Executive Committee of the Westminster Division of the British Medical Association when the Association was reconstituted in 1902, and by his outspoken criticisms, especially during the period when the Insurance Bill was under discussion, held the attention of the meetings. His year of office as Chairman of the Division was successful, and on more than one occasion he acted as the Representative of the Division in Representative Meetings.

Colonel Dauber was a pleasant and agreeable companion, alike amusing and entertaining, with a high code of honour. He married, in 1895, Margaret, third daughter of the late Colonel Addison Potter, C.B., of Heaton Hall, Newcastle-on-Tyne, and leaves one son, aged 14. He was a devoted husband and father, and in his passing away on the *Royal Edward* those who knew him have lost a faithful friend.

Dr. Dauber held strong views as to the need for this country to put all its energies into the war. In a letter published in the *Times* not many months ago he wrote: "A grim struggle is before this country. All who know Germany are well aware of it. There is but one thought, one aim, one hope for every one of us—ultimate victory. Nothing else on earth counts for us. Let it not elude us through our thoughtless dissipation of strength." He showed the faith that was in him by offering himself at an age (56) when he might well have been held excused.

W. JOSEPH SMITH, J.P., M.R.C.S., L.M., L.S.A.,

D.P.H. CAMB.

MR. JOSEPH SMITH, a vigorous advocate of the rights of the members of the Royal College of Surgeons of England, died, aged 77, on Saturday, September 18th, at his residence, 13, Wellesley Road, Gunnersbury, after a long illness. He became a Member of the College of Surgeons

in 1861, and he joined the ranks of the Licentiate of Midwifery of the College, now slowly disappearing, as the Board of Examiners for that diploma was abolished in 1888. Mr. Joseph Smith became an L.M. in the year after he passed the Membership examination, so that he held the diploma for no less than fifty-three years. According to the Calendar for 1915 of the College of Surgeons, 250 Licentiates are still living.

Joseph Smith was a link with a past generation of family doctors. He was best known among his professional brethren for his efforts to obtain reform at the Royal College of Surgeons. Both with the Association of Members and its successor, the Society of Members, he was a leading spirit; his interest in the movement was the outcome of his intense and honest desire to secure for all Members what he claimed to be their ancient rights and privileges. When, in furtherance of the cause for which Joseph Smith was so zealous, the Society of Members was founded in 1894, he was elected President, and retained that office until the burden of years and ill health compelled him, in October, 1915, to resign. The original "Association of Members" of the Royal College of Surgeons was founded in 1884, when a meeting of members was held on April 30th at 3, New Inn. Its purpose was to obtain for the Members certain rights and privileges, in reference to the management of the College, which they did not possess. At a subsequent meeting, three months later, Dr. Robert Collum was elected chairman of the committee of the association and Mr. Joseph Smith vice-chairman, and in January, 1885, they headed a deputation to lay before the Council of the College the views of their association with respect to the alteration or proposed change in the new charter about to be applied for. The deputation was received by the President, Mr. Cooper Foster, and the Vice-Presidents of the College. Mr. Joseph Smith on this occasion spoke with much force and eloquence. He argued that the official head of the College was really President of the Council only, and that his post could be made far more distinguished in future should he become the representative of the sixteen hundred members. The annual meeting of Fellows and Members became an institution, although attempts were made, especially by Sir Spencer Wells at the end of 1888, to abolish it. The agitation reached its height in February, 1887, when a meeting of Fellows and Members having been convened without the authority of the President and Council, the gates of the College were closed so as to exclude the deputation, and the case of Steele v. Savory followed, in which the verdict was given for the defendants. The legal expenses proved ruinous, and the association had afterwards to be reconstituted, reappearing in 1894 as the Society of Members, of which, as already stated, Joseph Smith was elected the first president.

Joseph Smith retired to Gunnersbury after years of general practice, many of which were spent at Guildford, where he was M.O.H.; he was J.P. for the County of Middlesex, and at one time honorary surgeon to the Royal Surrey Hospital, Guildford.

Mr. Smith was married twice, and leaves a widow and two sons, who are not members of the profession, but who appeared in uniform as members of the R.A.M.C. and the Royal Naval Air Service, respectively, at the funeral on September 21st, when their father was laid to rest in Chiswick Churchyard. A nephew in the Civil Service Rifles, Commander Stewart of the Royal Naval Air Service, and Dr. Brindley-James, President, and Dr. Sidney C. Lawrence, Honorary Secretary of the Society of Members, were also in attendance.

SIR CHARLES EUGENE BOUCHER DE BOUCHERVILLE, K.C.M.G., the oldest Canadian Senator, recently died at Ottawa, at the age of 93. He was a member of a French-Canadian family whose ancestor, General Pierre Boucher, was Grand Seneschal of Nouvelle France, in the seventeenth century. He was a native of Montreal, and studied medicine in Paris, where he took the M.D. degree in 1843. Like other distinguished Canadians, he turned his attention to politics, and soon became a conspicuous figure among the statesmen of the Dominion. He was Speaker of the Legislative Council of Quebec from 1867 to 1873, and was Premier of the Province from 1874 to 1876, and again from 1891 to 1892. He was called to the Senate in 1879.

M. JULES SOURY, director of studies in the Paris Ecole Pratique des Hautes Etudes, was not a member of the medical profession, but the importance of his work in neurology was acknowledged by all physiologists and biologists. In his lectures on the functions of the brain he synthesized all the researches made on cerebral localizations, and in his great work, *Le système nerveux central, structure et fonctions*, he gave a critical review of theories and doctrines on the nervous system, remarkable alike for erudition and clearness of exposition. M. Soury was the author of numerous other works on philosophy, religious psychology, and literary criticism. He was 74 years of age.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are: Dr. Giuseppe Cattaneo, surgeon to the S. Matteo Hospital, Pavia, and founder of an out-patient department for tuberculous cases, and of other charitable institutions, aged 83; Dr. Gorenx, a well-known Paris laryngologist; Dr. P. Brynberg Porter, recording secretary of the Medical Association of the Greater City of New York, for some time editor of the *Transactions of the American Therapeutical Society*, and a prominent member of the staff of the *New York Medical Journal*, aged 70; Dr. David Strett, dean of the Baltimore College of Physicians and Surgeons, and professor of the principles and practice of medicine at the University of Maryland Medical School, and president of the Baltimore Medical and Surgical Society, aged 61; and Dr. St. Clair Spruill, clinical professor of surgery in the University of Maryland Medical School, and surgeon to the Maryland General Hospital, Baltimore, aged 49.

Universities and Colleges.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

Election of Professor.

At a special meeting of the President, Vice-President, and Council, held on September 16th, Mr. F. Conway Dwyer, President, in the chair, Mr. William Caldwell, M.A., R.U.I., F.R.C.S., etc., was elected Professor and Professor of Physics in the Schools of Surgery. The election of a Professor of Pathology was postponed. Professor Caldwell had a very distinguished career as an undergraduate. He was educated at Campbell College, Belfast, and subsequently pursued his studies at Queen's College, Belfast; Trinity College, Dublin; and in Würzburg University, Bavaria. He obtained the Andrew Scholarship in Chemistry and Physics, and subsequently the 1851 Exhibition Research Scholarship in Organic Chemistry. After his appointment to Trinity College, Dublin, he graduated as Senior Moderator in the University of Dublin. In Trinity College, Dublin, he has been teaching for the last ten years the subjects of physiological chemistry to the medical students, and inorganic, organic, and physical chemistry to the students in the Indian Civil Service School, as well as lecturing in other institutions, and has found opportunity to carry out and publish researches in many chemical subjects.

The Services.

EXCHANGES DESIRED.

ROYAL ARMY MEDICAL CORPS.

LIEUTENANT R.A.M.C. (TEMPORARY), at present x-ray specialist at general hospital in France, wishes to exchange with x-ray specialist anywhere in Eastern Command. Address No. 4,799, BRITISH MEDICAL JOURNAL, 429, Strand, W.C.

TEMPORARY LIEUTENANT, attached to military hospital in Mediterranean, wishes exchange with officer serving at home—Newcastle and neighbourhood preferred. Address No. 4,800, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

TERRITORIAL FORCE.

MAJOR R.A.M.C. (T.F.), at present serving with a field ambulance T.F. in France, desires to exchange with an officer of similar rank at home. O. L., c/o Editor, BRITISH MEDICAL JOURNAL.

SEVERAL arrests made recently in Paris show that, in spite of the increased activity of the police during the last three or four years, the illicit traffic in cocaine at certain night cafés and beerhouses continues. It is carried on by male and female hawkers, who buy the drug from complaisant chemists, one of whom is among the persons arrested.

Medical News.

THE winter session at the Middlesex Hospital will commence on October 1st. There will be no address, but the prizes are to be distributed by Sir James Kingston Fowler, K.C.V.O.

THE next election to Beit Memorial Fellowships for Medical Research will take place on January 1st, 1916. Applications must be received by the honorary secretary of the fund by October 15th. Further particulars will be found in our advertisement columns.

THE list of past and present students of King's College, London, on active service is being revised, and the Secretary would be glad to receive, either from the men themselves or from their friends, the latest details of rank and regiment of all former students on service.

A COURSE of four lectures on typhus fever and cerebro-spinal meningitis will be given on October 5th, 6th, 7th, and 8th, by the Gresham Professor of Physic, Dr. F. M. Sandwith. The lectures, which will be delivered at 6 p.m. each day at Gresham College, Basinghall Street, E.C., are free to the public.

THE Local Government Board in England has revised the list of sanatoriums and other residential institutions approved under the Insurance Act, 1911, for the treatment of persons suffering from tuberculosis, and resident in England (excluding Monmouthshire). The list has been revised to September 11th, and copies, price 1d., can be obtained through any bookseller.

MISS FANNY CRESSWELL PARR, of Yarmouth, Isle of Wight, who recently celebrated her 101st birthday, is a daughter of Dr. John Aytoun Paris, a former President of the Royal College of Physicians, and one of the physicians to George III. He was the author of a learned treatise, entitled *Pharmacologia*, the introduction to which is full of historical matter that gives it enduring vitality.

A COURSE of lectures for teachers, voluntary health workers, and mothers has been arranged by the National Association for the Prevention of Infant Mortality and the Welfare of Infancy. It will be held on Thursdays, at 6 p.m., at the London Day Training College, Southampton Row, W.C. The first lecture, which was on ante-natal hygiene, was delivered by Dr. Amand Routh on September 16th. The course will conclude on November 25th.

MESSRS. ELAND BROS., of Exeter, have published, under the title *Voluntary Aid in Devon*, an account, edited by Mr. W. Fothergill Robinson, M.A., of the organization of voluntary aid work in the county. We gave a description of the hospitals in Exeter in our issue of August 28th. The pamphlet, which is published at the price of 1s. net, post free 1s. 3d., for the benefit of the V.A.D. Devonshire, is well illustrated, and contains information as to the hospitals, not only in Exeter, but in other parts of the county, down to the beginning of May.

AN interesting pamphlet on *The Louse and its Relation to Disease* has just been published by the British Museum (Natural History). Its author is Mr. Bruce Cummings, assistant in the Department of Entomology. The life-history and habits of lice are dealt with, and the measures which can be adopted for their extermination are discussed. It is now known that typhus and relapsing fevers are spread by lice, and there are grounds for suspicion in tubercle, leprosy, and probably other diseases. As the little pamphlet is published at 1d., it should be within the reach of all, and its general distribution will do much to show how the troubles caused by these annoying and dirty parasites may be alleviated.

FROM the annual education number of the *Journal of the American Medical Association*, published on August 21st, we learn that during the year which ended June 30th, 1915, there were 14,891 persons studying medicine in the United States. These were distributed as follows: 13,914 in the non-sectarian colleges, 736 in the homoeopathic, and 241 in the eclectic colleges. There are 7 fewer colleges than in 1914, the total now being 95, consisting of 83 non-sectarian, 8 homoeopathic, and 4 eclectic colleges. Since 1904 52 medical schools have been closed, 52 of which were merged into other medical schools, and 40 became extinct. During the same time 25 new colleges were organized, making a net reduction of 67 colleges. Women students constituted 4 per cent. of all students, and of all graduates 3.7 per cent. were women. Of the 95 existing colleges 83, or over 87 per cent., now require one or more years of work in a college of liberal arts for admission. There is now 1 doctor to from 600 to 650 people in the States as compared with 1 to from 1,500 to 2,500 in the leading nations of Europe.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Attilage, Westrand, London*; telephone, 2651, Gerrard. (2) FINANCIAL SECRETARY and BUSINESS MANAGER (Advertisements, etc.), *Attilage, Westrand, London*; telephone, 2650, Gerrard. (3) MEDICAL SECRETARY, *Medicera, Westrand, London*; telephone, 2654, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

G. A. D. asks for advice in the following case: A patient, aged 65, wishes to have an operation for the removal of piles. Some years ago, however, when under an anaesthetic (A.C.E.) for their removal he had a most severe and prolonged spasm of the throat, and tracheotomy was performed. He will not consent to this form of anaesthesia again. Would a local anaesthetic be possible or effective? The patient himself wishes to have spinal anaesthesia. What are the dangers, if any, to (a) life, (b) paralysis of sphincter, etc.?

INCOME TAX.

H. A. N. asks whether the surveyor of taxes has the right to demand that policies of life insurance should be forwarded to him. If so, under what section or sections of the Acts?

* If the claim is for repayment of tax the authorities to be satisfied are the Commissioners for Special Purposes, and otherwise apparently the Commissioners by whom the assessment is made (Section 54 Income Tax Act, 1853). The surveyor of taxes, as such, seems to have no right to require any evidence, even the premium receipt. On the other hand, the Commissioners concerned would no doubt refuse the allowance if the taxpayer had withheld evidence necessary for the proper establishing of the claim. The surveyor's request may have reference to Section 17 of the Finance Act, 1915, which limits the allowance to 7 per cent. of the actual sum assured. The policy forms the best evidence on this point, and on the maxim that the best evidence available is the only proper evidence, the surveyor's request may be held justified in reason, even though it may not be immediately enforceable by him.

ANSWERS.

HICCOUGH.

DR. P. DE HAVILLAND HALL (London) writes: Has Dr. J. Numa Rat tried chloretone? If not, I would advise his doing so. I have found this drug in 5-grain capsules every four hours most useful in persistent hiccough.

WESSEX suggests that the hypodermic injection of hyocyanine sulphate, combined with massage of the stomach, will relieve the hiccough if not due to an organic cause.

DR. WILLIAM BRAMWELL (Liverpool) writes: In a case of persistent hiccough—a woman of about 35 years, who it appeared had suffered almost incessantly for nearly twelve months—I accidentally discovered that on pressure over the ensiform cartilage with the stethoscope the hiccough instantly ceased, but commenced again the moment the pressure was removed. Judging that the beneficial effect of the pressure was due to relaxation of some undue tension in the central tendon of the diaphragm, I made a pad of lint and bound it tightly on so as to exert firm pressure on the cartilage. The hiccough completely ceased so long as the pad remained in position, but returned whenever it was displaced. The patient wore the pad for two or three months with great benefit, but the hiccough finally returned so that not even pressure over the cartilage would relieve it, and I lost sight of the case. I have had no opportunity of testing the efficacy of this method in other cases, but it is perhaps worth a trial in Dr. Raf's case if no osseous or other impediment exists in the cartilage.

HUMBLE BEES.

In reply to the question of "Humble Bees" in the JOURNAL of August 7th last, Mr. William Cole, the well-known Secretary of the Essex Field Club, sends to Dr. Armstrong-Jones, of Claybury, a reply of which the following is a summary: The phenomenon of dead humble bees under lime trees with the contents of the thorax eviscerated has been described in the third volume of *Proceedings of the Essex Field Club and in the Naturalist*, 1910, p. 425. Mr. W. Cole, Agent, Professor Meldola, F.R.S., Mr. J. W. Carter (Bradford), and Mr. E. Saunders, F.L.S., give several theories. First, that the abundant honey of the lime blossoms attracted *Bombus terrestris* after sunset, and the cold nights numbed and killed them; but against this view is the fact that the nectar of the lime is an excellent honey-making material, yet it is known that the honey of certain flowers—dahlia, crown imperial, oleander, and passion flower—acts on bees as a "narcotic." Secondly, that the humble bees were killed by birds, possibly the butcher-bird,

the honey of the lime rendering them an easy prey and attracting them in large numbers. Other birds are said to kill the bees, and the spotted fly-catcher, woodpecker, wagtails, the great tit, and even the nightingale have been observed to do this. Thirdly, that the wasp has actually been discovered in the act of attacking humble bees, and after mutilating them clearing out the contents of the thorax (E. Saunders, *Wasps and Ants*, 1917; Sinden, *The Humble Bee*, p. 81). Mr. Wood, gardener to Mr. Firth, of Salfaire; Mr. J. S. Wood, of Nyborg, Denmark; Mr. W. D. Roebuck, of Leeds; Mr. R. M. Christy, Mr. F. W. Pim, Monkton, co. Dublin; and the *Natural History Journal* conducted by societies in Friends' schools, vol. iv, York, 1880, have all commented upon this phenomenon which Mr. W. Cole and Mr. H. Whitehead have so kindly re-investigated and replied to.

LETTERS, NOTES, ETC.

THE writer of the obituary notice of Lieutenant T. A. Peel, R.A.M.C., published in the JOURNAL of September 11th (p. 415), regrets that there was an error in the transcription of the lines quoted from Francis Thompson. The word printed "cracked" should have been "cracked."

We have received *The Investor's Simplified Account Book* (Mortimer, Harley and Co., Ltd., 2a, 6d.). It is a convenient and portable indexed account book containing pages for the entering of "particulars of securities held," "dividends," "valuations," "securities sold," "particulars of bonds and debentures," and "particulars of certificates." It enables the investor to keep an eye on his dividends, and to see how far his investments have proved judicious.

PREVENTION OF TYPHUS.

A LETTER has been received from Dr. Howard G. Barrie, who when it was written was serving in Serbia, in which he makes the following observations: (1) Nose breathing, as infection, body-lice are undoubtedly the specific carriers. The bed-bug and flea are to be looked upon as probably innocent. The disease appears to be due to a species of direct inoculation. We have observed no clinical evidence which suggests that the route is via the nasal passages, but, on the other hand, it would appear that an occasional infection takes place through the mouth and tonsils. Nose breathing we have found to be a valuable precaution in itself. (2) In ordinary kerosene, such as is employed for lighting, we possess an efficient prophylactic against the disease, for it unquestionably kills the vermin which harbours about the body. Working under difficult conditions, such as existed in Serbia, it has proved an efficient and economical insecticide. It may be used "neat," the entire body being anointed with it once daily. Where the oil irritates the skin unduly, it is useful to dilute it with ordinary vaseline. Equal parts of kerosene and vaseline form an admirable mixture for delicate skins. The hair of the scalp, beard, axillae, and pubes should be shaved as a preliminary. The oil is then applied by immersing the hands in it and smearing it over the body from crown to soles of feet. Friction is to be avoided, as it tends to irritate. In the grim conditions associated with typhus it would be trifling to suggest that the disagreeable odour or the greasy nature of the remedy are serious arguments against its use. The question of bathing and subjecting the undergarments to dry or moist heat are obvious additional measures.

HYPOCHLORITE SOLUTIONS.

DR. RAWDON WOOD (Hove), in a note on this subject, writes: The old practitioner always chortles when one of his old drug friends comes to the fore and wins. For over twenty years I have loudly proclaimed that liquor sodae chlorinatae (*B.P.*) suitably diluted was the best, cheapest, and most satisfactory of all antiseptics. I never use it stronger than 1 in 4 and never weaker than 1 in 40. 1 in 10 is the usual strength. Why use 1 in 4 when 1 in 10 is strong enough for any ordinary case, and much less annoying to the nasal organ? The neutral solution advocated by Dr. Dakin (*BRITISH MEDICAL JOURNAL*, August 28th, p. 319) is, however, a great improvement. It is just as efficient as my old friend, very nearly as cheap, absolutely unirritating, and not nearly so pungent.

DR. T. FREDK. J. BLAKER (Brighton) writes: I see some firms are charging 3s. for half a gallon of hypochlorite solution (Dakin's formula). I found no difficulty whatever in making the same quantity for 2s.6d. according to the formula in the JOURNAL of August 28th, page 313.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive *postes restant* letters addressed either in initials or numbers.

INJURIES OF THE SUPERIOR LONGITUDINAL SINUS.

[WITH SPECIAL PLATE.]

BY

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SYMPTOMS OF INJURY OF THE LONGITUDINAL SINUS.

EXPERIENCES in the present war have made us acquainted with many conditions which are rarely seen in civil practice, and have especially presented to us groups of uncommon neurological symptoms or clinical pictures; these are also often less complicated and more sharply defined than those due to the ordinary pathological lesions with which we were previously familiar.

The vascular lesions of the brain met with in civil life, for instance, are most commonly due to arterial disease, to thrombosis, hæmorrhage or embolism, while primary affections of the cerebral veins are uncommon; on the other hand, in gunshot injuries of the head, especially when tangential or superficial, disturbance of the cerebral venous circulation by depression of fragments of the skull is frequent, owing to the superficial course of the cerebral veins and the fact that their thinner walls and the lower pressure of the blood that flows through them make them more liable to be blocked by pressure than the arteries.

The most striking clinical effects are, however, produced when the cranial sinuses into which these cerebral veins flow are affected, and in our experience much the most common of these to be involved is the superior longitudinal sinus. This receives on either side the veins which drain the mesial aspect, as well as those which carry blood from the superior half of the lateral surface of each hemisphere, while the veins from the lower part of each lateral surface pass through the Sylvian system which opens directly, or through the sinus sphenoparietalis, into the cavernous sinus. There is often, however, a fairly free anastomosis between these two sets of lateral cerebral veins, and, consequently, complete occlusion of the one set may not necessarily produce permanent blocking of the venous outflow from the area naturally drained by it. A sudden blockage may, however, lead to circulatory disturbance sufficient to abolish, temporarily at least, the functions of a part of the area normally drained by the venous system affected.

The manner in which the superior cerebral veins open into the longitudinal sinus is important in relation to the symptoms produced by lesions in its neighbourhood. This arrangement has been fully described by one of us (P. S.). Although there is no strict constancy, the superior lateral veins usually unite into four principal trunks—a frontal,

a precentral, a post-central, and an occipital; of these, the post-central is usually the largest, and, as it drains the central gyri, the most important. As a rule these veins do not open directly into the sinus, but into thin-walled lacunae that project from it over the lateral as well as over the mesial surface of the hemisphere. A small frontal lacuna receives the frontal vein, a large parietal lacuna the pre- and post-central veins, and an occipital lacuna the occipital vein. Sometimes these lacunae are more or less continuous. The larger veins either open directly into the floor of the lacuna, from which the blood finds its way into the sinus by several small openings (Fig. 1), or they may pass beneath the lacuna and open directly into the longitudinal sinus (Fig. 2). The parietal lacunae are often more extensive than is generally supposed, and may spread at least 2½ cm. on to the convexity of the hemisphere; consequently any depressed bone or direct injury in their neighbourhood within this distance of the middle sagittal line may block the venous circulation of the upper parts of the central gyri, and, owing to the thinness of their walls, this is more easily produced by pressure on the

lacunae than on the rigid sinus.

Different groups of symptoms are produced by lesions of the different lacunae, but we intend to limit our description to those due to disturbance of the circulation through the parietal lacunae, when they are predominantly those of disturbance of motion and sensation.

We have up to the present seen over 70 cases in which the longitudinal sinus was injured or the circulation in its venous tributaries disturbed in its immediate neighbourhood, that is, in the lateral lacunae, or where the veins enter it. In many of these cases there was no direct damage to the brain, either by the projectile or by depressed fragments of bone, but in others the disturbance of the venous circulation was associated with gross cerebral lesions.

The symptoms in these cases have naturally varied very much according to the severity of the injury and the region in which the sinus was damaged, but the chief features of the condition can be best conveyed by describing a typical case; other types and other symptoms which occur will be considered later.

CASE I.

Private J. H. was wounded by a bullet on December 12th, 1914. He became unconscious at once, and was unable, on admission to the base hospital two days later, to give any accurate information about himself. He was dull and apathetic, but answered questions quite readily.

There were two separate penetrating wounds, 4 cm. apart, and equidistant from the mid-line, and about 17 cm. behind the nasion—that is, slightly behind the mid-point. The entrance was on the left and the exit on the right, slightly larger and slightly anterior to it; the skull between them was comminuted.

His speech and the functions of all his cranial nerves were unaffected, but the retinal veins were swollen and the inner margins of the optic discs were blurred and indistinct.

His arms lay adducted to his side, flexed and pronated at the elbows, and were very rigid at the shoulders and elbows, but only slightly so at the wrist and in the fingers. He was unable to perform any voluntary

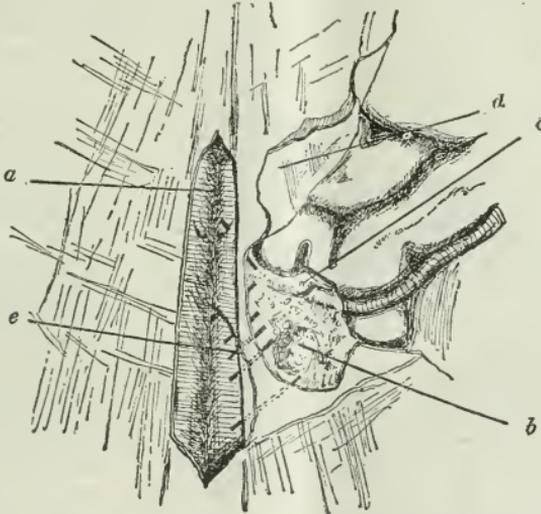


Fig. 1.—a, Superior longitudinal sinus laid open by cutting away its roof. b, A lateral lacuna, laid open in a similar manner, showing a Pacchionian tuft projecting into its floor, and at c the valve-like opening of a large cortical vein. d, Dura mater turned back to show the cerebral convolutions. e, Glass rods showing the channels by which blood reaches the sinus from the lacuna. (From a drawing by D. C. Bluet.)

movement with the right, but could flex and extend the left fingers feebly. The abdominal muscles were rigidly contracted and respiration was mainly thoracic.

Both lower limbs were very rigid and fully extended at hips, knees, and ankles, and rotated inward and adducted at the hips, so that the patellae came in contact with one another; owing to their position and their extreme rigidity they resembled strongly the lower limbs of a severe case of Little's disease. This extensor rigidity was not constant, as occasionally the limbs were found rigid in flexion, but as a rule it was so great that the limbs could not be passively flexed or separated from one another by any reasonable force. The knee and ankle jerks were much exaggerated and the hamstring-jerks were present and brisk; the flexor-jerks in the arms were also exaggerated, but the triceps-jerks were feeble; both plantar responses were extensor and the abdominal reflexes were absent. When admitted his mental state was too dull to permit a proper examination of sensation.

Three days later he had a prolonged left-sided Jacksonian fit which commenced in the face. Ten days after receiving the wound he showed definite signs of improvement; his lower limbs were still completely paralysed and extremely rigid, fully extended, adducted and rotated inwards, but he was now able to move his fingers freely, and perform feeble movements at the elbows; the shoulders were, however, still rigid and their movements paralysed.

Twelve days later all movements of the upper limbs were possible, but the proximal muscles, especially of the right, were very feeble and all efforts he made were very ataxic; both arms were still rigid at the shoulders, and the right at the elbow, and constantly lay closely adducted to the sides and flexed.

The legs, too, remained extremely rigid, extended, adducted, and rotated inwards, but he occasionally had strong flexor spasms in them, especially when turned on his side. No definite voluntary movement of either was possible, and any effort only resulted in a general contraction of all their muscles, and a slow vigorous extension if any segment of the limbs were flexed. Stimulation of either sole produced a vigorous withdrawal movement of the limb without any contralateral effect.

All the tendon jerks were greatly exaggerated, the plantar responses were of the Babinski type, and the abdominal reflexes were abolished.

The examination of sensation revealed, especially on the right side, the disturbances found in pre-cortical lesions when the stage of shock or diasthesis has passed; the lightest touches could be appreciated normally, but a certain percentage of purely tactile contacts failed to evoke a response, and this failure bore no definite relation to the intensity of the stimulus. Localization of touch stimuli was, however, not seriously disturbed. There was no diminution to painful stimuli, and no definite subjective difference in pin-pricks between normal and possibly affected parts. The appreciation of position and of passive movement was almost completely lost in both lower limbs and in the right arm, but was little affected in the left arm; and corresponding thereto the discrimination of Weber's compass points was much disturbed in the legs and in the right arm; the two points could be distinguished 1 cm. apart on the left palm, while on the right they could not be recognized at double this distance, or on the soles when separated to 10 cm.

During the time he remained in the base hospital he had slight difficulty in passing urine, and occasionally incontinence; this he explained as due to the fact that he could "only hold his water for five minutes or so," and that if it then passed involuntarily if he did not receive a urinal.

He was evacuated to England five weeks after receiving the wound, and had gradually improved during this time. His subsequent history is not at present known.

In other cases we have been able to keep the patients longer under observation and in some instances learn of their subsequent course. From our own observation we are of opinion that when the brain itself has not been at the same time damaged by the missile the symptoms due to obstruction of the venous circulation diminish gradually, and will eventually disappear, almost or entirely; and this impression is borne out by the later histories we have received of patients transferred to England. The degree and rate of improvement may depend as much on the inconstant anatomical arrangement of the veins and the amount of anastomosis between the two lateral venous systems as on the severity of the lesion.

Such relatively rapid improvement in a severe case may be illustrated by

CASE II.

Lance-Corporal S. was wounded by a bullet at short range on December 21st, 1914. He was unconscious for a short time and was afterwards unable to move either leg or his right arm. Speech was, however, unaffected, and he had only slight headache.

There was a sagittal gutter wound of the scalp 5 cm. long, its anterior end slightly to the left of the mid-line and vertically above the tip of the mastoid, and its posterior end on the mid-line, with fracture of the outer table and probably depression of the inner table.

When he entered the base hospital, two days after receiving the wound, his face and tongue were unaffected, but the right arm was completely paralysed. The power of his left arm was unaffected, but there was considerable sensory ataxia in its movements. The lower limbs were also powerless and the right especially was rigid.

All the deep reflexes were exaggerated, stimulation of the soles gave extensor responses, and the abdominal reflexes were absent.

The sense of position and the discrimination of compass points were lost in the right arm and in both lower limbs, but tactile and painful stimuli were normally appreciated everywhere.

He was occasionally incontinent, which he attributed to the fact that often he did not feel when he should pass urine.

Five days after the wound there was some return of power in the right fingers, wrist and elbow, but the movements he could execute were weak. His legs were still rigid and motionless. A week later all movements of the right arm were possible and those of the distal segments almost quite strong, but the limb was very ataxic owing to severe disturbance of sensation in it. His legs were less rigid and he was now able to flex and extend both hips, but no movement of the knees, ankles, or toes was possible. The sense of position, the appreciation of passive movement, the discrimination of compass points, and the localization of tactile stimuli were seriously disturbed in his right arm and in both lower limbs, but light touches, painful stimuli and vibration were normally appreciated. The recognition of form (stereognosis) was also defective, but not quite lost, in the right hand.

Five weeks after being wounded his right arm was slightly weak only at the shoulder, but was still ataxic, and he could now execute all movements at the hips and knees, but they were weaker than normal; the ankle and toe movements were still completely paralysed. The deep reflexes were still much exaggerated, and ankle clonus was present on both sides, as well as the Babinski sign.

The rapid improvement of his symptoms continued till he was evacuated to England two months after being wounded. His right arm was then quite strong and all movements of both lower limbs were possible, though the distal segments were still slightly weaker than normal. His legs could now bear his weight, but he needed assistance in walking, owing to the marked ataxia of these limbs due to the sensory disturbances, which, though less pronounced, were still considerable.

We have learned from Dr. H. Head, under whose care he came in England, that five and a half months after the infliction of the wound he could perform all movements of both lower limbs, but he could not yet walk alone owing to the pronounced sensory ataxia of his legs.

PATHOLOGICAL CHANGES TO WHICH SYMPTOMS ARE DUE.

Before we discuss the symptoms in this large group of cases it will be advisable to consider the pathological changes to which they are due. We have been able to study these pathological lesions in a certain number of cases by *post-mortem* examination and have obtained microscopical preparations of the affected areas in a few, but the opportunity for a complete histological examination has not yet occurred.

We have already stated that in many of the cases in which the chief symptoms were due to injury of the longitudinal sinus or its tributary veins, associated lesions of the brain existed, and in describing the essential pathological changes it will be obviously necessary to separate such cases from those in which the venous system only has been directly damaged.

The most common type of injury is a gutter or tangential wound at the middle line of the head, which may be either

sagittal, coronal, or oblique. In many cases the skull, though exposed, showed no evidence of fracture of the outer table, either to inspection or on a ray examination, but the latter generally revealed a depression of the inner table at or near the middle line. In other patients both outer and inner tables were depressed, and if the damaged bone was removed it was seen to present a spoon-shaped depression in the skull, the inner table being more depressed than would be expected from a superficial examination. Such depressions as a rule merely compressed the sinus or its lacunae and rarely injured their walls. Frequently, however, the injury was a perforating wound or an in-and-out wound of the skull, the entrance and exit being on opposite sides of the middle line and close to it, with considerable comminution of the bone between them; here the sinus was generally lacerated, and in certain instances it was completely cut through by the missile, but it was occasionally only compressed by indurated fragments of bone.

On removing the skull-cap *post mortem*, or on operation, a thrombus was usually found in the longitudinal sinus, its character depending on the duration of the case, but as the sinus is divided up by irregular transverse trabeculae and held open by its rigid walls and the support it receives from the dura mater, it is probable that in many cases the thrombus did not occupy its whole lumen. When the injury lies to one side of the middle line the thrombosis may be limited to the lateral lacuna beneath it.

When the dura mater was removed the most striking feature was the condition of those superficial cortical veins which enter the sinus at the position of the wound; these were swollen, firm to touch, and could not be emptied by pressure, and there frequently seemed to be congestion of the neighbouring veins which were not actually thrombosed.

Figs. 3 and 4 in special plate). The superior parts of the hemispheres which are drained by these veins were usually swollen and their convolutions flattened by pressure against the inner surface of the skull, and generally firm to touch. On section there was obviously much oedema of the cortex and subcortical white matter, and minute haemorrhages, which were grouped more closely in the neighbourhood of the wound, were found (Fig. 5 in special plate). In a few instances there was an actual softening near the mesial fissure, the disintegrated brain matter being blood-stained, and punctiform haemorrhages were found in the cerebral tissue around it.

In a few of the cases which came to *post-mortem* examination, and in others in which the condition could be observed during operation, there were widespread subdural haemorrhages, which usually formed a thin layer of blood over the convexity, and sometimes extended to the base of the same hemisphere; in other cases cerebrospinal fluid removed by lumbar puncture was either blood-stained or straw-coloured. These superficial haemorrhages undoubtedly produced some rise of intracranial pressure and contributed to the severe headache with which many of these patients suffered, but they seemed to play a subordinate part in the production of the other symptoms. Thin layers of haemorrhage into the soft membranes and even subpial haemorrhages are common.

Under the microscope the most striking change is the oedema of the affected areas, which is more prominent in the white than in the grey matter. Many of the superficial veins may be thrombosed and the rest are much congested. Minute haemorrhages occur in both the grey and white matter, but chiefly in the proximity of the wound; many are mere perivascular extravasations. Occasionally slight perivascular round cell infiltrations are met with, especially in the neighbourhood of softenings. The walls of the latter consist of disintegrated tissue and large numbers of granule cells.

The nerve cells in the affected areas show pronounced changes; they are generally swollen and in advanced chromatolysis, the Nissl bodies having disappeared, or being represented merely by irregular clumps at the periphery of the cell. Many cells, however, appear almost homogeneous and hyaline, and, in relation to the age of the patient, often contain an excess of pigment when death did not occur soon after the infliction of the wound.

DISTRIBUTION OF MOTOR SYMPTOMS.

When we look at the clinical symptoms we are at first most struck by the unusual distribution and the type of the motor paralysis.

The extent of the palsy naturally varies according to the site, severity, and extent of the lesion; we at present have notes of 20 cases in which all limbs were affected; in 31 both legs and one arm were weak; in 16 only the lower limbs were affected; in 6 the symptoms were mainly hemiplegic, and in 5 one leg alone presented any palsy.

The distribution of the paralysis and its relative severity in different segments of the limbs is, however, peculiar, and differs from that of the cerebral palsies most commonly seen in civil practice. As in Case 1, when the upper limbs are affected, the finger movements either escape, or are weak for only a short time after the injury, and rapidly recover and regain their normal power. The hand movements have never remained long weak except when the sinus condition has been complicated by an

independent injury of the brain. The wrist movements, and especially those of the elbows, are affected more severely and recover less rapidly, while those of the shoulder often suffer when the more distal segments of the limbs escape, and recover much less quickly when the whole limb has been involved.

It is consequently the more proximal segments of the upper limbs which are most seriously paralysed, and the weakness diminishes distalwards. In this respect the paralysis contrasts strongly with that seen in the ordinary hemiplegia due to vascular lesions, in which the distal segments of the upper limbs are almost invariably more severely affected than the proximal, and recover less rapidly. Further, a definite paresis of the face or tongue is extremely uncommon, and is at the most transient, while speech is never affected in the pure sinus injuries. The trunk muscles may be, however, affected, especially those of the back; the patient is then unable to sit up and often cannot roll over in bed.

The distribution of the palsy in the legs is the converse of that of the arms; here it is always the distal movements that suffer more severely, and in slight cases and during the recovery of more severe ones we have

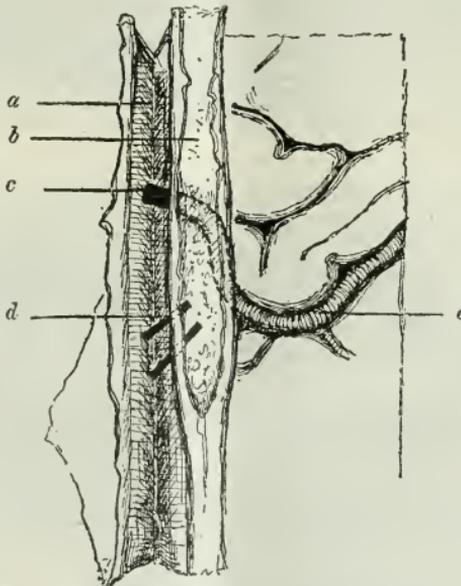


Fig. 2.—a, Sinus laid open as in Fig. 1. b, An elongated lateral lacuna similarly opened. c, Glass rod inserted into the mouth of a large cortical vein, e, which is seen running beneath the lacunar floor. d, Glass rods showing openings from the lacuna into the sinus. (From a specimen in St. Thomas's Hospital Museum.)

repeatedly seen complete paralysis of the toes and ankle only, with the knee movements only relatively weak and those of the hips strong.

This distribution of the paralysis and its relative severity in the different segments of the limbs obviously depends upon the arrangement of the cortical motor centres and on that of the cortical veins. The motor centres for the lower limbs are arranged from above downwards on the apex and lateral surface of the hemisphere in the following order: movements of the toes, ankle, knee, hip; then the small motor centres for the trunk movements intervene, and below them come in succession the motor centres for the shoulder, elbow, wrist, and fingers. On the other hand, the superior cerebral veins which open into the longitudinal sinus drain the central gyri, as a rule, to just below the inferior genu of the fissure of Rolando, which corresponds approximately to the centre for the wrist movements, and if the area they drain be put out of function a complete paralysis of the voluntary movements of the opposite lower limb, shoulder and elbow, with weakness of the wrist movements, and little disturbance of those of the fingers, might be expected.

The distribution of the lateral cerebral veins and the amount and the freedom of the anastomosis between the superior and the inferior systems apparently vary greatly, and this will naturally influence the extent of the paralysis, even though there be complete occlusion of the superior system; but if the lesion is slight and the occlusion is incomplete, the circulation through the smaller and more slender veins that drain the apex of the hemisphere and its mesial aspect would be more liable to become blocked than that of the larger and more thick-walled vessels; in this case only the motor centres for the more distal segments of the lower limb may suffer.

Further, while a mesial lesion is liable to produce bilateral symptoms, a one-sided paralysis of the same type may result from an injury to the one side of the middle line, which blocks the circulation through a lateral lacuna or in the veins as they enter the sinus.

When these symptoms which we attribute to venous lesions, and especially weakness of both the lower limbs, result from an injury of the vertex of the skull in the neighbourhood of the upper ends of the fissures of Rolando, they might be attributed to direct damage or to compression of the motor centres which lie under the wound. But, in the first place, the type of the paralysis, and especially the rigidity associated with it, is unlike that which occurs when other parts of the motor cortex are injured or compressed, and in the second, as in Case 1, the paralysis is often too extensive in relation to the severity of the wound to permit the assumption of a direct injury. Thirdly, as the lateral parietal lacunae overlie the more mesially situated motor centres they must obviously be involved by any injury that would directly damage or compress the cortex.

RIGIDITY.

Even more striking than the unusual distribution of the paralysis is the rigidity which is almost always associated with it. It is generally coextensive with the paralysis, and closely related to it in its degree. Thus it is always most pronounced in the lower limbs, and, when the upper are also involved, it is greater at the shoulder than at the elbow, and is rarely present and never pronounced in the wrist or fingers.

The early onset of this rigidity is another striking point; we have seen it well marked within twenty-four hours of the infliction of the wound, and in some instances at least it has been noticed by the patient almost at once. It has

shown no tendency to increase after the patients have reached the base hospitals, that is usually within forty-eight hours, but on the other hand it gradually diminishes *pari passu* with any return of power that may occur. The rigid limbs generally assume very characteristic attitudes; when the arms are affected they lie closely adducted to the sides and rotated inwards, with the elbows flexed and pronated, and in severe cases the wrists and fingers in moderate flexion. Even the trunk muscles may be involved, and then the abdominal wall is unnaturally rigid and respiration is mainly thoracic; in a few cases, indeed, there has been slight difficulty in coughing, and phonation has been monotonous and toneless owing to the poor inspiratory intake.

As a rule the lower extremities lie fully extended at all joints, firmly adducted and rotated inwards, with the feet occasionally crossed; in fact, the attitude is practically identical with that which is so characteristic of a severe cerebral diplegia. In certain cases, however, the knees are partially flexed, but they are always adducted and rotated inwards.

The rigidity is often so great that the resistance to passive movement is extreme; it may, for instance, be quite impossible for a man of moderate strength to separate the knees. If passive movement is possible, it is found that the rigidity involves all groups of muscles and is more or less equal whether the limb is passively flexed or extended. It is also continuous throughout the whole range of any passive movement that is made, and it has never shown any tendency to the "clasp-knife type."

We have also observed that peripheral stimulation, as pricking the sole or palm, increases the rigidity, and the legs may become more rigid when the patient coughs or attempts any strong voluntary movement with his arms.

It is interesting and important that, despite the great rigidity, there seems to be very little tendency for contractures—that is, organic shortening of the muscles—to develop; in one severe case, of which, through the kindness of Dr. Head, we have heard six months after the

infliction of the wound, no contractures have occurred, although there was for a considerable time great rigidity of the legs.

Reflex spasms of the lower limbs have been associated with the rigidity in a certain number of cases; they have been of the flexor type, and in one case at least occurred from the day of the infliction of the wound. They may be so severe as to cause considerable discomfort to the patient, but gradually diminish in frequency and severity as improvement sets in. Reflex withdrawal of the legs can be easily evolved by peripheral stimulation, especially of the soles, but in only one case have we a definite record of an associated contralateral extension of the opposite limb.

In the rigid cases the tendon-jerks have been much exaggerated from the earliest moment at which they have come under observation, a striking feature, as in ordinary hemiplegia and in cerebral palsies directly due to gunshot injuries of the head these reflexes are frequently absent for some time; but when the limbs are in rigid extension the extensor reflexes—that is, the knee and ankle jerks—are much brisker than the hamstring-jerks, while if in flexion the latter jerk has the more exaggerated. Similarly, in a case in which the elbows were rigid in flexion, the flexor reflex—that is, the biceps-jerk—was much increased, but the extensor reflex—the triceps-jerk—could not be obtained.

The great toes are usually permanently extended, and a typical extensor response is usually obtained on stimula-

DESCRIPTION OF SPECIAL PLATE.

Fig. 3.—Photograph of the left side of a brain, with the dura mater thrown back over to the right to show its inferior surface and the lateral surface of the left hemisphere. The frontal and parietal lacunae are surrounded by broken lines; the entry of the larger cerebral veins into their under surfaces is clearly seen. Those entering the frontal lacunae, as well as the smaller vein which passes from the precentral sulcus into the parietal lacunae, are thrombosed, but the main post-central veins escape. The dura mater was not torn, but the sinus was compressed between the points A and B by a depressed fracture of the vault. For the sake of clearness the smaller veins which entered the sinus or lacunae have not been preserved in this dissection, or in that from which Fig. 4 is taken.

Fig. 4.—Photograph taken as in Fig. 3. In this case the frontal and parietal lacunae were not definitely separated, and are both enclosed by a broken line. The condition is similar, and the lacunae were compressed by a depressed fracture between A and B, and the veins which enter it at this region are completely thrombosed. The swollen oedematous condition of the brain in the region of the thrombosed veins is obvious.

Fig. 5.—A sagittal section of a brain to show the multiple small haemorrhages into the affected region, a subarachnoid haemorrhage on its surface, and the oedema of the grey and white matter extending backwards behind the fissure of Rolando.

GORDON HOLMES AND PERCY SARGENT: INJURIES OF THE SUPERIOR
LONGITUDINAL SINUS.

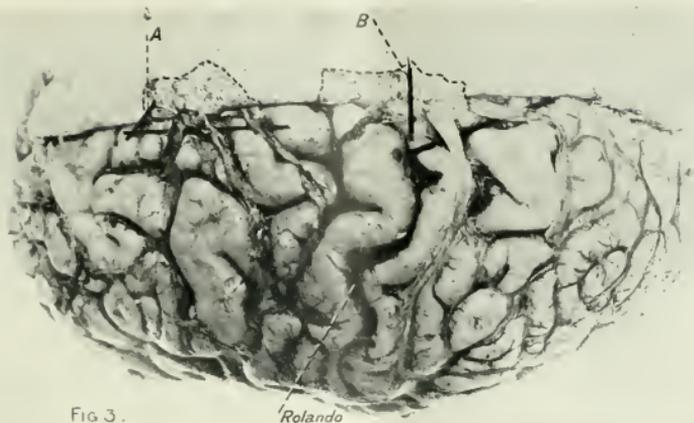


FIG 3.

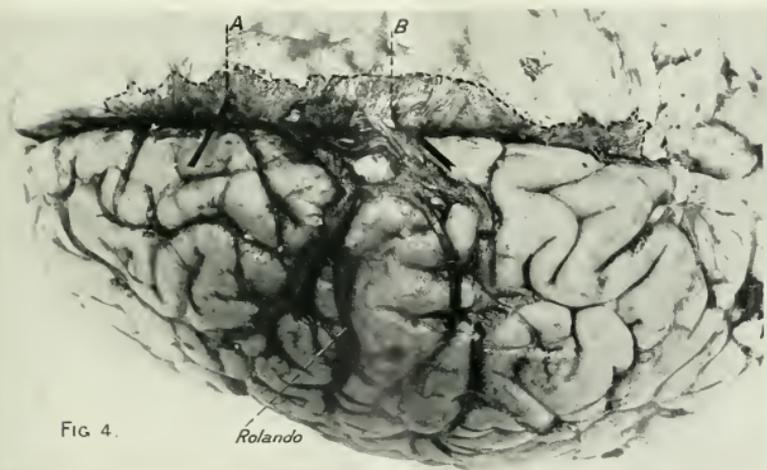


FIG 4.



FIG 5.

tion of the soles, but in a few cases there has been a definite flexor response, although there was unquestionably motor paralysis of the distal segments of the lower limbs. Naturally this is also obtained in another type, to which we shall later refer, in which the inability to move the limbs is due to sensory disturbance only.

Perhaps the most interesting physiological problem presented by a study of these cases is this extreme muscular hypertonus which appears very early after the injury and is closely related to the paralysis of voluntary movement. It is obviously impossible to enter here into the complex problem of the pathogenesis of rigidity, but it is now generally assumed that, as Hughlings Jackson originally taught, the increase of tone is due to removal of the inhibition which higher centres, and in this case the cerebral cortex, normally exert on the lower nervous mechanisms which maintain tone in the muscles. In an ordinary hemiplegia due to a cortical or internal capsular lesion the affected limbs are, apart from some transient early rigidity, flaccid for ten days at least, and lose their tendon reflexes for a shorter period, and we have found the same condition in severe traumatic cerebral lesions. There must be consequently some essential difference in either the site or the nature of the pathological condition which produces paralysis in these cases, which we may group together under the title of the "Longitudinal sinus syndrome." It appears improbable that the level of the injury—that is, the portion of the upper motor neurone that is involved—is the essential factor, as it is only the cell bodies and the upper portions of their axis cylinders which suffer with thrombosis of one of the cortical arteries, and we assume that it is only the cell itself that is temporarily put out of function by a prolonged local epileptic attack, in both of which conditions the palsy is flaccid. This temporary flaccidity, which is later followed by an exaggeration of muscle tone, is attributed to the effect of shock, which depresses for a time the activity of the lower centres that reflexly maintain tone.

If we look for any possible peculiarity in the nature of the cerebral lesion in these sinus cases we are at once struck by the remarkable absence of evidence of such shock. This is especially seen on investigating the disturbances of sensation which they present; while in the early stage of an ordinary case of cortical hemiplegia the sensory loss is partly due to functional disturbance produced by shock in the subcortical sensory mechanisms, in the cases we are considering here the sensory loss, even in the earliest stage, is almost invariably such as can be attributed wholly to a pure cortical lesion. It must be remembered, too, that the damage to the cortical cells associated with this sinus thrombosis is not complete or irrevocable; the nature of the histological changes, and the fact that a remarkable degree of recovery of function may occur is evidence of this, but it is improbable that the type of cell change produced by the oedema and ischaemia of the brain can be the explanation of this early persistent rigidity. On the other hand, we are probably correct in assuming that the venous thrombosis produces a pure cortical paralysis unaccompanied by any shock effect on the subcortical centres which subserve muscle tone.

Disturbances of Sensation.

The sensory disturbances in these cases are especially interesting, as they are almost always those of a pure cortical lesion unaccompanied by any shock effect. The appreciation of pain and temperature is unaffected, and there is no definite diminution of tactile sensibility, but a certain number of light contacts are not recognized; there is, however, no threshold alteration, and the proportion of those missed is not directly related to the intensity of the stimulus. On the other hand, the localization of tactile stimuli, the recognition of the position and of passive movements of the limbs, and of form, shape, and size, as well as the discrimination of the compass points, may be seriously disturbed. The slightness of the affection of cutaneous sensibility has been frequently astonishing, as many patients have complained spontaneously of numbness or of having "no feeling" in their legs.

When the wound has been some distance behind the upper ends of the fissures of Rolando, sensory symptoms have been the most prominent feature. One man, in whom there was a superficial coronal wound of the skull

6 cm. behind the mid-point, had no demonstrable weakness of his legs or change in their reflexes, but he complained that both legs were numb, and on examination profound loss of the sense of position and in the discrimination of compass points was found. Owing to this sensory loss he was unable to walk, and on trying to do so only staggered and fell about the room; Romberg's sign was also well marked.

It is, of course, known that when the sense of position and the appreciation of movement are suddenly and completely abolished in a limb, aimless involuntary movements of it may occur spontaneously. This was well illustrated by one case in which an oblique tangential wound crossed the mid-line 7 cm. behind the mid-point. It is possible that the brain was directly damaged by undriven fragments of bone, but more probable that the symptoms were due to venous thrombosis. There was no weakness or rigidity of his legs, though both were very ataxic, and the reflexes were normal, but in both there was pronounced sensory loss of the cortical type. When his legs were uncovered both were jerked about at irregular intervals in a curious aimless and irregular manner. Sometimes the one was raised from the bed and either thrown across or separated from the other; at other times it was quickly drawn up and extended again, or the foot was dorsiflexed or the toes moved about. The patient became conscious of the movements only when one leg touched the other or when it fell to the bed. In their impulsive, aimless, and inco-ordinate character these movements were very similar to those of chorea.

DISCUSSION OF OTHER SYMPTOMS.

In a certain number of cases the functions of the bladder were affected. In the majority of these there was at first some difficulty in passing urine, or even retention necessitating the use of a catheter in one case for as long as five days, but this symptom always disappeared rapidly. Less frequently incontinence occurred, owing to deficient cerebral control, and in a few patients persisted for a considerable time; the bladder apparently emptied itself reflexly when it had filled to a certain point, and some patients, as Case 1, explained that they were able to hold their water for a few moments only after the desire to micturate had come.

As a rule the functions of the cranial nerves were unaffected, but in several patients the ocular movements were disturbed. In one group there was either temporary weakness or paralysis of the associated conjugate movements of the eyes without ptosis or affection of the pupils; one patient, in whom all four limbs were affected, was unable to move his eyes to order in any direction except slightly downwards, but he could follow, though not fully, a finger which was moved to either side or upwards. The visual axes always remained parallel. Within a fortnight, however, all movements had returned, and only upward deviation was at all defective. There was a similar inability to perform all conjugate ocular movements in another patient in whom all four limbs, excepting the fingers, were paralysed, and this persisted till his death on the fifth day after the infliction of the wound. More commonly, however, there was only weakness of the lateral conjugate movements of the eyes to one or both sides, or much effort was needed on the part of the patient to perform them.

We have not yet been able to make the histological examinations necessary to determine the cause of this palsy of the conjugate movements, but it seems probable that it is due to a temporary paralysis of the centres for ocular movements in the posterior part of the second frontal convolutions. We have occasionally observed a similar defect in local lesions of this region.

In other cases—8 in all—we found an isolated palsy of one or other oculo-motor nerves, generally of the third, or of the third and fourth cranial nerves. This proportion is very striking when we consider the comparative rarity of ocular palsies in other types of gunshot wounds of the head; it seems probable, therefore, it is related to the lesion we are considering. On the other hand, it might be due to a fracture of the base of the skull, to basal meningitis or haemorrhage, or to the effect of the considerable rise of intracranial pressure which is so often present in these cases. In some cases, however, in which a *post-mortem* examination was made, we could exclude

basal lesions, and in only 2 of the 8 cases was the sixth nerve affected, although it is, of course, known that this nerve is much the most liable to suffer from a pathological increase of intracranial pressure.

Fits were observed in ten of the patients; in two both sides of the body were involved, but they were limited to one side in the others. From the descriptions we received, as well as from our personal observations, the unilateral seizures apparently commenced in the face or hand when there was extensive palsy of the convulsed side, or in the lower limb when the paralysis was limited to its distal segments; that is, the excitation started either in motor centres which were only partially damaged, or in their immediate proximity.

Other complications are relatively rare. Meningitis occurred in some in which the dura mater had been lacerated and the brain damaged directly; and in one a general pyaemia, from which, however, the patient recovered, developed secondarily to a septic wound of the sinus. It is surprising that we have encountered only this one case of general infection considering how commonly pyaemia occurs in connexion with septic bone related to the lateral sinus. A secondary hemiplegia occurred in two cases; in one after an operation in which the longitudinal sinus bled freely and had been plugged with gauze, and in a second thirteen days after the infliction of the wound and ten days after an area of depressed bone compressing the sinus had been removed.

The general symptoms of intracranial pressure have been as a rule pronounced. Most of the patients have suffered considerably from headache, and in some it has been particularly severe. In five cases there was also definite optic neuritis with considerable swelling of the discs, and not merely such congestion and blurring of their edges as is seen in a large proportion of all gunshot wounds of the head. In four of these cases at least we could exclude meningitis and secondary cerebral abscesses, and must consequently attribute the ophthalmoscopic changes to the oedema and swelling of the brain.

TREATMENT.

The treatment of injuries of the longitudinal sinus presents considerable difficulties. When there is a defect in the skull to one side of the middle line, and the brain is lacerated by indriven fragments of bone, the wound should be dealt with as if it lay in other regions of the head, but special care is necessary to avoid and control the serious haemorrhage that is apt to occur from the sinus or its lacunae.

If the symptoms are due, however, only to compression of the sinus or its lacunae the immediate removal of the compressing bone would at first sight appear to be the rational treatment; but experience has shown that the results of surgical interference have been extremely unsatisfactory. Among 39 cases we observed which were operated upon either by ourselves or others, 15 deaths occurred in the base hospitals, while only one among the 37 unoperated upon cases died before transfusion to England. These figures have not, of course, an absolute value, as it was naturally the most serious cases which were on the whole selected for operation, and in 7 of the fatal ones there was, in addition, some direct injury of the brain. They are, however, sufficient to emphasize the danger of operation.

On the other hand, it must be remembered that the uncomplicated cases show a remarkable tendency to improve, probably owing to the free venous anastomosis permitting a re-establishment of the circulation.

If operation is necessary, it is advisable to remove bone all round the depressed portion, and only then elevate this; for if haemorrhage occurs the surgeon is then in a more favourable position to control it. As a rule, some bleeding from either the sinus or its lacunae occurs when the fragments of bone are removed, but it can generally be arrested by placing a piece of pericranial tissue or muscle on the laceration, keeping it in position for a short time by moderate pressure, and then carefully replacing the scalp flap over it. The method is certainly preferable to arresting the haemorrhage by a gauze plug, as it is not so liable to produce further thrombosis. When the sinus is completely divided or much lacerated a plug may be, however, necessary.

When there are serious symptoms of intracranial pressure a subtemporal decompression may be necessary;

it was performed in a few of our patients. It is, of course, a safer operation than a large opening in the neighbourhood of the wound, as the latter exposes the patient to the risk of intracranial infection from the septic scalp.

We have, however, found lumbar puncture, repeated frequently if necessary, sufficient to relieve the pressure symptoms in several cases.

It might naturally be expected that an injury which damages the sinus, or the lacunae and their tributary veins, might be complicated by the occurrence of a subdural haemorrhage, especially as the somewhat similar injuries in the newly born which produce cerebral diplegia have been shown by Harvey Cushing¹ to be frequently associated with such haemorrhage; and one would on these grounds be tempted to perform a subtemporal decompression in cases which show evidence of a high degree of intracranial pressure, especially when prolonged or increasing. Both operative experience and *post-mortem* examinations, however, have made it clear that such haemorrhage is rare. When it does occur it takes the form of a thin film of blood spreading over the cortex down to the base of the brain—a condition in which surgical interference is unnecessary and undesirable. In only one case in our series was there a haemorrhage of such magnitude as to need operative relief, and in this case the progress of the symptoms gave definite information before the operation was undertaken.

REFERENCE.

¹ *Amer. Journ. of the Med. Sciences*, October, 1905.

THE TREATMENT OF GUNSHOT WOUNDS OF THE HEAD, WITH SPECIAL REFERENCE TO APPARENTLY MINOR INJURIES.

BY

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The number of patients who arrive at the base hospitals with gunshot wounds of the scalp is large. As their injuries are apparently superficial and their symptoms few or none, they frequently come down as "sitting" cases, and on arrival there is a tendency to overlook the fact that among them there is a fairly high percentage of cases with definite injury to the skull or to the skull and brain.

The following analysis of the lesions found at operation in 140 cases demonstrates that any scalp wound should be viewed with grave suspicion and the necessary measures to determine the presence or absence of a fracture of the skull taken.

Scalp wounds only	82
Fracture of outer table only	19
Fracture of inner table only	1
Fracture of both tables, dura uninjured	18
Fracture of both tables, dura lacerated	1
Fracture with laceration of dura and brain.. .. .	19
	140

Excluding scalp wounds only, the percentage of head injuries = 41.5; excluding scalp wounds and fractures of outer table only, 27.8.

A careful examination of the patient should be made, and any disturbance of cerebral function or lesion of cranial nerves observed. The optic discs should be examined. The anamnesis is important. If unconsciousness is caused at the time of injury by the force transmitted by the bullet or piece of shell which is concentrated on a very small area of the skull, the chances are considerable that at least fracture, and possibly injury of the brain, has been caused. The latter is more probable if the unconsciousness has been deep or prolonged. Transient local paralysis, or the occurrence of local spasm or epilepsy does not necessarily indicate gross trauma of the brain, but in such cases at least depressed fracture or localized haemorrhage may have occurred. Persistent headache should be viewed with suspicion.

Owing to the difference in velocity of the missile, and therefore to the difference in the momentum imparted to the tissues displaced when the skull is struck, an injury to the skull or brain is usually far less severe when caused by a non-penetrating shrapnel bullet or piece of shell than when caused by a non-penetrating rifle bullet which strikes the skull tangentially. The injury is the same in kind in both cases.

1. There may be propulsion of fragments of bone into the brain substance.

2. Though no fragments of bone are forced into the brain, yet the dura may be lacerated by the displaced bone, which may spring back again, and the momentum imparted to the superficial pulped area of brain substance may force that inwards, or the commotion above may be transmitted onwards, so that a track indistinguishable from that caused by the passage of a foreign body is formed. The pieces of bone removed at the operation should therefore be carefully examined to see that none are missing; and if this examination is impossible or unsatisfactory, the track should be explored by the finger.

3. Even though the dura is not lacerated, this pulp of the brain may be quite marked. The disintegrated brain substance is of no use; it acts as a foreign body, causing further destructive changes in the brain substance around and should be allowed to escape through a small crucial incision in the dura. On the other hand, cerebral symptoms may be due to concussion or other cerebral injury which cannot be relieved by operation. At the same time a severe lesion may be present in the absence of severe symptoms, as the following cases show.

CASE I.

Sergeant-Major B. Admitted four days after injury with a small circular wound $\frac{1}{2}$ in. in diameter above inner end of left eyebrow. The wound was covered with a dry scab. The patient complained of a slight frontal headache, otherwise nothing abnormal was discovered. A skiagram showed a shrapnel ball just inside the skull. At operation the wound was excised and a flap turned down. The ball was lying between the skull and dura and a piece of bone, consisting of outer table the size of the ball with a larger piece of inner table, was removed from a depth of 2 in. in the frontal lobe. The brain was drained for a few days through the original wound and three months later the patient returned to the front.

CASE II.

Private G. R. Admitted five days after injury with a similar wound in the same situation. A piece of shell had been removed at a clearing station. There were no symptoms, not even headache. On picking off the scab, the serous fluid in the wound pulsed. At operation several pieces of bone were found in the frontal lobe at a depth of $\frac{1}{2}$ in.

CASE III.

Private W. C. Admitted to a general hospital with a small wound of forehead. Slight headache for the first two days. Remained in hospital for eight days and then discharged to base, where he stayed a week. At the end of the week a swelling appeared under the wound which up to then had been painless and covered with a small dry scab.

On admission to No. 5 General Hospital, a small circular wound, $\frac{1}{2}$ in. in diameter and $\frac{1}{2}$ in. above the outer end of right eyebrow, was discovered. The tissues around were swollen and oedematous, the swelling extending down the right cheek. The scab was removed, and an ounce or so of pus evacuated. Under treatment with hypertonic salt solution, the swelling and oedema rapidly disappeared. A skiagram showed several small fragments of bone in the brain, but no obvious hiatus or fracture.

Operation.—The wound was excised and enlarged. A small hole in the bone was discovered. After trephining, a lacerated track in the brain was found filled with deliquescent brain matter and pus. Several fragments of bone were removed from a depth of 2 in. A tube was inserted into the brain and the inner part of the wound sutured.

A culture from the brain abscess yielded *Staphylococcus aureus*.

He was sent to England with a clean granulating area at the outer end of the wound. The sutured portion united by first intention. Throughout his stay in hospital he had no headache or other cerebral symptoms.

EXAMINATION.

A skiagram should be taken, preferably at right angles to the wound. Too much reliance should not be placed on the results, as in several instances a depressed fracture has been found, which was not shown in the plate, and in two cases, where the plates apparently showed depressed fractures of the inner table, no such lesion was found. At the same time much valuable information is usually gained, especially as to the presence and situation of metallic foreign bodies.

The wound should on no account be probed, as in this way superficial infection is carried into the depths of the wound. If the wound is very septic and the scalp around is oedematous, it is preferable, if there is no urgent indication for operation, to apply hypertonic saline treatment for

a day or two before operating. Urotropine, 20 grains, three times a day, should be given to all head cases from the time of admission. The scalp should be completely shaved and painted with iodine.

OPERATION.

The first step of the operation should be excision of the scalp wound. Unless the edges are undermined, a narrow margin suffices. The scalp is steadied with the fingers and two incisions surrounding the wound are made passing down to and including the pericranium, the island of tissue so isolated is then picked up with forceps, stripped off the bone from one end to the other and removed. The instruments used are then rejected. By this procedure in most cases the whole of the infected tissues are removed and an uninfected wound remains to be dealt with.

This incision should always be the first step and should not be postponed to a later stage in the operation. The wound should never be enlarged by incision through its septic edges without preliminary excision, as by this procedure primary union is rendered very improbable. The bone is now examined by the eye and finger, the pericranium being further stripped up if necessary and if no bony injury is found, the wound is sutured without drainage. If a fracture is discovered, it is necessary to obtain more room, and, as pointed out by Colonel H. M. W. Gray, this in the majority of cases is best done by enlarging the wound and not by turning down a scalp flap, unless when the lesion is extensive or multiple. In ordinary head operations the value of a flap is evident, but in these cases a wound is already present directly over the lesion in the brain, and its extension does not add to the disabilities already present. In actual practice it is found that sufficient room is readily obtained.

If there is bony injury it is dealt with on the same lines, a $\frac{1}{2}$ in. trephine crown being raised and the possibly infected bone cut away with craniectomy forceps, all loose fragments of bone being removed.

If the dura is uninjured the wound is then closed without drainage and mastic wound varnish and gauze applied. For twenty-four hours a firm compress of gauze is banded on.

When a laceration of the brain is found, the track is very gently explored by the index finger and any fragments of bone or metal removed if readily accessible, a drain is placed into the brain, and the wound sutured as before.

Results.

Of the 118 cases in which primary suture without drainage was practised, 114 healed by primary union. Of the remaining 4, 3 which came early in the series showed slight superficial sepsis for a few days, and 1, where a too early attempt to suture a wound caused by opening an abscess in the scalp was made, broke down altogether. In a number of these cases two or more wounds were excised, so that the percentage of primary union is really higher than is shown by the figures. The size of the wound sometimes renders suture difficult, but by freeing the scalp for some distance around the wound by lifting the cranial aponeurosis with an elevator approximation of the edges was obtained in all but the two following cases. These results should correct the opinion which has sprung up in some quarters that it is difficult and undesirable to obtain primary union in excised scalp wounds.

CASE IV.

Corporal D. was admitted in an irritable condition. No paralysis, no changes in optic discs. A very foul lacerated wound, 6 in. by 3 in., was present in the occipito-parietal region. After three days' treatment with hypertonic saline the wound was excised and a fissured fracture 4 in. long with no depression was found. On trephining comminution of the inner table for an inch on either side of the fissure was discovered, the fragments lying loose in blood clot. The fragments were removed and the wound sutured, deep tension sutures passing through rubber tube being used. For an inch in the centre of the wound the edges were $\frac{1}{2}$ in. apart. The wound healed by first intention, and at the end of a week the edges of the central part were freshened and the wound completely closed.

CASE V.

Sergeant H. Large septic lacerated wound left temporal region. Wound excised and enlarged. Depressed gutter fracture. Trephined, bone removed with craniectomy forceps. Dura bruised, but tension and pulse normal. Wound sutured

after making another incision parallel to the first, and 3 in. away. This wound was left open. Both wounds remained aseptic, and the second was closed seventeen days later without difficulty.

Although it is inadvisable to open the dura in the presence of a septic wound, yet where the septic tissues have been excised by a surgeon who can rely on his technique the results of allowing exit to the pulped brain tissue are excellent. In over 30 cases treated in the Rouen area the dura has been opened with no deaths, while in 3 cases where this has not been done cerebral abscess followed by death has occurred. The following case illustrates this point.

CASE VI.

Private R. E. B. Admitted nine days after injury, having been transferred from another hospital. A small circular wound in left parietal region with pus exuding; complete paralysis of intrinsic and extrinsic muscles of right hand. Movements of wrist, elbow, and shoulder unimpaired. The paralysis followed immediately on the wound, which rendered the patient unconscious for a few minutes. The septic wound was excised with a $\frac{1}{2}$ in. margin, and the septic tissues with a shrapnel ball embedded removed. A flap was formed and a small orifice in the bone discovered. Trephined, and depressed fragments of inner table removed. The dura was intact, but a small area of softening could be felt. The dura was opened by a $\frac{1}{2}$ in. crural incision, and about a teaspoonful of liquid brain was extruded. A drain was inserted through one end of the original wound and the rest sutured. After a fortnight power was completely regained in the extrinsic muscles, and at the end of three weeks some return of power was noticed in the interossei and in the opponens pollicis. A month later the patient reported still further improvement.

Advantages of Removing Depressed Fragments.

Since we know that depressed fragments of bone, even though the dura be uninjured, may give rise to symptoms after an interval of time which may be longer or shorter, and that though the spicules of bone which are driven into the brain may be aseptic at first and yet give rise to cerebral abscess through infection tracking down from the surface, it seems reasonable to perform an operation which has little risk, and to perform it early in the expectation of avoiding these serious sequelae.

The following cases illustrate the benefit of removing depressed fragments.

CASE VII.

Bandsman C. W. Admitted with a small healing wound covered by a dry scab in the posterior parietal region. No symptoms. At the end of ten days generalized fits. A skiagram showed a depressed fracture. Operation showed a depression of the inner table 2 in. in diameter. Dura uninjured; primary union; no further fits.

CASE VIII.

Sergeant A. W. W. Admitted with two small nearly healed wounds, left temporal fossa. No symptoms. Was very energetic in helping with work of the ward for four days when he had a general epileptic fit, followed during the night by others. Wounds excised and sutured. A large flap was then turned down. An area of bone $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. was then found to be depressed. The temporal muscle was still attached to the depressed area, so that examination through the original wounds by finger or probe would not have revealed the depression. Trephined, depressed area removed. Much splintering of inner table; spicules of bone had penetrated the dura mater, and clear cerebro-spinal fluid was flowing from a $\frac{1}{2}$ in. slit in it. An attempt was made to suture, but the fluid came through the stitched holes. Bleeding from a dural vessel stopped by a piece of muscle, and from bone with bone-wax; flap sutured. Next day a collection of fluid released by inserting probe. No further collection; no more fits.

CASE IX.

Lance-Corporal A. M. Admitted with gutter wound in occipital region aboveinion. Complained of defective vision since being wounded. On examination, found to be suffering from transverse hemianopia, the lower halves of both fields of vision being absent. A skiagram showed a depressed fracture. Wound excised; flap turned down; depressed gutter fracture; trephined. Depressed inner table $2\frac{1}{2}$ in. in diameter found pressing on both occipital lobes; dura not injured. Bleeding from superior longitudinal sinns controlled by piece of muscle. Flap and wound sutured. Vision became normal two days later.

The same methods have been applied in the treatment of the most severe injuries, including several involving the frontal sinns. In 64 cases there have been 5 deaths, a percentage of 7.8. In three of these cases pieces of shell casing had traversed both hemispheres of the brain; in one a gas-containing abscess was present in the brain on admission; and in the last the patient was admitted with spreading meningitis commencing, and though

improvement occurred after drainage, lumbar puncture, and contralateral subtemporal decompression, he ultimately died. The following cases are examples of these more severe injuries.

CASE X.

Private C. A. K. Admitted with two septic wounds of forehead, 5 in. apart, caused by the entry and exit of a rifle bullet. The patient, while not unconscious, was very drowsy, and, when roused, extremely irritable. No paralyses were observed. A skiagram showed fractures of the skull. The two wounds were excised and united across the forehead and extended laterally. Much comminution of bone at both points was found, with laceration of both frontal lobes. Bone was removed until a margin of $\frac{1}{2}$ in. of healthy dura was left. The track through brain and falx was explored with finger. No fragments were found. The wound was sutured with a rubber drain into each end of track in brain. Patient returned to England with wound soundly healed, mentally normal.

CASE XI.

Sergeant H. Admitted with tiny entry wound of rifle bullet in left cheek. Large ragged septic wound of exit over right eye, with cerebral matter protruding. Right eyeball lacerated and collapsed. Very irritable and suffered from delusions. No paralyses. The right eye was excised by Colonel Lister's method. The wound of right eyebrow was excised. Fragments of orbital roof and about $\frac{1}{2}$ in. of vertical plate of frontal bone, including the frontal sinus, removed. Frontal lobe much lacerated, the finger entering $\frac{3}{4}$ in. Liquefied brain matter came away in quantity. Wound sutured with rubber drain into brain. Wound of entry also excised and sutured. For three or four days delusions remained. Patient continually dragging dressings of unless constantly watched. Brain matter ceased to come away about the fifth day. Gradually mental changes improved, and patient returned to England at the end of a month with wounds soundly healed and apparently normal mentally.

CASE XII.

Private J. J. Admitted with two septic wounds due to a rifle bullet traversing the frontal region. Entry wound over left eyebrow, exit through upper eyelid on right. Brain matter protruding from both wounds. Severe wounds of both feet and below one knee were also present. Patient was deeply unconscious with incontinence of urine and absent reflexes in lower limbs. The globe of the right eye was destroyed and the fundus of left eye obliterated by blood in the vitreous. Right eye excised. Wounds excised and enlarged. Both orbital plates, nasal processes of frontal bone and ethmoid, were comminuted. The fragments were removed and several deeply-placed pieces removed from brain. The wound of entry was sutured and drainage effected through wound of exit, which was partly sutured. The patient eventually recovered completely, returning to England apparently normal mentally. Vision began to return in the left eye after four or five days, and finally became $\frac{1}{2}$.

Another case practically identical in its details with the last one as regards the cranial injuries had the same result; the wound of entry in this case was over the left malar bone and exit through the right eyebrow.

CONCLUSIONS.

To sum up, the methods adopted in this hospital are:

1. Careful preliminary examination.
2. Early operation on every scalp wound, however slight.
3. Complete excision of septic tissues at the commencement of the operation.
4. Removal of all accessible foreign bodies from the brain.
5. Primary suture of wounds.

In conclusion, I wish to thank Colonel H. M. W. Gray for much help and many kindnesses both in my work and in the preparation of this paper, and my colleagues in the hospital for their cordial co-operation in the clinical work, many of the cases having been operated on by them.

THE returns of vital statistics relating to non-native officials in West Africa during 1914 (Cd. 7871) are affected by the war, since of 53 deaths in all 18 were of persons killed in action, while 3 more were directly connected with military operations. Excluding all these, the rate of mortality per 1,000 is 11.6, as compared with 11.3 in 1913 and 20.6 in 1905. The invaliding-rate is also satisfactorily low. Five of the deaths were due to blackwater fever, 2 to yellow fever, and 2 to malaria. The population at risk is, of course, too small to permit of very reliable deductions being drawn, but the facts are consistent with the belief that the conditions of life on the west coast are being steadily improved.

THE TREATMENT OF GUNSHOT WOUNDS OF THE HEAD, BASED ON A SERIES OF NINETY-FIVE CASES.

By CAPTAIN GEO. G. TABUTEAU,
ROYAL ARMY MEDICAL CORPS.

IN the consideration of cases of gunshot wounds of the head, one is struck with the extraordinary discrepancy which frequently occurs in the amount of damage done to the soft tissues as compared with that to the bony skull. In some a small wound is seen on the surface which on investigation is found to have caused most extensive fracture of the bony parts and injury to brain substance. In others an apparently severe superficial wound is found only to have caused a slight local depression of bone with no intracranial damage. Owing to the importance of correct treatment of these head injuries, a brief review of some of the points met with in a series of ninety-five head injuries treated in a stationary hospital with a mortality of 9 (10.6 per cent.), and the conclusions derived from them, may be of interest.

The cases occurred during the period from September, 1914, to July, 1915, and many of us I am sure will agree that during this period we have had to modify considerably our line of treatment in these cases as in other injuries. Preconceived ideas that severe injury inflicted on the skull or brain was bound to be accompanied by definite symptoms have been shown to be wrong. Frequently one sees men with severe damage to the skull and brain walking into hospital. This in itself should make one very careful in the examination of even apparently trivial injuries. It appears almost impossible to be able to diagnose the degree of severity of the injury without carefully watching the patient for some time. I am alluding here mainly to the cases which at first sight appear of very little importance. The percentage mortality in the very severe cranial injuries must of necessity be high, and although from the surgeon's point of view it may be interesting to point to some wretched individual whose life has been prolonged by surgical interference, yet in those that recover there is often some permanent damage left either in the shape of complete or partial paralysis or some interference with the mental perceptions, so that the individual spends the remainder of his life a care to his friends or a burden to the State. It is not for a moment meant that our efforts to save even the very worst of head injuries which come under our care should be lessened by even the smallest fraction; I only wish to put forward a plea for the most thorough examination of every case of head injury, no matter how apparently trivial it may be at first sight. These, to my mind, are the cases that from the wider State outlook are really the most important. It is surely better to make a permanent complete cure of these less obvious cranial injuries, which if overlooked might later on develop Jacksonian epilepsies, etc., than to save the life of some less fortunate creature who will at the best have some more or less permanent defects left.

In several cases of this series it was only after some time in hospital that the man showed any signs of cerebral trouble. In many cases which have shown no critical symptoms—such as localized paresis, headache, optic neuritis, convulsions, etc.—very extensive damage has been found on laying back a flap.

(One case I should like to quote in this connexion:

Private W., wounded some three days previously, walked into hospital. He had a small healed scab over the left temporal bone, apparently a graze. He was kept in bed for ten days. He did not complain of anything till the tenth day and was going to be "marked out"; the temperature and pulse were normal; he complained of some slight headache. There were no eye symptoms.

On the twelfth day he had two fits not localized to any particular group of muscles. Operation was performed on the following day. A flap was turned back and a depressed fracture of the temporal bone found. On removing a circular area the dura was found non-pulsating and discoloured. When incised crucially about 1 drachm of disintegrated pulped brain welled out and was carefully wiped away. The wound was stitched and a drainage tube left in for forty-eight hours. Primary union occurred, and he had no further symptoms. He was discharged to England perfectly normal in every way.

It has now become the rule in this hospital that every case of head injury, no matter of what degree, is put to

bed, a purgative administered on the day of admission, and the entire scalp shaved. The history of the case is carefully gone into with special reference to the characters of the injury which point to the probability of a depressed fracture being present—for example, whether the blow was of sufficient intensity to stun the patient. When the entrance and exit wounds are separated by a bridge of scalp overlying a convexity of bone it is almost certain that a fracture has been produced. Practically all these injuries are inflicted by a local force and must therefore be examined with the mechanical possibilities in view rather than that the decision for treatment should be entirely dependent on a neurological examination.

In two instances where there were several wounds on the head, to one of which the patient directed attention, it was only when the scalp had been shaved that a second wound was found which was really the serious one. The difficulty in saying how much bony damage has been done by the appearance of the wound or by the use of the probe leads me to advocate a more thorough examination in almost every case. By this I mean excising the wound and making absolutely certain of the condition of the underlying structures.

This examination by excision should be done early, usually within a day or two of admission to hospital. If no damage to bone is found and a more extensive operation be not needed, the wound can be sutured and, provided that the technique has been good, primary aseptic union should be obtained. Having completed the excision of the wound, a fresh set of instruments must be employed for any further operative measures. If it is found necessary to trephine, the necessity of turning down a flap may be avoided. Sufficient room can usually be got through the original incision.

Indications for Trephining.

1. Although there may be no obvious depression to be seen, yet if the bone shows bruising or laceration of the periosteum, it is more than likely that some definite damage to the inner table will be found. In these cases a small trephine opening should be made and the inner table examined.

2. In cases in which such external signs are absent, but in which there has been loss of function, even if only temporary, persistent headache, giddiness, vomiting, or other signs of cerebral irritation, trephining should always be done. By so doing serious sequelae are avoided.

After having removed all depressed fragments and extradural blood clot, the condition of the dura mater should be carefully examined. In several cases in which it had been found to be discoloured, non-pulsating, and doughy, I have opened it by a crucial incision and a varying amount of disintegrated brain matter has been extruded, and was carefully wiped away. This brain matter is practically useless, and although some people consider that it may become absorbed in time, I think it is much better that it should be removed, otherwise it may act as a foreign body and give rise to after-symptoms. The risk of the brain becoming infected is considered by some to be sufficiently serious to bar the opening of non-lacerated dura, but if all due precautions are taken, infection should not occur, and certainly in those cases in which an opening was made there was no after-trouble.

One of the most difficult points to decide is the amount of bone that should be removed. Personally I am of opinion that when trephining has to be done, it is quite sufficient that an area of bone should be removed around the injured part until it is quite certain that all the depressed fragments have been removed. In cases in which the dura has been opened it is necessary to remove bone until an area of healthy dura at least $\frac{1}{2}$ in. to $\frac{1}{4}$ in. broad has been exposed all round the laceration.

Transport after Operation.

I feel rather strongly on the subject of the transport of cases after operation. Unless urgently indicated, it would seem better that serious head cases should not be moved for at least three weeks after operation; by this time all fear of danger arising from travelling should have disappeared.

Removal of Foreign Bodies.

The removal of foreign bodies from the brain opens up a very wide field of discussion. Experience in the cases

under review tends to impress on me the advisability of a digital exploration of the track in the brain being made at the primary operation in every instance in which the dura has been torn and the brain apparently pierced by a foreign body.

In some cases it was found that the brain had been pulped quite deeply along a "track" without penetration of a foreign body or piece of bone. A lesser degree of this was seen in those cases in which the brain was pulped without the dura having been open. I can only account for this occurring by its being due to the skull having been struck by a missile which in the first instance had a much greater "striking force" than that which caused the second; whether it be due to vibration set up in the particles of brain substance or not I cannot say.

These head wounds, like those of other parts of the body, almost invariably become septic if not dealt with at an early stage, and it is difficult to follow the arguments for leaving foreign bodies alone. If not removed they are almost certain to give rise to after-symptoms, cerebral abscess, hernia, epilepsy, etc. It frequently happens that the missile causing the injury does not lodge, but the fragments of the inner table may be deeply driven into the brain substance. These may often be found by digital examination with comparative ease. A finger passed along an already existing track, if due care be taken, is very unlikely to cause any additional brain damage. If these foreign bodies are left alone and secondary symptoms develop, the trouble and risk of brain injury are increased tenfold. The use of forceps or a probe for searching for foreign bodies is strongly to be deprecated. In a soft substance, such as brain matter, especially when operation has been delayed, one is only too likely to open up fresh tracks, and to lose that leading to the fragments.

The question arises as to the advisability of making a prolonged search for missiles seen by the *x* rays in the brain, but causing no symptoms. Here one has to be guided by many considerations. If at the time of operation no definite track can be found, and one has to fear damaging a portion of the motor area or some important centre in continuing the search, it would seem better not to risk doing more harm than good. I hope it is sufficiently clear that I consider it is always essential, where there is lacerated dura mater, that a digital examination should be made, and any driven-in particles, be they portions of bone or missile, should be carefully removed as early as possible.

As regards the technique employed in these cases, every case in whom there is the least suspicion of fracture of the skull is given utrotropin, grains 10 to 20, four-hourly. A purgative is administered. The scalp is shaved, washed with soap and water, then with ether, and painted with tincture of iodine. Instead of shaving, a depilatory paste may be used, consisting of barium sulphide 2 parts, starch 5 parts, and pulv. orr. rad. 1 part. A thin paste is made, smeared over the scalp, and after ten minutes the hair may be scraped off with the back of a scalpel. The hair should previously be cut short with a "horse clipper." The paste must be thoroughly removed, else a crop of pustules may result. This is a very simple method of removing the hair, and avoids any barbers' cuts. When the patient is on the table a fresh coat of tincture of iodine is applied and a circular area corresponding approximately to the proposed operation area thoroughly infiltrated with a 1 per cent. solution of novocain, to which is added adrenalin chloride. The patient is given a hypodermic injection of morphine, $\frac{1}{4}$ grain, and $\frac{1}{16}$ grain atropine an hour previously. By this means the amount of shock is reduced to a minimum and very little anaesthetic is required. The addition of the adrenalin renders the operation practically bloodless—in fact, several of these cases have been operated on with complete success and with no discomfort to the patient without any anaesthetic beyond the local injection of novocain. If the extent of damage is greater than was thought before exploring the wound, a general anaesthetic may have to be given owing to the injury present necessitating a much larger operation than was at first anticipated. Attached are a few brief notes on some of the more striking cases.

In conclusion, I should like to express my thanks to Colonel Gray, A.M.S., Consulting Surgeon, for all his valuable advice to me in the treatment of these injuries.

CASE I.

Sergeant A., completely unconscious on admission. A deeply furrowed wound of the parietal bone. Operated on, and many fragments of bone found to be driven into the brain. These were removed and injured bone chipped away. The patient regained partial consciousness the following evening, and answered questions slowly in monosyllables, but relapsed again and died in seventy-two hours.

CASE II.

Private K., bullet wound centre of forehead, exit parietal and occipital suture. Admitted with complete right hemiplegia. Operation: Flap turned back, exposing both entry and exit wounds; circular area of bone removed. A definite track found connecting the two wounds. On passing the finger along this track several pieces of loose bone were felt and removed along with blood clot. Wounds closed, and a drainage tube left in each. After-history: Slowly recovered muscle power when discharged to England. Has almost complete power of arm muscles, leg recovering well, but with a certain amount of spasm of the hamstrings.

CASE III.

Private B., admitted unconscious; right hemiplegia, incontinence of bladder and rectum. Unable to articulate, but was intelligible. There was a small punctured wound over the left parietal, apparently caused by a rifle bullet. At the time, no *x* rays being available, it was impossible to attempt to localize the missile. A flap was turned down over the injured area and a circle of bone removed. The dura was found to have been penetrated. Several spicules of driven in bone were removed and a quantity of blood clot extruded. No prolonged search for the bullet was made. After-history: Slow convalescence, when discharged from hospital to England. The patient was able to speak quite rationally; full recovery of bladder and rectum, right arm almost normal, right leg only showing signs of partial recovery with well-marked spasm.

CASE IV.

Private U., admitted with severe injury to occipital region. Semicomscious and completely blind. Operation: Large flap turned down and entire occipital bone found comminuted and the dura mater severely lacerated. Many fragments driven in to the brain substance. Loose portions of bone removed. Torn dura cut away. Brain substances badly damaged and septic. Very little improvement after operation. Lumbar puncture done twice; cerebro-spinal fluid cloudy, and escaped under increased tension. Died fifth day.

CASE V.

Private E., admitted with a furrowed wound of the scalp slightly to the left of the course of the longitudinal sinus. Wound explored the day following admission. No apparent bony injury. Wound excised and edges brought together. Some days later the patient began to show signs of right hemiplegia. Wound quite healthy and healing rapidly. Sixth day: Hemiplegia practically complete. Second operation: Original wound laid open; trephine over the most convex portion of bone. On removing the disc of bone, and enlarging the opening an irregular shaped fragment about the size of a shilling was found detached from the inner table and lying over the motor area. This was removed, also some blood clot. The dura was slightly discoloured, but pulsated normally. Wound closed with silk-worm gut sutures, and a drain left in. The patient rapidly regained motor power. The use of his arm returned in the first week. When discharged to England, eighteen days later, he had almost full use of his limbs and was able to walk with assistance. The various points of interest in this case that strike one are: (1) The apparent absence of bony injury found at the first operation. (2) The slow course. (3) The rapid recovery after removal of the cause of pressure.

CASE VI.

Sergeant U., gunshot wound right frontal bone. Injury must have been caused by a glancing blow, as the damage was confined to an area corresponding to the frontal sinus. Flap turned back, and depressed bone removed. Frontal sinus thoroughly opened up and blood clot cleared away; wound sutured and a drain left in for three days. Convalescence normal in every way.

CASE VII.

Sergeant A., gunshot wound right frontal bone. On admission unconscious and vomiting. Brain matter protruding from wound over right frontal bone. Flap turned back and the entire bone found detached and a fracture extending into the temporal. Dura torn and brain substance pulped. All loose fragments removed and bone chipped away clear of injured dura. After-history: Convalescence slow, but when discharged to England had completely healed, and cerebral condition was quite normal.

It is reported from America that an association to oppose the "twilight sleep" movement is being organized by a lady named Olson. She proposes to endeavour to excite the sympathetic interest of wealthy women in the campaign against that method of mitigating the pains of labour, and to raise money for the circulation of literature.

TREATMENT OF SEPTIC WOUNDS BY CONTINUOUS OXYGENATION OR IRRIGATION.

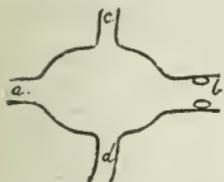
BY

W. ATKINSON WOOD, M.D., M.S. (MELB.),
HONORARY SCROTON, CHILDREN'S HOSPITAL, MELBOURNE;
MAJOR, AUSTRALIAN ARMY MEDICAL CORPS.

I HAVE recently treated a severely lacerated and septic wound about the knee in a child by continuous oxygenation under pressure. I had a rubber bag constructed open at both ends and provided with sleeves at the ends and with a valve through which the oxygen can be introduced.

The bag was slipped over the leg like a stocking and the two ends were rendered gas-tight by firm bandaging or the application of a Martin's rubber bandage, Mead's plaster, or rubber tape. Oxygen was introduced from a cylinder up to the pressure of 3 to 4 lb. which the rubber easily stands; with ordinary bandages the bag will remain inflated with oxygen for about twelve hours, with rubber bandages for longer.

The wound rapidly cleaned and the granulation tissue assumed a most healthy appearance in a shorter time than



a. Simple rubber sleeve
b. sleeve with section of air pad; c. entrance tube; d. exit to vessel under bed.

one would have expected. The child always asked for the "football" in preference to the dressing, as it was more comfortable.

The discharge collects at the bottom of the bag and can be either drawn off by a drain tube, or the bag can easily be removed, boiled, replaced, and refilled within a short time and without pain.

This method, apart from keeping the wound in an atmosphere of oxygen,

keeps the wound protected and saves the patient the pain of removing and replacing the dressings, to say nothing of the saving in dressings themselves, which, when soaked in discharge and in close contact with a limb, must be most uncomfortable.

The wound must, of course, be opened up to its uttermost recesses, sloughs and dead tissues cut away, and large perforated drain tubes inserted so that the oxygen can get to the growing layer of anaerobes. On a large scale oxygen under pressure could be supplied to each bed by small pipes.

This bag, with slight additions, can also be used for continuous or intermittent saline or antiseptic irrigation; by adding a fairly large sized rubber exit tube at the bottom of the bag, connexion can be made to a vessel under the bed, and when it is in position on the limb saline may be run in from a large elevated vessel, the rate of entrance and exit being regulated by nipping the tubes more or less with clips.

This is the simplest form of rubber bag, but the following improvements, although not necessary, may be added:

1. Make the sleeves large enough to slip easily over the wound, and place inside the sleeves a diaphragm air ring with an air valve.
2. Cover the bag with a linen, canvas, or string net.
3. Make a wound inspection slit in the upper part of the bag which can be made watertight with a clip.
4. Or the bag itself could be made of a waterproof canvas with air-pad sleeves.

Bags of different sizes and shapes are made for different parts of the body.

Advantages.

1. We apply the correct percentage of saline solution to the wound, which can easily be flushed and cleansed at any time, thus removing the dead and toxic lymph and leucocytes without removing the bag.
2. The pain of repeated dressings is obviated.
3. The saving in dressings is enormous.
4. There is no pressure on the limb or soiling of sheets as in the ordinary saline bath.
5. There is no "pus poultice," and the patient is comfortable in all positions; he can move the limb with bag and bath attached.

6. It can be used under an interrupted splint in a compound fracture of a limb.

Continuous irrigation is now the accepted treatment for septic wounds, and the bag treatment allows this to be carried out in the simplest manner and without annoyance to the patient or nurse.

Lieutenant-Colonel Norris, at the offices of the Commonwealth of Australia, 68, Victoria Street, London, S.W., will answer any communications as to the supply of the bag.

SANDFLY FEVER AND BACTERIOLOGY:
VACCINE TREATMENT.

BY

C. J. STOCKER, M.B., B.C. CAMB., D.T.M. AND H.,
CAPTAIN L.M.S.

WITH regard to the articles in the JOURNAL of July 31st concerning sandfly fever, perhaps the following observations which I had the opportunity of making last year in Rangoon may be of interest. Unfortunately, being on active service, I have not access to the notes I made on the cases at the time, but the interest of the cases to me was such that I can speak fairly accurately from memory.

In March, last year, I was in charge of the 79th Carabio Infantry during their transfer from Bombay to Rangoon. The outbreak began on board ship and continued with increasing severity for some eight weeks, after which it gradually subsided; altogether some 180 cases occurred.

The first case was observed when the ship had left Bombay two days, and as no cases had occurred previously in Bombay, the incubation period, for this particular case, can reasonably be fixed at two days, or less.

The clinical picture presented by the cases was of the usual type, some conforming to the description of "sandfly fever," as given in Colonel Sir Leonard Rogers's book, and some to the description of dengue. The majority of the cases, however, were intermediate in type, and such I cannot pretend to differentiate.

In 35 cases I undertook blood cultures, and in 5 of these a bacillus was obtained identical in every particular with that described by Colonel Rogers in his book. I believe he succeeded in isolating it in 6 out of 110 cases (I speak from memory). The clinical picture in these cases was of the intermediate type.

The bacillus was a difficult one to work with owing to its tendency to auto-agglutination; nevertheless, a goat was immunized by repeated injections with the bacillus until its serum agglutinated in 1 in 800 approximately. With this a sensitized vaccine was prepared and tried in some 20 cases. The results were interesting, but no conclusions can, of course, be drawn from so small a number. In several cases the temperature came down by crisis immediately after the vaccine; in one case it came down in two "steps," each immediately following an injection. In some cases the vaccine had apparently no effect; these were mostly the earlier cases in which smaller doses were given. In no case were there any untoward effects, and in several the patients asked for another dose, as they said it relieved the symptoms. The dose finally decided upon was one of 2,500 × 10⁶, repeated the next day if necessary.

The complement deviation test was tried in 4 cases with serum taken from patients suffering from the disease at different stages. The goat's serum was used as a known serum, and a watery extract of the bacillus as antigen; the result was a definite negative in each case. I do not, however, consider that this absolutely negatives the possibility of the bacillus being a causative agent in one type of the fever, as the duration of the fever was so short that one would not expect a patient to raise a high degree of immunity to the bacillus.

Injection of the bacillus into rabbits and a monkey were also without result. Here again these animals were old inhabitants of Rangoon, and may well have become immune, whereas the scops were all new arrivals.

I do not believe the bacillus to have been a contamination, partly because I have faith in my own technique, and partly because no growth appeared in those cultures which were positive until the second or in one case the third day of incubation.

I also undertook a series of differential blood counts, in some of these cases, from blood smears taken daily during

liness and convalescence. The results were of no particular importance; during the fever there was usually a leucopenia with a relative decrease of polymorphs and increase of lymphocytes and mononuclears; during convalescence there was in some cases, but by no means in all, an eosinophilia. One patient in particular I remember, who had only two days' fever, and whose eosinophilia rose from normal on the first day to 22 per cent. on the fifth. I should mention that in every case malaria was excluded, and in every case of eosinophilia the faeces were examined microscopically.

With regard to the transmission of the disease, I noticed that *Culex fatigans* was the most obvious biting insect about the barracks at the beginning of the epidemic, but that later on *Stegomyia* predominated. Sandflies were present throughout the period, but were never obvious.

Another interesting point about the epidemic was the fact that the first two British officers to be attacked were the only two who did not use mosquito nets, they were both attacked within four days of landing in Rangoon. All the other British officers were attacked later, and one when examined on the first day of illness, showed no less than 42 mosquito bites on the knees, the result of working in "shorts" in the office the night before.

This suggested the possibility of examining mosquitos fed on patients at different stages of the disease; accordingly cultures were taken from the contents of the stomachs of mosquitos (all *Culex fatigans*) fed in this way. I would not have believed it possible to obtain pure cultures in this way, nevertheless in 18 out of 23 cases a pure culture of a bacillus was obtained giving nearly all the reactions of Colonel Rogers's bacillus, but differing from it in its greater motility and smaller tendency to filamentous forms. It was not agglutinated by the serum of the goat mentioned above. I mention this bacillus only as a point of interest.

With regard to the nature of the epidemic itself I am not in a position to judge, as I had not previously seen either dengue or sandfly fever; I take it that the epidemic was a mixed one.

AN ADAPTABLE EYE SHADE FOR MICROSCOPIC USE.

By PROFESSOR S. G. SHATTOCK, F.R.C.S.

My excuse for drawing attention to this device is the advantage (with which I have long been impressed) to be derived from cutting off the access of direct light to the eye above the ocular.

In working in a darkened room with a hooded lamp, the drawback mentioned does not, of course, arise. But when daylight is used the admission of light to the eye above the ocular is a distinct hindrance to the study of fine detail. The difference can be at once brought home by temporarily shading the eye with the hand so as to improvise a dark chamber above the ocular. The ability to see more minute details with an eye shade, and a consciousness of diminished strain, will become so apparent that, once used, I feel sure the device will be afterwards invariably resorted to for any prolonged microscopic study.

Mr. Swift, who makes it to my design, tells me that binocular microscopes were occasionally fitted with shades, but these (as in the case of field glasses) were fixed adjuncts. As the use of binoculars for biological purposes became obsolete, the advantage of the shade appears to have been lost sight of. In some form it seems to be well worth reviving.

The draw-tube of all microscopes at the present time is

made of a standard inside diameter, known as No. 1—namely, 23.3 mm.; and this is the size adopted for the aperture in the floor of the shade through which the ocular drops; but the aperture is made also of a larger size to correspond with standard No. 2—namely, 26 mm.—and it can, of course, be cut so as to take an ocular of any other dimension.

It is hardly necessary to add that the shade can be used for either eye by rotating it so that the higher part corresponds with the outer, receding margin of the orbit. Its cost in black matt brass is 3s. 6d.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE ANTITOXIC POWER OF HYPOCHLOROUS ACID.

For some time past experiments have been carried out with a strongly antiseptic liquid consisting of hypochlorous acid and calcium bicarbonate, in order to determine its antitoxic power. The best proportions to use are not yet definitely fixed, but will be given in a fuller account to be published later.

The harmlessness of the liquid in question for guinea-pigs and rabbits is shown in the following table:

TABLE I.

Guinea-pigs.	Quantity of Liquid Injected Subcutaneously.	Effect.
1	1 c.cm.	Slight Inflammation at the place of inoculation.
2	2 c.cm.	
3	3 c.cm.	
4	4 c.cm.	
Rabbits.	Quantity of Liquid Injected in Ear Vein.	Effect.
1	1 c.cm. + 4 c.cm. salt sol. 8%	None.
2	1 c.cm. + 1 c.cm.	
3	1 c.cm.	
4	4 c.cm.	
5	5 c.cm.	
6	8 c.cm.	
7	10 c.cm.	

The antitoxic effect of the above-mentioned liquid on diphtheria toxin is demonstrated in Tables II and III.

Neutralization of Diphtheria Toxin *In Vitro*.

TABLE II.

Guinea-pigs.	Mixture of Toxin and Antitoxic Liquid Injected Subcutaneously.	Result.
1	4 L.D. of toxin + 1 c.cm. of antitoxic liquid	Animals remain healthy.
2	4 L.D. " + 1 c.cm. " "	
3	4 L.D. " + 1 c.cm. " "	

Three guinea-pigs inoculated with the same quantities of toxin died after less than forty-eight hours.

Neutralization of Diphtheria Toxin *In Vivo*.

The antitoxic liquid was injected five minutes after the toxin had been inoculated; further doses were given after twenty-four hours and forty-eight hours. Both toxin and antitoxic substance were given subcutaneously on different sides of the body.

TABLE III.

Guinea-pigs.	Quantity of Toxin Inoculated.	Quantity of Antitoxic Liquid Inoculated—			Results.
		After 5 Min.	After 24 Hours.	After 48 Hours.	
1	4 L.D.	1	1	1	Animals remain healthy.
2	4 L.D.	1.5	1.5	1.5	
3	4 L.D.	2	2	2	
4	4 L.D.	2.5	2.5	2.5	
5	4 L.D.	1	1	1	
6	4 L.D.	1	1	1	
7	4 L.D.	1	1	1	
8	4 L.D.	1	1	1	
9	4 L.D.	1	1	1	+ 5 days. Healthy.
10	4 L.D.	1	1	1	

Guinea-pigs inoculated with 4 L.D. of toxin died after less than sixty hours.

As far as can be seen, the antitoxic liquid has equally strong effect on tetanus toxin as on diphtheria toxin.

RATÉ FLORES CORDOVA, M.D., D.Sc. Lima
(From the Lister Institute).

TREATMENT OF ABDOMINAL WOUNDS.

WITH reference to Captain Owen Richards's article (BRITISH MEDICAL JOURNAL, August 7th, p. 213) on abdominal wounds and the administration of drinks, might I venture to suggest that in every abdominal case where it is not considered wise to give drinks by the mouth a large hypodermic saline should be given? If a quart be given every twelve hours in this way, much suffering, and perhaps some deaths, might be avoided. The necessary simple apparatus is in every field ambulance.

V. T. CARUTHERS, Captain R.A.M.C.

Reviews.

SURGERY IN THE BALKAN WAR.

MULTITUDINOUS as will be the books written on the surgery of the present war, interest in the wars in the Balkans is not dead. It is highly probable that if the surgical lessons learned then had been taken more to heart, some of the misapprehensions and difficulties of surgeons in this war would have been less. Professor LAURENT, of Brussels, records his experiences, general and surgical, of eleven months of campaign during the war in Bulgaria and Turkey.¹ He would have preferred to devote a whole year to elaboration of the work, but it is perhaps more fortunate that he published it hot and sharp from his recollections. The book falls naturally into two divisions—the first dealing with general notes and impressions, the second with the wounded. The whole work is copiously illustrated with photographs, those in the first part comprising pictures such as we see daily in our illustrated newspapers—the military train, groups of nurses, soldiers guarding a village, transport wagons, men in trenches, the fight with vermin, and so on. Professor Laurent has a good word for the Bulgarian soldier. In spite of everything, good humour prevailed; the most shocking losses were powerless to suppress it. In quiet hours they amused themselves. The favourite recreations were dancing the "choro," a dance similar to the "farandole" of Provence, and singing national songs round camp fires. This amusement is by no means confined to Bulgarians; our present allies, the Serbian soldiers, dance often with their officers, and many a gladsome reel is danced within the British lines by Highlanders. The Bulgarian ambulance arrangements were at first very faulty, but the sanitary organization was improved with astonishing celerity. In the section dealing with the general effects of projectiles and the treatment of injuries found in war, Professor Laurent says that war surgery is a very different business from ordinary everyday hospital surgery, and that, most important of all, it demands some previous training of the surgeon—"the war surgeon cannot be improvised." "The Balkans are at the present moment peopled with cripples and invalids which a medical education appropriate to war would have spared." The sum of his experience is contained in these seven propositions: (1) Severe wounds of the abdomen and laparotomy performed in hospital were excessively rare; (2) aneurysms and nerve lesions were relatively frequent; (3) comminuted fractures of the long bones and of the hand were extremely frequent; (4) rifle bullet wounds were greatly more numerous than wounds by shrapnel; (5) injuries of the face were very rare; (6) amputations were rare but troubling frequent; (7) a second operation under chloroform in an infected wound was a serious matter. In attempting to answer the question, Which was the most deadly arm? he made many calculations and comparisons, concluding that on the battlefield the majority of deaths was due to shrapnel, but that the bullet made five times more wounds than shrapnel. "It is the rifle bullet which places most men *hors de combat*; the rifle bullet is the queen of many battles." Another interesting question discussed by Professor Laurent concerns the proportion of wounded to

killed. Since 1896, when the small calibre rifle bullet was introduced, the proportion of killed to wounded on the battlefield has gone up. In 1870 it was 5.7 wounded to 1 killed, in the Russo-Japanese war it was among the Russians 4.9 to 1, and among the Japanese 3.7 to 1, and in the Bulgarian war 3 to 1. The same proportion, 3 to 1, seems to hold in this war for the British forces. Professor Laurent supplies a number of highly interesting tables dealing with relative figures concerning regions wounded, the number of wounds from rifle bullets and from artillery, and the number of fractures in wars during the last sixty years.

The second division of the book deals with the wounds of war, and is fully illustrated by pictures and short sketches of cases. Each region is considered in detail. The wealth of material is enormous, and it is coupled with conscientiousness and industry untiring. The author's advice in regard to operating in injuries of the abdomen is that the following cases demand urgent operation: serious hæmorrhage, wound of bladder with escape of urine, wound of spleen, transverse wound of abdomen in the umbilical region with evidence of intestinal perforation. Wounds of the hands constituted 23 to 25 per cent. of the whole number, and wounds of the left hand seemed curiously common, probably because that hand is well forward holding the rifle. A group photograph shows sixteen men all wounded in the left hand.

This most interesting work is a worthy record of an arduous year of Professor Laurent's life, and probably will endure as the most satisfactory contribution to surgical war literature of that time. The closing pages are in form of an epilogue, "What of War?" War has for its object arrogant domination, brutal gratification of passions, or it is a necessary factor in selection, in renovation of the race. It is a vice, an indelible stain on humanity, or it is a natural consequence of the struggle of all elements in nature and in life, and will cease only with life itself. In ironic commentary, on the same page, is inserted a photograph of a Bulgarian soldier blinded and deprived of both hands by a bomb explosion. One wonders what Professor Laurent's thoughts on war are to-day.

PHYSIOLOGY.

THE first edition of Professor STARLING's *Principles of Human Physiology* appeared three years ago. The second edition² contains much new matter in the sections dealing with voluntary muscle, the circulation, the nutrition of the brain, and the innervation of the bronchi. The volume is divided into four parts. The first is given to the principles of general physiology, as exhibited in the structural, material, and energetic bases of the body. The second, 440 pages in length, describes the mechanisms of movement and sensation in all its forms. The third part is the longest, and contains a full account of the mechanisms of nutrition, using the term in its widest sense. The fourth part, of 46 pages, is devoted to the physiology of reproduction and lactation. The book ends with an excellent index by Mr. L. Evans. In writing this volume, Professor Starling has kept in mind the requirements of medical students and practitioners whose previous acquaintance with the subject is of a very shallow variety, or even *nil*. Throughout he has endeavoured to show that the only foundation for rational therapeutics is a proper understanding of the way in which the healthy body works. As he very justly says: "Until we know more about the physiology of nutrition quacks will thrive and food faddists abound. Ignorance of physiology tends to make a medical man as credulous as his patients, and almost as easily beguiled by the specious puffings of the advertising druggist." Hence the book has a special value for the medical practitioner, as well as for the student who has to face examinations in physiology. The different chapters and subsections are written rather in the form of essays on the topics with which they treat, categorically and with abundant use of subheadings to indicate the various aspects from which the subject may be regarded. Professor Starling writes clearly, and has made an excellent choice of illustrations and tracings to illuminate his text. There is nothing of the cut-and-dried formalism so common in

¹ *La guerre en Bulgarie et en Turquie. Onze mois de campagne.* Par Professor O. Laurent. Paris: A. Maloine, 1914. (Demy 8vo, pp. 383; 305 photographs. Fr. 6.)

² *Principles of Human Physiology.* By E. H. Starling, M.D., Lond., F.R.C.P., F.R.S., Hon. M.D. Breslau. Hon. Sc.D. Camb. and Dubl. Second edition. (Roy. 8vo, pp. 1285; 555 figures. 21s. net.)

scientific textbooks about his volume, which is characterized by a broad outlook on the problems of physiology, and an unusual readiness to fall back on other kindred sciences in the endeavour to bring these problems towards a satisfactory solution. The author is to be congratulated upon the production of a sound and stimulating summary of modern physiology as viewed by a chemically minded mechanist with great experience in successful original investigation. The book should be widely read by those for whom it is written, and we wish it all success.

Professor HALLIBURTON is to be congratulated on the appearance of the twelfth edition of his *Handbook of Physiology*,⁵ representing the twenty-fifth edition of Kirke's time-honoured textbook. Two years ago the book was thoroughly revised and brought up to date by Professor Halliburton; the present edition exhibits alterations of a minor character only, such as were necessary to bring it abreast of the times. The book is well recognized as a standard work on physiology for medical students and physiologists, constrained on sound and customary lines, illustrated as one would expect a standard work to be, confining its scope to a workmanlike exposition of the science with which it deals. The success this book has met in past decades is a guarantee of its educational value; the medical student will find in it all he requires for the passage of his examinations in physiology, and we recommend the volume to him with all confidence.

Dr. CRAMER has brought out a second edition of his *Directions for a Practical Course in Chemical Physiology*⁶ within a year of the first. The wise choice of subjects and clearness of diction justify the quick popularity of this little practical book. The author lets the student start with the potato, and prepare starch from that—a much wiser plan than giving him prepared starch to test. So, too, he directs him to examine the phenomena of coagulation of the blood from the start, in place of handing the class plasma, serum, etc., separated by the laboratory attendant or demonstrator. In testing urine for aceto-acetic acid, or acetone, he uses Rothera's modification of the nitro-prusside test: "Take 10 c.cm. of urine in a test tube and saturate it with ammonium sulphate by shaking it with an excess of the solid salt. Then add two or three drops of a freshly prepared 5 per cent. solution of sodium nitro-prusside. Add 2 or 3 c.cm. of strong ammonia. Mix by inverting the test tube once or twice. Allow to stand undisturbed for twenty minutes. A deep perranganate colour is the positive reaction, and the depth of colour roughly indicates the amount present."

TEXTBOOKS OF ANATOMY.

MORRIS'S *Anatomy*,⁷ which has now reached its fifth edition, is sufficiently well known to permit of its being referred to by comparison. The work has always had a strong practical bias, as was to be expected, since the first edition was written by London surgeons. While we think it would not be correct to say that this bias has been weakened, it has, we think, in later editions been obscured by the introduction and expansion of the anatomy of the laboratory as distinct from the anatomy of the dissecting-room. Another striking feature of the book has been the wealth and excellence of the illustrations. The publishers seem to have had the privilege of selecting blocks freely and widely from American and Continental publishers, with the result that the book from the student's point of view is probably the best illustrated textbook in our language. In the present edition large and small type have been largely employed for the purpose of discriminating between the more important and less important facts, a device which makes the book adaptable for a much larger circle of readers than would have otherwise been the case. The embryological part of the subject is still poorly represented, the

chapter on general embryology being insufficient to enable the student to follow the condensed accounts of regional or special embryology which appear here and there throughout the book. It is not without significance that the word "placenta" does not appear in the index. In this respect, but in no other, the work falls below the standard set by such English textbooks as those of Quain, Gray, and Cunningham. It is rather sad to reflect that of the twelve collaborators in the present edition only one is now connected with a London school, and that the book, which was once so representative of London teaching, now prides itself on being the first English textbook to forswear our old traditional terminology and to adopt a new ill-considered nomenclature of foreign origin.

While the necessity of books on applied anatomy may be regretted, since they tend to give the student too partial and broken a view of a subject which should essentially be seen whole, it is idle, in the face of the rapid advances in knowledge and of the persistent increase in size of the more general textbooks, to pretend that such books have not got their sphere of usefulness. In *Medical Applied Anatomy*,⁸ which is a volume of the Edinburgh Medical Series, Mr. T. B. JOHNSON has done for medical anatomy what quite a number of authors have already done for surgical anatomy, nor need he, in our opinion, fear comparison in his work with any or all of them. The judgement which he has shown in both the general plan of the book and in the choice of subjects is alike admirable, while for a first edition the text is singularly accurate. Almost half the book is devoted to the consideration of the nervous system, and within the limit allowed it would, we think, be difficult to suggest any improvement. Of errors, we note that the buccinator muscle is described as arising from the inner alveolar margins of the mandible and maxilla, while the latissimus dorsi is given as inserted into the medial lip, and the teres major into the floor of the bicipital groove. The spinal root of the eleventh cranial nerve is said to arise midway between the anterior and posterior roots of the cervical spinal nerves, whereas it lies definitely behind the ligamentum denticulatum; further, its distribution is not confined, as stated, to the sterno-mastoid and to the upper fibres of the trapezius; it supplies the lower fibres as well, as can be easily demonstrated in the dissecting-room, and as would be expected from a knowledge of its origin. We do not, moreover, subscribe to the dictum, where each is essential, that the axon of a nerve cell is of much greater importance than the dendrites. The illustrations form the feature of the book which lies most open to criticism. Some of the prints are from blocks made originally for a textbook now, we believe, out of print, and published at a time when the art of illustrating was far from being what it has of late years become. Others of the figures are presumably from the author's own pencil, and might, we think, have been brought to a higher state of perfection without any sacrifice of simplicity or without any addition to the expense of reproduction. In Fig. 25 we note that the spino-thalamic tract is placed in the position usually assigned to the rubro-spinal tract; while in Fig. 31 the positions of the internal carotid artery and sixth cranial nerve are not exactly given as they are usually seen and described. For surface markings the author has chosen to go to plaster casts of more or less classical models, and figures of Hercules and Apollo make unexpected appearances as we turn the pages of the book. On the whole we think we prefer our classical art and our applied anatomy separate. Such blemishes as have been noted are, however, slight and do not seriously detract from the value of a book upon which the author is to be warmly congratulated.

ABDOMINAL INJURIES.

*Abdominal Injuries*⁹ is the title of a volume contributed to the "Oxford War Primers" by Professor RUTHERFORD MONSON and Lieutenant-Colonel W. G. RICHARDSON. The book treats of the various forms of abdominal injury met

⁵ *Medical Applied Anatomy for Students and Practitioners*. By T. B. JOHNSON, M.B., Ch.B. The Edinburgh Medical Series. London: A. and C. Black, 1915. (Cr. 8vo, pp. 450; 146 figures. 7s. 6d. net.)

⁶ *Abdominal Injuries*. By RUTHERFORD MONSON, Professor of Surgery, Durham University, and W. G. RICHARDSON, M.B., F.R.C.S., Lieutenant-Colonel R.A.M.C.(T.). Oxford War Primers. London: H. Frowde, and Holder and Stoughton, 1915. (Fcap. 8vo, pp. 116; 27 figures. 2s. 6d. net.)

⁷ *Handbook of Physiology*. By W. D. HALLIBURTON, M.D., LL.D., F.R.C.P., F.R.S. Twelfth edition being the twenty-fifth edition of Kirke's Physiology. London: J. Murray, 1915. (Denay 8vo, pp. 942; 577 figures, 3 plates. 18s. net.)

⁸ *Directions for a Practical Course in Chemical Physiology*. By W. CRAMER, Ph.D., D.Sc. Second edition. London: Longmans, Green, and Co., 1915. (Fcap. 4to; pp. 110. 3s. net.)

⁹ *Morris's Human Anatomy: A Complete Systematic Treatise by English and American Authors*. Edited by C. M. JACKSON, M.S., M.D. Fifth edition, revised and largely rewritten. London: J. and A. Churchill, 1915. (Sup. roy. 8vo, pp. 1553; 1,182 figures. 20s. net.)

with in war, and is based on experience gained in the present campaign. Throughout it is very clearly written, and the diagrams are excellent in their simplicity. Great stress is laid on the need of careful and rapid diagnosis, and the importance of obtaining an accurate history of the injury is explained. In the Boer war statistics showed that though 40 per cent. of cases shot in the abdomen and brought alive to hospital recovered, the death-rate following on operations for abdominal injuries was appalling. In the present war, from the altered conditions of climate, soil, projectiles, etc., together with the possibility of the more rapid removal of patients to suitable hospitals, it is found that early operation may give the best chance of success. The various forms of abdominal contusions are discussed, as are wounds of the abdominal wall and penetrating wounds of the abdomen. Indications are given as to when and when not to spend time in searching for bullets. Surgical technique as applicable to the altered conditions of active service is fully considered. The various operations for the arrest of hæmorrhage, closure of perforations, excision of intestine, etc., are clearly described step by step. It is interesting to note that in intestinal anastomosis the authors give a prominent place to Murphy's button. There is a most excellent section on the after-treatment of abdominal cases and the more common complications likely to arise. In conclusion, it may be said that the book should prove of the greatest use to those among us who are at present or who may in the near future be called upon, if not to deal with, at least to help in the treatment of these most serious cases. Further, the book should be helpful to those in civil practice, for nowadays, with rapid traffic and in some places darkened streets, abdominal injuries are by no means infrequent.

FATIGUE.

The issue of a cheap reprint of the English edition of the late Professor A. Mosso's book on *Fatigue*⁸ appears at an opportune moment. The book is written in an entertaining if somewhat discursive style; thus, in the early chapters, there are given interesting facts concerning the flight of quails and other migratory birds, also details of the life-history of Borelli and of Steno, while in the later chapters reference is made to the manner of work of many intellectuals. In the main the book is an exposition of the author's pioneer researches into the subject. His well known ergograph is described, together with its manner of working. Excellent traces are given to show the results obtained under varying conditions. Mosso held that there is only one kind of fatigue—nervous fatigue; muscular fatigue, at the bottom, being an exhaustion of the nervous system.

Various examples are given of the effect upon the organism of cerebral activity, such as lecturing or examining students. The effect varies with the individual; thus in one, an hour's lecturing produced at first increased muscular power; in another, this effect was but transitory, and at the end of the hour there was a marked falling off in the power to do muscular work.

The section dealing with the question of fatigue in muscle suffers somewhat from the date at which the book was originally written; the more recent contributions to this part of the subject are consequently missing. Indeed, throughout it is somewhat disconcerting to find work done in 1883-1890 referred to as "recent." The subject of cerebral fatigue is dealt with largely from the psychological as well as from the physiological side, and should prove of value to educationists. It will serve to emphasize the fact that the young mind should not be unduly fatigued either by work or exercise.

It is somewhat difficult to say how far Mosso's method may be profitably employed in the elucidation of the problem of fatigue in manual workers. His chapter on the law of exhaustion indicates that best results are to be obtained by short intervals of work alternated by short periods of rest. This is undoubtedly true for all forms of manual labour. It cannot be doubted that the fatigue which leads to inattention and accidents is largely of cerebral origin. But in the case of the manual worker performing a reflex act many thousand times a day, often

during its performance chattering gaily about last Saturday's football match, or some such subject, it is probable that the fatigue from his labour supervenes in the lower rather than in the higher centres. In such a case the ergograph may not truly indicate the centres actually involved. To elucidate this problem the method of experimentation upon the workers themselves, as carried out recently in America, appears the more valuable. In such experiments the amount and accuracy of the output of the actual work are used as a measure of the fatigue developed. In dealing with the question of fatigue, it is necessary to bear in mind that it may not be solely due to the actual mental or physical effort, but to concomitant factors, such as ill ventilation, bad lighting, or the din of the surrounding machinery.

The book is one to be studied by all interested in the subject, and may be particularly recommended to those who are concerned with the psychological point of view. It reads well—a sufficient tribute to the excellent work of the translators.

NOTES ON BOOKS.

THE second edition of the *Encyclopædia Medica*⁹ has now reached its second volume, which contains articles from Aspiration to Chloroform. Among the most important are those on bacteriology, by Dr. Wm. Scott; on injuries and diseases of the bladder, by Professor F. A. Scanzoni; an account of the blood, by Dr. A. Goodall; on diseases of bone, by Professor Alexis Thomson; and a series of short articles and mere paragraphs are given to such rarities (as should one say commonplaces?) of medical practice as camptodactyly, and to subjects on which medical men can but rarely have to inform themselves, such as canal boats. Brief accounts of all the chief pharmacopœial and extrapharmacopœial remedies are included, and so are accounts of the chief eponymic physical signs recognized in practical medicine. The articles are written for the instruction and use of physicians and surgeons alike, and while maintaining a practical character, do not fail to make use of the literature of the subjects with which they deal. A number of illustrations and coloured plates are included, not all of equal merit. It is perhaps surprising to find an account of Blondlot's N-rays still included in a work published in 1915, in view of the fact that their origin in self-deception was proved a good many years ago. The *Encyclopædia Medica* is a work that should be in every medical library, and contains a vast amount of information that would be of service to practitioners of medicine.

The ninth edition of DORLAND'S well-known *Pocket Medical Dictionary*,¹⁰ containing the pronunciation and definition of all the principal terms used in medicine and the kindred sciences, including dentistry and veterinary medicine, is a book that may be confidently recommended to medical men in search of a medical dictionary of small size. It is well printed and for its size singularly complete, although we find no reference in it to the mitochondria of protoplasm to which so much attention has been devoted in recent years. It is not free from misprints. "Scybalum" is the singular of "scybalæ," not the plural; "Pyrosoma bigemium" should read "bigeminum."

Dr. MILLS'S book, *Nursing and Care of the Nervous and the Insane*,¹¹ now in its third edition, is founded on a course of lectures delivered to nurses at Philadelphia. It contains sound practical advice on the nursing of patients suffering from either functional or organic nervous diseases. The first chapter gives a general account of what the nurse's line should be. The next three chapters deal with massage, hydrotherapy, and the various forms of electrical treatment that have proved of service in these cases. The last chapter gives an account of the nursing and care of the insane. The book fills a want, and may be recommended to the attention of those for whom it has been written.

⁸ *Encyclopædia Medica*. Second edition. Under the general editorship of J. W. Ballantyne, M.D., C.M., F.R.C.P.E. Vol. II: Aspiration to Chloroform. Edinburgh and London: W. Green and Son. (Hoy's Ave., pp. 585; illustrated. Price 20s. net.)

⁹ *Pocket Medical Dictionary*. Edited by W. A. Newman Dorland, A.M., M.D., F.A.C.S. Ninth edition, revised and enlarged. Philadelphia and London: W. B. Saunders Co. 1915. (Fcap. 8vo., pp. 691, with over 60 extensive tables. Leather, 5s. net; with thumb index, 6s. net.)

¹⁰ *Nursing and Care of the Nervous and the Insane*. By C. K. Mills, M.D. Third edition, revised by the author, assisted by N. S. Fowler, M.D., Philadelphia and London: J. B. Lippincott Co. 1915. (Fcap. 8vo., pp. 142; 12 figures. 5s. net.)

¹¹ *Fatigue*. By A. Mosso. Translated by Margaret Drummond, M.A., and Professor W. B. Drummond. London: George Allen and Unwin, Limited. (1p. 3s. 2s. 6d. net.)

" CONSUMPTION QUACKERY."

UNDER this title *Truth* of September 22nd published an article on a nostrum called "Kasco Tubacyllus," vended by a Nottingham firm named Cassell and Co. The article states that the sale of the nostrum is pushed in the customary manner, "first there is the newspaper advertisement announcing that consumption is positively cured by Kasco Tubacyllus, which is described as 'the consumptive's only hope of life.'" Sufferers who write for further particulars receive a pamphlet, which after some generalities passes on to the announcement that "Cassell and Co. have placed on the market a germicide which 'has been proved—absolutely and conclusively proved'—to be 'a genuine and efficient cure for this terrible disease.'" The "discovery of the specific is ascribed to a man who was himself in the second stage of consumption of the lungs, and who had cured a Leeds sanatorium in the early part of 1914. This unnamed person had the great fortune to stumble across a certain cure which has, within a few months, positively driven away the disease, completely destroying the tubercular germ, and restoring him once again to perfect health. To obtain a similar result the patient is told that he must have the utmost faith in the cure and take it conscientiously. Though somewhat expensive to manufacture, the price has been fixed as low as possible, and a bottle containing 16 ounces is supplied for 4s. 6d., post free. With the pamphlet are sent out copies of some correspondence which has passed between Cassell and Co. and the Secretary of the Brompton Hospital for Consumption. In the first of these letters, signed F. W. Cassell, it is stated:

"So confident are we as to the genuine curative powers of our cure that my son, Mr. H. Cassell, is quite willing to allow himself to be inoculated with the bacilli of tuberculosis under the observation of any member or members of your committee, and no action shall be taken until every indication proves that he is thoroughly in the grip of the disease. He will then undertake to prove how all trace of the bacilli of tuberculosis can be successfully removed from his system.

"The reply from the secretary of the hospital was to the effect that the medical officers were prepared to give the 'cure' a trial on condition that the nature, the mode of preparing, and of using the proposed remedy were unreservedly communicated to them in writing. Needless to say, Cassell and Co. refused to comply with this condition."

Further on our contemporary states that: "In another document the Mr. H. Cassell whose *corpus vile* is offered for the experiment is described as 'our medical expert,' who takes the cases under his personal observation, and will report upon them after studying the charts which patients are requested to fill up at the commencement and during the progress of the treatment."

The editor of *Truth* had obtained through a prospective patient three bottles of Kasco Tubacyllus, and asked the editor of the BRITISH MEDICAL JOURNAL "to submit them to the analysts whose researches into the constituents of quack nostrums have been made public in the well-known book, 'Secret Remedies.' The result is shown in the following report, though it should be mentioned that Cassell and Co. aver in their letter to the Brompton Hospital authorities that the active ingredient of their cure is not ascertainable by analysis:

"Analysis showed that the liquid contained in 100 parts by measure—

Sulphurous acid (H ₂ SO ₃)	...	0.053 part
(Equivalent to 0.82 part of sulphurous acid, B.P.)		
Sulphuric acid (H ₂ SO ₄)	...	0.012 part
Citric acid	...	0.19 part
Cane sugar	...	1.03 part
Invert sugar	...	4.63 parts
Mineral matter (ash)	...	0.008 part

"Slight indications were obtained of the presence of traces of alcohol and formaldehyde, but the quantities of these, if present at all, were so minute as to be impossible of perfect identification. The sulphuric acid found has no doubt been produced by the accidental oxidation of part of the sulphurous acid; similarly, the invert sugar has evidently been produced by the action of the acids on the cane sugar, which is readily inverted by prolonged contact with dilute acid. Substantially, therefore, the liquid is a mixture of—

Citric acid	...	0.19 part
Sulphurous acid B.P.	...	1.03 part
Cane sugar	...	about 5.5 parts
Water	...	to 100 parts by measure

"Very careful search was made for a large number of other substances which might be employed in a mixture intended as a germicide, but in every case with negative results. If any other substance were present at all it must have been in most extreme dilution, so that the quantity obtained by taking the mixture would be practically infinitesimal, but, except for the doubtful indications of traces of formaldehyde and alcohol mentioned above, there was no appearance of any other constituent. The trace of mineral matter may have been partly from the constituents added and partly from the use of ordinary tap water. The formula given above in percentages represents the following quantities in a bottleful and in a dose respectively:

	In one bottle.	In one adult dose.
Citric acid	... 13 grains.	... 0.2 grain
Sulphurous acid, B.P.	82 minims	1.3 minims
Sugar	... 385 grains	... 6.0 grains

"Taking the prices of these ingredients quoted in a wholesale drug list, the cost (for ingredients alone, without bottle, cork, etc.) would be a little under 3d. for the quantity in one 4s. 6d. bottle."

In commenting on this, after remarking on the contrast between the cost of the ingredients and the price at which the bottle is sold to the public, the editor of *Truth* continues:

Sulphurous acid has, I believe, germicidal properties, but the claim that when a weak solution of this substance is swallowed it enters into the blood stream, and thus is carried into every tiny blood-vessel of the lungs to attack the germs of the disease on their own ground, is preposterous on the face of it and demonstrably false. In fact, any solution of sulphurous acid strong enough to destroy bacilli *in vitro* would, like many other bactericides, do as much damage to the tissues as the bacilli themselves. Its use as a quack nostrum is not even novel. Ten years ago a similar preparation was widely advertised in this country under the name of "Liquozone." In that instance it was offered to the public as a cure for all germ diseases. Cassell and Co., "the great specialists," are, I understand, a father and son who are vendors of a number of quack remedies. They rent a couple of rooms in a provincial town which they call their "laboratories," and where they carry on their correspondence and pack up the bottles of stuff dispensed for them by a local firm. Thence they start an advertising campaign, the sole end and aim of which is to get sufferers from an insidious and too often fatal disease to waste their money on a worthless nostrum.

Truth concludes its article by calling attention to the fact that one of the recommendations of the Select Committee of the House of Commons on Patent Medicines was that advertisements of medicines purporting to cure consumption, cancer, and some other diseases should be absolutely forbidden. The foregoing facts clearly demonstrate, our contemporary considers, that such a prohibition is urgently needed. This, however, does not seem to be the opinion of the Chancellor of the Exchequer, who hopes to raise a quarter of a million a year by doubling the patent medicine stamp duty. It may well be asked whether it is statesmanlike to paler in this way with an evil which must cost the country in loss of health and life tens of millions a year. The British Medical Association, through its JOURNAL, through the two volumes *Secret Remedies and More Secret Remedies*,¹ published in 1909 and 1912, and by the evidence given on its behalf before the Select Committee, has thoroughly exposed the true nature of these businesses. The House of Commons knows the truth through the report of its own Committee, yet it greets with laughing applause the proposal to make a little more money for the State out of this trade. The Government preaches economy, but it does not even go so far as to adopt the recommendation that the nature of the ingredients should be stated on the wrapper of a nostrum. Then the economically minded members of the public would at least know that they were paying 4s. 6d. for a half-ounce of sulphurous acid, or 2s. 6d. for, say, a penny-orth of phosphoric acid, or still more for a few penny-orth of tincture of cinchona bark.

¹ *Secret Remedies: What They Cost and What They Contain; and More Secret Remedies: What They Cost and What They Contain.* London: British Medical Association, 423, Strand, W.C. (Price is each; postage, 3d. each.)

THE third Triennial Conference for the Study of Pellagra is meeting in the city of Columbia in South Carolina, where the conferences of 1909 and 1912 were held. About 175 members, including representatives of the United States Public Health Service, will attend the conference, over which Dr. C. H. Lavinder will preside.

British Medical Journal.

SATURDAY, OCTOBER 2ND, 1915.

HOSPITAL STAFFS AND THE WAR EMERGENCY.

THE War Emergency Committee, at its meeting at the house of the British Medical Association on September 27th, had a very interesting conference with representatives of hospitals in Manchester and Salford. As many of the points raised are exercising the minds of those, both lay and medical, who are responsible for the conduct of the great civilian hospitals in other centres, it will be useful to give some account of the difficulties as they were stated by Sir William Cobbett, Chairman of the Board of Management of the Manchester Royal Infirmary, and his colleagues who represented other hospitals in that great centre of population.

It may, perhaps, be convenient in the first place to state that Major Wilson, chairman of the Medical Board of the Royal Infirmary, said that the 2nd Western General Hospital (Territorial), the head quarters of which are in Manchester, has 3,000 beds in twenty-two different buildings in that town, and that in various other places within the area there were 7,000 more beds in auxiliary hospitals to which patients from the 2nd Western could be drafted, or which could in other ways be used to relieve any congestion there.

In stating the position in which the Manchester Royal Infirmary was, Sir William Cobbett said that it had altogether 974 beds, of which number 248 were now devoted to military purposes. The number of patients treated in 1914 was 13,000, the number of operations was 7,560, and the number of accident cases over 22,000. During the first nine months of this year 6,035 operations had been performed. In normal times the honorary staff numbered 33, including specialists in various departments, and the resident staff 23—namely, 19 at the infirmary, 2 at the central branch, and 2 at the relief hospital. At the present time 27 members of the honorary staff were doing military duty of some kind, and certain among them could not give any time to the infirmary. The resident staff now numbered 8—namely, 6 at the infirmary, 1 at the central branch, and 1 at the relief hospital. They were assisted by senior medical students varying in number from 16 to 20 at different times, who did very useful work, but had, of course, to be under constant supervision. The infirmary dealt with a large number of emergency cases, and for the treatment of such cases had to rely largely on three officers—the resident medical officer, the resident surgical officer, and the accident house-surgeon. These officers were all desirous of enrolling, and he looked forward with apprehension to their leaving at forty-eight hours' notice; in fact, if they did it would be impossible to carry on the infirmary. They desired to do their duty to the country, and if they were told they were serving their country by staying at the infirmary they would be willing to remain. There seemed to be three courses open: one was to leave the infirmary these officers; another was to extend the period of notice from forty-eight

hours to two or three months; and the third was that students newly qualified should be sent to the infirmary to gain experience before being commissioned. It was not business to waterlog the civil hospitals if an arrangement of one of the kinds he had indicated could be made. The three resident officers of the Royal Infirmary who had been mentioned—the resident medical and surgical officers, and the accident house-surgeon—had to be constantly available to meet emergencies, and now more than ever when so many of the honorary staff were engaged in military duties; they were doing work which could not be delegated to general practitioners. Mr. Armitage, who spoke for the Ancoats Hospital, said that it had 150 beds and was situated in the middle of the workshop district of Manchester. In normal times it treated some 20,000 accidents a year and had a resident staff of three, or sometimes four; at present it had two residents, a resident medical and a resident surgical officer; of its visiting staff of three physicians and three surgeons it now had the services of only one physician and two surgeons, and this physician and one of the surgeons were attending also at a military hospital. Dr. Hopkinson, treasurer of the Salford Hospital, said that it now contained 240 beds, more than half of them occupied by soldiers. Every member of the visiting staff was engaged on military duties more or less completely, and all the residents were locum-tenentes who held office for short periods. He suggested that no resident should be called away from his hospital until he had served for three or four months. Captain Donald, speaking for St. Mary's Hospital—which really consists of two hospitals, a maternity which admits as many as 115 cases in a month, and a gynaecological hospital—said that of its visiting staff of eight, four were now serving in a military capacity, and whereas in normal times it had seven residents, it now had only two—one in each hospital. It drew its patients from a wide district surrounding Manchester, and most of the maternity cases admitted were difficult. He estimated that the civil hospitals of Manchester, taken together, required, in order to ensure reasonable efficiency, from ten to twelve competent young men as residents.

In the discussion which ensued, Dr. Verrall observed that in some of the smaller provincial towns the hospitals were unable to obtain any residents, and Mr. Bishop Harman expressed the opinion that the civil hospitals had now to face the possibility that in the not distant future every doctor of military age would be required for military service; the way to meet this position would be that, as in ordinary military hospitals, some member of the visiting staff should undertake to act as orderly officer for a day at a time and spend the whole twenty-four hours within the hospital. This had already been done at the West London Hospital, which in normal times had twelve residents, and now had only one. Major Galloway stated that at Charing Cross Hospital, to which he is senior physician, the resident medical officer was a man above military age who had been in general practice. As, in order to deal with surgical emergencies, a hospital must have an operating surgeon in constant attendance, he agreed that it might be necessary for members of the visiting staff to undertake to be on duty for twenty-four hours in rotation. The object of the War Emergency Committee in asking medical men of military age to enrol was that it might be able to advise as to those who could with the least difficulty be spared from civil duties. The War Office had agreed that in hospitals with medical schools a newly qualified man might be

given an honorary commission in the R.A.M.C. and seconded for service for three months as house-physician or house-surgeon. After Mr. E. B. Turner had pointed out that a man who signed the enrolment form was invited to state the date after which he would be ready to go, Dr. Buttar, who was in the chair, thanked Sir William Cobbett and his colleagues for their attendance, and expressed the hope that a War Emergency Committee would shortly be formed in Manchester, and would be able to deal with some of the points raised. Having regard to the call upon the younger members of the profession, it seemed very desirable that the Manchester hospitals should, if possible, liberate some of their residents by obtaining the services of general practitioners, especially for the treatment of out-patients.

In reply to the question whether the military hospitals in Manchester were overstuffed, Major Wilson said that they were not if the hospitals were full, and Professor Donald added that he believed that the average number of military beds under the care of each man doing such work was over 200. This last point, we know, is one that has caused concern to many practitioners, both those who have and those who have not been called on to do duty at the military hospitals in this country. But it is obvious that the state of the hospitals in respect of numbers of wounded under treatment must echo what is happening at the front. For months past there has been, as the saying is, "little doing" in Flanders, but the successes of the last few days have had to be paid for, and already a good many convoys have reached this country and have been distributed, some of them as far as Scotland. One convoy of one hundred, one-third of whom were lying-down cases, were admitted from France into the Edinburgh War Hospital at Bangour on the evening of September 21st, and on the following day one hundred cases reached the Springburn Hospital at Glasgow from the Dardanelles. Many other and larger convoys have arrived—and will be arriving for some time to come—in Great Britain. No one will dispute the claim of these men to immediate surgical attention.

Sir James Barr has written a pungent letter to the West Jersey Board of Guardians, Liverpool, in which, after admitting that the guardians must have difficulty in carrying on their medical work, he says that "this is really not the question for the country now. Everything should be viewed from a military point of view, and the medical care of the civil population must be placed a long way behind that of our fighting men. I hold that all the medical work in the country can be carried on by medical men over military age, and that the young medical men should be set free for foreign service. We must get medical men for the armies that are going abroad; 2,500 are at present required, and only young men can stand the fatigues of a long campaign." The guardians, he urges, ought to get men over military age either for part-time or whole-time service to do the work of the younger men until the war is over, and thus "give them an opportunity of rendering such service to their country as they will never have the chance of doing again." He concludes his letter in the following words: "The War Office has got a large number of medical men from Canada, Australia, and New Zealand, and if this country cannot now produce the men necessary there will be no course open but to apply to the U.S.A. to fill up the necessary complement."

We have received several letters raising various other points, with which we hope to deal in an early issue.

GUNSHOT WOUNDS OF THE HEAD.

THE surgery of war is, alas! receiving ample illumination from experience at the present time, as is illustrated by the three surgical articles with which this number of the BRITISH MEDICAL JOURNAL opens. Our surgeons have been quick to take advantage of the opportunities for study thus offered to them, and the result has been manifest for many months past in the steady flow of valuable original articles published in our columns and in those of some of our contemporaries. Dr. Gordon Holmes and Mr. Percy Sargent, in a paper published this week (p. 493), draw attention to a new type of vascular lesion in the brain, a type brought into prominence by the large number of glancing or shallowly penetrating wounds about the vertex of the skull that have to be dealt with. These injuries result in thrombosis of the superior longitudinal sinus and of its associated lateral venous lacunae and the superior cerebral veins connected with them; in addition, there may be gross injuries of the adjoining cerebral tissue.

Naturally the symptoms and signs vary much with the location and severity of the injury received. Their outstanding features, however, consist in the unusual distribution and type of the palsy induced, in the muscular rigidity always associated with it, in the curious disturbances of sensation observed, and in the relatively slight extent to which the sphincters are involved. As regards the paralyses noted, it was found that out of 78 patients 20 had all four limbs involved, 31 had both legs and one arm affected, 16 had only the legs paralysed; in 6 the signs were mainly hemiplegic, and in 5 one leg alone was touched. The hands were less severely affected than the arms, while the feet were more paralysed than the legs—a most unusual feature when comparison is made with the cerebral palsies commonly met with in civil practice. As the authors point out, this curious distribution finds its natural explanation in the anatomical disposal of the motor centres for these distant parts of the body in the cortex of the brain. The muscular rigidity of the paretic limbs is described as very striking; it occurs early, is generally co-extensive with the paralysis, and usually diminishes in proportion as the power of spontaneous movement returns. Even the muscles of the trunk may be involved, so that the abdomen is rigid and the respiratory movements become feeble. In certain instances reflex spasms have been associated with the rigidity, and in ten patients fits were observed, unilateral in eight instances; the reflexes are increased, and Babinski's sign is present. The sensory changes found are said to be those of pure cortical lesions unaccompanied by any shock effect, as, indeed, is the case with the motor symptoms.

The clinical picture is so novel that the authors hasten to christen it with the title of the "Longitudinal sinus syndrome." It is satisfactory to learn that most of their patients recovered. It is too early yet to give figures that can be regarded as final; only one patient died out of thirty-seven that were not operated upon, while out of thirty-nine on whom operative procedures were taken fifteen died, seven of the fifteen having also some direct injury of the brain. The authors remark on the difficulty of deciding upon the line of treatment that should be adopted in these cases of injury to the superior longitudinal sinus; they characterize the results of surgical interference as extremely unsatisfactory, and emphasize the tendency of cases uncomplicated by laceration of the brain to improve spontaneously. Yet in many cases operation is indicated for fear of septic infection and other

complications, as is set out by Captain Roberts (p. 498), who gives figures proving the remarkable success attending the treatment of soiled and septic scalp wounds on the lines indicated by common sense and the requirements of aseptic surgery. Captain Roberts urges once more, as so many have done before him, that gunshot wounds of the scalp should not be probed. The probe is a deadly weapon here, as it may readily convey a superficial infection into the depths of the wound. He recommends excision of the scalp wound, and of the injured bone beneath it if need be; if the dura mater is uninjured the operation would be sutured and closed without drainage. He reports that out of 118 cases in which this primary suture without drainage was practised, 114 healed by primary union, and only one broke down altogether. Like Captain Tabuteau (p. 501) he recommends that all foreign bodies within reach of the exploring finger should be removed from the brain when that has been penetrated. Captain Tabuteau, on the strength of an experience based upon 95 cases, puts forward a plea for the most thorough surgical examination of every case of gunshot wound of the head, no matter how trivial the injury may be at first sight. The wound should be excised, and the underlying tissues submitted to the most careful scrutiny. A comparatively small wound in the scalp may overlie extensive fractures of the skull and severe lacerations of the brain, a condition of affairs that calls for immediate and thorough surgical investigation. In other instances the contrary is the case, and an apparently severe scalp wound may be associated with no intracranial damage whatever. When it is found that the dura mater has been torn, a digital exploration of the lesion or track in the substance of the brain should be made. Naturally, much help may be gained here by use of the x-rays, when penetrating fragments of metal or bone will be brought into view. Like Captain Roberts, he recommends the administration of urotropin (1 or 2 drachms a day) to patients in whom a fracture of the skull is even suspected. It would be interesting to know how far such internal medication is actually capable of preventing or cutting short intracranial sepsis. The amount of the drug or of its products of decomposition that reaches the cerebro-spinal fluid must be almost infinitesimal.

THE MEDICAL MAN AND THE BUDGET.

A SUMMARY of Mr. McKenna's Budget speech and some specimen income-tax rates on the new scale were published in our issue of last week (p. 480), but in view of its importance we make no apology for returning to the subject in order to discuss the proposals from the point of view of the profession generally.

Modern theory accepts as the chief canon of taxation "equality of sacrifice," and the Budget appears to constitute a successful attempt to achieve that equality; but the sacrifice demanded is no light one. Earned incomes between £700 and £1,000 will under the full operation of the new rates yield to the Exchequer over 10 per cent. as against less than 4 per cent. before the war, and in the case of smaller incomes the rise is relatively even greater, the effect of the all-round increase in the nominal rate of tax being accentuated by the reduction of the abatements of £120 and £150 to £100. These high rates of taxation are accepted by the nation almost without demur, primarily for the simple but sufficient reason that the State urgently requires the money, but also

because in various and rather intricate ways the ultimate effect of those rates is modified with a view to rendering the incidence of the tax more equitable. The claiming of those modifications is, speaking generally, left to the initiative of the taxpayer, and it becomes more than ever desirable that he should understand in what circumstances and to what extent relief is to be obtained.

With the more ordinary forms of relief—namely, in respect of "earned" income, life assurance premiums, and children—our readers are doubtless already familiar, but recent and proposed legislation provides two additional modes of adjustment which are deserving of careful examination.

The dislocation in the professional and industrial world caused by the war has in individual cases rendered the method of assessment by the "three years' average" distinctly harsh. One attempt has already been made, in the Finance Act, 1914 (Session 2), to provide the taxpayers concerned with an equitable remedy, and the Chancellor of the Exchequer has now announced that further provisions will be enacted for the same purpose.

In order to make the proposals clear, it is advisable to explain the effect of the provision already in existence, the more so as the question involved is of special interest to the large and increasing number of practitioners who have accepted commissions in the Royal Army Medical Corps. The hardship inflicted by the three years' average assessment in such cases needs little explanation. If a practitioner, on receiving his commission, can obtain the services of a suitable locumtenent, the receipts of the practice may be maintained, but the expenses will of necessity increase very considerably, and on the other hand, if his partner carry on the practice single-handed, the expenses may conceivably be reduced, but the receipts will almost certainly be reduced still more; in either case the net income of the practice will in all probability fall below the average of the three previous years, and income tax will be assessed not only on the army pay which the officer does receive, but also on civil profits which he does not receive, the extent of the deficit varying according to circumstances such as those indicated above. This hardship was felt the more keenly because officers of the medical service of the Territorial Force now mobilized and serving receive less pay than during an ordinary camp training, and less also than the junior medical officers holding temporary commissions for the duration of the war. The effect of Section 13 of the Finance Act, 1914 (Session 2), is to give an officer the right to claim an adjustment—by way of repayment or otherwise—of his liability from the average to the actual profit of the year of assessment, or, in the case of a firm, to his share thereof. This provision may be invoked by any person serving in the forces of the Crown, or in the British Red Cross or St. John Ambulance service abroad. So far as can be ascertained at present, those lean years will still be available to supply the average basis of assessment in the future when the military service has expired, so that this statutory concession will ultimately bring substantial relief to those in a position to take advantage of it.

The Chancellor has now intimated that the Finance Act, in which the Budget proposals will find their legal force, will provide a special means of relief to all persons whose incomes have been sufficiently reduced to bring them within the scope of the relief. He said: "The whole of the additional duty will be repayable in the event of any individual proving that his actual income from all sources for the year is less

by one-fifth than the income on which he has paid income tax. . . . It is proposed . . . that where the deficiency does not amount to one-fifth, but is more than 10 per cent., repayment of a proportionate amount of the additional duty will be allowed." An example will perhaps make the effect of these proposals clearer. A is a medical practitioner assessed to the tax at £800 on the average of the three previous years, and his actual profits for the year of assessment have fallen to £625. If he has no other income, it is clear that his income is less by one-fifth than the income on which tax has been paid; he is therefore within the scope of the relief, and can claim repayment of the additional tax imposed by the present Budget. On the other hand, if he has other income—for example, dividends or army pay—the percentage reduction will be less, and he may be entitled to repayment of a proportionate amount only, or possibly to no repayment at all. It is fairly clear that though this provision will be of substantial benefit to taxpayers in trades and professions which are suffering acutely from the war, the medical profession as a whole is not likely to be in a position to derive much relief from it, and that it will certainly not supersede the already existing mode of adjustment under the Finance Act, 1914 (Session 2).

An interesting feature of Mr. McKenna's speech was his explanation of the new system of payment of income tax by instalments. The half-yearly system will apply "to individuals and firms who are liable to direct assessment in respect of trade, profession, or husbandry." Public companies are apparently to be excluded, and the system is to apply to tax assessed under Schedule D only. The medical practitioner will clearly be within the arrangement, and as a professional man certainly has a good claim to any advantage which a system of half-yearly payments may carry with it. For the current financial year the tax payable in January is to be calculated on the existing rates, leaving the additional taxes to be collected in July of next year, this temporary arrangement constituting an instalment of the half-yearly system. In this connexion it appears to us to be a matter for regret that, as in the case of the proposed relief for diminished total incomes, adjustments are frequently required to be made by way of repayment. Inasmuch as the additional taxes will not be collected till July, it is obvious that by that time applicants for relief will, as a rule, be in a position to substantiate their claims. It seems strange that in such cases they should be required to pay duties which are then provably returnable to them. Possibly by the time the Finance Act receives the royal assent this anomaly may have disappeared.

Mr. McKenna further announced that for "employees of all descriptions both assessment and collection will be quarterly." Such a system is clearly desirable in the case of workmen on daily or weekly rates of pay, but "employees of all descriptions" is a phrase capable of a very wide interpretation and may be held to cover medical men holding various appointments. Doubtless the precise scope of the proposed quarterly system will soon be made clearer, but in the meantime we may remark that its application to persons holding professional appointments will probably be regarded by them as a doubtful benefit.

In the other chief sources of direct taxation, as, for instance, in the war profits tax, a medical man as such is not interested, but the proposals for additional indirect taxation will not leave him unaffected. The increase of the petrol duty by 3d. per gallon will be felt by a very large number of taxpayers, and the

more so as the increase in the duty may be expected to afford an occasion for a more than equivalent rise in the retail price. Taken in conjunction with the 33½ per cent. *ad valorem* duty on "imported motor cars, motor cycles, and parts thereof," the increased petrol tax must substantially add to the cost of motoring. Where the car is run for pleasure no reasonable complaint can be made, but the case of a country practitioner with a scattered practice is an unfortunate one. At the same time, we may perhaps point out that the motor car undoubtedly fills a very much larger place in the commercial world than when the petrol tax was first imposed, so that if the medical man be in this respect unfortunate, he may extract some consolation from the reflection that on this occasion he has more companions in distress, and that the yield of the tax from which he suffers is correspondingly increased to the advantage of the Exchequer. We assume that the rebate "of half the amount of duty paid" now allowed in accordance with Section 85 (1) of the Finance (1909-10) Act, 1910, will be extended to the further duties to be imposed; this will give the general practitioner an increased interest in preferring such claims.

In closing his speech, Mr. McKenna wisely emphasized the importance of individual economy, saying that "we accept the burdens of taxation partly because they limit our power to consume." In the medical profession, at least, the limitation of individual consumption will be a necessary consequence of the enactment of the new proposals. Heavy as the burdens to be imposed undoubtedly are they will be shouldered in no complaining spirit, but with a cheerful recognition of the necessity for individual self-denial and sacrifice.

WORKSHOP FATIGUE.

PROFESSOR STANLEY KENT'S contribution to the study of fatigue in factories, just issued by the Home Office as a white paper,¹ has aroused considerable interest. The importance of the subject is at all times very great; it is now of supreme importance. That the Minister of Munitions has realized this is shown by his appointment of the Committee on the Health of Munition Workers. Mr. Sergeant Florence presented at the Manchester meeting a valuable report on fatigue to the special committee appointed by the British Association. In it he dealt very fully with the relation of the incidence of accidents to fatigue; accidents were found to increase in the later hours of the shifts, and he suggested that fatigue was the cause, the worker being then less wide awake to danger. Professor Kent has examined various methods of testing fatigue. He has used the ergograph, first exhausting the subject for the particular movement recorded, and then finding what recovery takes place after five minutes' rest. The recovery may be less at the end of the day than it is at the start. Another method used was the reaction time in a complicated form; one or other colour was momentarily exposed, the subject was required immediately to make a signal corresponding to the colour seen, and the time interval was measured. The methods on which he chiefly based his conclusions were a test of visual acuity by Snellen's types, and one of auditory acuity by the watch. He measured also the blood pressure. Using these methods, he brings forward some evidence which tends to show that the workers become fatigued toward the end of the week and recover again by Monday. The number of tests are too few to be decisive, and we are not convinced of their value as a proof of diminution of the worker's efficiency owing to fatigue. The real

¹ Interim Report on an Investigation of Industrial Fatigue by Physiological Methods. Cd. 8055. Price 43d.

test of that is output of work. A man's auditory acuity may and is fatigued by the noise and clang of the machinery, his visual acuity may be lessened by artificial lighting of the shop, and yet his output may be unaffected. There may be a fatigue of higher cerebral centres, and yet lower centres may carry on the reflex habitual acts of a man's trade. So, too, in the matter of accidents. The increase of accidents in the later hours of the shift may be due to diminished alertness of mind, and yet the reflex work may continue to be perfectly performed. The real test for the munition workers is their output, and here we come upon great difficulties, for output in the past has been restricted by trade union customs. A man did as much piece work as he was willing to do for the money offered. The employer cut the price partly for the reason that the worker would not work six days a week if he could earn in three days all the money he found opportunity to spend. The inducements to the worker to spend in ways which will increase his pleasure, happiness, and health need to be enlarged; to secure a larger output, desires must be given him, opportunities for amusement, homes and gardens which he will crave to adorn, holidays he can work for; his wife and children must stimulate him to aim at improving their lot. These, and ambition, are the aims with which most men in the professional classes work. In the munition works the new hands are out to make money while the war lasts, and will not be bound by the old conventions; the old hands are pushed into doing more. The result is, that on a twelve hours shift, and one Sunday off a fortnight, more work is done than on an eight hours shift. The evidence seems to show that the longer a man works the more he will turn out, but manifestly this is absurd. What we want to know is how much will be turned out on the old eight hours shift by men who do their utmost. The evidence derived from scientific management in America goes to show that output is improved by the shorter hours; the high rate of war pay instituted by the Government is, we believe, in some cases limiting output, because the workers have not the opportunity to spend and therefore have no sufficient stimulus to earn more than a certain amount. Give a man a great object of desire to live and work for and his output will go up by bounds. If the chief desire of many at present is to slack and take it easy, we may appeal to their patriotism and manhood, but it is useless to indulge in denunciation, for we have to remember that the housing conditions and confined city life imprison the spirit, and debilitate the energy of millions. War brings the inevitable retribution of the neglect of the governing classes to develop manufacturing England on hygienic lines. The slum and its gin palace, and the scramble to get rich must now be paid for in life and treasure.

MEDICAL STUDENTS IN THE WARS OF THE FRENCH REVOLUTION.

In connexion with the suggestion put forward by Dr. J. E. Robinson, in a letter published in the BRITISH MEDICAL JOURNAL of September 25th (p. 488), that medical students of eighteen months' standing and upwards should be utilized as military surgical assistants, it may be interesting to recall how students were enrolled by the first French Republic for military and naval service in the wars of the Revolution. In its eagerness to destroy every foundation forming a link with the *ancien régime*, the Legislative Assembly dissolved the old faculty of medicine of Paris in 1792; in the following year the Convention swept away the Society of Medicine and the Academy of Surgery, together with the seventeen provincial faculties and fifteen colleges of surgery. It was not long before the fruits of this blind fury of destruction became manifest. The Republic, at war with the whole of Europe, soon found itself in pressing need of surgeons. In eighteen months six hundred medical officers had died on

the battlefield or in the hospitals. The sources of recruiting having been dried up, it was recognized by the wiser minds among the revolutionaries that new institutions for the teaching of medicine must be established to replace the suppressed faculties. Accordingly, in 1794, schools for the training of doctors for the army were created in Paris, Montpellier, and Strassburg. In the meantime medical students were compelled to serve with the forces on land and sea, and in this way many of the men who rose to celebrity in the first half of the nineteenth century spent a part of their student career on active service. Larrey, when scarcely twenty, was surgeon-major on board a frigate; Broussais was a surgeon of the second class in a sloop; Récamier, whose name is associated with the vaginal speculum, was taken from his studies when he was barely twenty and sent to sea as assistant surgeon. These and many others received commissions as *officiers de santé* and took their degrees on the completion of their term of military or naval service. Their training does not seem to have suffered from the interruption of their studies. On the contrary, one may gather that the position of responsibility thrust upon them at an early age bred a quality of hard-bitten self-reliance and a resourcefulness which greatly helped to make them successful practitioners when they returned to civil life.

THE GERMAN CAMPAIGN AGAINST LICE.

In spite of many precautions, the Germans appear to have lost many men from typhus. Among its victims are Jochmann and v. Prowozek, whose claims to distinction, curiously enough, were largely based on their investigations on typhus. The measures adopted to stamp out the disease include the conversion of large factories, notably sugar factories, into stations for disinfecting soldiers and their clothing. Some of these are large enough to cope with 12,000 to 15,000 men with their clothing every day. The men are thoroughly washed with soap in baths, while their clothing is disinfected by steam, and leather articles by dry heat. In many prisoners' camps experiments have been carried out with a view to ascertaining the cheapest and most effective way of destroying lice, and Professor Galewsky has given¹ the following account of his experiments in a prisoners' camp in Königsbruck. A building, used by Russian prisoners, nearly all of whom were infested with lice, was selected for the first experiment. All cracks, crannies, and corners were washed with a 3 per cent. solution of kresol soap, and were then filled up. The clothing was hung up loosely, with the exception of a parcel of shirts, which were tied into a firm bundle. In this building, the floor of which measured 450 square metres, 25 kilos of sulphur were burnt in 16 sulphur stoves. The burning proceeded rapidly, and reached its maximum in 45 minutes. After three hours the doors and windows were again opened, and two hours later the building was occupied by the prisoners, who had meanwhile been washed. The lice and their eggs were found to have been completely destroyed, except in the tightly-packed parcel of shirts. The sulphur stoves used were made on the principle of a Bunsen burner, and the sixteen cost only 300 marks. Experiments carried out by Oberapotheker L. Schlesinger showed that lice and their eggs were killed in two hours by sulphur dioxide vapour, but only in two hours and a half or more by formaldehyde, which was also inferior on account of its irritating smell. Dry heat was sufficient to kill the lice and their eggs in one hour, provided the clothing was hung up loosely. But the dry heat sterilizer used could only accommodate the clothing of fifteen men at a time, and it also had a deleterious effect on leather. The conclusions to which most German investigators appear to have come are that sulphur vapour is the simplest and cheapest as well as the most reliable agent for the destruction of lice and their eggs in clothing and buildings.

¹ Deut. med. Woch., May 27th, 1915.

HIBERNATION AND THE PITUITARY BODY.

THE prolonged sleep characteristic of hibernation in winter latitudes, and of aestivation in tropical and arid regions, has never been satisfactorily explained. Hibernation has been very generally attributed to two extracorporeal factors—namely, a low external temperature and a diminished food supply. But there is good reason for believing that certain other factors of intracorporeal origin, best summed up in the intentionally vague term "pluriglandular insufficiency," are even more important in the causation of seasonal sleep. A recent paper¹ by Professor Cushing and Dr. Goetsch draws attention to the part played here by the activity or quiescence of the pituitary gland. It has often been noted that the experimental removal of the pituitary body leads to a state of profound lethargy and coma that soon ends in death, producing a cachexia somewhat ponderously termed "cachexia hypophyseopriva." It was observed that injections of pituitary extract would ward off the onset of this cachexia in certain cases. In animals in which the experimental removal of the gland had been incomplete, survival was characterized by adiposity and loss of sexual activity, imitating the syndrome described by Frölich in human beings as "dystrophia adiposogenitalis." Drowsiness and even lethargy are seen in both these experimental animals and the human beings exhibiting Frölich's syndrome. Cushing himself has recorded several cases in which extreme torpor was associated with clinical hypopituitarism, and was relieved by the administration of pituitary extracts. It is therefore argued that hibernation may well be due to a wave of seasonal pituitary inactivity, no doubt with similar inactivity of others of the ductless glands as well. Cushing and Goetsch bring forward experimental evidence to show that the North American marmot or woodchuck (*Arctomys monax*), examined in the dormant state, bears out this contention. During hibernation many of the ductless glands exhibit histological changes of a regressive character, as was pointed out in 1906 by Gemelli, and the most notable of these changes are seen in the pituitary body. The gland diminishes in size, the cells of the anterior lobe lose their characteristic staining reactions with acid and basic dyes in certain animals. When hibernation ceases the gland returns to the waking normal, and karyokinetic figures may appear in its cells, which once more appear well differentiated in stained sections—a point made plain in the microphotographs published by these authors. They conclude that hibernation may be ascribed to a seasonal physiological wave of pluriglandular inactivity, and attribute the essential part here to the pituitary body. Not only do the most striking histological changes appear in this structure, but also deprivation of the secretion of this gland alone of the entire series of ductless glands produces a group of symptoms comparable to hibernation.

NEED FOR DENTAL AID TO THE POOR.

ON September 13th the City Coroner held an inquest on the body of a hansom cab driver who had been choked by a large piece of unmasticated beef while eating at a cocoa bar. The man was edentulous except for two stumps on opposite sides of his mouth. In addressing the jury the coroner (Dr. Waldo) drew attention to the dangers of septic teeth, and to the difficulty necessitous people must have in obtaining artificial substitutes. He recalled that two years ago a sum of £5,000 had been given in trust to St. Bartholomew's Hospital to meet this difficulty in the work of the institution, and expressed a hope that an endowment for the same purpose might some day be made to Guy's Hospital. He had, he said, reason to believe that the gift to St. Bartholomew's Hospital was in great measure due to the report of a somewhat similar inquest he had held, and he would like to see the other general

hospital within his jurisdiction similarly benefited. That the City Coroner should use his office publicly to make such an appeal is sufficient evidence of the merits of the case, and it is an appeal which every medical man will endorse. It is often extremely difficult, or even impossible, to induce a patient to part with his own teeth, however foul and poisonous, without the promise of replacement, and many need no other treatment to restore them to health and usefulness. The gift to St. Bartholomew's Hospital has been a great boon, and the extra work entailed has been cheerfully undertaken by the dental staff. We have no doubt that Guy's Hospital would welcome a similar endowment.

CURIOSITIES AND DEFECTS OF SIGHT.

IN a lecture delivered to working men and working women at the Manchester meeting of the British Association last month, Professor Stirling gave a most interesting account of the eye as an optical instrument. Illustrating his remarks with lantern slides of experiments and by cinematograph films, he described the developmental evolution of the eye, and the pitch of perfection to which it has attained in man. For the purposes of our daily life it is indeed a product of singular perfection, and it has been recognized as such from very early days in the history of literature. Professor Stirling described the human eye as a tenfold instrument, and catalogued its separate functions as follows: (1) Microscope, (2) telescope, (3) camera, (4) range finder, (5) photometer, (6) self-adjusting lens, (7) automatic diaphragm, (8) autochrome camera, (9) cinematograph, (10) stereoscope. Little reflection is needed to show that here we have one of Nature's most successful *multum in parvo* instruments. Nearly fifty years ago Helmholtz waxed positively dithyrambic in describing its perfections. "Of all our members," he wrote, "the eye has always been held the choicest gift of Nature, the most marvellous product of her plastic force. Poets and orators have celebrated its praises; philosophers have extolled it as a crowning instance of perfection in an organism; opticians have tried to imitate it as an unsurpassed model. And, indeed, the most enthusiastic admiration of this wonderful organ is only natural when we consider what functions it performs." Such eulogy is well deserved; yet there is another side to the shield, and if it is considered coldly as an optical instrument, the eye has visual defects that cannot be passed over in silence. Here again Helmholtz may be quoted, for he speaks in no uncertain tones: "The eye has every possible defect that can be found in an optical instrument, and even some that are peculiar to itself. . . . it is not too much to say that if an optician wanted to sell me an instrument which had all these defects, I should think myself quite justified in blaming his carelessness in the strongest terms and giving him back his instrument." But we live in an imperfect world, and have to put up with compromise when perfection is unattainable. It is in compromise that Helmholtz saw the chief virtues of the human eye considered as an optical instrument; and so he qualifies his severe strictures, quoted above, by continuing as follows: "Of course, I shall not do this with my eyes, and shall be only too glad to keep them as long as I can, defects and all. . . . The eye in itself is not by any means so complete an optical instrument as it at first appears; its extraordinary value depends upon the way in which we use it. Its perfection is practical, not absolute, consisting not in the avoidance of every error, but in the fact that all its defects do not prevent it from rendering us the most important and varied services." In his lecture Professor Stirling described the importance of the care of the eyesight during infancy and school life, the use of spectacles for correcting errors of vision, the nature of colour vision, and the importance of tests for colour-blindness in the selection of those who have to recognize colour signals at night on land and sea. To emphasize the many points he

¹ *Journ. Experim. Med.*, New York, 1915, xxii, 25.

wished to make he has published a pamphlet containing some hundreds of quotations and some scores of illustrations bearing on the eyes and their uses. Here the reader will find the structure of the eye explained in popular terms, and may see portraits of the chief men of science who have explored the mysteries of its functions, from Descartes to Argyll Robertson. The quotations are drawn from the writing of all ages and many countries, and form a highly instructive series.

DIAGNOSIS OF TYPHOID AND PARATYPHOID INFECTIONS.

In order to ensure uniformity of observation and co-ordination of the results obtained by pathologists and bacteriologists at different military hospitals the Medical Research Committee has arranged for the preparation and supply of sterilized standard agglutinable cultures and standard agglutinating serums for the diagnosis of typhoid and paratyphoid infections by means of macroscopic agglutination tests. The standards are prepared under the direction of Professor Dreyer, and can be obtained free of charge by pathologists working in connexion with military hospitals from the Standard Laboratory, the Department of Pathology, University of Oxford (telegraphic address: "Pathology, Oxford"). To facilitate the preparations of agglutination tests under service conditions or otherwise, a special outfit has been prepared; it can be obtained free by pathologists working for military hospitals from the Medical Research Committee, St. Stephen's House, Westminster, S.W., or may be purchased from Messrs. Baird and Tatlock, 14, Cross Street, Hatton Garden, E.C., price 4s. 6d. The methods proposed and the standardized cultures and serums are already in use at the chief military hospitals engaged in work upon enteric fever cases and carriers with the Expeditionary Force and at home.

EXHIBITION OF FRACTURE APPARATUS AT THE ROYAL SOCIETY OF MEDICINE.

The exhibition of fracture apparatus will be opened at the house of the Royal Society of Medicine, 1, Wimpole Street, on Friday, October 8th, at 3 p.m., by Sir Alfred Keogh, K.C.B., when Colonel Sir Almoth Wright will deliver an address on his recent work dealing with wound infections. He will give demonstrations on that day and on Saturday, October 9th, and Monday, October 11th. Various forms of apparatus found most useful in this war will be exhibited and demonstrated by officers of the R.A.M.C. serving in France and by those attached to base hospitals in England. Officers in London who desire to contribute to the exhibition should communicate with Colonel Fagge, 3, Devonshire Place, W., and others with the consulting surgeons for their command. The exhibition is being arranged by a committee consisting of Lieutenant-Colonel Charles H. Fagge, M.S., Lieutenant-Colonel F. F. Burghard, M.S., Major Robert Jones, F.R.C.S., and Mr. J. Y. W. MacAlister, who is acting as honorary secretary for the committee. The exhibition will be open from 10.30 a.m. to 5.30 p.m. on Saturday and Monday, October 9th and 11th. Medical men who are not Fellows of the society will be admitted, and representatives of firms of surgical instrument makers will be admitted to the exhibition, but not to the lectures, by special tickets issued by the secretary. Visitors will be admitted on Sunday, October 10th, from 10.30 a.m. to 1 p.m., and from 2 p.m. to 5.30 p.m. on presentation of their visiting cards, but no demonstrations will be given.

A NUMBER of sailors on the interned German steamships at Hoboken have suffered from diarrhoea, and for a time it was suspected that some of the German refugees from China who had been cared for on these ships might have carried with them the cholera bacillus, but a bacteriological examination proved that the patients were suffering from diarrhoea only.

Medical Notes in Parliament.

Income Tax and Medical Practitioners' Book Debts.—Sir Hildred Carlile asked the Chancellor of the Exchequer, on September 22nd, whether surveyors of taxes were directed, when making an assessment for income tax, to add to the proved incomes of the medical profession one-third, or indeed any part, of the value of any book debts which might be standing in their books, and which they might never succeed in recovering; and, if so, on what grounds such additions were allowed to be made. Mr. McKenna said that no instructions of the nature suggested had been issued. In the case of medical men, as in other cases, any sum for book debts which had been included for income tax purposes in the profits of any year was, of course, excluded from the profits of the year in which the debts were paid. Should the debts prove to be irrecoverable, they would be allowed as a deduction from the profits of the year in which they were subsequently written off.

Wounded Discharged from Hospital.—On September 23rd, in answer to Mr. Peto, Mr. H. W. Forster, Financial Secretary, War Office, said that with reference to soldiers discharged from hospital he did not think the proposal of appointing county boards to look after them was necessary. On discharge from hospital a soldier, if still requiring medical care, was sent to an auxiliary hospital, which was in the nature of a convalescent home, where he was carefully looked after and his full pay continued. If discharged on furlough to proceed to his home, he received a free travelling warrant and an advance of £1, together with his full pay and also allowances, varying from 1s. to 2s. a day, in addition to any separation allowance previously payable. If he was discharged as permanently unfit, it was the duty of the Chelsea Commissioners to assess and award a pension which varied with the degree of disability in accordance with the scale recommended by the Select Committee and adopted by the House. In the case of an unmarried man, in which no separation allowance was issued, he drew a special allowance of 2s. a day, in addition to his pay. In the course of a reply to another question by Mr. Peto on the same day, Mr. Tennant said that it was desirable, in the interests of the army, that soldiers who had been discharged from hospital as "fit for light duty" should be brought as early as possible up to the standard of "fit for duty," which was the sole object of the recent Army Order.

Military Mental and Nervous Cases.—Mr. Tennant stated, in reply to Mr. Touche, on September 21st, that military mental and nervous cases were treated in the neurological sections of twenty-three military hospitals in the United Kingdom. Accommodation for these cases was also afforded by the Springfield House Hospital, Wandsworth, and the Red Cross Military Hospital, Maghull, near Liverpool. Mr. Tennant informed Mr. Rendall on September 22nd that the subject of the disposal of the more serious mental cases had been receiving consideration, and had caused the authorities considerable anxiety. Owing to the increasing numbers of incurable cases, it would not be possible to continue indefinitely the system of retaining, under the control of the Secretary of State, cases of general paralysis, chronic epilepsy, and chronic insanity which had had previous asylum treatment. Such cases would in future be dealt with in the manner laid down in paragraphs 403, 404, and 408, King's Regulations. This new system would apply to the cases now under the Secretary of State's control in so far as they come within the three categories named.

Casualties in the Dardanelles.—Mr. Tennant informed Captain Amery, on September 28th, that the 87,630 casualties in the Dardanelles up to August 21st included those among the Australian, New Zealand, and Indian Forces.

THE WAR.

MEDICAL ARRANGEMENTS OF THE BRITISH EXPEDITIONARY FORCE.

[From a Special Correspondent in Northern France.]

SCIENTIFIC MEETINGS.

THE Australian Commonwealth is well represented in France. An Australian hospital was one of the first voluntary medical units raised and equipped for work with the British Army in France, and to this hospital fate has assigned as officers' quarters the premises of a former golf club. This building, unlike any other turned to a like purpose in the area, possesses a very large room, and this fact has assisted the officers of this unit to play a very useful part in the medical life of the hospital base, and, incidentally, to satisfy their hospitable instincts.

Practically all the institutions forming the group are dealing with precisely the same problems, but the natural tendency among them is to do their work in watertight compartments. The fact that the D.D.M.S. and the consultants visit all of them in turn serves, in some measure, to link up their professional work, while individual members of their staffs may be old friends or new acquaintances, and dine with one another occasionally at their respective messes or billets. But, otherwise, and on the whole, there is very little communication between them. The hospitals are, for the most part, situated in hotels scattered over a very wide area, and there is no common resort at which their officers can meet when off duty. In addition, these officers are, as a rule, all busy at much the same hours, so that they cannot visit one another's hospitals at the only time when methods of treatment can be observed without disturbance of patients and nurses—namely, when the surgical work for the day is normally in progress.

To counteract the effect of these conditions the authorities do what they can to encourage the holding of meetings for the discussion of professional topics, but, on account of the lack of accommodation, it very rarely happens that any hospital except the Australian is able to make the necessary arrangements. As already indicated, the Australian Hospital has advantages in this respect, and it has turned them to excellent use. At fairly regular intervals throughout the last eight months—usually about every fourth Sunday—its officers have invited all other hospitals within easy reach to send two representatives, first, to take tea, then to contribute to a symposium on some given subject, and, finally, to discuss all things and sundry at an informal supper.

The subject of the symposium has always been some topic known to be specially occupying men's minds at the time, and the aim of the arrangements has been to secure not a debate but an exchange of experiences in respect of the endeavours made to solve the problem that the topic represents.

As a small contribution to the history of the war the titles of these topics and the order in which they have risen to the surface are perhaps worth putting upon record. The first subject was the treatment of compound fractures of the femur; the second, penetrating wounds of the chest; the third, cerebral injuries; the fourth, wounds of the abdomen; the fifth, gunshot wounds affecting the knee or other joint; the sixth, the treatment of cases of gas poisoning; the seventh, gunshot wounds of the head; and the eighth, the ideal treatment of infected wounds—a subject which had, incidentally, received attention at several previous meetings.

On one or two occasions the reading of a formal paper has formed part of the proceedings, but such contributions have been exceptional. As a rule, the outstanding points of the problem have been briefly outlined by one of the consultants, or by a representative of the hosts, and then each hospital in turn, in the order of its seniority in respect of the date of its establishment in the area, has been called upon to state what its experience in the matter has been and what measures have seemed to it most effective.

At the latest meeting the proceedings were of a different kind. The medical position at the moment allowed of the two ground-floor wards of the hospital being cleared of beds, and of the space thus provided, together with two

marques, being set aside for the day for the exhibition and demonstration of surgical appliances and devices deemed by the staff of any hospital in the area worth bringing to the notice of their colleagues. The greater accommodation available on this occasion rendered it unnecessary to limit invitations to two representatives from each hospital, and the result was a very large gathering and the transaction of a most useful afternoon's work.

The demonstrations were quite informal, each exhibit having its own little section of floor space allotted to it, and those who had devised or were using it standing by to explain the aims in view and the way in which they were deemed to be met by the appliance shown.

The exhibits numbered, in all, as many as 71, and were fairly equally divided between a fracture-apparatus class and a miscellaneous class.

The latter included a series of photographs and casts, as also one or two patients, shown to illustrate possible methods of dealing with gunshot wounds of the face when accompanied by comminuted fracture of the upper or lower jaw, or by more or less extensive loss of teeth and alveolar structure. There were also shown a table specially designed to facilitate the application of plaster-of-Paris splints and some ways of securing effective and continuous irrigation of wounds. The latter object presents a problem which, in the last few months, has received a good deal of attention, and one point that has to be borne in mind in connexion with it is the desirability of preventing the patient's clothing and bedding being wetted. Two methods of attaining this aim were in view; both depended mainly on building a coffer dam around the wound, the material employed being, in the one case, gauze moulded in formalin, and in the other putty and cotton wool.

The class formed by apparatus for dealing with compound fractures of the extremities was very large. It furnished ample evidence of the amount of thought and mechanical ingenuity that has been brought to bear on this subject, and as a whole perhaps suggested that it is injuries of the shoulder or involving the femur above the intertrochanteric line that are now proving most puzzling to splint experts.

But splints for the shaft of the femur predominated. All those described in the BRITISH MEDICAL JOURNAL during the past ten months, or to which passing reference has been made, seemed to be on view, together with a good many others. The number of thigh splints shown was, in fact, a little surprising, for it might have been anticipated that by this time one or two models would have crept into use to the practical exclusion of all others. At all events, in ordinary circumstances the probability would be that appliances which met fewer of the desiderata of a splint than did their rivals, or whose limited degree of utility could be obtained only by the exercise of extreme care, would drop out of use altogether.

The fact that they do not do so, or do so very slowly, may be attributed to several causes or even sets of causes. Into these it is not now proposed to enter, but they will form an interesting subject for some surgical war historian of the future. Meanwhile, however, it may be pointed out that the demands imposed upon splint inventors during the past ten months have gone through several phases which were all more or less well illustrated at the exhibition in question.

The first tendency was to regard immobilization of the fractured bone as the point of primary importance; the second was to set this aim entirely aside in favour of wound accessibility. In the third phase a desire for wound accessibility still predominated, but it was agreed that, quite apart from any consideration of late results, a certain degree of immobilization, whether obtained by extension or otherwise, was desirable in the interests of the wound cleansing itself.

The fourth phase was represented by a persistence of the preceding phase coupled with the claim that, besides allowing the most ample facilities for the treatment of any wound, and a means of applying extension to the fractured bone, a splint ought also to allow of a patient being sent upon long journeys without any disturbance of parts, even when suffering from a compound comminuted fracture of the femur.

The fifth phase was due to looking at the problem from

a somewhat different point of view. It was admitted that the splints of the preceding phase might be regarded as meeting all the positive needs of the situation very fairly; but it was considered that, from the point of view of nurses and patients, matters might, perhaps, be still further improved. The task of the nurse would be facilitated, and the comfort of the patient greatly increased, if the movement of the latter in bed were but very slightly hindered by the fact that he was wearing a splint. This phase became visible only comparatively recently, and despite the exacting character of the programme involved, it has led to the devising of at least one splint which goes a long way towards meeting the full specification. Moreover, the like effort has led, incidentally, to the improvement of splints belonging to the fourth phase, by showing how direct support may be obtained for the whole limb without interfering with their other aims.

As has already been indicated, it is not solely at the Australian Hospital that scientific meetings have been held. The officers of the Meerut Stationary succeeded in organizing, in the late spring, a very useful discussion on the nature and extent of the assistance that surgeons should expect from radiographers; and, quite recently, the results of the work done on the subject of paratyphoid fevers at No. 14 Stationary Hospital were described at a meeting at that hospital, and subsequently discussed by those present.

In addition, meetings for the discussion of scientific subjects have been a fairly regular feature of the medical life of Rouen during the last seven months, and there is reason to anticipate the holding of one or two of the same kind at one of the newer hospital bases.

THE SOUTH-WEST AFRICAN CAMPAIGN.

COLONEL P. G. STOCK, Director of Medical Services in South Africa, has issued a summary of the medical statistics of the Union Defence Forces for the period extending from the beginning to the cessation of hostilities in South-West Africa (August 18th, 1914, to July 9th, 1915). This summary is published in the July number of the *Medical Journal of South Africa*. The number of cases admitted to hospital from all causes was 28,882. The number remaining in hospital at the date of the report was 1,202; the number of officers and men transferred from ports in German South-West Africa to the Union base at Capetown in the hospital ship *Ebani* was 3,754. The admissions included 595 men wounded in action—namely, 277 during the rebellion and 318 in German South-West Africa; the number of cases of enteric fever admitted to hospital was 230, but of these only 69 are reported as having occurred in the area of hostilities; of the remainder, 48 occurred in the S.A.M.R. Training Dépôt, Pretoria, and can in no way be attributed to active service conditions. The average sick-rate during the German South-West Africa campaign was 3.21 per cent. The highest percentage reached during any period of one week was 4.18 per cent., and the lowest 2.59 per cent. Reliable figures are not yet available as to the number of troops in the field during any particular period of the rebellion, and sick rates for this period cannot yet be given. The total number of deaths from all causes to the cessation of hostilities was 415. This figure is made up as follows:—Killed in action: Rebellion, 98; German South-West Africa, 94. Died of wounds: Rebellion, 33; German South-West Africa, 28. Died from accident or misadventure, 57; died of disease, 105. Total, 415. The chief causes of death from disease were as follows: Enteric fever 23, dysentery 15, pneumonia 12, heart disease and other diseases of the circulatory system 6, appendicitis 6, pulmonary tuberculosis 4, abscess and other diseases of the liver 4, malaria 2, all other causes 33. The proportion of deaths from wounds or killed in action to deaths from disease was 10 to 4. In the South African war the proportion was 10 to 17. Over 135,000 doses of antityphoid vaccine were issued. The greater portion of this vaccine was prepared under the direction of Dr. Watkins-Pitchford in the South African Institute for Medical Research, but over 67,000 doses were supplied by Dr. Pratt Johnson from the South African Clinical Research Laboratory. While complete statistics are not yet available, Colonel Stock thinks there can be no doubt as to the very great measure of protection against infection

afforded by inoculation. The *Medical Journal of South Africa* makes the interesting statement that among the first to be inoculated were General Botha and his family.

GERMAN EXPERIENCES OF WAR SURGERY.

WOUNDS OF THE SKULL.

At a meeting of the Hamburg Medical Society¹ Dr. Oehlecker discussed the treatment of wounds of the skull. In almost every case in which recovery ensued the patients had been taken straight by train to Germany, where they were operated on within a few days of the infliction of the wounds. After the relief of compression and the removal of fragments of bone, the patients did well. It was astonishing to find how often extensive unilateral wounds of the cerebrum and cerebellum were unaccompanied by functional disturbances. Injuries to the motor centres were usually followed by rapid and great improvement in the symptoms, and even by complete recovery. Dr. Oehlecker had often found the evidence of the Roentgen rays misleading in gauging the extent and severity of lesions of the skull and brain. It frequently happened that lesions, which appeared to be trifling on examination of the skull by the Roentgen rays, proved far more serious when an operation was undertaken. Not only did the Roentgen rays fail to indicate the extent to which severe wounds had involved the brain, but in the case of slight wounds, with only trifling injury to the inner table of the skull, they often gave no information at all. In cases in which the symptoms were not explained by the Roentgen rays, it was always advisable to trephine. Experience had shown how, in most such cases, the wound was far more extensive than had been supposed before the operation was undertaken. Headache and other symptoms, following apparently slight, glancing bullet wounds, should not be treated lightly, and it was often necessary to trephine and search for the cause of these symptoms. The extensive lesions found at these operations were frequently the cause of great astonishment to the operator. Dr. Oehlecker favoured radical operative treatment for apparently slight skull wounds, with a view to preventing late symptoms; and he had never seen any ill effects from this course.

He had frequently found the large occipital nerve divided or injured in wounds of the back of the head, and this lesion was apt to cause the most severe neuralgia. In such cases, when conservative treatment was of no avail, he recommended the extirpation of the second spinal ganglion; and he showed a volunteer, who had received a severe wound of the back of the head penetrating to the cerebellum. The wound had healed completely, and the patient had left his bed, when he suddenly complained of excruciating pain in the back of the head. At first this pain was attributed to the wound of the cerebellum, but it was subsequently traced to the injured nerves of the back of the head. As the pain increased, the remains of the nerves and the second spinal ganglion were excised. The patient was discharged eleven days later with the pain completely relieved. Though the operation had been radical, there was little interference with the movements of the head and neck.

Dr. Boettiger recorded the case of a soldier, wounded on October 5th by a bullet which had entered the skull a fingerbreadth behind the left mastoid process, and had escaped to the left of the middle line, close to the upper border of the tabular portion of the occipital bone. At first he was speechless, and there was slight paresis of the right arm. Both these conditions soon passed off, and on November 19th there were no focal symptoms, although the wound was still suppurating; but next day right hemianopsia and total alexia were observed. His capacity for spontaneous writing was limited to signing his name, while he could write fairly long words from dictation. He could not, however, read these words. He also experienced difficulty in deciphering high figures. On December 3rd the wounds in the skull were opened, and loose fragments of bone, some of which had penetrated to the brain, were removed. As the wound still did not heal, as the focal symptoms showed little improvement, and as the Roentgen rays showed the vault of the skull to be split between the wounds of entry and exit, a large flap of skin and periosteum was made, and a large piece of

¹ *Deut. med. Woch.*, July 15th.

the skull between the two bullet wounds removed. Six sequestra, some fairly large, were abstracted. This operation was rapidly followed by improvement in the alexia, so that the patient could read fairly easily, but not perfectly, owing to the persistence of the hemianopsia. He could also write spontaneously, but he still grew tired on slight exertion. Dr. Boettiger suggested that in this case the bullet had directly injured the optic tract. The alexia, however, was, in his opinion, due to the pressure exerted on the angular gyrus by the wounded vault of the skull.

NERVE INJURIES.

At a meeting of the Medical Society in Hamburg¹ Dr. Saenger gave an account of his experiences of wounds of the peripheral nerves. The left radial and ulnar nerves were most often wounded, and, after them, the median nerve. The distribution of sensory disturbances, following wounds of these nerves, often did not correspond with that usually described in textbooks. Injuries to the median nerve were often accompanied by trophic and vasomotor disturbances. Wounds of the plexus gave rise to the most varied forms of motor and sensory disturbances. Of the cranial nerves, the facial was the most frequently wounded. He advised that operations on wounded peripheral nerves should not be undertaken till the wound had completely healed; when other methods failed to relieve severe pain, neurolysis—by which we understand him to mean the freeing of adhesions—should always be tried. Good results could often be obtained by the use of warm or cold compresses, by bromides and phenacetin, but injections of sodium chloride with eucaine were of little use. As a rule, the treatment of wounds of the nerves had not hitherto been sufficiently energetic; and in many cases a recovery was not effected till neurolysis was performed, and splinters of bone, foreign bodies, and aneurysms, compressing the nerves, were removed.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed.

CAPTAIN BURROUGHS MAURICE HUGHES, of the 4th Battalion Norfolk Regiment, was killed in action on the Gallipoli peninsula on September 15th, aged 43. Though serving as a combatant he was a medical man. He was educated at St. Bartholomew's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1895. He resided at Wymondham, Norfolk. He served in the South African war in 1899-1901, gaining the Queen's medal with four clasps. He attained the rank of Captain on November 25th, 1914, and also held the rank of Honorary Lieutenant in the army from June 17th, 1901.

Captain Walter Rowland Southall Roberts, R.A.M.C. (T.F.), killed in the Dardanelles, was educated at Birmingham, where he was a legible scholar, and in 1906 Queen's scholar, and also at the London Hospital. He took the degrees of M.B. and Ch.B. in 1906, and the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1912. After holding appointments as clinical assistant at the Brompton Hospital and at the City of London Hospital, and as medical officer of the West Ham Town Council industrial school, and medical officer of health at Ongar, he became tuberculosis officer to the Essex County Council, and settled at Braintree. He was an officer of the 3rd East Anglian Field Ambulance (head quarters Walthamstow), in which he attained the rank of Captain on May 1st, 1914.

Lieutenant Patrick Joseph Walsh, Indian Medical Service, was reported as killed in France in the casualty list published on September 27th. He was born on March 17th, 1889, educated at the Medical School of University College, Cork, and took the M.B., B.Ch., and B.A.O. of the National University, Ireland, in 1912. He entered the I.M.S. as Lieutenant on January 25th, 1913, and was medical officer of the 59th Scinde Rifles.

Lieutenant Jeffery Wimperis Parker, R.A.M.C., is now reported as killed in the Dardanelles in August. He was 32 years of age, and the youngest son of the late Professor T. Jeffery Parker, F.R.S., of Otago, New Zealand. He was educated at Dunedin, New Zealand; University College, Cardiff; and University College, London; subsequently he studied at Berlin. He took the diploma of M.R.C.S. and L.R.C.P.Lond. in 1906, and later the

D.P.H.Camb. After qualifying he filled the posts of house-surgeon to the Shadwell Children's Hospital and also to the Addenbrooke Hospital, Cambridge, and was in practice at Penydarren, Merthyr Tydfil, when he took a temporary commission as Lieutenant in the R.A.M.C. on October 7th, 1914.

Note.—In the JOURNAL of September 13th, when noting the death from wounds in Flanders of temporary Lieutenant C. M. Harris, R.A.M.C., we stated that we could not trace his name in either the *Medical Register* or *Army List*. We are informed by a friend that he was educated at Sydney Grammar School and Sydney University, where he took his degree in 1915, and was one of a hundred Australian medical men who came over in May last to take temporary commissions in the R.A.M.C.

Died of Wounds.

Lieutenant Francis Joseph Wisely, R.A.M.C., is reported to have died of wounds in the Dardanelles in the casualty list published on September 27th. He was educated at Belfast and took the B.A. of the Royal University, Ireland, in 1909, gaining a scholarship of the first class, and the M.B., B.Ch., and B.A.O. Belfast in 1911. After qualifying he acted as house-physician and house-surgeon of the Mater Infirmorum Hospital, Belfast, and was assistant medical officer at the City and County Asylum, Powick, Worcestershire, when he took a temporary commission as Lieutenant in the R.A.M.C. on October 10th, 1914.

Died on Service.

Lieutenant Edward Daniell Parsons, R.A.M.C., died at the 3rd London General Hospital, Wandsworth, of illness contracted on active service, on September 21st, aged 37. He was the elder and only surviving son of the late Dr. T. E. Parsons, of Paddock House, Wimbledon, and was educated at St. Thomas's Hospital, taking the M.R.C.S. and L.R.C.P.Lond. in 1903, and the D.P.H. of the London Colleges in 1907. After qualifying he served as house-physician to the Evelina Hospital for Children, as clinical assistant to the Royal Waterloo Hospital for Women and Children, and as assistant medical officer of health and bacteriologist to the Borough of Croydon. When the war began he was tuberculosis officer and deputy medical officer of health to the Borough of Northampton. He took a temporary commission as Lieutenant in the R.A.M.C. on November 2nd, 1914, was sent to Alexandria in June, and was invalided from that station.

Lieutenant Thomas Bond Paul, I.M.S., attached to the Persian Gulf Expeditionary Force, died there on service on September 19th, aged 25. He was the eldest son of Dr. Reginald Paul, of Loughborough, was born on June 30th, 1890, took the L.M.S.S.A. in 1913, and entered the I.M.S. on August 1st, 1914, in the last batch admitted to that service before the war began. Previous to being sent upon active service he was stationed at Poona.

Wounded.

Captain T. W. S. Hills, R.A.M.C. (T.F.), Flanders.
Lieutenant (temporary) L. L. Cassidy, R.A.M.C., Dardanelles.

DEATHS AMONG SONS OF MEDICAL MEN.

McDowel, B. G., Lieutenant 1st Connaught Rangers, son of Dr. McDowel of Sligo, killed in Flanders, aged 21. He got his commission on November 15th, 1914.

O'Neill, Sidney John, Sergeant 6th Light Horse, Australian Imperial Force, eldest son of John O'Neill, M.D., F.R.C.S.E., of Armadale, Melbourne, killed in the Dardanelles, August 7th.

Stewart, Alan Dundas, Second Lieutenant 9th Battalion Royal Sussex Regiment, and Bombing Officer, youngest son of Dr. Stewart of Redcliffe Gardens, London, S.W., killed in France, September 19th, aged 21. His commission was dated November 14th, 1914.

MEDICAL STUDENTS.

Gillespie, Charles, Second Lieutenant 4th Battalion (attached 2nd Battalion), Highland Light Infantry, son of the late Major Gillespie, V.D., of St. Andrews, died on September 26th in No. 1 Casualty Clearing Station, France, of a wound of the chest received on August 24th, aged 22. He was a medical student in his third year at St. Andrews University, where he had already taken the B.Sc. degree, and was a well-known athlete. He ran second in the hurdle race at the last Scottish amateur athletic championship sports at Edinburgh, was captain of the St. Andrews University athletic and hockey clubs, and was the best billiard player in the university. He got his commission on August 15th, 1914.

Munro, Hugh A., Lieutenant 8th Battalion Argyll and Sutherland Highlanders, killed in France by a bomb explosion, aged 22. He was the elder son of the well-known novelist, Mr. Neil Munro, and was in his final year as a medical student at Glasgow when he got his commission on November 24th, 1914.

¹ *Dcut. med. Woch.*, June 1914.

NOTES.

CANADA.

The offer of the Canadian Government to provide a hospital for the treatment of French wounded has been accepted by President Poincaré. The arrangements were concluded during the recent visit to France of Sir Robert Borden. The hospital will be established near Paris; the unit, which left Montreal last May as No. 4 Stationary Hospital (French-Canadian), under the command of Colonel Arthur Mignault, is now in England. It has been enlarged both in numbers and equipment.

Major W. W. Nasmyth, of Youngstown, Alberta, who was wounded at the battle of Ypres, has now so far recovered that he hopes to return to the front at an early date. He has been promoted colonel and is now at Calgary engaged in recruiting and training men for overseas service.

Major C. E. Doherty, of New Westminster, British Columbia, Assistant Director of Medical Supplies for the Canadian Overseas Forces, has returned to Canada. He will be attached to militia head quarters at Ottawa and will direct the arrangements for the care of soldiers invalided from the front, a number of whom have already reached Canada.

A fourth universities' company for overseas service is in process of organization at Montreal. It is in command of Captain A. S. Eve, of the McGill Canadian Officers' Training Corps. The third universities' company, under Lieutenant F. L. Turnbull, has arrived in England. The first and second companies are already with the Princess Patricia's Light Infantry. These companies are composed entirely of university men and have been formed to reinforce the Princess Patricia's.

ANGLO-RUSSIAN RED CROSS HOSPITAL.

The following have been appointed to the staff of the hospital raised in this country to work with the Russian Red Cross:

Commandant and Chief Sanitary Officer: A. M. Fleming, C.M.G., M.B., F.R.C.S., D.P.M., Camb.
Surgeon-in-Chief: H. F. Waterhouse, F.R.C.S.
Physician: Thomas Horder, M.D., F.R.C.P.
Assistant Medical and Surgical Staff: Gould May, M.A., M.D. Cantab.; A. B. Rosher, M.R.C.S., L.R.C.P.; G. A. Jones, B.A. Oxon., L.S.A.; Mark Gardner, M.D. Melb., and H. F. Q. Thompson, F.R.C.S., L.R.C.P.
Dispenser: Mr. Graham Bell.

Nurses: Miss S. S. Irvine Robertson (matron) and a staff of twenty-two qualified nurses and eight V.A.D. workers.

CRIPPLED SAILORS' AND SOLDIERS' ARTIFICIAL LIMBS.

In the JOURNAL of August 7th, p. 227, some account was given of Queen Mary's Convalescent Auxiliary Hospitals at Roehampton, to which sailors and soldiers who have lost a limb are admitted for the purpose of being fitted with suitable apparatus. The hospitals are officially recognized by the Directors-General of Navy and Army Medical Services and the Commissioners of the Royal Hospital, Chelsea. Although some 300 beds have been provided in two houses at Roehampton, over 800 patients are now awaiting admission, and the number increases daily. To meet this large outlay has been incurred at Roehampton in the erection and equipment of new wards, which will shortly be opened. In addition a movement is on foot to establish similar hospitals in Scotland and Ireland, in the immediate neighbourhood of such cities as Edinburgh and Dublin, so that the services of the surgeons on the convalescing staff may easily be available. At Roehampton, with a view to the future employment of the men, and also to provide useful occupation for them while in hospital, workshops fitted with model motor chassis, electrical appliances, lathes, etc., are being organized, with competent instructors. A man who has lost his right hand will be taught to write with his left, and classes for other industries will be arranged. An Employment Bureau, working in conjunction with existing societies and employers' labour, has also been established, and already a number of men have been placed in good situations. From the number of offers received, it is hoped through this medium to find suitable employment for every man on his leaving the hospital.

An appeal for additional funds to carry on the work has been made by Major-General Sir Francis Lloyd, K.C.B., the General Officer Commanding the London District. All contributions may be sent to the Honorary Secretary and Treasurer, Mr. C. H. Kenderdine, St. Stephen's House, Westminster, S.W. It may be added that the patronesses of Queen Mary's Convalescent Hospitals are the Queen and Queen Alexandra, and the presidents the First Lord of the Admiralty and the Minister for War.

KIT FOR MALTA.

Temporary Lieutenant J. C. Walker (Malta) writes: Perhaps one or two hints to officers ordered to Malta may be of service. Full camp kit should be brought from home. Most of the articles required can be purchased here, but the cost is fifty to

sixty per cent. more, and choice is restricted. It is still hot enough through the day to make drill clothing desirable. This can be bought here more economically than at home, and is quite well made up by local tailors. Probably one could save a little by buying the badges and buttons in England. Living is fairly cheap, though this depends partly on the locality where one is stationed. Broadly speaking, drill clothing and tobacco are cheap; all personal effects, toilet requisites, etc., are dear.

ITALIAN RIVER AMBULANCES.

Since July the river ambulances of the Italian Red Cross have been transporting wounded from the front to the hospitals of Cremona, Mantua, and Piacenza. Six of these floating ambulances, which are fitted up with every modern requirement for the comfort of sick or wounded men, are at work on the Po and the Mincio. The service is not free from danger, as enemy aeroplanes are in the habit of dropping bombs on the ambulances. Fortunately so far no damage has been done.

MEDICAL OFFICERS WANTED.

21st Wessex Casualty Clearing Station, R.A.M.C.(T.).
Four or five medical officers are required to complete the establishment of this unit; must be prepared for foreign service, if required. Applications to the Officer Commanding, 21st Wessex Casualty Clearing Station, R.A.M.C.(T.), 71, Holloway Street, Exeter.

32nd West Lancashire Field Ambulance (T.F.).

There are vacancies for medical officers in this unit. Pay and allowances as in the regular army, with promotion to the rank of captain after six months' service. Apply to Lieutenant-Colonel F. J. Knowles, T.D., R.A.M.C.(T.), R.A.M.C., Head Quarters, Croppers Hill, St. Helens, Lancs.

21st South Midland Mounted Brigade Field Ambulance (T.F.).

Three medical officers are required for imperial service with this unit at present under canvas at Holkham Park. Applications to Major D. M. Spring, Senior Medical Officer, The Camp, Holkham Wells, Norfolk.

2nd Line Welsh Border Mounted Brigade.

Two medical officers, willing to undertake the imperial service obligation, are urgently required for service with the 2nd Line Shropshire Royal Horse Artillery and Cheshire Yeomanry. Pay and allowances as in the regular army, also outfit and camp kit grants. Full particulars on application to Lieutenant-Colonel D. C. Leyland Orton, Senior Medical Officer, 2nd Line Welsh Border Mounted Brigade, The Camp, Morpeth, Northumberland.

2nd West Riding Field Ambulance R.A.M.C.(T.F.).

There are vacancies for officers for this unit for service overseas. Applications to the Officer Commanding, 2nd West Riding Field Ambulance, Thoresby Camp, Worksop.

31st North Midland Field Ambulance.

Four medical officers are urgently needed for this ambulance. Applications to Captain Holmes, R.A.M.C.(T.), Officer Commanding, 31st North Midland Field Ambulance, Belton Park Camp, Grantham.

England and Wales.

THE KING'S VISIT TO YORKSHIRE.

DURING his tour in Yorkshire the King was chiefly occupied in visiting munition works, but he found time while at Leeds to go to the university and to visit the 2nd Northern General Hospital in Beckett's Park. His Majesty was received by Surgeon-General W. Kenny, D.D.M.S. Northern Command, and Lieutenant-Colonel H. Littlewood, R.A.M.C.(T.), administrator of the hospital. The King decorated Sergeant A. E. Pendle, 4th Suffolk, and acting Sergeant J. Hogg, 1st Royal Scots, with the Distinguished Conduct Medal, and Corporal Evan Davies, 1st Welsh Regiment, with the Cross of St. George, Fourth Class, conferred upon him by the Emperor of Russia. The King then spent about an hour in the large assembly hall, where some sixty or seventy of the more serious cases were; afterwards he conversed with some wounded men who were in reclining chairs outdoors, and having been photographed among them said: "I am very glad to be with you here to-day. I wish to say how proud I am of the way in which you have done your duty both in France and at the Dardanelles. I trust you will soon be restored to health, and go back to your friends and your homes."

The organization of the 2nd Northern General Hospital was sketched in 1908, when Dr. E. F. Trevelyan became administrator, and the officers appointed were chiefly drawn from the staff of the Leeds Infirmary. On Colonel Trevelyan's death in 1912 he was succeeded as admini-

trator by Mr. J. F. Dobson, who took a large part in the further development of the hospital, which gave it control of the fine new building of the Leeds Education Committee at Beckett's Park. When Colonel Dobson was seized last April with the illness from which we are glad to learn he is now nearly recovered, he was succeeded as administrator by Lieutenant-Colonel H. Littlewood, who had left his retirement to do duty with the hospital. This hospital contains 540 beds, and since May the East Leeds War Hospital, with 520 beds, has been organized; in addition there are under the hospital administration in auxiliary hospitals and convalescent homes 1,837 beds, making a total of 2,897. The following summary of the work of the hospital was presented to His Majesty:

	Cases.	Deaths.
Expeditious Force (West)—		
British	6,625	50
Canadian	172	2
Belgian	402	2
Expeditious Force (Mediterranean)...	220	0
Home Force	5,173	22
	12,592	76

The King then went to Sheffield, where he was received by the Lord Mayor; he visited the university and went over the Applied Science Department, where he saw the students in training in the workshops.

UNIVERSITY OF LONDON OFFICERS' TRAINING CORPS.

The University of London Officers' Training Corps, under the command of Lieutenant-Colonel D. S. Capper, will begin its eighth year of training under exceptional conditions, as the colleges of the university are largely depleted of students. In the infantry unit—the largest in the contingent—the training, since the outbreak of the war, has been mainly of a continuous character, cadets being accommodated in premises in London. As a rule a few months of training under these conditions have been sufficient to qualify cadets for commissions. The artillery and engineer units of the contingent are also in active training. Their work is especially important at the present time, as facilities for the training of technical officers are few. The artillery unit has been permitted to keep its guns and equipment for training purposes. In the medical schools of the university a considerable number of students are completing their medical training with a view to taking commissions as soon as qualified. The strength and training of the Medical Unit of the University O.T.C. have therefore not been much affected by the war, and the cadets attended camp as usual.

Since the outbreak of war the number of commissions obtained by cadets and ex-cadets of the contingent down to the end of August, 1915, amounted to 1,521, and 189 commissions were obtained before the war, giving a total of 1,710. In addition, 245 commissions have been obtained down to the same date, upon the recommendation of the university, by graduates and students who were not cadets or ex-cadets of the University Officers' Training Corps. Before the end of September the university will have supplied well over 2,000 officers to the army through the Officers' Training Corps or by direct recommendation, and many other graduates and students have obtained commissions through other channels. Distinctions obtained by ex-cadets of the University Officers' Training Corps include: Military Cross 6, Médaille Militaire 1, mentioned in dispatches 14.

Under War Office Regulations membership of the University of London Officers' Training Corps is not restricted to members of the university, and other men of suitable education desirous of qualifying for commissions are accepted. Candidates for enrolment should apply personally to the adjutant at the head quarters, 46, Russell Square, W.C.

THE PROPOSED COMMERCIAL TARIFF IN MANCHESTER.

Throughout Manchester and Salford many strong expressions have been heard of objection to any proposal that the cost for drugs should be a first charge on the medical benefit fund. All the panel practitioners seem to be agreed that the tariff stands in urgent need of revision, and the tariff suggested in the report of the Departmental Committee, if it stood alone, would have been welcomed as removing many anomalies, though perhaps in a way that might injure the chemists unnecessarily. But the feeling

is very decided that if the adoption of the commercial tariff is dependent on the doctors agreeing to guarantee the chemists payment of all their bills in full, it ought to be rejected. It is felt that the chance of a deduction from the practitioners' fund in order to pay the chemists is not at all remote, and no one seems able to understand why the doctors should be in any way called on to bear the liability, because they may not be able to treat patients efficiently with a sum of money which is now only barely sufficient for the country as a whole, and which in the hard times that will follow the war may be altogether inadequate. To agree to accept such liability is held as equivalent to agreeing that the doctors are being paid too much at present, and if the scheme is forced on the profession it is practically certain that there will be trouble.

The Salford Panel Committee has decided strongly to oppose any scheme put forward which would make the practitioners' fund liable to be called on to make up any deficiency in the drug fund. Inquiries have been made, too, as to the opinions of a number of the panel chemists, and without exception—though, of course, they would like the discounting of bills to be prevented—they consider the proposed tariff an utter subversion of all their trade principles and a desperate attempt to eke out an insufficient fund in the first place at the expense of the chemists though ultimately to the detriment of the insured patients. During the last year the working of the medical part of the Insurance Act has been gradually but certainly improving in the district, but if an attempt is made to force on the doctors and chemists the proposals of the Departmental Committee in their entirety, many who have been doing their best to make the Act a success will be forced into an attitude of active opposition.

Ireland.

TRINITY COLLEGE, DUBLIN, AND THE WAR.

Address by the Vice-Chancellor.

Speaking at a meeting of the Senate of Dublin University on September 24th, the Vice-Chancellor, Mr. Justice Madden, said that a year ago an extraordinary meeting was held to enable some students in the medical school who were fully qualified for the medical degree to proceed at once to active service without waiting for the ordinary examination, and now when the Senate met again with the same object in view it seemed to be an occasion on which some detailed information as to the part taken by their students in the service of their King and country might be given. As to the medical school, 650 past and present members of the school were serving in various parts of the world in which the war was waged, in the R.A.M.C., the Indian Medical Service, in Red Cross Hospitals, or otherwise. Of these, they deplored the loss of 24 who had laid down their lives, 26 were among the wounded, 3 were missing, and 10 had been made prisoners of war.

It was pleasing to be able to record that many distinctions had been obtained by medical men of Trinity College, and the splendid work done by them had been mentioned in dispatches on no less than twenty-eight occasions. Several medical officers had been commended for gallant and distinguished conduct in the field, 5 had been granted military crosses, 3 had received the Distinguished Service Order, 2 the Order of St. Michael and St. George, and 3 the Order of the Bath (C.B.). That the Army Medical Service was tonnd adequate to the extraordinary demands made upon it was largely due to the arrangements made by that distinguished Irishman, Sir A. Keogh, on whom the university recently conferred the honorary degree of M.D. In the present war the British troops had enjoyed almost complete immunity from disease, which caused such terrible mortality in South Africa. This has been due to the system of preventive inoculation introduced by a former student of their medical school—Sir A. Wright.

The Vice-Chancellor also referred in eulogistic terms to the work being done by their women students in the present crisis. Many were now engaged at work in which men were formerly employed, and several had offered their services for munitions work. As to the Officers' Training Corps, he said the number of Trinity College students

serving with the colours was 1,500. Of these 707 had obtained commissions. The total who had joined from Trinity College since the war broke out was 970. Of these 74 had been killed, 67 wounded, and military crosses had been conferred on four, two of whom he would mention—Lieutenant Stubbs, son of a former Senior Fellow of Trinity, and Captain Moore, son of Sir John Moore.

The response of the medical graduates of the University of Dublin in the national crisis has been a splendid record, and it is only true to state that an equally good record is supplied by the medical graduates and licentiates of the National University (Ireland), the Queen's University (Belfast), the Royal Colleges of Surgeons and Physicians, and the Apothecaries' Hall, Ireland.

COMPLIMENTARY DINNER TO DR. DENIS WALSHÉ,
CO. KILKENNY.

Dr. Denis Walshé, (Graigue, co. Kilkenny, who has received the degree of M.D. (Honoris Causa) of the National University, Ireland, was entertained at a complimentary dinner by his colleagues of the South Eastern of Ireland Branch of the British Medical Association at the Club House, Kilkenny. The dinner was very largely attended by Dr. Walshé's colleagues, who travelled long distances from the adjoining counties to be present to do him a well deserved honour.

Scotland.

ESK RIVER PURIFICATION.

SOME years ago the purification of the water of Leith, which is, strictly speaking, Edinburgh's only river, was carried to a successful issue at very considerable cost but with the greatest benefit, especially to the large district of Murrayfield. Now another large piece of work aiming at the purification of another river, the Esk, which runs to the south of Edinburgh by Dalkeith and reaches the sea at Musselburgh, has, after sixteen months and at a cost of a little over £9,000, been brought to a conclusion by Messrs. Gilbert Thomson and Ferguson, civil engineers, Glasgow, for the town council of Dalkeith. On September 22nd the Dalkeith Sewage Purification Works at Newmills were opened by Provost Brown. As a result of these works the sewage of Dalkeith will be diverted from the Benbught burn; they will take also that which reaches the South Esk by other channels, and a considerable part of that which goes to the North Esk. Two main sewers unite at Newmills, and the sewage then passes through grit chambers and screens into the main sedimentation tanks, which are in duplicate, and have special provision for storm water. From the tanks the liquid is collected into two long troughs, which deliver it to distributors, four in number, acting independently, travelling back and forward over the filter, and driven by the weight of the liquid itself. After passing through the filter the liquid is taken to the "innus tanks," after being collected by under drains, so that the fine suspended matter may be intercepted before it is discharged into the river. The health benefit not only to Dalkeith and its residential suburb, Eskbank, but also to Musselburgh and other places lower down the Esk, cannot fail to be considerable.

WINTER SESSION AT EDINBURGH UNIVERSITY.

There can be little doubt that the medical classes in Edinburgh University will be much depleted this winter; indeed, the Edinburgh Students' *Handbook*, which has just been published, by its reduced bulk gives unmistakable indication of this depletion. The book is brought out by the Students' Representative Council, and gives much useful information upon all matters which interest the undergraduate. Special attention this year is given to the claims of the Officers' Training Corps, and it is stated that between 850 and 900 cadets and ex-cadets have received commissions during the past twelve months. It is interesting to note that about thirty former presidents of the Students' Representative Council are on active service, and that about twelve former presidents of the University Union and a thousand former members of the Students' Representative Council are with the forces; medical's form a considerable proportion of these numbers. The

Edinburgh University *Calendar* has also made its appearance for the session 1915-16. It contains, as usual, all information regarding university matters, and shows that about fifty students, taken from the merit list of last session, had taken advantage of the privileges given last November on account of the war. The statistics furnished indicate that 4,009 members of the university were in July last serving in one form or another with the colours, and that 64 had died *pro patria*; it is calculated that the number now on service has increased to 4,500, or thereabout. Details are also given of two new scholarships—the James Cropper and the Waldie Griffith—both of which are for the benefit of women students of medicine.¹ The session opens on Tuesday, October 5th, in the University, in the Edinburgh School of Medicine for Women (whose lecturers are the only ones recognized by the University Court for students preparing for the university examinations), and in the Extra-mural School of Medicine of the Royal Colleges.

Correspondence.

THE WAR EMERGENCY.

Poor Law Medical Officers and the Cost of Drugs.

SIR,—There must be many senior practitioners like myself who are also Poor Law medical officers and who, when the appeal came from the War Office through the War Emergency Committee of the Association, willingly agreed to take up again the work of their younger days to release their junior partners and allow them to take commissions for the war.

The tax on us, both physically and financially, will be heavy if we have to do our own dispensing with drugs at war prices.

By the National Insurance Act the Government established the principle of writing prescriptions to be dispensed by chemists and paid for by the Insurance Committees, and I suggest that representation be made to the Local Government Board pointing out what a great help it would be to the Poor Law Medical Service if a general order was made that Poor Law medical officers should be relieved of that part of their contracts which requires them to do their own dispensing and provide the drugs. This request should be made through the medical press and by a deputation to the Local Government Board if need be.

The profession has responded to the demands made upon it in a way which has met with the approval of all classes, and I feel confident that my suggestion has only to be made to the authorities for them to recognize that it is reasonable, practicable, and in the interests both of the sick poor and of the Poor Law medical officers.—I am, etc.,

Emsworth, Sept. 27th.

LOCKHART STEPHENS.

MEDICAL EDUCATION OF WOMEN.

SIR,—Under the above heading you have published a letter from Miss R. Mary Barclay, M.A., M.B. Edin. It could not be expected that you should know your correspondent as we know her here. The authorities of this school and others are familiar with her epistolary activities. On these I do not propose to enlarge, but in her letter to you there are statements and innuendoes with regard to this school which cannot be allowed to pass without correction and contradiction. This school is conducted by a body of lecturers who have had long experience in teaching, and whose names come before the University Court annually for reconsideration; while the teaching arrangements and the teaching premises are inspected annually by members of the court. Clinical teaching is conducted in the Royal Infirmary by members of the staff of the infirmary in the wards set apart by the infirmary for that purpose, and to which men students are not admitted; instruction is also given in the Royal Hospital for Sick Children from the whole staff of that hospital; at the City Hospital for Infectious Diseases; and at the City Asylum. The statement by Miss Barclay that women do not get "Edinburgh training" is absurd. The whole secret of the Edinburgh system is that the individual teachers devote themselves loyally and

¹ See the JOURNAL, May 1st, 1915, p. 782.

diligently to their teaching duties, not allowing other duties to interfere with their performance, and that the lecturers both inside and outside the university are trained and experienced teachers before they seek recognition as lecturers. The lecturers in this school are the Extra-Academical Lecturers in Edinburgh, and nothing but praise is due to them for the high spirit and efficiency with which for years they have carried on the medical education of women in Edinburgh. That the teaching has been efficient is shown by the number of passes, our list of graduates, and the good work the qualified women who have studied at this school are doing all over the world. Miss Barclay's attempts to decry the training in her own school are not taken seriously by those who know and understand all the circumstances. Here, as in London, the problem of how to deal with increasing numbers is emerging, but in due time that will be solved.—I am, etc.,

Edinburgh School of Medicine
for Women, Sept. 27th.

WILLIAM RUSSELL, M.D.,
Dean of the School.

THE ADMINISTRATIVE CONTROL OF MEASLES.

SIR,—I have read with interest Dr. Ralph M. F. Picken's article in the *JOURNAL* of September 18th, and agree with him that notification is essential in any direct effort to control measles, and, further, that when followed by active measures, experience justifies it.

Dr. Picken is apparently not aware that measles is compulsorily notifiable in Greenock, and on this basis he compares with Greenock the adjoining town of Port Glasgow, where measles has been notifiable since 1898. Greenock has had compulsory notification of measles by householders since 1885 under local Acts, and for thirty years the provision has been vigorously enforced. There are good reasons for believing that notification in the case of measles is as complete under this system as under the Notification Act, for there is no divided responsibility to notify, and the householder does not rely on the doctor attending to send in the notification; moreover, a very large proportion of cases are at the time of notification without medical attendance. In the five years 1910 to 1914 there were 7,192 cases of measles notified by householders in Greenock, and of these no fewer than 3,602 were without medical attention. I question if all these would have been notified under any other system than that which places the duty upon the householder alone to notify.

Dr. Picken refers to a chart showing the mean biennial death-rates from measles in Greenock and Port Glasgow for the period 1891-2 to 1909-10. That Greenock had compulsory notification of measles for a considerable number of years earlier than Port Glasgow probably explains why the curve in Port Glasgow is steeper from 1893-4 onwards. It also supplies a reason for the larger drop in Port Glasgow of 60.9 per cent. in the mean of the annual death-rates from measles in the second decennium compared with the first, as contrasted with 49.2 per cent. in Greenock.—I am, etc.,

W. M. S. COOK, B.Sc., M.B., D.P.H. Camb.,
Greenock, Sept. 22nd. Medical Officer of Health.

INFANT FEEDING.

SIR,—I do not think it would be found that the views held by Dr. Cameron and myself upon the subject of infant feeding are essentially different; at any rate, our aims are directed towards the same object—the improvement of the methods of artificial feeding and the reduction of the present rate of infantile mortality. On one point we certainly appear to differ, although I hope that even in this the difference is more in words than in reality. In Dr. Cameron's opinion, the results of feeding with whole citrated milk and with diluted milk plus sugar are very much the same, while, in my opinion, they are quite different, my contention being that the cause of a good deal of infantile health is the almost universal use of diluted milk by the poorer mothers of this country.

In one particular Dr. Cameron is not quite fair to me. He accuses me of having found a diet that is universally and invariably successful. Such is not the case. My suggestion is that whole citrated milk can be used with benefit as a routine measure instead of diluted milk, but

that it, or any other form of feeding, could be always universally and invariably successful is no claim of mine.—I am, etc.,

Leeds, Sept. 26th.

C. W. VINING.

Obituary.

SIR LIONEL SPENCER, K.C.B., M.D.,
SURGEON-GENERAL I.M.S. (RETIRED).

SURGEON-GENERAL SIR LIONEL DIXON SPENCER, K.C.B., one of the most distinguished officers on the retired list of the Bengal Medical Service, died at his residence in London, after a long illness, on September 22nd, aged 73. He was born at Gateshead on June 16th, 1842, educated at the Newcastle Medical School, and took the degree of M.D. St. Andrews in 1862, and the diplomas of M.R.C.S. and L.S.A. in 1864 and 1865 respectively. When the I.M.S. was again thrown open to competition, after admission to that service had been closed for four and a half years (1860 to 1865), he entered as assistant surgeon on April 1st, 1865, along with Surgeon-Generals Cleghorn and Harvey and Colonel Kenneth McLeod. He became surgeon on July 1st, 1873, surgeon-major on April 1st, 1877, brigade-surgeon on January 27th, 1889, surgeon-colonel on October 24th, 1892, and surgeon-general on October 25th, 1898; he retired on attaining the age of 60, on June 16th, 1902. Most of his service was spent in political employment under the Foreign Department of the Government of India. After a few years as medical officer of the Central India Horse he served successively in many of the Indian native states as Residency Surgeon, Eastern Rajputana States 1871, Kasauli 1877, Bhaatpur 1878, Jodhpur and Jaisalmer 1879, and from March, 1881, as Agency Surgeon and Superintendent-General of Vaccination and Dispensaries in Rajputana. On attaining to administrative rank in October, 1892, he was appointed Principal Medical Officer of the Punjab Frontier Force, and held that post for five years, during which he served as P.M.O. in the Waziristan campaign of 1894-5, on the north-west frontier of India, was mentioned in dispatches (G.G.O., No. 473 of 1895), received the frontier medal with two clasps and the C.B. on August 27th, 1895. In October, 1898, he was appointed surgeon-general of the Punjab Command, and in 1901 he officiated for some months as director-general of the I.M.S. On March 29th, 1895, he received a good service pension; on January 27th, 1906, was appointed honorary surgeon to the King; and on June 25th, 1909, he was promoted to K.C.B. His funeral took place, after cremation, at Brookwood Cemetery on September 27th.

Sir Lionel Spencer was a most popular officer, both with those of his own age and standing and with the juniors who served under him, who always found him just, kindly, and considerate. He married the daughter of Professor Alexander Harvey, M.D., of Aberdeen, a sister of the late Surgeon-General Harvey, I.M.S., and her death cast a shadow over the closing years of his life.

GILBERT CAMPBELL, M.B.,

PARTICK, GLASGOW.

It is with regret that we announce the death of Dr. Gilbert Campbell, which took place at Bishopton, Renfrewshire, on September 13th. Dr. Campbell was in his 75th year, and for the past twelve months at least had been laid aside from active practice. He was born and educated in Ayrshire, and his earlier professional years were spent in the teaching profession. Ambition directed his energies towards medicine, and he became a student in Anderson's College, Glasgow, in those days and still a well known medical school, and later graduated in the University of Glasgow. His first practice was established in the east end of Glasgow, in the Bridgeton district, where his professional ability, coupled with a genial, kindly manner, soon gained for him wide popularity. He then moved to Partick, in the western end of the city of Glasgow, and again proved his acceptance as a practitioner. He held the post of local Poor Law medical officer, and was one of the founders and chairman for fourteen years of the Scottish Poor Law

Medical Officers' Association. To him and to the labours of the secretary of that association, Dr. W. L. Muir, the Scottish parochial doctors are indebted for many benefits.

Dr. Campbell represented a type of practitioner seldom met with in present days. He was a staunch member and elder in the Church of Scotland, a trusted family adviser in many affairs other than medical, and a keen follower and critic of progress in medicine. In the east end of Glasgow his somewhat burly figure, unconventional dress, and happy free style earned for him the affectionate nickname "the farmer." The writer's father practised in the same district, and used often to speak of Dr. Campbell's stories told to enliven the night toings of midwifery, and of the good heartening of his genial imperturbability. He is survived by his wife and two sons and two daughters. His elder son fills his place, and is an equally popular medical practitioner.

SIR JAMES M. MOODY, medical superintendent of the London County Asylum, Cane Hill, died suddenly on September 20th at the age of 62. He was the son of the late Fleet Surgeon John Moody, R.N., and was born in county Tyrone in 1853. He studied medicine at St. Thomas's Hospital, and obtained the diplomas of M.R.C.S. Eng. in 1874, and L.R.C.P. and L.M. Edin. in 1878. For some time he acted as clinical assistant at St. Luke's Hospital, and was afterwards assistant medical officer at Brookwood Asylum for six years. In 1882, at the early age of 29, he was appointed medical superintendent of the Cane Hill Asylum on the opening of that institution, and this position he occupied until his death. On two occasions he was offered, but did not accept, a commissionership in lunacy. A few years ago he was selected by the Newfoundland Government to report on the administration of lunacy in that colony. He was an excellent administrator, and introduced many improvements in the care and treatment of the insane. No fewer than fifteen of his medical staff became superintendents of other asylums, and one was subsequently appointed a member of the Board of Control. He received the honour of knighthood in 1909. He was a member of the Caravan Club and the Japan Society, an enthusiastic collector of antiques, and an authority on bees. Sir James Moody married in March, 1885, Alice Harriet, daughter of the late Mr. Freud of Worplesdon, Guildford, who survives him.

THE LATE MR. JOSEPH SMITH.—A correspondent has kindly furnished us with the following additional information about Mr. Joseph Smith, an obituary notice of whom appeared in the JOURNAL of September 25th. He was the son of Mr. John Smith, solicitor, of York, and was educated at Sedgley Park, Boulogne, and King's College, London. He practised successively in Notting Hill, Guildford, and Bedford Park. He was one of the first to obtain the Diploma of Public Health at Cambridge. He was president not only of the Society of Members, but also of the now dissolved Incorporated Medical Practitioners' Association. In 1903 he was chairman of the Chiswick Urban District Council. Mr. Joseph Smith, until three years ago, was present at every annual meeting of the College of Surgeons, and advocated to the last the cause of the Members.

Universities and Colleges.

UNIVERSITY OF LONDON.

ENTRANCE SCHOLARSHIPS.

St. Thomas's Hospital.—The entrance science scholarships for 1915-1916 at the medical school have been awarded to A. S. J. M. Huggett (£150) and H. S. Le Marquand (£60).

St. Mary's Hospital.—The following awards have been made:—University Scholarship of 50 Guineas (Open): Mr. H. T. Prys Jones. Open Scholarships in Natural Science: (£100) Mr. A. S. Wright, (£30) Mr. R. M. H. Newbery. Frederic John Palmer Scholarship, £25: Mr. B. W. Roffey. The Epsom College Scholarship of 50 guineas was, on the nomination of the Head Master, awarded to Mr. T. S. North.

St. Bartholomew's Hospital.—The competitions for entrance scholarships at the medical school have resulted in the following awards: Senior in Science (value £75 each) to Mr. L. P. L.

Firman-Edwards, Whitgift School and Trinity College, Cambridge, and Mr. I. G. Williams, University College, Bangor; the Junior in Science (value £150) to Mr. Campbell Shaw, Monmouth Grammar School.

UNIVERSITY COLLEGE.

Students of the Faculty of Medical Sciences other than first year students will be received by the Provost and Dean on the afternoon of Monday, October 4th. On October 8th Professor W. M. Bayliss will give a public introductory lecture at 5 p.m. on the physiological action of light.

UNIVERSITY OF DUBLIN.

At special commencements held in Trinity College, on September 24th, the following degrees in medicine, surgery, and midwifery were conferred:

M.B.—Amy F. Nash.

M.B., B.Ch., B.A. O.—Clara B. M. Adderley, G. Bateman, E. Boyers, A. G. Fisher, R. H. Graham, W. Hunt, M. B. King, E. J. Manix, H. Mitchell, Geraldine Murphy, J. M. Ryan, C. G. Sherovitz, T. W. Sweetnam, J. H. C. Walker, W. B. Walker, C. M. L. West, W. F. Wilson.

UNIVERSITY OF GLASGOW.

THE number of candidates at the preliminary examinations held this week was in arts and science 265 as compared with 362 last September, and in medicine 127 as compared with 97 last year. The number of candidates at these examinations does not represent the total number of students intending to enter, as others are admitted by school-leaving certificates or after passing certain examinations held by other bodies.

Medical News.

BY a recent decree of the Government anticholera vaccination has been made compulsory in the Italian army.

PROFESSOR J. A. LINDSAY will give an address on eugenics and the doctrine of the superman before the Eugenics Education Society at the Grafton Galleries, Grafton Street, W., on Thursday next, at 5.15 p.m.

THE seventy-fourth session of the School of Pharmacy of the Pharmaceutical Society of Great Britain will be opened on Wednesday, October 6th, at 3 p.m., by an address by Sir Rickman J. Godlee, Bt.

THE sixth Norman Kerr memorial lecture of the Society for the Study of Intoxication will be delivered in the hall of the Medical Society of London on October 12th, at 4 p.m., by Sir William J. Collins, M.D., M.S. The subject is the ethics and law of drug and alcohol addiction.

LIEUTENANT HENRY WYNNDHAM GOODEN, M.D., R.A.M.C., sometime house-surgeon and resident medical officer at the Bristol Royal Infirmary, who was killed in action while attached to the 2nd Royal Irish Regiment, on May 9th last, left unsettled property valued at £14,621.

THE Governor of the State of Indiana has issued a proclamation declaring October 1st disease prevention day throughout the State. Exercises were to be held in the public schools on that day, and municipal, civic, and other organizations were co-operating to make the effort a success.

THE *Journal of the American Medical Association* states on German authority that salvarsan is being manufactured at Dairen where the Southern Manchurian Railway has a laboratory. The chemical research preliminary to its production was completed, it appears, in Japan.

AMONG the leaflets issued recently by the Board of Agriculture and Fisheries is an appeal to country people on economy in food. It urges them, among other things, to store their crops properly, to bake their own bread, and to cook vegetables by steaming. This leaflet and various others bearing on the subject can be obtained gratis and post free from the Secretary, Board of Agriculture and Fisheries, Whitehall Place, London, S.W.

FOLLOWING the example of England, France, and Germany, Italy is making provision for the special treatment of soldiers suffering from nervous disorder caused by the shocks of warfare. In June a department for this purpose was opened in connexion with the Ospedale Maggiore at Milan. It is under the direction of Professor G. Medea, director of the neuropathological section of that institution, who has the rank of captain.

The British Fire Prevention Committee, 8, Waterloo Place, London, S.W., asks us to state that it has various fire warning posters adapted to different kinds of institutions, including military and auxiliary military hospitals, convalescent homes, and hospitals, and in French, Flemish, Panjabi, and Urdu for hospitals admitting Belgian and Indian wounded. It also has special posters as to air raids for schools and householders. In most instances the posters will be sent free on application from a duly authorized official of an institution, accompanied by a large stamped envelope.

The usual monthly meeting of the Executive Committee of the Medical Sickness and Accident Society was held on September 17th, when Dr. F. J. Allan was in the chair. The accounts presented showed that the sickness claims experienced were under the expectation, in spite of the sums paid to members wounded on active service, which might be classed as an additional risk. The new business had been well up to the average, the combined tables for sickness and endowment assurance still being popular. The rise in the fees of locumtenents had caused many members to increase their sickness benefit in the society as a precaution in case of illness. Prospectus and all information can be obtained from Mr. Bertram Sutton, Secretary, Medical Sickness and Accident Society, 300, High Holborn, W.C.

DR. SANGUINETTI of Genoa declares that there is a strong reaction against German "Kultur" in Italy. He notes in the *Annales de gynécologie et d'obstétrique* for July-August, 1913, that Professor Bossi of Genoa had recently spoken about the victims of Tontonic gynaecology. He began with the case of Semmelweis, the pioneer of antiseptic surgery, persecuted because he was a Hungarian. He showed how Krönig's practice of subcutaneous and spinal anaesthesia had given rise to grave abuses, and how the trade in tuberculin had profited professors as well as pharmacists. Bossi had himself taught and practised conservative operations on the uterus, accepted by British, French, and Russian obstetricians, yet the Germans still insisted on castration and Caesarean section under the same conditions. Lastly, the Germans have been guilty of the grossest plagiarism. Scipione, Mercurio, and Melli, writing in 1605, La Torre in later years, and Gigli as well as Bossi, still living, have alike been victims, their innovations being ascribed in Germany to Walcher, Momburg, Döderlein, and Dührssen.

MESSERS. ERNEST GREYHER AND COMPANY, of 5, Blackfriars Street, Manchester, ask us to state that the "Manchester electrolyzer" of their manufacture is an apparatus which produces a solution of a salt of hypochlorous acid from common brine. It has, they claim, proved to be of considerable value for general sterilizing and disinfecting purposes. The whole process consists in the electrolyzing of the brine, thereby causing the production of sodium hypochlorite. One type of this electrolyzer works with a direct current of 110 volts and requires 8 to 10 amperes; it passes 4 per cent. brine solution through at the rate of 13 gallons an hour, giving about 5 lb. active chlorine in ten hours. One of these instruments has, we are informed, been installed at the London County Asylum, Bexley, and Dr. E. Fanles, assistant medical superintendent of that institution, read a paper on the subject of this electrolytic chlorine bleach at a meeting of the Medico-Psychological Association in 1913. This was briefly noticed in the *BRITISH MEDICAL JOURNAL* at the time (December 27th, 1913, p. 1629), and the complete paper was published in the *Journal of Mental Science* for January, 1914. In it some interesting descriptions are given of tests carried out upon the bactericidal properties of this bleach, and its capacity for removing blood, faecal and menstrual stains from clothing. The use of chlorine in bleaching is, of course, very old, and the sodium hypochlorite contained in disinfectants depending upon chlorine action is regarded with a good deal of suspicion on account of its liability to rot certain common fabrics. It is claimed by the makers in this instance, however, that their hypochlorite, being neither alkali nor acid, acts very rapidly and without detriment to clothes, and this seems to be the experience at Bexley, so far as it has gone. We are informed that the liquor is used for flushing drains, ridding reservoirs of green weed, disinfecting slaughterhouses, and for similar purposes. In this connexion readers may like to be referred to the account given in the *BRITISH MEDICAL JOURNAL* of July 3rd last, p. 38, of the electrolytic disinfectant made, under the superintendence of the M.O.H., Dr. F. W. Alexander, by the Metropolitan Borough of Poplar.

Letters, Notes, and Answers.

THE telegraphic addresses of the *BRITISH MEDICAL ASSOCIATION* and *JOURNAL* are: (1) EDITOR of the *BRITISH MEDICAL JOURNAL*, *Aldwych, Westrand, London*; (2) GENERAL SECRETARY and BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medivoc, Westrand, London*; telephone, 2634, Gerrard. The principal British office of the *British Medical Association* is 16, South Frederick Street, Dublin.

Series, answers, and communications relating to subjects of which special departments of the *BRITISH MEDICAL JOURNAL* are devoted will be found under their respective headings.

ANSWERS.

SPINAL OR LOCAL ANAESTHESIA FOR REMOVAL OF PILES. In reply to "G. A. D." (*BRITISH MEDICAL JOURNAL*, September 25th, p. 492), Mr. J. D. Mortimer (London, N.W.) writes: The danger of a fatality or permanent after-effect, such as paralysis of the sphincter ani, is inconsiderable, provided the injection is done with proper precautions as customary with experts. Spinal anaesthesia alone is not, however, to be recommended for "nervous" patients; they are likely to interfere with the operation and to be at its close and long afterwards in a very unsatisfactory condition. For the removal of piles a combination of spinal anaesthesia with light general anaesthesia is excellent in most cases.

THE CIGARETTE HABIT.

DR. WILLIAM BEAMWELL (Liverpool) writes: Recent correspondence in the *BRITISH MEDICAL JOURNAL* has made it sufficiently clear that sudden cessation of alcohol in confirmed inebriates will in some cases either induce or intensify delirium tremens, and "Junk," who asks for suggestions for the cure of the cigarette habit, has probably made the mistake of sudden withdrawal of tobacco in the case which he tells us suffers from great mental depression on attempts at complete cessation from smoking. I learnt years ago the folly of this method of dealing with the tobacco victim, and I have generally got over the difficulty in extreme cases of advising the patient to graze, to diminish the number of cigarettes smoked by at least one less every day. One patient, an English lady, who had been taught to smoke in Russia, and who usually smoked from thirty to forty cigarettes a day, managed, to her own great astonishment, to get down to four a day in the course of a few weeks, but declared that nothing would ever induce her to relinquish this small luxury. The habit of smoking cigarettes right to the end, either by a holder or on the point of a penknife, is a danger which should be pointed out to the patient, the heat driving the nicotine in strong concentration to the end of the cigar or cigarette, and consequently intensifying its toxic effect with each inhalation. The injuries of smoking, therefore, would be greatly lessened if only three-fourths of the cigar or cigarette were smoked and the last quarter thrown away. The long churchwarden pipe has gone out of use, but its absorption of nicotine was its great advantage, and its modern substitute—the pipe with a well—should be suggested to the tobacco lover as the most harmless method of smoking.

DR. L. R. H. P. MARSHALL (Peebles) writes: Many of the soldiers coming under one's observation, whether invalided home from active service or requiring medical treatment while undergoing their course of training at home, show obvious signs of "tobacco poisoning." I have found that the popular remedy, soda mint in tablet form, alluded to dispassionately in the mouth, dispels the immediate and urgent desire for a smoke more efficiently than anything else I have tried. Men are so conscious themselves of the aid it is to their endeavours to control the habit that they come and ask for the tablets. This in no way interferes usually with other treatment being used at the same time. So useful have I found this simple expedient that I think it is worth trial by others, and I would go further and suggest a generous supply of the remedy being included with each consignment of cigarettes sent by liberal donors for the use of the troops at the front. Perhaps it might save many a man's wud when the day came for him to leap out of his trench and charge.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive post-*restante* letters addressed either in initials or numbers.

THE VALUE OF HYPOCHLOROUS ACID IN THE TREATMENT OF CASES OF GAS GANGRENE.

BY JOHN FRASER, M.D., CH.M., F.R.C.S. EDIN.,
CAPTAIN R.A.M.C.,
BRITISH EXPEDITIONARY FORCE.

(Report to the Medical Research Committee.)*

In June of this year I was interested to learn that the professor of pathology and the staff in the Department of Pathology at Edinburgh University were investigating the value of hypochlorous acid as an antiseptic. This information came to my notice before any publication had been made. I was anxious to test the value of the application in the treatment of recent and infected wounds, and Professor Drennan was good enough to place a quantity of the material at my disposal; and, further, he gave me very useful directions as regards its preparation and properties.

Since that date I have given the treatment a very thorough trial, and its value in the special class of case herein noted has so impressed me that I have decided to publish a brief account of the results.

This paper, therefore, deals only with the value of hypochlorous acid as an application in cases of gas gangrene. And it is well at the outset to make clear what is meant by the term. It is applied to cases in which the wound has become infected with a gas-producing organism; the further progress of the infection is associated with local tissue necrosis, and ultimately with general collapse and death. The affection has been attributed to various organisms. According to Fleming,¹ it would appear that the most common occurrence is a combined infection by the *Bacillus aerogenes capsulatus* with the streptococcus.

Granting that infection with these or other organisms is the chief etiological factor, there are also certain important accessory conditions. The situation of the wound is important; I have never seen a gas infection follow a wound of the scalp or face, and only on one occasion have I seen it follow a wound of the trunk. The lower extremity is a more common site than the upper, and in the lower limb the seat of election for an infection is certainly below the knee.

The nature of the wound is the second consideration. The infection pre-eminently occurs in a punctured wound, and more especially in a wound which has been associated with extensive extravasation of blood into the tissues. There are other subsidiary etiological factors, but those mentioned are of outstanding importance.

It is possible in this paper to refer to the pathology of the condition only in the briefest terms. From the wound opening a scanty, foul-smelling discharge appears; it is largely composed of broken down blood clot; it is of a brownish colour, and mixed with it there are bubbles of gas. The skin around the wound becomes of a faint purplish colour. In the subcutaneous tissues there is an accumulation of lymph-like fluid. There is a similar infiltration throughout the intermuscular septa and connective tissue planes. Muscular tissue rapidly loses its healthy red appearance; it becomes pallid and avascular, and disintegrates into a foul-smelling necrotic mass; it is always extensively infiltrated with gas; if the muscle is exposed to the air its surface becomes dry, brown, and leather-like. In consequence of the muscle changes bands of fascia stand out prominently, and they undergo early necrosis. Throughout the precincts of the wound there is an infiltration of gas, and it extends to further limits along certain lines—the subcutaneous tissues, the perivascular tissues, and the planes of intermuscular connective tissue. In addition to these local changes there have been found alterations in the brain, the suprarenals, and the liver: the cortical cells of the brain disintegrate; chromaffin substance disappears from the cells of the suprarenal; and in the liver there is actual destruction of the cells.

I shall refer to particular clinical features in describing individual cases. Locally there are the changes which

have been mentioned above. The general effects are the phenomena of fever, rapid pulse, increased respirations, restlessness, sweating, delirium, unconsciousness, and death. Ultimate death would appear to depend upon the structural changes which are found in the brain, the suprarenals, and the liver.

These elementary facts have been stated as an introduction to the account of the method which I have employed in the treatment of these cases. The method has been the application of the 0.5 per cent. solution of hypochlorous acid known as *eusol*, occasionally intermitted with one of two other procedures—the application of the powder known as *cupad* (bleaching powder and boric acid) and the use of baths of hypertonic salt solution. For details regarding the composition and experimental value of *eusol* and *cupad* the reader is referred to the paper by Professor Lorrain Smith and others in the BRITISH MEDICAL JOURNAL of July 24th. Briefly the method of preparation was as follows:

Into a Winchester quart bottle 27 grams of dry bleaching powder were placed, and to this 1 litre of water was added; the mixture was shaken, and 27 grams of boric acid were added; the bottle was now filled with water, the solution was thoroughly shaken, allowed to stand for a few hours, and then filtered through cotton-wool. The clear solution is *eusol*; it is slightly alkaline to litmus and contains approximately 0.5 per cent. hypochlorous acid. *Eupad* was made by finely grinding the dry bleaching powder and adding an equal weight of boric acid powder. Both *eusol* and *cupad* were stocked in airtight black bottles.

Whenever a case of gas gangrene was recognized as such the *eusol* treatment was immediately begun. The local wound from which the infection had apparently commenced was opened up thoroughly, and as far as possible all free blood clot was removed. Whenever an emphysematous sensation could be detected an incision about 2 in. long was made, but such an incision was never carried deeper than the subcutaneous tissues. Each wound was now thoroughly irrigated with *eusol*, and if the wound was of any depth irrigation was carried out under considerable pressure by means of a Higginson's syringe; frequently the nozzle of the syringe was forcibly inserted through a superficial wound and a small quantity of the *eusol* injected into the subcutaneous tissues all around the wound. From the last procedure was seen no ill result, but, on the other hand, considerable benefit has repeatedly accrued.

Grossly infected muscle or skin was cut away. Gauze soaked in *eusol* (0.5 per cent.) was lightly packed into the wound and as far as possible into all the crevices. If the wound was of considerable depth, it was found advantageous to insert a medium-sized drainage tube provided with numerous large lateral openings; around the tube gauze wrung out of *eusol* was lightly packed. This procedure had the advantage that the gauze packing could be easily re-soaked by injecting a quantity of fluid along the rubber tube from which it escaped by the lateral openings into the dressing. Over the surface of the wound and covering a large area of the surrounding skin gauze wrung out of *eusol* was laid; this was covered with a layer of dry gauze, wool, and bandage. The end aimed at was to make the dressing as light and airy as possible. In only two instances could it be said that the dressing had produced any irritation of the surrounding skin. In both cases the slight irritation which appeared occurred around the edge of the dressing; it was easily counteracted and speedily alleviated by the application of a thick layer of zinc ointment. During the first forty-eight hours an attempt was made, where possible, to change the dressing every four hours; after that period it was found sufficient to change the dressing every eight hours. On the fourth day of treatment experience taught one that granulation tissue was improved and the separation of the slough stimulated by the application of *eupad* to the wound; this was dusted on from a dredger in a thin layer, and the dressing with gauze *eusol* continued as before. This modification was followed throughout the fourth, fifth, and sixth days; it was not adopted earlier because observations seemed to show that in the earlier stages of treatment the application of a solid tended to retard the wound secretion. On the seventh and subsequent days, until granulation was complete, the treatment was further modified by immersing the part for four hours each day in a bath of hypertonic salt solution; a double

* The report was illustrated by coloured drawings, not here reproduced, showing the underlying sloughing tissue exposed in two cases by incisions made on the patients' admission, and the healthy granulating tissue after applications of *eusol*, or *eusol* and *eupad*, for five and ten days respectively.

purpose was answered—the granulations were further stimulated and any remaining slough separated, and the surrounding skin, which had become very dirty after repeated eusol dressing, was thoroughly and efficiently cleaned.

Observations of the wound from day to day show some interesting features. During the first twenty-four hours the foul smell of the wound entirely disappears; the discharge as such also disappears, but is replaced by a lymph-like secretion, which soaks the dressings with a glairy, gelatinous looking fluid. After the third day this lymph-like discharge tends to cease, granulation tissue begins to make its appearance, and slightly blood-stained serum escapes from the wound. Sloughs separate with extraordinary rapidity, and the healthy granulation tissue which remains completes the process of healing at a more rapid rate than I have previously observed.

At no time was any complaint made of pain or irritation being produced by the eusol. This could not be said of the eucod; its application was always followed by a stinging, burning sensation, which lasted usually for about thirty minutes.

Details are added of nine cases of undoubted infection with a gas-producing organism, ending in tissue necrosis, which were treated successfully with eusol. Many of the cases were of intense severity. These cases have not been selected, but form a consecutive series coming under my care. It was interesting to note that the general condition of the patient responded and improved synchronously with the improvement in the local condition.

CASE I.

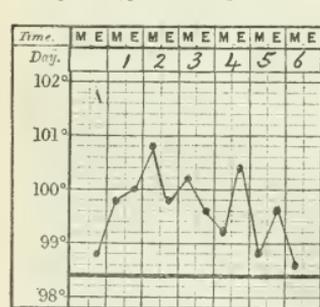
Private, admitted June 23rd, 1915.

History and Operation.

As a result of a shell explosion the right foot was blown off, and there was a deep lacerated wound of the left thigh. In regard to the wound of the right foot, the edges were trimmed and converted into flaps, the surfaces were washed with eusol, and the stump was partially closed with interrupted silkworm gut sutures. The wound of the left thigh was dressed with a warm solution of hydrogen peroxide.

Progress.

The amputation did well, and proceeded to heal without further complication; the wound of the left thigh developed the clinical features which are associated with a moderate gas infection—that is to say, the general condition altered by a rise in temperature, pulse and respiration-rate. The patient complained of general debility and restlessness, and had the facial appearance of undoubted illness.



Case I.—A, Date of admission.

sematous crackling could be detected in the surrounding tissues, and also in the exposed muscle. On light percussion a faintly resonant note could be detected.

With the discovery of the development of these features the treatment was altered; generally stimulants were pressed as thoroughly as possible; locally several incisions were made into the subcutaneous tissue around the wound; the wound itself was loosely packed through all its interstices with gauze wrung out of eusol. Over the wound and the surrounding tissues gauze saturated with eusol was laid. The dressing was changed at intervals of eight hours, and after the primary eusol dressing the wound was thoroughly syringed out with eusol. Twenty-four hours after the original application of eusol no gas could be detected in the surrounding tissues. The exposed muscle still crackled on pressure, and from it bubbles of gas could be expelled, but there was no suspicion of any spread of the infection. On the fifth day the greater part of the necrotic muscle came away as a slough, leaving behind it clusters of red and healthy granulation.

After-History.

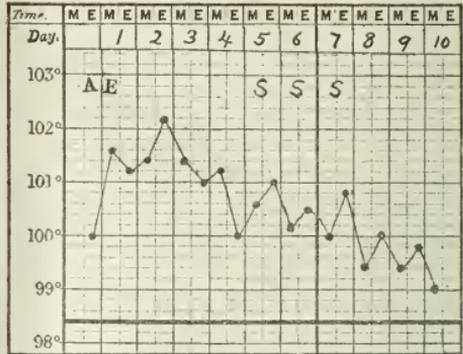
Both general and local conditions were so thoroughly improved that we were able to send the patient to the base on the sixth day (June 29th). We followed the principle of keeping as far as possible in touch with the patients who passed through our hands. Thus we were able to ascertain their ultimate condition, and we received from this patient a letter written from Chichester on July 27th. Special interest centres around the following remark: "The thigh wound is got on wonderful, the hole has fill right up and the skin is grown about half an inch all round it and it's gone so small."

CASE II.

Sergeant, admitted August 30th, 1915.

History.

This man was wounded in a bomb explosion. The chief injuries were localized to the right leg below the knee. There was an extensive wound, which passed through the



Case II.—A, Date of admission; E, eusol dressing; S, saline bath.

leg, associated with a compound fracture just below the knee-joint. On the outer aspect of the leg there were several non-superficial wounds of varying size and depth. On the anterior aspect of the leg there were several small punctured wounds.

On admission the patient was found to be suffering considerably from collapse; the pulse was 120, small and irregular; the temperature reached 100°. The various wounds were dressed with a eusol dressing; they were dirty and sloughy, but at this, their first examination, they showed no evidence of a gas infection.

The following morning, August 31st, the general condition of the patient gave rise to some anxiety; the pulse-rate had increased, but more alarming were the restlessness and air of impending collapse. On examining the limb the source of the change was evident—there was an extensive infection with a gas-producing organism throughout the leg from the knee to the ankle. There was considerable swelling; the limb was tense and resonant on percussion; there was crackling on palpation all over, but especially marked on the anterior surface of the limb.

Gas Gangrene: Treatment.

Free incisions were made all over the limb into the subcutaneous tissues. With each incision there was a distinct escape of gas; the incisions into the front of the leg showed that the muscles and subcutaneous tissues were of a greenish-black colour, very foul-smelling and crackling with gas; there was, in fact, an acute infection of emphysematous gangrene. The limb was treated with eusol; gauze soaked in it was loosely packed into all the crevices of the wounds and incisions.

After-History.

The further progress of the case need not be entered into in detail; briefly it was as follows: The eusol dressing was changed at intervals of four hours. From the date of operation there was no further spread of the gas infection. Emphysema remained in the muscle until the muscle separated as a slough. Sloughing occurred in the entire group of anterior tibial muscles, leaving exposed the tibia, fibula, and interosseous membrane; the slough extended from the upper attachments of the muscles to the upper border of the anterior annular ligament. The treatment throughout consisted in the application of eusol; from this there were two divergences—during the third and fourth days of treatment dry eucod was powdered over the area in addition to the eusol dressing; during the fifth, sixth, and seventh days, while the slough was separating, the limb was immersed in a bath of hypertonic saline for intervals of eight hours in the twenty-four.

The patient was discharged on the tenth day with the leg wounds in a healthy granulating condition.

CASE III.

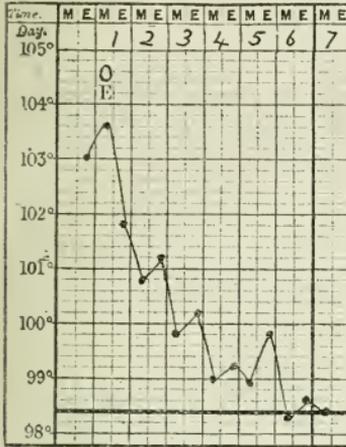
Private, admitted August 10th, 1915.

History.

This man had been wounded three days previously by a rifle bullet through the right thigh. Military exigencies had prevented his transfer to the clearing hospital until this date.

Condition on Admission.

His condition was such as to give rise to considerable anxiety. He was restless and, to some degree, collapsed; there was pro-



Case III.—E, Eusol dressing; O, operation.

Treatment.

Under a general anaesthetic the wound was opened up for an extent of about 9 in.; a quantity of foul-smelling blood clot was removed, and also several portions of clothing which had been dragged in by the projectile. The bullet had passed through the substance of the semimembranosus muscle, and this muscle was apparently the main site of the gangrenous process; its surface, when exposed, was perfectly dry and of a greenish-brown appearance; when handled it cracked in the fingers. When cut into it did not bleed and the cut surface was of a salmon pink colour, quite different from the red of a healthy muscle; moreover, it was a foul-smelling mass. By enlarging the incision the muscle was followed throughout the greater part of its course; it was severed at its origin and at its insertion and entirely removed. It was interesting to note that the necrotic process was so closely limited to the position of the muscle. The wound was syringed out with eusol, and afterwards lightly, but thoroughly, packed with gauze wrung out of eusol.

Thereafter the wound was dressed at intervals of eight hours. After the second application of eusol all foul smell disappeared, and actually on the third day healthy red granulation tissue became apparent in the wound.

CASE IV.

Private, admitted August 24th, 1915.

History.

This man was wounded through the soft tissues of the right calf five days before admission to hospital.

Condition on Admission.

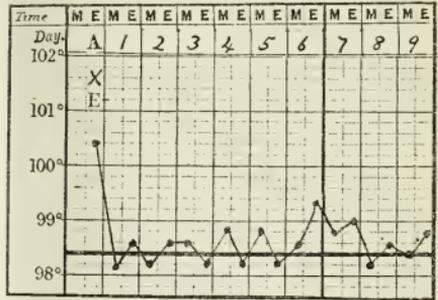
His condition was found to be extremely serious. He was restless, collapsed, and occasionally delirious; his temperature was 100.4, his pulse 120, and his respirations 30; he had the appearance which is associated with an intense toxæmia.

The local condition was even more alarming than the general condition.

The right leg below the knee was swollen to almost twice its natural size. The skin showed the purplish-red discoloration of moist gangrene. Up to within 3 in. of the knee-joint there were several large superficial vesicles containing foul-smelling blood-stained fluid; the surface temperature of the limb below the knee was stone cold; no trace of a pulse could be detected in either anterior or posterior tibial vessels. From the bullet wounds a quantity of foul-smelling blood clot was protruding; the entire limb below the knee cracked with emphysema. From the knee to the groin, although the skin temperature was maintained, and there was no discoloration, yet the presence of gas could be detected by palpation and percussion.

The treatment of such a case presented a great problem; one was faced with three possibilities of treatment:

1. To adopt no greater operative interference than that of simple incision, risking the very remote possibility of the gangrene becoming localized.
2. To disarticulate the limb at the hip-joint by a flapless amputation, and thus get above the infected tissue.
3. To amputate through the centre of the thigh—in other words through the less infected gas area—in this way getting rid of the actual necrotic part, and trusting to localize



Case IV.—A, Date of admission; E, eusol dressing; X, amputation.

and protect the less infected part by free incision and the application of some antiseptic. After due deliberation the last course was adopted.

Operation and After-History.

The operation was performed under spinal anaesthesia. The amputation was carried out in the middle of the thigh and anterior and posterior flaps were formed. The cut surfaces were thoroughly washed with eusol and a few sutures were inserted to bring the surfaces together. Above the site of amputation a number of incisions were made into the subcutaneous tissues.

The further progress of the case was one of uninterrupted recovery. No further evidence of a gas infection appeared; the stump surfaces quickly granulated, and on the fifth day it was found possible to insert additional sutures, and so facilitate the healing and closure of the stump.

CASE V.

Private, admitted August 26th, 1915.

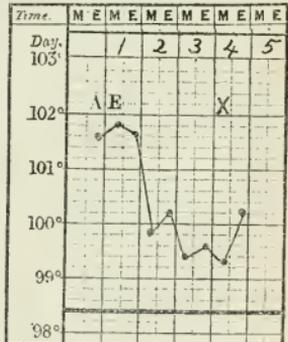
History and Condition on Admission.

Twenty-four hours before admission to hospital this man had been wounded by a rifle bullet. It had passed through the left

thigh, producing a compound fracture of the junction of upper and middle thirds of the bone. It had then passed across the front of the right thigh immediately below the groin. In its passage it had torn away the coverings so completely as to leave Scarpa's triangle exposed in its entirety, as though by a dissection; in the floor of the triangle the pulsating femoral vessels were lying clearly visible. From its origin the wound had been grossly infected. There was a mass of adductor muscle at the inner side of the wound in a condition of necrosis and infected throughout with a gas-producing organism; there was a similar mass of necrotic and gas-infected muscle—portions of the sartorius and rectus femoris muscles—lying at the outer edge of the wound. The surface had the coagulated, gelatinous-looking appearance which one had by this time begun to associate with gas-infected wounds.

Treatment.

The question was considered whether it would not be advisable to amputate the limb immediately; it was decided to



Case V.—A, Date of admission; E, eusol dressing; X, amputation.

vasi, as any immediate amputation would certainly result in infection of the stump surfaces. The wound was carefully cleaned up, syringed, and afterwards lightly packed with gauze wrung out of esoul; the dressing was changed at six-hourly intervals. For three days repeated dressing with esoul solution was persisted in. During that time the gangrenous process was entirely mastered, the infection disappeared from the substantial tissues; the emphysematous crackling remained in the necrotic muscles until these separated as sloughs.

On the fourth day the continued exposure of the femoral vessels apparently led to a coagulation of the blood stream, and gangrene appeared in the tissues of the foot. It was therefore necessary to perform amputation in the upper part of the thigh.

In performing this amputation one had an opportunity of observing in the tissues of the stump how completely the original necrotic process had been localized. It had not extended into the posterior thigh muscles, and it had not infected the tissues of the thigh above the wound. It was our opinion that the remarkable localization of the infection was the result of the action of the esoul application.

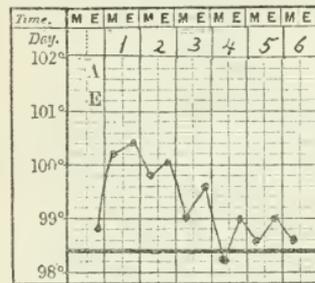
CASE VI.

Sergeant, admitted August 4th, 1915.

History and Condition on Admission.

There was a bullet wound of the right thigh. The injury had been sustained some forty-eight hours before, and there had

been a considerable amount of bleeding into the deep tissues of the thigh. The bullet had entered the centre of the thigh posteriorly, and it remained just beneath the skin anteriorly; the bone of the leg was not damaged. From the wound fluid and discoloured blood were escaping; it was distinctly foul smelling. Around the wound the typical crackling infection associated with infection by



Case VI.—A, Date of admission; E, esoul dressing.

a gas-producing organism could be detected; the outline of the thigh was considerably swollen. Small bubbles of gas could be expelled with the blood from the bullet wound. As regards the general condition, the temperature was 100°, the pulse 90, and there was a distinct degree of general illness.

Obviously one was dealing with a case in which, if there was not a tissue necrosis due to the gas-producing organism, there was at least the infection which is preliminary to such a change.

Progress.

The wound was thoroughly opened up and drainage established. Among the tissues of the thigh a quantity of blood clot had accumulated; this was removed. The cavity was syringed out with esoul. A drainage tube was inserted, and the space around the drainage tube was loosely packed with gauze wrung out of esoul. In about eight hours the wound was dressed. The packing was removed; it still retained a trace of the foul smell possessed by the discharge the evening before; the cavity was again syringed out. There was no evidence of any gas infection of the surrounding tissue. At the third dressing the foul odour had entirely disappeared; the interior of the cavity was covered with a thin brownish slough. In about four days the slough had separated, leaving a cavity lined with healthy granulation tissue.

CASE VII.

Sapper, admitted September 2nd, 1915.

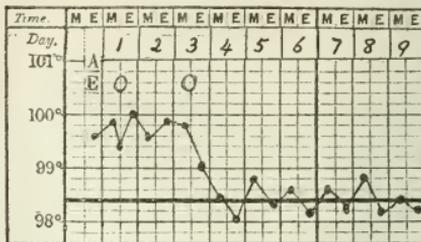
History and Treatment.

The patient was admitted on the afternoon of September 2nd with a bullet wound through the calf of the left leg. On examination the wound appeared sloughy and gas was found to be present in the surrounding tissues extending upwards to the knee-joint and downwards as far as the ankle-joint. The wound was enlarged under a general anaesthetic and syringed and dressed with esoul; the dressing was changed every six hours.

Progress.

On the following day (September 3rd) the swelling had diminished, and only the faintest traces of gas could be detected.

On September 4th there was a considerable extension of the infection, gas could be detected throughout the greater part of the leg between the knee and the ankle. Fresh incisions were made into the leg; the original wounds were further opened up



Case VII.—A, Date of admission; E, esoul dressing; o, operation.

and some blood clot removed. The wounds were thoroughly syringed out with esoul and esoul wet dressings were applied and changed at four-hourly intervals as before.

On September 5th no gas was detectable; the patient generally was much improved. On September 7th, locally the wounds were clean and beginning to granulate; the pulse and temperature were normal, and the general condition was thoroughly satisfactory.

On September 10th, the improvement being maintained, the patient was discharged to the base.

CASE VIII.

Sergeant, admitted August 30th, 1915.

History and Condition on Admission.

This man was wounded in a bomb explosion about two days before admission. On admission he was scarcely conscious; he was delirious, and after a short period of delirium and talking nonsense he lapsed into complete unconsciousness. On the outer side of the left thigh there was a deep lacerated wound; it had all the appearances of a wound infected by a gas-producing organism. The tissues in the floor and side of the wound were brown and sloughy in appearance; there was a scanty foul-smelling discharge. The skin at the edges of the wound was faintly discoloured with a purplish-red discoloration; throughout the muscles exposed in the wound and throughout the surrounding tissues there was the distinctive crackling of a gas infection.

Other wounds present were superficial and not affected with gas gangrene.

Treatment and Progress.

The local treatment consisted in freely opening up the infected wound. As much as possible of the necrotic muscle was cut away. The wound was washed out with esoul, and later it was loosely packed with gauze saturated in the same solution.

The further progress of the case, as far as the infected wound was concerned, was one of progressive recovery—the gas infection was entirely arrested, the sloughs of necrotic muscle had begun to separate, and healthy granulations were beginning to appear.

The general condition of the patient was unfortunately not so favourable. Complete consciousness was never regained; the features were all those of a progressive oedema cerebri, and after lingering for five days he died.

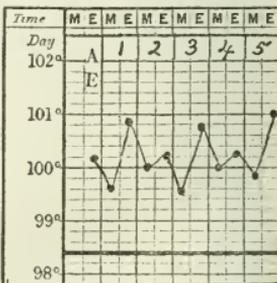
Post-mortem examination showed that he was the victim of a specific leptomeningitis, which apparently was responsible for the fatal oedema cerebri.

CASE IX.

Private, admitted August 25th, 1915.

History and Condition on Admission.

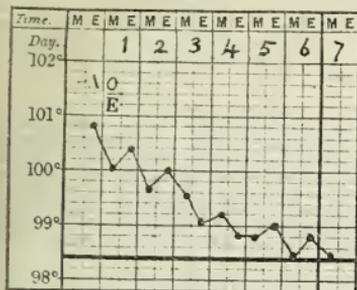
A rifle bullet had passed through the soft tissues of the back. On admission the general condition was satisfactory; the wounds were dressed, and, while they were undoubtedly infected, nothing unusual was noticed.



Case VIII.—A, Date of admission; E, esoul dressing.

Operation.

On the morning after admission the general condition was less reassuring; the temperature remained high—100°; the pulse-rate had increased; there was a complaint of pain in the



Case IX.—A. Date of admission; E. eusol dressing; O. operation.

trance and exit wounds; and the discharge was foul smelling. Under a general anaesthetic the wound was thoroughly opened up. The subcutaneous tissues had a dry gelatinous-looking appearance, as though infiltrated with coagulated lymph; gas could be displaced from this situation. The depth of the wound contained foul-smelling blood clot; the muscles which were cut in the opening up of the wound had the pale avascular appearance of commencing necrosis. Gas originating in the wound had infiltrated downwards in the retroperitoneal tissues as far as the anterior superior spine of the ilium. The wound was syringed out with eusol; its interstices were lightly packed with gauze wrung out of eusol; drainage was secured by means of two large rubber tubes passing downwards into the depths of the wound.

Progress.

As regards the subsequent progress of the case, the dressing was changed at intervals of six hours for two days and thereafter at intervals of eight hours. From the date of operation the condition improved and the improvement was progressive. After the first twenty-four hours all trace of foul smell disappeared and no further evidence of gas could be found. On the fourth day healthy granulations had already made their appearance.

REFERENCE.
1 Lancet, August 21st, 1915.

A HOSPITAL SHIP IN THE MEDITERRANEAN.

BY
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This article is somewhat discursive. My aim has been simply to give a description of the kind of work with which a hospital ship is called upon to deal, and of the conditions under which this work is carried out.

The ship is extremely well fitted, and is capable of carrying, without undue crowding, 350 cot cases, and an equal number of "walkers."

There are two excellent theatres—the one large and containing two operating tables, the other smaller and provided with one table. Our medical staff at present consists of a fleet surgeon, a consultant surgeon, and nine surgeons. One of the last belongs to the R.N., the remainder are drawn from the R.N.V.R., or hold temporary commissions. We carry four nursing sisters. There is also a sufficiency of sick bay ratings, and of St. John Ambulance men.

Fortunately our work has been carried out in security. It has never been hampered by any disregard, on the part of the enemy, of the Geneva Convention. The Turks are, from all accounts, remarkably clean fighters. They certainly respect hospitals and hospital ships, and they never put any impediment in the way of the rapid evacuation of our wounded from the shore. Hospital ships are allowed to anchor quite close to the land, and embark their cases unmolested. Of course if they get in the line of fire shells may burst unpleasantly near them, and they may have to clear out. Similarly, in certain situations, spent bullets from the nearest trenches create a certain element of danger. Shrapnel fired at aeroplanes occasionally falls on

board, or a floating mine may prove a menace. These are, however, unavoidable incidents of warfare, and no fault of the Turks.

Having anchored, then, in a convenient spot, the ship is ready to take in wounded. Cases are usually brought off from the shore in barges towed by picket boats. When these come alongside, the walking cases are first taken off; the cot cases are then placed, stretcher and all, in "cot-carriers" and are hoisted on board. As a rule the majority of the "walkers" are only received for a few hours. They are fed, dressed, and then taken off in trawlers to the shore hospitals. Those of them who are likely to require lengthy treatment are, however, retained on board.

The more severely wounded men are nursed in swing beds and service cots. Any requiring immediate operation or dressing under an anaesthetic first pass through the theatre.

When as many cot cases as possible have been taken on board, the ship may complete her complement with walking cases, or she may proceed to one of the nearest hospitals and fill up there. The ship then goes on to Alexandria, Malta, or England, discharges her patients, takes in stores, coals, cleans ship, and returns to the scene of action.

When there is much activity ashore, and casualties are heavy, every available ship may be required on the spot. In these circumstances the routine may be modified, and all the cases discharged at the nearest hospital. This enables the hospital ship to return to the scene of action within a short time of leaving it. When things are quiet a ship of our size may take four or five days or even longer to fill up. On the other hand, we have taken in our full complement in eighteen hours, while during that time more than four hundred additional walking cases were dressed, fed, and sent away. Between seventy and eighty of these patients passed through the theatres, many of whom required multiple operations.

The condition in which the wounded arrive on board depends almost entirely upon the distance of the firing line from the beach, and upon the nature of the intervening terrain. Where the front trenches are within easy reach of the shore the wounded are received within a few hours of their having been injured. In these circumstances wounds when irrigated and, if necessary, freely opened up and drained, do quite as well as similar injuries treated in a civil hospital at home. Severe sepsis is the exception and spreading gangrene practically unknown. On the other hand, where the trenches are some miles from the shore, there is inevitably considerable delay in evacuating the wounded. Often this cannot be effected for twenty-four hours or more. When this is the case septic infection in a very large proportion of the wounds is firmly established, and has spread widely. Amongst such patients spreading gangrene, both with and without gas formation, is common, and many of the wounds are maggoty. Flies are incredibly numerous, especially at the southern end of the peninsula. Immediately a trace of blood is spilt down they come in swarms. In a moment a wound, unless protected, is lost to sight beneath a black crawling mass of these insects, and the same applies to a soiled dressing. One can only hope that things may improve with the advent of the cooler weather.

I feel considerable diffidence in speaking of individual injuries and their treatment, as so much has been written on the surgery of the war by more competent pens than mine. I will touch, however, lightly upon a few classes of injury, mentioning any points which have appealed to me personally. In military surgery every medical man suffers from the disadvantage of being unable to follow his cases up. In a hospital ship the cases upon which one individual operates may get scattered through several wards, and lost to his sight. On the other hand, he may have to undertake the after-treatment of cases originally under the care of his colleagues. At best the cases are seldom under his supervision for more than a few days before they are transferred to a shore hospital.

In spite of this I will endeavour to give a brief account of some injuries as they appear during the short time they remain on board.

Of the different kinds of wound, those inflicted by shell are comparatively rare except at Cape Helles. Shrapnel and bullet wounds largely preponderate everywhere. Injuries inflicted by bombs are very common where the

opposing trenches lie close together. We met with them chiefly at Anzac. Bayonet wounds are very uncommon. The Turk does not seem to love the bayonet.

Head Injuries.

Let me commence my account by referring to cerebral injuries. Penetrating bullet wounds inflicted at short range are generally quickly fatal, and are rarely seen on a hospital ship. Injuries by partially spent bullets, on the other hand, are common, the bullet usually remaining lodged within the cranium.

When seen such patients frequently present signs of compression. When such cases are met with the scalp and wound should be thoroughly cleaned and the edges of the latter excised. The wound is then enlarged, or a flap of scalp is turned down. The opening in the skull is increased with the aid of nibbling forceps, and any loose fragments of bone are removed. This is followed by a rush of blood and disorganized cerebral matter. Patients thus treated often improve markedly, and life is undoubtedly prolonged. Unfortunately, I understand that the majority of them succumb later to septic complications.

Tangential wounds of the skull are much more amenable to treatment. The skull when exposed may present an appearance of bruising only; a slight groove may be apparent, or a linear portion of the skull may have been carried away. Cases in which the entry and exit wounds of a bullet lie close together in the skull may be included in the same category.

Even in the first cases trephining almost invariably reveals a depressed fracture of the inner table, while in the remainder the dura is torn, and pieces of bone may be found driven into the cerebral substance. In some cases the dura must be opened, even if it has not been torn, owing to the presence of a large haematoma beneath it. As long as the cases remain aseptic their prognosis is favourable. They usually present signs of cerebral irritation and are very troublesome to nurse in a crowded ward. The same principles govern the treatment of injuries due to pieces of shell or bomb.

Spinal Injuries.

In cases of spinal injury one can rarely hope to do any good by surgical interference.

Wounds of the Face.

Wounds of the face often present a terrible appearance, but if thoroughly cleansed and carefully stitched up, with provision for adequate drainage, they do well. I have seen nothing of the ultimate results. These are almost the only wounds into which one dare insert sutures.

Shattered jaws are frequently met with. Here again I am unable to speak of final results. In the early days the whole mouth becomes very foul. The only treatment consists in frequent irrigation. Such patients are difficult to feed, but can almost all swallow fluids given to them in a feeder to which a rubber tube has been attached. This tube must be passed well to the back of the tongue.

Wounds of the neck when septic are liable to be followed by oedema of the larynx. This sometimes manifests itself with alarming suddenness, and may necessitate the performance of a hurried laryngotomy.

Wounds of the Thorax.

Bullet wounds of the chest are common. When the heart or big vessels have been injured the patient rarely reaches the ship alive. Patients with wounds of the lungs who have lived long enough to reach the ship usually do well. Haemothorax and haemoptysis are of frequent occurrence, but all the symptoms subside quickly, save in rare instances, if the patient is kept sitting up in a restful position. Morphine is invaluable in these cases. Operative interference is rarely justifiable. Occasionally a large haemo- or pneumo-thorax may require to be tapped in order to relieve dyspnoea.

Abdominal Injuries.

On the subject of the treatment of abdominal injuries I cannot pretend to speak with authority. Few patients have reached us who were not already moribund, either from internal haemorrhage or general peritonitis. A few have, however, arrived in a rather better plight. They

have almost all been treated by starvation, opium, and rectal saline infusion, and have been kept propped up in Fowler's position. Of these a fair proportion have made a complete recovery. In a very few cases of recent injury operation has been deemed advisable, but the results have proved very discouraging. Unfortunately, I can give no statistics in the case of either operative or expectant treatment. I am, however, strongly of opinion that the latter holds out a better prospect of success in all but exceptional cases.

Injuries to the Limbs.

Clean bullet wounds of fleshy parts, uncomplicated by other injuries, give little trouble. The skin round about should be painted with iodine and a simple dressing applied. They almost invariably heal by first intention. Shrapnel wounds frequently become septic. Should any signs of inflammation develop they must be opened up, irrigated, and freely drained. Shell wounds are almost invariably infected, and must be freely drained and washed out from the first.

When nerves are injured early interference is not indicated. Many cases recover completely without operation. Nerve suture cannot safely be performed till the wound has completely healed. Occasionally a bullet presses on a nerve, causing intense pain, and may require early removal.

Large vessels are frequently wounded. Many such cases bleed to death on the field. Those which reach the ship may present signs of a large haematoma, or may be bleeding freely from an external wound. Even if the bleeding has temporarily ceased it is apt to recur later. Finally, if the vessel has not been tied, aneurysm, or arterio-venous aneurysm, frequently develops. Early operative interference gives excellent results. As the wound has been well flushed with blood it may almost always be closed, and usually heals by first intention. Bleeding is commonly found to proceed from one of the main arteries which has been button-holed. A free incision, good light, and good retraction greatly facilitate the operation. Many patients are collapsed from loss of blood, so that speed in operating is essential, while intravenous infusion may be required.

One of the most frequent and troublesome complications of penetrating wounds of the limbs is a compound fracture. When the wounds of entry and exit are small and aseptic the fracture may be regarded as of the simple variety and may be treated as such.

Unfortunately such cases are rare. When the bone has been hit its fragments, together with the bullet, usually act like an explosive and tear a large hole in the soft parts. Any such extensive wound tends to become septic, and is generally markedly so by the time the patient arrives on board. Such cases should be given an anaesthetic and treated in the theatre at once. The wound must be opened up freely and thoroughly irrigated. Any completely detached fragments of bone are removed. My endeavour always is to convert such wounds as far as possible into craters, in which every part is freely accessible and pocketing of pus an impossibility. To secure this end muscle may be freely divided—transversely if necessary—and any bruised or lacerated portions cut away.

I shall not speak of the various ways of putting up compound fractures, as so much has already been written upon this subject. There are only three things to consider—the comfort of the patient, ready accessibility of the wound, and immobilization of the fractured bone. Correct apposition of the broken ends is of little importance in the early days, as no union can take place till much later.

Sepsis in a badly drained compound fracture is a most deadly complication. It is in such cases that one sees so much spreading gangrene. Particularly in septic compound fractures of the femur the mortality has been very high. Undoubtedly this is due to the difficulty in securing free drainage. There must be no hesitation about sacrificing a large amount of muscular tissue in order to secure this end.

This leads me to speak of spreading gangrene, though I am afraid I can add little of interest to what has already been written upon this subject. Whether accompanied by gas formation or not it has proved, in my experience, to

be a most hopeless condition. By the time the patient has developed an anæmic toxic appearance I believe he always dies, whatever surgical treatment is adopted. Gangrene is usually either present when the patient reaches the ship, or makes its appearance within the first twenty-four hours. In gangrene of the upper limb, which has not spread much above the elbow, a few lives are saved when circular amputation is performed through the shoulder-joint. The wound is left absolutely open without a single stitch. In the case of the lower limb our results have been bad. A thoroughly toxicæmic and exhausted patient, such as a gangrene patient generally is, seldom seems to survive the shock of a high amputation through the thigh. I am inclined to think that in these cases free incision, followed by frequent deep injections of hydrogen peroxide, is a more hopeful line of treatment. So far spreading gangrene has never occurred in the case of a patient who has reached the ship within eight hours of the receipt of his injury.

One cannot fail to be deeply impressed with the way in which the whole clinical aspect of the wounded varies with the length of time they have taken to reach the ship. When they come late they are absolutely exhausted on arrival, and withstand the shock of operation very badly. Almost all the wounds are extensively infected, and surgical treatment consists almost entirely in incisions and amputations. The mortality from septic infection and from shock is high. When they come early, the mortality from sepsis is low, and the cases, as a whole, run a much more benign course. The difference in the general condition of the patients in the two cases must be seen to be believed.

Before I close I must make some reference to the use of "antiseptic paste." I approached the question with an open mind, having met and talked with Sir Watson Cheyne. I used it freely on our first two trips, and I have come to the following conclusions: if a wound is freely drained, it does not require paste. It will do all right without it. When a wound is once obviously septic, paste is powerless to clear up the infection. I have met with no evidence that it can prevent septic infection occurring, while, once it has developed, there is plenty of evidence that the use of paste is unjustifiable.

In conclusion, I wish to pay a tribute to the energy and organizing power of Fleet Surgeon Dalton. He alone has made it possible for the work on board to be carried through, even in the busiest times, without a hitch. I must also express my personal gratitude to him for much valuable advice and assistance.

ACUTE RENAL DISEASE AMONGST THE TROOPS IN FRANCE.

A CLINICAL NOTE BASED ON NINETY-FIVE CASES.

By R. G. ABERCROMBIE, M.D. CAMB.,
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The health of our troops serving in France is at present fortunately excellent; there have, however, occurred a number of cases of acute renal disease, the causation of which is not at present fully understood. The whole subject is undergoing thorough investigation; pending the results of this inquiry, it may be of interest to give a brief clinical account of 95 cases which have come under the writer's personal care.

General Characters.

The disease exhibits the features of an acute nephritis; it presents œdema, the passage of albuminous urine containing granular casts, febrile reaction, and uræmic symptoms.

The majority of the cases occurred in previously healthy young or middle-aged men, in whom no evidence of pre-existing renal disease could be found. In a small minority of cases the previous history or the presence of cardiovascular changes led one to suppose that the condition was superimposed upon previously damaged kidneys.

Symptoms.

Onset.—In some cases the onset was sudden; in others the symptoms were little marked during the first few days, but became progressively worse. Swelling of the face,

especially of the eyelids, was one of the earliest symptoms; it was usually accompanied by headache and pain in the back and limbs; sometimes febrile symptoms preceded the swelling of the face by several days. Bronchitis with irritative cough occurred in many cases; in others abdominal pain, diarrhoea, and vomiting. Of the initial symptoms headache was the most constant; shortness of breath was also frequent. In only very few cases was tonsillitis present.

Oedema was constantly present; it was absent in only one doubtful case. The face was always markedly affected; the trunk and limbs frequently so. Pleural effusion was present in two cases; ascites in four. The usual duration of the oedema was one or two weeks; in only three cases was it obstinate, rendering it necessary to transfer the patients to England in an œdematous condition. The last relics of the disappearing oedema were usually to be found in the parotid and lumbar regions. The cases with ascites ran a severe course, probably owing to the injurious pressure of the fluid on the renal vessels.

Uræmic Symptoms.—Headache, often severe, was a constant symptom. Convulsions occurred in three cases; anaurosis in one. Vomiting and paroxysmal nocturnal dyspnoea occasionally occurred. The tongue was usually furred, sometimes dry and brown.

Febrile Reaction.—Many of the cases exhibited a temperature of 100° or 101° for one or two days after their admission to hospital; in others the history suggested that fever had been present at the onset. Two cases relapsed while in hospital; in each the temperature rose to about 101°. One case ran a febrile course for about a fortnight. Shivering was sometimes complained of, but an actual rigor was not witnessed. Since the cases were not generally admitted to hospital until several days after the onset, it was not possible to say whether fever was invariably present at the commencement.

Urine.—The volume passed was much diminished in the bad cases; complete suppression was present in several instances. The amount of albumin varied from a light cloud to a quantity sufficient to render the urine nearly solid on boiling. The amount diminished under treatment, but only in a very few cases did it clear up altogether prior to the patients' transfer to England. Granular casts were constantly present during the acute phase; hyaline and blood casts were also found. Red blood cells were present microscopically in the large majority of cases; obvious hæmaturia was frequent, and sometimes persisted when the patient was approaching convalescence.

Blood pressure was usually high during the acute phase, as evidenced by an accentuated aortic second sound. Means were not at hand for obtaining an exact record of the arterial tension.

Other Symptoms.—The bronchitis occasionally proved persistent and troublesome. Severe epistaxis occurred in several cases. Rarely did nephritic œdema show itself.

Diagnosis.—Various forms of albuminuria were distinguished by the absence of œdema and uræmic symptoms and by the characters of the urine. In several cases not included in this series the symptoms were due to an infection of the lower urinary tract by the *B. coli communis* or a related organism. So far as the writer's observations go, only in a very few cases could the condition be regarded as an exacerbation of a chronic nephritis.

Prognosis.

None of the patients died. After a stay in hospital of from one to three weeks, 92 of the patients were transferred to England free from œdema. In a few of these cases the albumin had also disappeared, in several others it was reduced to a trace, but the majority were still passing a fair amount of albumin. Three cases assumed a chronic aspect, and were transferred to England with persistent œdema. Only time will show how far the condition will lead to chronic renal disease.

Treatment.

The patients were nursed between blankets and were warmly covered up. They were given milk, barley water, and lemonade; these were administered warm every two or three hours, a total of 7 or 8 pints being given in the twenty-four hours. A daily morning purge of half an

ounce of magnesium sulphate was given, and repeated during the day, if necessary.

The effect of this treatment was immediately seen in the re-establishment of the urinary flow, the rapid subsidence of the oedema, the clearing of the tongue and the return of the appetite. The progressive increase in the volume of urine, as shown by daily measurement, afforded an index of the patient's improvement. In cases with much gastric disturbance it was necessary largely to substitute barley water for the milk for a few days. Solid food, with the exception of fruit, was, as a rule, withheld until after complete disappearance of the dropsy; a little bread-and-butter and milk pudding were then given. In cases tending to chronicity, salt-free diet was tried, but not for a period long enough for its value to be ascertained. Suppression was treated by sinapisms to the loins and hot packs, the patient being plied with warm lemonade while in the pack. Packs were also employed for uraemic symptoms and for obstinate dropsy; they were not repeated too often, as they were found debilitating. Diuretics and diaphoretics were not as a rule employed, except when the dropsy was obstinate; in such cases caffeine and salines were tried without much apparent benefit. Urinary antiseptics, in the form of boric acid and urotropine, were given in a few cases; it was difficult to estimate their value; they were not given as a routine, in the absence of direct evidence of infection of the urinary tract, and from fear of irritating the kidneys. Bromides were given for severe headache and for convulsions, and a sedative cough mixture ordered when necessary.

When the urinary flow was fully re-established, the oedema completely absent for several days, and all uraemic symptoms relieved, the patients were warmly wrapped up and transferred as cot cases to England.

Causation.

Most of the cases came from the front, but some had been in comfortable quarters at the base. The disease appears sometimes to occur in small localized outbreaks; thus three cases occurred amongst the orderlies of one hospital. Exposure to cold in itself cannot be the causative factor, for the writer saw no cases at a general hospital during the severe weather of January and February, whereas in the warm months they have been frequent. The diverse conditions under which the men had been living makes it difficult to incriminate any particular food or drink. Most of the patients had drunk Flemish beer, some had drunk French wine, and some had been practically teetotalers.

From the motley symptoms of the onset and the irregular incidence, the writer at first judged the cases to be an anomalous form of influenza; but though organisms resembling *Bacillus influenzae* were found in the sputum of the bronchitic cases, they could not be recovered from the urine. Cultures of the urine proved sterile, except in a few cases in which staphylococci were grown, probably due to contamination. Blood cultures also proved sterile.

Reviewing all the circumstances, the writer is inclined to the belief that the disease is an infection by a definite organism, the nature of which is at present undiscovered.

The writer expresses his thanks to Lieutenant-Colonel J. H. Campbell for permission to publish the cases treated at No. 11 General Hospital; to Colonel Sir John Rose Bradford, for his ever-ready help and advice in difficult cases; and to Temporary Captain S. W. McLellan, for a large amount of pathological investigations.

THE IMPORTATION OF BACILLARY DYSENTERY.

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THE immunity from epidemic disease enjoyed by our troops during almost twelve months of trench warfare is a striking testimony to the efficiency of our Army Medical Services; but it is now evident that cases of dysentery are to be expected from the front, and it is open to question whether the necessity for the adoption of stringent methods of prevention and prevention, in the

interests of the population at home, has been fully appreciated.

The grounds for fearing that dysentery amongst our soldiers is likely to be followed by similar epidemics amongst the civil population are not purely theoretical. Such a sequence, with disastrous results, occurred in North London in 1902, an account¹ of which was read before the London Medical Society. Dr. Cantley² also described an outbreak amongst women and children which occurred at a London barracks in June, 1900—that is, nine months after the opening of the Boer war—and during the autumn of the same year other outbreaks occurred in the Home Counties. Although in none of these cases, I believe, was the *Bacillus dysenteriae* (Shiga) isolated, it is probable that this was only because search was not made for it, and there can be hardly a doubt that these cases were in fact acute bacillary dysentery, from which disease the symptoms, course, and pathological findings were indistinguishable; and in some at least of the cases the infection was traceable to soldiers recently home from South Africa.

Confirmatory evidence of the view expressed in a thesis³ in 1903 that the supposed varieties of acute and ulcerative colitis, as occurring in this country, are identical with the disease known as dysentery when occurring abroad, has been adduced independently by Dr. Eyre⁴ and by Professor Robert Saundby,⁵ the latter in an illuminating address delivered in 1906; and it would be interesting to learn whether sporadic cases of ulcerative colitis have of late years appeared in the wards of our large hospitals with as great frequency as during the years immediately following the late South African war.

Until quite recently there seems to have been no repetition in this country of dysenteric diseases occurring in epidemic form, but at the present time circumstances appear to be assuming a more threatening attitude.

During the autumn of last year a virulent epidemic, exactly resembling that of 1902 in North London, broke out in an institution in the West of England. At first two nurses were attacked, children under their charge becoming subsequently affected, and from the stools of these patients the *B. dysenteriae* was isolated in almost pure culture. After diligent search it was found that a child admitted about a fortnight previously had suffered from stomach-ache and diarrhoea, and was at that time passing visible pus and mucus in his stools. He was, in fact, convalescent from dysentery, and upon questioning him it transpired that his father had lately returned home from India and was still suffering from the disease. The child recovered, but others succumbed, and the epidemic threatened to assume very serious proportions.

At the present time I have under my care a soldier who was sent home convalescent from enteric fever. Five days after his admission to the Western Auxiliary Military Hospital he developed acute dysentery, a bacillus indistinguishable from the *B. dysenteriae* being present in the stools. The onset of the dysentery occurred eighteen days after he left the military hospital abroad, and the inference is that the disease was contracted on the ship in which he spent thirteen days on the voyage home, in company with scores of men who were suffering from dysentery.

Notwithstanding that it is accepted upon all sides that bacillary dysentery is an acute infection, the disease is not notifiable, and there seems to be but little general recognition of the established fact that it is capable of assuming epidemic aggressiveness even in this country.

Moreover, experience would seem to indicate that when the disease does gain a foothold it proves to be of a virulent type, the rate of fatality, amongst children especially, being extremely high.

REFERENCES.

- ¹ London Medical Society's *Transactions*, 1905. ² *Lancet*, 1901.
³ Thesis for M.D. degree in the University of Cambridge. ⁴ *Lancet*, 1904. ⁵ *BRITISH MEDICAL JOURNAL*, 1906.

HASSELLTINE publishes in the *New York Public Health Reports* for July 30th, 1915, two cases of paralysis during antirabic treatment in addition to two others which he made public in 1913. In one of the patients facial palsy developed on the twenty-first day but it passed off. The second case died on the eleventh day of treatment, six days after the development of ascending paralysis. It is not clear that this complication was really an abortive rabies.

A CASE OF MOLLUSCUM FIBROSUM

(VON RECKLINGHAUSEN'S DISEASE).

BY
A. WILSON GILL, M.D. EDIN.,
BANLEY, STAFFS.

The case described below illustrates the usual features of molluscum fibrosum, and little is to be added to the original description of the disease published by von Recklinghausen in 1882. Several cases have been described and investigated since that date, and have all corroborated his discovery that the multiple growths occurring in the skin are of the nature of fibromata growing from the connective tissue of the terminal filaments of the cutaneous nerves. The standard work on the subject in this country is the exhaustive monograph by Alexis Thomson, *On Neuroma and Neurofibromatosis*, published in 1900. Therein will be found a full description of the two cases recorded by von Recklinghausen, a complete account of symptoms, diagnosis, prognosis, etc., and a list of all the recorded cases of neurofibromatosis up to that date. Rolleston and Macnaughton² in 1912, in their paper on hereditary and familial types of the disease, give a further list of familial and hereditary cases published after 1900.

The patient here described is a man aged 60, a potter's slip-maker by occupation, who confesses to no previous illnesses, but who for the last few years has suffered more or less from chronic bronchitis. He is somewhat poorly nourished, but active both physically and mentally. He exhibits none of the mental dullness often associated with cases of von Recklinghausen's disease. There is no history of bilious attacks which have been described by some observers, nor can I find any evidence of pulmonary tuberculosis.

History.

He states that he first noticed small lumps on the skin of the chest about thirty years ago. These lumps appeared painlessly, and steadily increased in size, while fresh growths continued to appear. Some appeared to collapse after a time, but none of them have ever completely disappeared.

On several occasions he has pricked them, thinking they were little bladders with fluid contents. One continued to grow from the region of the lower costal margin on the right side until it reached almost to Poupart's ligament. This tumour was removed at the North Staffordshire Infirmary twenty-two years ago. It weighed 5½ lb. Following on the operation, he states that the tumours increased rapidly in size and number, especially on the chest.

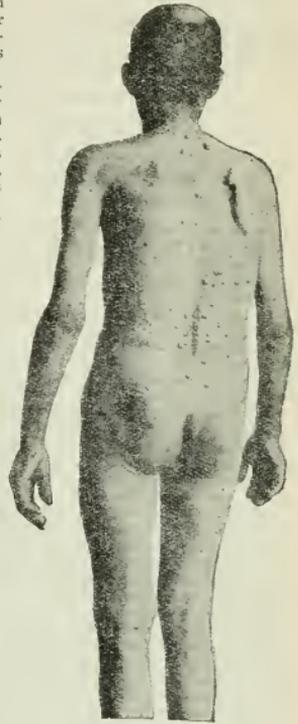
Although the disease was painless at the onset, he now states that he can tell for several days beforehand where fresh growths will occur, by a sensation of intense pricking suggesting "the bite of a gnat" which causes him to rub the part. There then appears a small violet-blue spot under the skin, which gradually becomes a small growth about the size of a small pin's head; it steadily increases in size or may remain stationary. On the scalp there is a large oval soft swelling measuring 5 in. by 3½ in. covered with a few hairs, and suggesting a bald patch in the accompanying photograph. This tumour, he has been informed, was present at the time of birth. Apart from bronchitis, his only complaint is cramp in the right leg after walking.

Distribution of the Growths.

The greater number of the growths are found on the trunk itself and especially on the back and chest. On the top of the head is the large soft tumour already mentioned. The face and forehead are dotted over with numerous small growths and there are innumerable small pin-point growths on the neck. There is one on the chin the size of a hazel nut, pedunculated, but hidden by the beard. The arms, thighs, and legs are comparatively free from growths. There are none on the palms of the hands, but on the sole of the left foot there are two small ones along the inner border, and several small ones on the sole of the right foot. Over the coccyx there is a tail-like appendage. The majority are sessile, but a few have a tendency to be pedunculated.

There is no pain on pressing over any of the tumours. They are generally of soft consistence, some giving the sensation of empty bags of skin, but over the site of the operation scar they tend to be firmer and give a feeling of containing a convoluted plexus. In most of the larger tumours this plexiform arrangement is distinctly palpable.

Areas of pigmentation are usually found associated with the tumour growth. In Alexis Thomson's series of 76 cases, pigmentation was present in 19—a proportion of 25 per cent. Harbitz³ found pigmentation present in all the cases examined by him. In many cases, as in this, the skin surface generally is dark with a diffuse brownish pigmentation. In addition to this general discoloration, more definite areas of pigmentation are to be found. Three distinct varieties of pigmentation occur and are present in this case similar to those described by Rolleston and Macnaughton:



1. Functiform pigment spots, resembling freckles.
2. Café-au-lait patches.
3. Violet-blue spots—the first stage of the molluscous tumours.

In this man the *café-au lait* patches are found only on the back and especially over the scapulae. The largest is seen over the right scapula. Smaller patches occur on the back generally and over the buttocks. The arms and legs are comparatively free from pigmentation, and there are no patches on the buccal mucous membrane.

The actual diagnosis of von Recklinghausen's disease must, of course, rest on the histological examination of the tumours. This has not been agreed to in this case, and owing to the rapid increase which took place after the operation twenty-two years ago, I have not pressed him very hard to submit to any operation, however slight.

I have been quite unable to trace any hereditary or family tendency in this patient, but it is well known that such cases are not infrequent, and are fully described in the literature. As Feindel has said, "Generalized neurofibromatosis is always congenital, often hereditary, and sometimes familial."

The treatment for the condition is purely surgical, but should only be adopted in the case of very large tumours, if there is pain, or where ulceration has occurred over the tumour. It has repeatedly been observed that operation has been followed by an increase in the size and number of the tumours.⁴

Death may occur from exhaustion, loss of weight, and anaemia, if the disease is progressive, and the occurrence of sarcoma is not uncommon.

The special points of interest in this case are:

1. The intense itching preceding the appearance of the tumours. This symptom is not a common one, but was noted by Malcolm Morris and Wilfred Fox⁵ in a case described by them.
2. The congenital nature of the disease, as shown by the presence of the tumour on the scalp at the time of birth.

3. The presence of tumours on the soles of the feet—an uncommon situation.

4. The presence of the three types of pigmentation.

5. The rapid increase in the size and number of tumours after operation.

REFERENCES.

- ¹Alexis Thomson: *On Neuroma and Neurofibromatosis*, 1900. ²J. D. Rolleston and N. S. Macnaughton, *Review of Neurology and Psychiatry*, 1912, vol. x. ³F. Harbitz, *Archives of Internal Medicine*, 1909, III. ⁴C. C. Choyce and J. M. Bentley: *A System of Surgery*, vol. III. ⁵M. Morris and W. Fox, *British Journal of Dermatology*, 1901, vol. xix.

ACUTE ACTINOMYCOSIS OF THE PAROTID GLAND.

By E. D. TELFORD, F.R.C.S.,
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THE course of events after infection by the ray fungus is usually slow; the swelling and induration are of gradual development without acute local or general reaction, and the subsequent softening and discharge are long drawn out and tedious.

There occur, however, rarer cases in which the disease assumes a much more acute form. Two such cases have come under my notice within the last ten years, and they seem worthy of mention since there are but few reports of the acute forms of actinomycosis. In view of the fact that the ordinary chronic variety is still frequently missed, and a diagnosis, often of tuberculosis, sometimes of sarcoma, is wrongly made, the acuter cases of actinomycosis are, owing to their greater rarity, still more likely to be a source of error in diagnosis.

The two cases on which this note is based presented a remarkable similarity in onset and symptoms. In each case the route of infection was by the parotid duct, and from this point of entry the disease rapidly infiltrated the gland itself. The infection was, in the one case, derived, no doubt, from the habit of chewing corn whilst engaged in feeding poultry; in the other case the patient had, a week before the onset, played with some children in a field of ripe corn, but no more exact source of infection could be discovered. In both cases the outline of the gland, including the very distinct *socia parotidis*, was plainly marked, but within seven days of onset the barrier of the glandular capsule was broken down, and a most acute diffuse cellulitis of the face resulted. The nature of the infection was determined in each case by the examination of portions of the infiltrated subcutaneous tissue in the Pathological Department of the University of Manchester.

The features of this acute form of actinomycosis would appear to be as follows. The fungus enters by the parotid duct and, within a few days of entry, gives rise to an acute parotitis; the *socia parotidis* is seen to be enlarged and tender. The disease then bursts through the limits of the gland, whereupon a very acute cellulitis develops which may extend far over the scalp and well down the neck. There is great constitutional disturbance and marked evidence of septic absorption. At this stage the swollen parts are likely to be incised, when the incisions will be found to yield no pus, but merely a sanious debris. The cut tissue will be seen to be diffusely infiltrated, of a dirty grey colour, flecked with points of yellow. The fluid and debris obtained may be extremely foul, indicating a mixed infection of organisms from the mouth. The incisions, although they may ameliorate the acute condition, will probably fail to arrest the disease and the further spread of the lesion with fresh points of softening will be seen. These, when in turn incised, will tend to assume a chronic course until, ultimately, the diagnosis is trusted upon the observer by the yellow granules of the fungus.

The practical lesson is that any acute cellulitis of the face of obscure origin, or of unwaited appearance on incision, should excite suspicion of actinomycotic infection. The discharge from such lesions, or, better, a small portion of tissue, should be examined, and, since the fungus is not always easy of identification, a single negative result should by no means be accepted as final.

Once the diagnosis is established, appropriate treatment in addition to the incisions should be given. Iodine has appeared to yield good results in the more common chronic forms of the disease, and should certainly be used freely

in these more acute cases. It has often been given in too small a dose; it should be pushed very freely in all forms of actinomycosis. One of my acute cases took no less than 240 grains of potassium iodide each day for several weeks with distinct benefit and no ill effect. In addition, iodine should be given locally. A 10 per cent. solution of iodipin may be injected into the infiltrated area at several points to the daily amount of 10 c.cm. The incisions and sinuses should be irrigated freely with a weak mixture of tincture of iodine and water.

In my second case a dose of 0.3 gram neo-salvarsan was given as soon as the diagnosis was established on the twelfth day of the illness. Although this case was a very acute one, with extremely foul discharge, there was within twenty-four hours of the administration a very marked increase in the amount of discharge and a rapid improvement in the local and general condition. This improvement was so well maintained that a further injection which was contemplated was not given. An isolated observation of this kind is of small value, but from my experience of its effect in this instance I would certainly be disposed to use salvarsan in cases of actinomycosis.

The problem of securing good drainage by incision of the face without leaving very obvious disfigurement is not easy. In my second case I attempted it by making a free incision above the hair line of the temple, and by blunt subcutaneous dissection I made a large tunnel, out of which a tube was drawn through a small vertical incision in front of the ear. Another incision, concealed behind the angle of the jaw, enabled a similar subcutaneous tunnel to reach the first one and provided good dependent drainage by a second tube. In this patient all the parts were soundly healed within two months and the cosmetic result was particularly fortunate.

In these more acute instances of facial actinomycosis early diagnosis is much to be desired. Unless the true nature of the disease is recognized, the condition is likely, after numerous incisions, to drift into the ordinary chronic form with multiple and tedious points of softening causing gross disfigurement. It would seem that much may be done to obviate this unfortunate result by energetic treatment early in the disease.

My first case had been treated as "mumps" and had been in existence for three weeks when brought to my notice. This case, in spite of energetic treatment, took five months to heal, and resulted in very marked disfigurement. The second case, which had a history of only seven days, was, by the help of free drainage, of much iodine, and probably of salvarsan, well healed within eight weeks, and the subsequent facial appearance of the patient was not the least satisfactory feature of the case.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF ACETYL SALICYLIC ACID POISONING.

ACETYL SALICYLIC ACID being so extensively prescribed at the present time leads me to publish the following as possessing some features of interest in that the patient showed a marked idiosyncrasy to the drug on a number of occasions.

A gentleman, aged 34, was suffering from a slight attack of influenza. I advised him to take 10 grains of acetyl salicylic acid every six hours. The first dose was taken about half an hour after a light lunch, and by mistake he took only 5 grains. Within an hour his throat commenced to swell, and the mucous membrane of the tongue shortly afterwards became involved to a marked degree. Severe pain, situated over the middle of the sternum, ensued. The oedema spread to the neck, which became much enlarged equally on the two sides, and the swelling quickly extended upwards over the face. The eyelids participated in the general oedema, but the involvement was not sufficient to close the palpebral fissures. A dull red urticarial rash now appeared over the chin and both cheeks. The roof of the mouth was dry and the speech thick. The oedema of the tongue was sufficient to embarrass somewhat respiration by the mouth, but the act was unimpeded by the nasal route. Slight deafness and tinnitus and a sensation of fullness in the head were present. There was no palpitation, and the urine was normal in appearance. Gastro-intestinal symptoms, with the exception of the sternal pain mentioned, were absent. Two hours after the onset the symptoms commenced to abate, and an hour later had all disappeared. Although the discomfort

attendant on the infiltration of the connective tissues was marked, the severe sternal pain, which lasted two hours unabated, was the greatest cause of alarm to the patient. Alcohol, asthma, rheumatism, and gout have no place in his past history, but there is a tendency to the last-mentioned disease in the family. There is no trace of augeoneurosis in the family history.

When I saw him later he informed me that he had had a number of similar attacks in the past. The first occasion was two years previously, when he was given 5 grains of acetyl salicylic acid for a chill. Toxic symptoms commenced within half an hour, and lasted in all about eight hours. The sternal pain on this occasion was not so severe, but otherwise the phenomena were exactly comparable to those enumerated above.

About twelve months later a doctor gave him acetyl salicylic acid in cachets, one to be taken every night immediately before retiring to bed; the dose is not known. Twelve doses in all were taken, and on each occasion exactly the same symptoms commenced within a period of half an hour to an hour, and lasted from two to three hours. He continued taking the acetyl salicylic acid every night, as he thought the symptoms "were part of the disease and the treatment."

The toxicity of the drug has been attributed to the impurities existing in salicylic acid, and the phenomena of salicylism are very like those produced by quinine, but inquiry elicited the fact that the patient has always been able to tolerate full doses of quinine.

The marked idiosyncrasy of this patient for acetyl salicylic acid is well shown. In all, the drug has been taken on fourteen occasions, and each time has been attended by the same toxic phenomena, the individual symptoms following each other in similar order. The degree of severity has gradually increased, particularly as it relates to the lingual oedema and the sternal pain.

VICTOR C. VESSELOVSKY, M.R.C.S.Eng.,
L.R.C.P.Lond.

PEPPER IN THE PROPHYLAXIS AND TREATMENT OF FILARIASIS.

AFTER several months of observation and experiment I have discovered that pepper is an excellent prophylactic against filaria.

A study of the diets peculiar to the various races in this colony reveals the important fact that where much pepper is used in the food filaria is less evident in direct proportion. For example, (a) the aboriginal Carib Indians use an enormous amount of pepper in their food and drink, and filariasis is almost unknown among them; (b) the East Indian immigrant and those "Creole" East Indians who adhere strictly to their national dishes, in which pepper enters largely, seldom, if ever, suffer from filariasis. On the other hand, filariasis is most common in those races, like Portuguese, negroes, and other inhabitants, who make use of very little pepper in their food.

From the above observations I concluded that pepper, or piperine, its active constituent, was no doubt the prophylactic against filaria.

Probably the knowledge of the prophylactic properties of pepper, like most other things in primitive peoples, was lost in the centuries, and what was once based on scientific principles was handed down and followed blindly as a habit or custom.

To prove my theory that pepper has something to do with the prevention of the manifestation of filariasis, I experimented with tinctura capsici in cases of acute filarial fever and lymphangitis, and found that the fever and lymphangitis yielded promptly to the administration of the drug. Probably piperine would act in the identical manner.

The discovery promises to have very far-reaching results; therefore I hasten to record my observations, and hope to prove their value and accuracy later.

J. A. ROBERTSON, L.R.C.P. and S.E.,
Medical Officer, Alms House,
Georgetown, Demerara.

The authorities in the capital of Pennsylvania, which has been troubled recently with rainy weather, have acted with great vigour in preventing the multiplication of mosquitos. A special mosquito brigade has treated more than 353,000 sq. ft. of standing water with oil, filled up approximately 300 pools, and dug 50 miles of ditches to drain marshes where the pests breed. All weeds on vacant lots have been cut down. It is proposed that the marsh lands shall be cleared and trenched in January when they are frozen.

Reports

ON MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

PERTH HOSPITAL, WESTERN AUSTRALIA.

GRANULOMA PUDENDI: CAESAREAN SECTION.

(By ARTHUR J. NYLANS, M.R.C.S.Eng., Gynaecologist to the Hospital.)

Mrs. X., aged 20 years, white, but born in a district in Western Australia in which infective granuloma occurs among the aborigines, was admitted to the Perth Hospital about seven months pregnant with her first child on August 3rd, 1913. About six months earlier small nodules appeared on the perineum, and soon broke down into ulcers. The labia majora were found much enlarged, firm, and rough on the surface, and about 2½ in. in diameter. The labia did not pit on pressure. Ulceration, with irregularly heaped-up granulation tissue on the surface, was seen to extend from a little behind the anus about 1½ in. on each side of it and involving it, and passed along the outer and inner sides of the labia majora; also from the clitoris up the anterior vaginal wall. The edge of the ulcerated surface was clean cut, not markedly raised, and rather serpiginous. The vaginal introitus was narrowed by dense scar tissue occupying its posterior margin. Outside the local condition described no lesions could be discovered in any other part of the body, but the patient was decidedly anaemic. The Wassermann reaction was negative, and salvarsan, mercury, and iodine without evident effect.

On October 15th, 1913, the patient, being in labour, was transferred to me for Caesarean section. She was intensely anaemic, the blood from incisions giving a remarkably pale stain. The placenta was found immediately under the uterine incision and completely separated, there being no adhesions, polypoid decidua endometritis, or other evidence of syphilis. The abdominal incision was only a little over 6 in. long, and the child was extracted without withdrawing the uterus from the abdominal cavity. The child could not be revived, but the mother progressed satisfactorily up to a week after operation. The skin clips were then removed, and a few hours later the whole abdominal wound was found to have completely opened up into the peritoneal cavity, exposing the intestines. The vitality of the patient had been so low that there had not been the slightest attempt at repair of the abdominal wound. In spite of this, however, the uterine wound had united quite satisfactorily, supplying excellent evidence of the healing capacity of the highly vascularized pregnant uterus. The abdominal incision was resutured, and the patient placed in the open air and given iron and ammonia. Thence onwards the progress to recovery from the operation was uninterrupted.

The granulomatous condition remained little if at all influenced by iodides, mercury, arsenic, and iron internally, and antiseptic local treatment. On December 21st the whole ulcerated area was scraped, the heaped-up granulation tissue coming away with great ease, as if it were an overlying moss. The surface was then brushed over with carbolic acid. The cervix uteri was felt on this and on a subsequent occasion (January 7th, 1914) to be very friable, breaking down readily with the gloved finger-nail. A vaginal speculum could not be used on account of the contracted condition of the introitus, so that one had to depend entirely on the sense of touch. The cervix was curetted, and carbolic applied. X-ray treatment was given twice a week, and after a few months the patient left the hospital. Mr. Hancock, the radiographer to the hospital, who carried out this treatment, informs me that the ulceration had almost healed, and the labia were almost their normal size when the patient went home.

Dr. Shearman, Government Bacteriologist to Western Australia, who examined specimens from this case, states that they consisted of granulomatous tissue, but that he could discover none of the spirochaetes referred to by some writers on infective granuloma. Dr. Cleland, of Sydney, has contributed valuable papers on this disease, in one of which he figures a spirochaete.

Infective granuloma pudendi is quite common among the

aborigines of the north of Western Australia, seventy or eighty cases being as a rule under the care of Government medical officers. As far as I can discover, however, the case here recorded is the first instance in Western Australia in which the disease has occurred in a white woman. How she became infected could not be determined, although sexual congress is the usual method of propagation. The husband presented no evidence of the disease.

Reviews.

MORE OXFORD WAR PRIMERS.

MAJOR L. BATHE RAWLING, in his Oxford War Primer on *The Surgery of the Head*,¹ treats of the subject with the authority to which his experience of the present war entitles him. The work, which is well and profusely illustrated, deals in detail with the various injuries and diseases of the head which may have to be treated—not only with wounds of the scalp, skull and brain, with fractures of the vault and base of the skull, with concussion, compression and irritation of the brain, and with intracranial haemorrhage, but also with injuries of neighbouring regions, such as the orbit, the jaws, and the mastoid process. There is, in addition, a chapter on infections of the brain and meninges, the whole giving a complete, if not very exhaustive, account of the injuries dealt with. The book opens with a chapter on the clinical applied anatomy of the head, its physiology and its topography—information important for the student of brain surgery. In his reference to the physiology of the optic nerve, he points out that the experience of the war has established the fact that the great majority of head injuries with increase of intracranial pressure are associated with some degree of papilloedema, not true optic neuritis. The whole appearances are those of oedema due to pressure, not those of inflammation. These observations have been confirmed by other workers in cerebral surgery during the war. The author lays great stress on the importance of head injuries at the present time, on account of their frequency, owing to the method of trench fighting, and also on account of the serious nature of the sequelae, many of which may be prevented by proper treatment. Quoting Teewan's law that the aperture of the eye is caused by the penetrating body only, whilst the aperture of exit is larger, inasmuch as it is made by the penetrating body plus the fragments driven out of the proximal table and diploë, he applies it to the bullet wound fractures of the skull, urging that it cannot be too repeatedly stated that every fracture of the external table, however trivial at first sight, is associated with a much greater comminution and depression of the internal table, with all the associated danger of damage to dura mater, meningeal vessels, and venous sinuses. We heartily agree with the author that these observations cannot be too frequently and too strongly impressed on all those surgeons who have to deal with cases of head injury, however trifling and simple they may seem to be. The chapter dealing with the technique of operations on the skull and brain is good, though the detail given would not be sufficient to guide an inexperienced surgeon in performing any but the simplest operation. The great importance of the control of haemorrhage from the scalp in brain operations is dealt with, and the author describes a simple tourniquet devised by himself for controlling such haemorrhage. It consists of a frontal metal piece, through which holes are bored for the passage of a rubber band. The rubber is of greater calibre than the hole through which it passes, and consequently, when tightened up, locks automatically. The tourniquet is passed over the head so as to be low down over the occipital region, above the level of the ears, and low down again over the forehead. In such a small work as this it is obviously impossible for the author to have dealt very fully with a subject so extensive as the whole of the surgery of the head, but the primer may be recommended to the beginner on the subject as strictly up to date and accurate.

¹ *Surgery of the Head*. By L. Bathe Rawling, M.B., B.C. Cantab., F.R.C.S. Eng., Major R.A.M.C.(T.F.), Oxford War Primers, London: H. Frowde, and Hodder and Stoughton, 1915. (Fcap. 8vo, pp. 150; 21 figures. 3s. 6d. net.)

Lieutenant-Colonel D'ARCY POWER's small work on *Wounds in War*,² another of the Oxford War Primers, has a somewhat misleading title, for it deals with war wounds in a very general sense only, with no reference to wounds of the chest, spine, or abdomen, and no account of gunshot fractures of the limbs or skull. Colonel D'Arcy Power belongs to the school which believes that the principles of aseptic surgery are not applicable to the treatment of wounds received on active service, a school whose principles most war surgeons have now adopted. He advocates the thorough and immediate cleansing of gunshot wounds, swabbing them out very liberally with pure carbolic acid, and following this by free incision and thorough drainage. The vaccine therapy of wounds is treated at length in a chapter contributed by Mr. Mackenzie Waller, who advocates the use of antiserum combined with vaccine as preferable to either alone. The chapter on secondary haemorrhage is good, though exception might be taken to the view that in cases of this nature it is useless to attempt to isolate and ligature the artery in the wound, and that therefore the vessel must always be tied in its continuity. Many experienced surgeons advise that in many cases at least an attempt should be made to tie the artery in the wound, and we have seen many instances in which this treatment has been quite successful. This little work, though not very ambitious, may serve as an introduction to the beginner in war surgery.

In his excellent little volume of *Medical Hints*³ Colonel J. E. SQUIRE gives a first-rate summary of the information likely to prove useful to medical officers in charge of troops. He recognizes, and, still more, would act upon the principle that prevention is better than cure; with the result that his pages are full of hints as to the early detection of troubles of a medical nature that may be nipped in the bud, or at any rate cut short, by immediate recognition or treatment. The first chapter deals with the acute infectious fevers to which the soldier is liable, including such foreign diseases as cholera and plague. Then follows a brief account of the diseases of the digestive system; here Colonel Squire remarks that a toothbrush should form part of every man's kit on service, and is more important to him than his razor—to which we would say "Hear, hear," under our breath, so that the C.O. shall not hear. Subsequent chapters deal with heart disease, rheumatism, tonsillitis, body parasites, frost bite, gassing, and other such subjects, with some excellent pages on the uses and abuses of tobacco. Marching, and discipline in hospitals are also discussed in a very helpful manner. Colonel Squire's book may be warmly commended to the attention of the medical officers for whom it has been written.

Dr. G. M. DUPUY's illustrated manual of stretcher-bearing, designed as a companion to the R.A.M.C. *Training Book*,⁴ contains a series of 138 photographs showing exactly how stretcher-bearer squads should perform their evolutions, and how the wounded should be cared for on the field of battle. The present war has proved what a great asset the regimental stretcher-bearer is to his wounded or disabled comrades; experience has shown that the collection of the wounded in the actual firing line must be largely the work of the regimental men rather than of the R.A.M.C. men, who have all their work out on the collecting stations. The photographs are good, and are clearly explained. The book may be commended to the attention of all who are going in for stretcher work and have no experience of military or ambulance training.

GERMAN ATROCITIES.

In the early stages of the war the civilized world was appalled by the records of German "frightfulness" in Belgium and France. Later, similar stories came from Poland. The advance of the German

² *Wounds in War, their Treatment and Results*. By D'Arcy Power, M.B. Oxon., F.R.C.S. Eng., Lieutenant-Colonel R.A.M.C.(T.F.), Oxford War Primers, London: H. Frowde, and Hodder and Stoughton, 1915. (Fcap. 8vo, pp. 108. 2s. 6d. net.)

³ *Medical Hints for the Use of Medical Officers Temporarily Employed with Troops*. By J. E. Squire, M.D. Lond., F.R.C.P., D.R.C. (amb.), Lieut.-Colonel R.A.M.C.(V.), etc., Oxford War Primers, London: H. Frowde, and Hodder and Stoughton, 1915. (Fcap. 8vo, pp. 128. 2s. 6d. net.)

⁴ *The Stretcher Bearer*. By G. M. Dupuy, M.D., Oxford Medical Publications, London: H. Frowde, and Hodder and Stoughton, 1915. (5s x 3½, pp. 149; 138 figures. 2s. net.)

army in these countries was marked by the wholesale slaughter of prisoners and wounded, among them women and children; the burning of villages; the wanton destruction of historical buildings and monuments; rape, robbery, and murder, with every conceivable circumstance of torture and brutality. When outraged humanity sent up a cry of horror at these atrocities the Germans replied by saying "War is war," the formula with which they justify the violation of every law and agreement made among civilized nations, and accepted by themselves, for the mitigation of the inevitable cruelties of war. Later, when they began to realize that the German army had clothed itself with a garment of infamy that would make the very name of the nation to which these savages belong a fixed figure through all time for scorn to point his slow, unmoving finger at, they said the charges were lies. Exaggeration, and even invention, there may have been. But there is a large mass of evidence which bears the stamp of official authority, and cannot be waved aside by a simple denial. Not counting reports in newspapers and in books about the war by writers who profess to describe only what they saw, there is a considerable body of literature containing the results of carefully sifted inquiries made by Commissions appointed by the Belgian, Russian, British, and French Governments. All these contain ample proof of outrages such as are summarized in the report of Lord Bryce's Committee on Alleged German Outrages, published as a Blue Book. It is there stated that it was proved:

(1) That there were in many parts of Belgium deliberate and systematically organized massacres of the civil population, accompanied by many isolated murders and other outrages. (2) That in the conduct of the war generally innocent civilians, both men and women, were murdered in large numbers, women violated, and children murdered. (3) That looting, house burning, and the wanton destruction of property were ordered and countenanced by the officers of the German army; that elaborate provision had been made for systematic incendiarism at the very outbreak of the war, and that the burnings and destruction were frequent where no military necessity could be alleged as being the cause of a system of general terrorization. (4) That the rules and usages of war were frequently broken, particularly by the using of civilians, including women and children, as a shield for advancing forces exposed to fire, to a less degree by killing the wounded and prisoners, and in the frequent abuse of the Red Cross and the white flag.

It is strange that in the face of all this weighty evidence there should still be pacifist cranks in this country who, in their zeal to defend the Germans, declare these charges to be not proven. To all who, either from a misguided philanthropy or from the characteristic English way of taking it for granted that everything British must be wrong, may be inclined to take this view of the conduct of the Germans, we recommend an attentive study of the French official report on German atrocities, an English translation of which has just been issued.⁵ The book is free from any tinge of sensationalism; its tone is throughout judicial. The pledges given by Germany in treaties and in conventions of the Hague are confronted with instances of their deliberate violation proved by documentary evidence, mostly of German origin. About a hundred documents are quoted, said to be taken "almost at random from amongst hundreds of others no less convincing"—reports by French officers and soldiers, sworn statements by French citizens, proclamations and orders of the day by German commanding officers, and the proofs and admissions supplied by the diaries and letters of German soldiers. "All these documents," it is truly said in the preface, "possess in themselves a kind of authority to which, generally speaking, there is no possible reply." The genuineness of the extracts from the notebooks, diaries, and letters of German soldiers is shown by photographs of the originals. The indictment is thus all the more crushing inasmuch as the Germans are condemned out of their own mouths.

A few quotations will give an idea of the nature of the evidence. In a notebook written in Belgium by a German non-commissioned officer there is the entry "Mutilation of

the wounded is the order of the day." In another the writer says:

Alas, how quickly one sees the *l'ête humaine* revealing itself in many a soldier. It was not long before we could tell whether our *kultur* was a mere surface varnish or something more deeply rooted. . . . They ransacked the houses looking for arms without the least regard for social rank.

Further on the writer says, "All moral sense is deadened." And again:

All rights of property are abolished. We are doing infinite injury to our reputation.

In the notebook of another non-commissioned officer there is the following entry:

It was given out at first that we would take up our quarters at Billy, from which place the entire civil population had already been expelled, and all household effects either removed or destroyed. This method of making war is absolutely barbarous. I wonder how we can have the face to rail at the conduct of the Russians when we are behaving much worse in France; at every opportunity on one pretext or another we pillage and burn.

The writer seems to have a foreboding of a day of retribution, for he adds:

But God is just and sees everything. "His mills grind slowly, but they grind exceedingly small."

A private soldier writes:

There is really some truth in all the talk about German barbarians.

Lieutenant Wilhelm Peters, of the 8th Bavarian regiment of infantry (reserve), in a sworn deposition, stated that he had seen brutalities perpetrated by various soldiers who had strayed from their company. But he attributes the crimes committed at Nomeny on August 20th and 21st, 1914, to "abnormal brutes." Several instances of the murder and wounding of medical officers engaged in the discharge of their duties are given. A typical example of the contempt in which the Germans hold the Red Cross is contained in a report by Surgeon-Major Rigaux, who describes the bombardment of a regimental first-aid post stationed at the farm of La Pécherie, in the Department of the Aisne:

After the bombardment of November 27th, acting on the advice of the General commanding the second division, the Red Cross pennons, which it seems had been scarcely visible on the front of the house and on the roof, were replaced by two large flags two yards by three, mounted upon flagstaffs eight yards high. From that date forward shells fell without ceasing. After some firing from the direction of La Miette, which sent shells right into the courtyard of the farm (evidently tank shots), we were treated every morning from nine o'clock till noon to a systematic bombardment with the range evidently established commencing at the outskirts of the farm and ending on the building. Seventeen of our people were wounded.

Other statements show that prisoners were treated with great cruelty. Among them may be noted the deposition of a French hospital orderly, named Martin, who was interned in the Alten-Grabow camp. The prisoners were hustled and struck with the butt-end of rifles; a man who dropped from exhaustion was shot out of hand, and twenty-three civilians were dispatched for no cause known to Martin. The food was abominable in quality and insufficient in quantity. There was no doctor to attend the wounded among the prisoners. Badly as the others were treated, Martin testifies that he remarked that the English prisoners were the objects of quite special brutality.

There are chapters on the use of burning liquids and asphyxiating gases, but these need only be mentioned.

We have already called attention to the absence of sensationalism in the book. As Mr. Bland says in his introduction, "The reader will find herein no elaborate weaving of arguments, no sentimental appeal to the emotions, no fine writing or *ex parte* pleading; nothing but a methodical statement of damning facts." If the book has something of the baldness of General Joffre's *communiqués*, it in this reflects the changed temper of the French nation which makes it formidable by its very moderation.

Burke said it was impossible to indict a nation, but this book is a contradiction of that assertion. It may be said that the blame for the atrocities set forth in it lies on the shoulders of the rulers of Germany. But the German people—who, to judge from their newspapers, glories in the fact that they are called barbarians by the rest of the world—must share in the responsibility.

⁵ *Germany's Violations of the Laws of War, 1914-15*. Compiled under the auspices of the French Ministry of Foreign Affairs. Translated and with an introduction by J. O. P. Bland. With facsimiles of documents. London: William Heinemann, 1915. (Demy 8vo, pp. 375; illustrated. 5s. net.)

NOTES ON BOOKS.

DR. PERCIVAL NICHOLSON'S little book on *Blood Pressure in General Practice*⁶ gives a sketch of the subject designed for general practitioners. The author incorporates in his text many quotations from American writers on the subject, and a few from the British literature. Beyond mentioning Poiseuille (whom he calls Poisselli), and von Bosch and von Kries (whom he calls von Posch and von Ptoin), and Tigerstedt, he pays no attention to Continental writers on the subject. The book contains the views of numerous writers, with which those of the author are co-ordinated with varying success. Many of the statements made are erroneous, and others go beyond the facts upon which they are based. The author cites an interesting pronouncement by the North-Western Life Insurance Co. (U.S.A.). In a letter to its examiners it says: "The statistics on 1,247 cases at all ages, in which there was a blood pressure of 150 mm. mercury and over, show a mortality two and one-half times greater than the general average mortality of the company covering the same period."

Written to supply a want in connexion with schools for mothers and maternity centres, Dr. HILDESHEIM'S little book on *The Health of the Child*⁷ is a very successful performance. The author has no particular fads or fancies to push, but gives a clear and concise account of the general lines upon which mothers and nurses should regulate the feeding, clothing, and regimen of the children they have to look after. He gives reasons for his statements, and explains, where possible, the principles upon which his advice is given, so that the book appeals to the intelligence as well as to memory. The rules and directions are conveyed in the simplest terms and should be intelligible to all; from the point of view of medicine they leave nothing to be desired. Dr. Hildesheim is to be congratulated upon the production of a most serviceable little book. It may be recommended with confidence to the attention of the many mothers and nurses who would be the better for instruction in the best ways of caring for their little charges. It deserves a large circulation.

⁶ *Blood Pressure in General Practice*. By P. Nicholson, M.D. Third edition. Philadelphia and London: J. B. Lippincott Co. 1915. (Cr. 8vo, pp. 194, 8 figures, 6s. net.)
⁷ *The Health of the Child: A Manual for Mothers and Nurses*. By O. Hildesheim, M.D., B.Ch., O.Sou. With an introduction by G. F. Still, M.A., M.D., Camb., F.R.C.P., Lond. London: Methuen and Co., Ltd. 1915. (Fcap. 8vo, pp. 121, 1s. net.)

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

A MEETING of the Executive Committee was held on September 23rd, when the reports on the position of the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés were considered. A financial statement showed a substantial sum of money in hand and on deposit in the bank and bearing interest. For the greater part of the Belgian medical men, refugees in England, positions have now been found.

THE WEEK'S SUBSCRIPTIONS.

The subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund received during the week have been as follows:

£	s.	d.	Dr. Pierre Haupt	£	s.	d.
			Major C. E. Southon	2	2	0
Dr. G. D. H. Carpenter			West Kent Medical-Chi-			
(seventh donation,	1	0	urgical Society (per			
total 47)			Dr. W. H. Payne,		5	0
Western Australia			Hon. Sec.)		3	0
Branch, B.M.A. (per			Dr. S. G. Sloman			
Dr. J. E. Ramsay,	83	9				
Hon. Treas.)						

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE APPEAL FOR SURGICAL INSTRUMENTS.

Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C. The Master acknowledges gifts from:

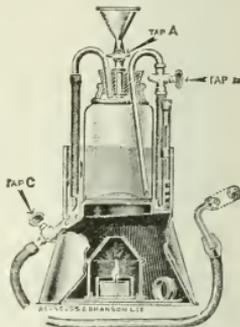
Mr. C. J. Heath, London.
 Mr. Alfred Freer, Stourbridge.

Mr. James Nourse, Calcutta.

MEDICAL AND SURGICAL APPLIANCES.

Apparatus for Rectal Administration of Saline Solution.

DR. C. HAMILTON WHITEFORD has designed an apparatus for the administration per rectum of saline solution by Murphy's method. This apparatus consists of a wide-based metal stand containing a night light, an open tin with a platform, on which stands a thick glass reservoir (a 3-lb. jam jar), with a capacity of 1½ pints. Surrounding the platform is a gutter or ditch, which has a slight fall towards the nozzle, with tap (C), which carries the rubber tube leading to the rectum. A thermometer, in a fenestrated metal case, slides into a metal loop on the inside of the tin, its bulb lying in the solution in the ditch. The rubber cork is perforated by three metal tubes: In the centre a tube with tap (A) and funnel for filling the jar; on one side an air tube, projecting into the jar and carrying a rubber tube which terminates in a metal tube, whose end is cut obliquely. The upper edge of this oblique opening lies at the level of the solution in the ditch when full. On the other side is a siphon tube, which reaches to the bottom of the bottle. Its outer end has a tap (B), beyond which is a rubber tube with metal ending, which lies in and just clears the



bottom of the ditch. The rubber tube which connects the ditch with the rectal nozzle is 4 ft. in length, of large lumen, with thick walls to prevent kinking. The rectal nozzle supplied with the apparatus is of vulcanite, bent at an angle of 75 degrees, and terminates in an olive-shaped head, the distal surface of which has four lateral perforations. The bottle should first be lifted out of the stand with all the taps shut and the cork firmly inserted. Tap A is then opened, the bottle filled with 1½ pints of saline solution at 105° and the tap shut. A lighted night light, covered by the metal cap, is placed with a little water in the basement and the thermometer slid into its loop. The ditch is then partly filled with 5 oz. of saline solution at 105° F. Tap B is now opened and siphon action started by blowing down the air tube with an enema syringe with 3 in. of tubing; the air tube is replaced by the side of the bottle. During administration, as soon as the level of the solution in the ditch falls below the end of the air tube, air passes into the bottle and restarts the siphon action, which continues until the end of the air tube is again closed by the rise of the solution in the ditch. The height of the apparatus above the rectum is calculated from the surface of the solution in the ditch, and when this has been ascertained no further regulation is required. Tap C being opened, the solution is allowed to run through the rectal tube and nozzle till it comes out warm. The tap is then closed, while the nozzle is inserted into the rectum and then opened again. The rate of the flow is regulated by the height of the ditch above the rectum. In order to refill the bottle the tap B is shut, tap A opened, the solution poured through the funnel, tap A shut, B opened, and lastly the siphon is restarted, with the syringe applied as before to the end of the air-tube. Among the advantages Dr. Whiteford finds in this apparatus are that the solution, being drawn from the ditch in which the fluid is at a constant level, is delivered into the rectum at a uniform pressure; the patient strains back into the ditch instead of into the reservoir through the siphon tube; the solution passes into the rectum along a channel of ample width by gravity alone; the temperature of the solution in the ditch is maintained at near 100° F., and loses but little when it reaches the rectum; no jacket or cover is needed. The apparatus is almost indestructible, and its broad base makes it difficult to upset. The price complete with enema syringe is £3, and the makers are Messrs. Reynolds and Branson, Ltd., Leeds.

THE late Dr. James Ryley, Ophthalmic Surgeon to the Great Yarmouth Hospital and sometime mayor of that town, left estate valued at £18,351.

THE WAR EMERGENCY.

AN OPINION FROM THE BRITISH ARMY IN FRANCE.

The following communication, forwarded by the Director-Generals Army Medical Service, was read to the War Emergency Committee at its meeting at the house of the British Medical Association on October 6th:

We have observed with some regret that in recent *Gazettes* there have appeared the names of many medical men who have resigned their temporary commissions in the Royal Army Medical Corps. It is of course certain that a considerable proportion of these are recalled to Great Britain by personal and public claims on their services which they could not neglect, but at the same time we think that the claims of the army and of the nation are perhaps scarcely sufficiently considered by those at home, at whose call some at least of the officers have resigned their commissions. It may well be that, after the past few months of comparative quiet, medical men at home may hear from those who have been serving in France that some of them have found the work monotonous. And, while this no doubt is perfectly true, we would ask those who contemplate applying for commissions to consider the matter in another light.

Every one recognizes more or less that in order to ensure a successful issue to the war our army and navy must show the greatest patience and tenacity of purpose, and that without these mere bravery in battle is of but little value.

The same is true of the work of the medical profession. A similar tenacity of purpose and an equal patience are required in addition to the skill and energy which every battle calls forth. The excitement of great and moving events is necessarily transient, and men must be prepared to do their duty steadfastly during long periods of dullness. Yet it is during these dull periods that the services of the army surgeon are really of the greatest value, though they may be dull and uneventful to himself, and it is during these intervals that the regimental medical officer gets into that close touch with officers and men alike which gains their confidence and gives him an influence without which mere professional knowledge is not of much avail.

The medical officers who are attached to regiments, batteries, motor convoys, etc., are each responsible for the health and well-being of many hundreds of men, and it is not too much to say that the strength of our army has been largely maintained during the past year by the work of these officers.

It is no doubt monotonous to be constantly watchful of the cleanliness of billets, to supervise food, to prevent parasitic infections, to treat sore feet, diarrhoea, or muscular rheumatism, and to do the thousand and one things which help to keep the soldier an efficient fighting man. But the medical officer who does these things is doing at least as much for his country as the man who performs operations or treats enteric fever.

The staff of the field ambulances have also to deal with many minor ailments of but little interest, but every division is dependent on them for the rapid return to the regiments of those whose illnesses are too slight to justify a return to England. Rest stations and convalescent depôts in charge of the field ambulances are also dull, but the good they do in maintaining the health of the troops is almost incalculable, and we would urge on all medical men who wish to serve their country that the performance of all such duties is essential for success in the present war.

The work of the casualty clearing stations and of the general hospitals at the base is characterized by periods of comparative idleness and of excessive work, but it must be

evident to all that, unless the staff was too large for periods when there is but little fighting, it would be far too small for dealing with the crowds of wounded which follow in the wake of every great battle. And, hard though it may be to remain comparatively idle during months of comparative peace, it must be remembered that the lot of the medical officer is in this respect identical with the lot of the cavalry soldier or the artilleryman.

The country needs the service of men who are prepared not merely to brave the dangers of a battlefield, but also to endure with patience and cheerfulness the dull routine of daily work and waiting. The coming winter may well prove a severe trial to those whose duty it is to fight, and there can be no doubt that if our army is to be kept healthy and ready for action, the medical profession must supply it with men who will show the same determination and patience in their own field of work as have distinguished the British soldier throughout this campaign.

G. H. MAKINS,
ANTHONY A. BOWLEY,
JOHN ROSE BRADFORD,
F. F. BURGARD,
W. P. HERRINGHAM,
CUTHBERT WALLACE.

LETTERS.

THE NEED FOR SERVICE.

SIR,—The British Medical Association has lately been putting pressure upon the one remaining member of my staff eligible for service to take up military duty. The medical staff of the County Council consists of ten men, eight of us are serving and one has lost his life. Of the two remaining men who are not serving, one is physically unfit, and the other is our tuberculosis expert; so that 90 per cent. of those eligible to serve are serving, and the Association is putting pressure on the man who makes the remaining 10 per cent.

At the present time I am engaged on military duty as officer in command of the 5th Laboratory. I am acting as radiographer for the V.A.D. hospitals in the county, and am doing in addition to my own work the work of some of my colleagues who are on active service. Before the British Medical Association make any communication to the one remaining member of my staff they ought to inquire of me as to whether the officer in question could be spared.

I have before me the panel list of Derbyshire doctors. On that list there are 294 medical men, of whom 37, or just over 12 per cent., are on active service. We officials have had no holiday since the war began, and some of us have been working continuously twelve hours a day, and generally seven days a week. I see panel doctors taking their holidays as usual, and for this I do not blame them; but surely it would be more dignified if the British Medical Association put pressure upon the practitioners in the county to go on active service before they attempted to break the back of the willing horse by putting pressure upon my one remaining assistant who is of military age.

The army must have its medical service, and the proper thing for the Government to do is to take over the whole of the practitioners in the country as a controlled service, the same as they are doing with certain manufactures. If the country were divided into districts of suitable area and one practitioner was left in each area, it would be an easy matter to release at least one-third of the general practitioners. To prevent any hardship arising to them when they come back, the practitioners remaining should be transferred to other districts not their own.—I am, etc.,

SIDNEY BAWISE, Major R.A.M.C.(T.),
County Medical Officer; School Medical Officer, Derbyshire;
Medical Adviser, Derbyshire Insurance Committee.
County Offices, Derby, Oct. 4th.

SURGEONS FOR FOREIGN SERVICE.

SIR,—Two thousand five hundred more medical men are wanted for the army before Christmas. Where some of them may be found is indicated in the report, published in

the JOURNAL of September 18th, of the meeting of the War Emergency Committee on September 15th. As indicated in that report, the War Office is encouraging men of military age to volunteer for foreign service, and the War Emergency Committee is strongly backing the movement. The appeal will not be in vain, for a large number of the junior members of the home service staffs have declared themselves ready to go.

The liberation of these men from their posts at home will entail yet another modification in the working arrangements of the territorial hospitals and the "à la suite" commission scheme. The working arrangements of these hospitals have already undergone various modifications and improvements during the past year, and the present movement on the part of the War Emergency Committee towards liberating the junior members of the staffs must introduce further alterations. Amongst medical men and laymen there has been for long an opinion that these hospitals could be efficiently and economically run by employing the "whole-time" services (for the period of the war or in relays of six months at a time) of a number of our senior surgeons and physicians, and of medical men who have been "invalided" home (unfortunately an ever-increasing number), and who, while not able again to face the hardships of active service, are capable of any amount of home work. Our seniors are no less patriotic than our juniors, and, if the latter are to be called to foreign service, should be willing to take up at home "whole-time" service in relays, and so keep the necessary work going. If the present call on the juniors should lead to a necessary radical modification of the working arrangements of the territorial "à la suite" system, there are not wanting those who think it might be all to the good.—I am, etc.,

Glasgow, Oct. 5th.

JAMES H. NICOLL.

MEETINGS. METROPOLIS.

A WELL ATTENDED meeting of the practitioners of Hampstead was held on October 1st, in response to an invitation from the Division, to ascertain what steps should be taken to raise the necessary number of doctors for the army. Dr. COLLINGWOOD ANDREWS acted as chairman. Dr. COX, from the War Emergency Committee, addressed the meeting. He outlined the excellent work already accomplished by the committee—the formation of local committees throughout the kingdom, thus placing the whole of the country in touch with the Director-General. Dr. TURNER, a member of the War Emergency Committee, also addressed the meeting. He emphasized the urgent need of men of military age accepting commissions in the R.A.M.C. without delay, and advised men to enroll, and so place the Director-General in the position of being able to fulfil the needs of the R.A.M.C. as the occasion arose. The necessity for a preliminary training was pointed out; certain routine work was absolutely necessary for the smooth working of the medical service. If any practitioner who had previously applied and had received a refusal would again apply his chances were that he would be accepted, provided his application was sent to the proper quarter. Refusals arose from lack of knowledge of the proper quarter to apply to. A War Emergency Committee was appointed and its members given power to co-opt others.

A meeting of the Hendon Division was held on September 30th at Finchley, to which all practitioners resident in the area were invited. Dr. HICKS was in the chair; seventeen members and sixteen non-members were present. The War Emergency Committee's circular appealing for eight more men for commissions in the R.A.M.C. was read and discussed. The CHAIRMAN reported that since August 1st, 1915, four medical men in the area had taken commissions, and as a result of the meeting one practitioner intimated his intention of applying for a commission, and one signed the enrolment form (W. 2). A scheme for conducting the practices of men absent on full-time service was agreed to on the basis of half private and confinement fees, and insurance receipts and other contract money to be pooled and divided pro rata among the men acting as deputies. Separate War Emergency Committees were elected as follows:—*Finchley*: Drs. Hicks, Baker, T. Godfrey, Barker, and Orr. *Hendon*: Drs. Andrew, Steel, M. Baker, Hunt Cooke, and Hargraves.

IRELAND.

County Monaghan.

A MEETING of the resident medical practitioners of the County Monaghan was held on September 22nd in the Town Hall, Castleblayney, when Dr. WILSON occupied the chair. The meeting was well attended, and all parts of the county represented.

Dr. McKENNA, J.P., Carrickmacross, brought before the meeting the call of the War Office for medical men, and the scheme put forward by the British Medical Association and the Irish Committee to answer the demand for suitable doctors. He described the urgent need at the front for medical aid, so that the men, and especially their Irish fellow-countrymen, fighting the battle for civilization against barbarism, and being wounded and injured in foreign lands—to protect us from outrage and ruin—should at once receive that skilled assistance necessary to restore them to health and strength. He appealed to all medical men of military age, or whom the War Office would accept, to place at once their names on the Roll of Volunteers, and to do their duty by Ireland and humanity.

The following resolution, proposed by Dr. McKENNA, seconded by Dr. M. R. WHITLA, and supported by the CHAIRMAN, was passed unanimously:

That we, the medical practitioners of the County Monaghan, hereby bind ourselves together to facilitate any of our members who may answer the country's call in bringing aid to our soldiers who are at present engaged in the fight for civilization against barbarism. And in furtherance of this resolution we hereby agree to protect and preserve, to the utmost of our ability, the practice and appointments of any such member or members while so engaged. And we urge upon the various departments and local bodies the necessity of assisting us in the faithful carrying out of this resolution.

OPENING OF THE MEDICAL SCHOOLS.

THE winter session in most of the medical schools has been opened this year without much ceremony beyond that attending the distribution of prizes.

At the Middlesex Hospital the DEAN said that in spite of the difficulties due to the war the work of the school had proceeded satisfactorily, and it had received its fair share of new students. Almost all the members of the medical staff were engaged in some kind of medical service, and so were very many former students. Mr. W. E. GILBERT, who was in the chair, said that the traditions of the school had not only been preserved but strengthened by the devotion of past and present members; the country could never repay the debt which it owed to the medical profession. Sir JAMES KINGSTON FOWLER, after distributing the prizes, gave a short address, in the course of which he said that after the war there would be a new spirit in the universities. Men would feel the necessity of always maintaining themselves in a condition to serve their country. They would not play less, but work harder. The profession had done its duty well, and many doctors had made great sacrifices. The Royal Army Medical Corps had done magnificently, and a great debt was owing to Sir Alfred Keogh, who, in peace, foresaw the necessity of establishing the system of military general hospitals which had worked so well.

At Charing Cross Hospital Medical School the prizes were distributed by Dr. RONALD M. BURROWS, Principal of King's College, who said that he believed that the University Training Corps and university men had given to the new army 80 or 90 per cent. of its officers. Universities, colleges, and hospitals throughout the kingdom had placed the brains of their scientists at the service of the Government to deal with the special problems of the moment. It was for the universities to show that they could make their education flexible, and, while welcoming every opportunity to do definite war work, they should lay stress on the general principle that no nation went under except through a lack of brain power, and that financial and military successes were so much dependent on education as literature or science.

At the opening ceremony of the London School of Medicine for Women there was a large attendance, which listened to a most interesting address by Dr. FLORENCE WILEY, on the war and the medical education of women. The number of entries at this school exceeds any previous record.

British Medical Journal.

SATURDAY, OCTOBER 9TH, 1915.

GROUSING.

IN another column will be found a letter signed by six of the consulting physicians and surgeons with the British army in France, expressing their very decided opinion on the duty of medical men at the present time towards that army. Of the signatories the majority have been with the army in France for over a year, and all for many months, so that they know of what they speak. They freely recognize that for long periods at a time the work of medical officers of regiments or attached to other units may be monotonous and that there are long periods of dullness, but they enumerate the duties of these officers, and urge on all medical men who wish to serve their country that the performance of such duties is essential for success in the present war. That there is still a very great deal of misunderstanding with regard to the work of military medical officers is shown by a letter signed "Surgeon" published in the *Edinburgh Evening Dispatch* of September 28th, copies of which have been sent to us by several correspondents. One describes it as libellous and treasonable—libellous, as we understand, because it speaks very disparagingly of the "ordinary medical practitioner," and treasonable because, whether intentionally or not, it must, so far as it has any influence, tend to discourage recruiting for the medical service. But it seems hardly worth while to apply such grandiose terms to so sorry a production. We should have labelled the letter ignorant and put it in the waste-paper basket, but that it has caused other correspondents some distress of mind. "Surgeon," were he a wounded soldier, would shudder to think, knowing what he does of "the ordinary country practitioner," so he writes, that he had been brought under such care. Feeling, apparently, that the width and depth of his own knowledge of his "ordinary" brethren may be defective, he fortifies himself by quoting what he has "been told by professional nurses." Having thus disposed of all "ordinary" persons, he proceeds to demolish "Sir James Barr and other prominent officials of the British Medical Association," and asserts that they would be better employed in looking over the names of the members (and non-members) of the British Medical Association and advising the War Office that they, meaning the War Office no doubt, "might communicate with the best men of the country and so enlist their services," than in doing something else not clearly specified.

We must assume that "Surgeon" is really a qualified member of the medical profession, because we do not believe that the *Edinburgh Evening Dispatch* would otherwise allow an anonymous correspondent so to sign himself. We have, then, two alternatives: either he has had so unfortunate an experience of the postal service that he has not received any of the letters and circulars issued by the Scottish War Emergency Committee, or by the Committee formed in London on its model, nor any of the medical journals for some months past; or—and this is the other alternative—having received them, he has failed to read them, wherein he would be the more blameworthy, as

he sets himself up to condemn in a public newspaper what he supposes the committees to state and propose. Had he read, he would have known that what he says they ought to have done is exactly one of the many things they are doing by the circulation of the form of enrolment which "Surgeon" by some strange accident has failed to receive, or, by regrettable negligence on his part, has failed to read. He thinks that "those in authority" should "seek out the good average surgeons of the country; let them," he says, "guarantee to such surgeons that they will have responsible and proper work to do, and I am sure that there are few surgeons in the country to-day who will refuse service." "Surgeon" may set his mind at rest; few surgeons in the country have refused service—none so far as we know. He thinks that "no doctor who feels himself of great use to the community in which he is placed should enlist in the army to find that he will be used to render 'first aid' to the injured. A good ambulance pupil can do that well." One correspondent who is troubled by the letter of "Surgeon," says that he "would be pleased and proud to render first aid to Tommy," but as he has no experience of surgery beyond what is met with in general practice, and no practical knowledge of laboratory methods as applied to medicine, he asks "what use am I likely to be to the army, and am I likely honestly to earn the salary the War Office offers?" We have no doubt that a man who takes this conscientious view will earn his salary very well, for he will soon find that surgery, first aid or other, forms only a small part, a very small part, of his daily duties. He will probably have to render first aid, and in spite of what "Surgeon" insinuates will do it much better than an ambulance pupil; in doing it he will detect those apparently slight cases which require further surgical assistance, and will send them to the casualty clearing station or hospital where they will find "the eminently skilful men" that "Surgeon" chooses to assume are not now present in sufficient numbers.

The main duties of the regimental medical officer when his regiment is actually fighting are to see that the first dressing is properly applied so as to arrest haemorrhage and mitigate as far as possible the risk of infection, to put up fractured limbs so that the man may be carried away or walk away with the minimum of suffering; to diagnose conditions such as wounds of the head which may seem trifling but which are really serious; and to treat men suffering from the shock of chest and abdominal wounds while dispatching them as quickly as possible with a note of the gravity of their condition to the nearest casualty station. Here it may be observed that these stations are at varying distances from the firing line, some perhaps four or five or six miles, others eight or ten. The surgeon of the regiment or field ambulance shows his judgement, where he has a choice, in directing the man to one or other place, according to the nature of his injury.

But for how many hours in a month is a regiment actually fighting? True, in trench warfare such as until the other day prevailed for so many months in Flanders, casualties occur every day, but relatively to the whole British army in the field—a French statesman said the other day that we had a million men in Flanders—they were few.

From the humanitarian point of view no work could be finer, and we should have supposed it well worthy of the best devotion of the "ordinary medical practitioner"; but from the point of view of the Commander-in-Chief, who has to look on his army as a machine for breaking the enemy, its importance

lies, first, in the rapid evacuation of the wounded who encumber the machine, and, secondly, in the speedy return of the lightly wounded to their places in the machine. Far more important to him is the result of the regimental medical officer's daily round of work, the aggregate of small duties conscientiously done, which means a healthy army. We apologize for the commonplace, and will spare ourselves and our readers the repetition of the fifty-times-told tale of the great and gallant armies brought to ruin and defeat by disease. Always hitherto the bacilli have slain their ten thousands where the bullets have slain their thousands.

The grievous part of the business is that such abysmal ignorance as to the real duties of a military medical officer should be paraded in public print by a surgeon—even an "average surgeon." The very name of the corps ought to have saved him from so foolish a blunder. In this country we speak of the Royal Army Medical Corps and the Army Medical Service; the French, Germans, and Austrians make the point still clearer by speaking of the sanitary or health service of the army.

From the military point of view the main duty of the medical services of an army is to keep the men who compose the army healthy and physically fit. The duties of a medical officer of a regiment are concerned with the health and training of the men from the day of their enlistment, and are all the more exacting if he be the medical officer of a newly formed unit. He ought to know every officer and man in the battalion and his capabilities. He should be present at gymnastic exercises, watching what the men can do and looking out for those upon whom the strain may be telling unduly. He must give constant attention to the state of the feet of the men and see that his chiropodist department is working conscientiously. He must look to the state of the men's teeth and see that their food is of good quality and properly cooked. He must see that they have proper means of washing and that they know how to avoid vermin, or if they have become infested, how to rid themselves of the pests. He must continually be taking care to keep his own sanitary cadre in the highest state of efficiency and in camp must be continually supervising the sanitary arrangements. In billets he must take care that his men are living in sanitary conditions and must equally attend to conservancy. He must also become expert in keeping all the necessary forms and statistics, a wearisome work, no doubt, but essential to the smooth working of the machine, and essential also, should the man be wounded or go sick, to his being traced for the information, not only of the army administration, but also of his relations. This last point is important; it is our first concern when our own sons or brothers are hit, and failure throws great discredit on the medical service and the medical profession.

The battalion medical officer is, in fact, the most important individual in the medical organization, and the letter from which we have quoted at the beginning of this article states that "it is not too much to say that the strength of our army has been largely maintained during the past year by the work of these officers." All that we have said here has been said in that letter much better and with much greater authority. "The country," the writers say, speaking from an unequalled experience, "needs the service of men who are prepared not merely to brave the dangers of a battlefield, but also to endure with patience and cheerfulness the dull routine of daily work and waiting." "If," they continue, "our army is to be kept healthy and ready for action, the medical profession

must supply it with men who will show the same determination and patience in their own field of work as have distinguished the British soldier throughout this campaign."

THE OPTOQUIN TREATMENT OF PNEUMOCOCCAL INFECTIONS.

QUININE is a drug that has received a vast amount of attention from both clinicians and chemists. From the clinical point of view its therapeutic actions may be said to be well known. The chemist, however, has hitherto been baffled in his study of its chemical structure, and its constitutional formula still remains an unsolved problem. All that can be said as to the structure of the molecule of quinine is that it contains a quinoline molecule with a methoxy group in the p-position, $C_9H_7N.OCH_3$, and a complex residue $C_{12}H_{19}NO$ containing the atomic group $-CH=CH_2$ as a side-chain, and also a hydroxy group.

A great deal of work has been done on the pharmacological properties of quinine and its derivatives. Four years ago Morgenroth and Levy published some interesting and promising studies in the destructive action of ethylhydrocupreine, one of the near relatives or derivatives of quinine, on the pneumococcus. Ethylhydrocupreine, known for short as optoquin in German, optoquin in English, may be derived from South American cuprea bark (*Remijia pedunculata*). This bark contains a small percentage of homoquinine; on treatment with caustic soda, five parts of homoquinine yield two parts of quinine, which has the formula $C_{19}H_{20}N_2.OH.OCH_3$, and three of cupreine, $C_{13}H_{19}N_2(OH)_2$. From a chemical point of view, quinine may be regarded as either p-methoxycinchonin or methylcupreine, and cupreine as either p-oxycinchonine or a naturally occurring demethylated quinine. Both are far more effective in the treatment of malaria and pyrexia than is cinchonine, $C_{19}H_{21}N_2.OH$, which lacks the p-methoxy group in the quinoline nucleus it contains, and is a much more strongly convulsant drug than either quinine or cupreine. The alkaloid optoquin, or ethylhydrocupreine, of the formula $C_{12}H_{19}N_2.OH.OCH_2$, is actually made from hydroquinine, $C_{19}H_{20}N_2.OH.OCH_3$, and not from cupreine. The experiments of Morgenroth and Levy were made on mice, and it was found that the subcutaneous injection of optoquin solutions were both protective and curative for mice exposed to infection with Fränkel's pneumococcus. Arguing from mice to men, it was hoped that optoquin would be a specific against pneumonia in human beings. But Fränkel, in 1912, tried it in 21 cases of pneumonia, with results that were disappointing; in addition, 3 of the patients developed amblyopia while they took the drug.

Quite recently Moore¹ has published some experiments on the action of optoquin hydrochloride on the four chief serological types of pneumococci as described by Cole and by Dochez and Gillespie, and on various strains of streptococci. The action of the optoquin salt on the latter was relatively slight. But on all four strains of pneumococci Moore found the bactericidal action of the optoquin salt so vigorous as possibly to be usable as a test for a true pneumococcus; growth *in vitro* was inhibited by the presence of from 1 part of the drug in 500,000 to 1 in 10,000,000; and the cultures were killed by the drug in a concentration of from 1 in 20,000 to 1 in 10,000,000 in different instances. Quinine hydrochloride killed or inhibited the growth of either the pneumococci or streptococci only in much stronger

¹ H. F. Moore, *Journ. Exper. Med.*, New York, 1915, xxii, 269.

concentrations than these, and was without any selective action on the pneumococci. The base optoquin was found to have a well-marked protective action against the experimental infection of mice with all four pneumococcal type-strains. Thus out of 85 mice inoculated intraperitoneally with one hundred times the minimal lethal dose or less of pneumococci, and treated by the hypodermic injection of a 2 per cent. solution of the free base in olive oil (0.5 c.c.m. per 20 grams of mouse), .57 survived, only 15 died of pneumococcal septicaemia, and 13 died of the toxicity of the drug or some obscure cause. In other words, 81 per cent. of the mice treated with optoquin were cured of their pneumococcal infection. If, however, enormous doses of virulent pneumococci were employed—a thousand times the minimum lethal dose, for example—the ethylhydrocuprein appeared to afford no protection in the case of certain pneumococcal strains; while in other instances it might protect against a dose even ten times as large.

So far as pneumococcal infections are concerned, therefore, it looks as if we possessed in optoquin a strongly bacteriostatic drug with a parasiticide action comparable to that of quinine in malarial infection. It is unfortunate that, so far as our present knowledge goes, optoquin should be so highly organotropic in man as Fränkel found it to be, because this quality would appear to render it unsuitable for the treatment of pneumococcal infections in human beings. Even in mice, as Moore's experiments indicate, it seems to be unduly organotropic, if it was responsible for the deaths of 13 out of 85 mice treated with it, as appears to have been the case.

THE POSITION OF GENERAL PRACTITIONERS TAKING COMMISSIONS.

THERE has come into our hands an extraordinarily interesting document, penned by a country practitioner who responded recently to the call of duty, and took a temporary commission in the R.A.M.C. Before he joined the army he counted the cost; and though his calculations showed a certain loss and many possible risks which might make that loss greater, he has taken his chance bravely and made the necessary sacrifices. He gives full details of his financial position, of the difficulties which had to be met, and of the arrangements which it has been possible to make. With the financial details we need not trouble our readers, although they are admirably worked out. Suffice it to say that by careful adjustment of expenses our correspondent has been able to reduce the loss anticipated in running his practice during his absence to £8 a year. Thus he is left with rather less than his army pay wherewith to support himself, his wife, and his child during his term of service; and with a practice, guarded so far as the sense of honour of his colleagues can guard it, to return to when he is free. It may be of interest to sketch some of the arrangements made, and to record a few of the difficulties met with in applying the principles accepted by the Division to which he belongs, for it is possible that these difficulties and the manner in which they were overcome may furnish some guidance for other districts. The practice includes private and panel and club patients. With regard to the private patients, fees are divisible in the proportion of two-thirds to the acting practitioners and one-third to the absentee. Accounts will be sent out by a representative from priced returns received from the acting practitioners. All moneys will be paid into a bank and a division made from time to time. On the doctor's return from service the amounts still due to the acting practitioners will be paid to them within three months, less 10 per cent. deduction for bad debts. This is to be done in order to close the arrangement as soon as possible. The absent practitioner will

not be responsible for bad debts. Prescriptions and measurements for appliances, etc., can be obtained at his house, but are not to be given to patients. A circular has been addressed to all private patients on the ledger, explaining the practitioner's absence; and a notice has been posted on his surgery door asking inquirers to select any doctor they please. With regard to panel patients, an equal division of fees has been arranged; one moiety to be distributed proportionately amongst the other panel doctors on the evidence of the record cards. Patients are directed to go if possible to the nearest doctor, but dispensing is to be done by the panel practitioner for all patients more than one mile from the absentee's house. Records are to be fetched thence by the patients themselves, and a notice is affixed to the surgery directing any new patients desirous of being placed on the absentee's list to apply to the nearest panel doctor. The neighbouring practitioners have agreed not to attend any of the patients—club, panel, or private—for the space of one year after the end of the military service; and this provision is to be binding in the event of a successor taking the practice. Only in this way was it found possible to preserve the capital value. The difficulties noted are as follows: It is doubtful whether the army pay will suffice to meet the medical officer's expenses in some districts as well as support his wife and child. The payments for work done prior to joining the army must be kept back against the day of return to civil practice, for no money will be coming in until new book debts accumulate. The fact that the practice was purchased with borrowed money is a source of anxiety, the more so as the death of the practitioner would cause serious loss in selling value. Hence the clause in the agreement with regard to a successor. Another point which needs stating clearly is that the absent practitioner should be responsible only for the collecting and distributing portions of the expenses connected with the practice. Finally, it is noted that during absence no new patients will be added to replace those who die or move from the district, so that for two or three years after his return the practitioner is bound to have to face a reduced income. We hope that this summary may convey to our readers some sense of the courage shown by our correspondent in facing the difficulties met with in responding to his country's call, and that his example may be followed by many who are still doubtful which way their duty lies. It is possible that his case shows how much might be gained by the full acceptance of the scheme of enrolment now being carried out by the War Emergency Committees, though there can be no doubt about the finer instinct displayed in his voluntary self-sacrifice. For those not cast in heroic mould, perhaps too as a means of avoiding waste to the community, the method of enrolment to take service when called upon by those in touch with both the military and the civil position, offers the soundest means of satisfying every need. This is, we think, an answer to the plaint of Dr. Sidney Barwise (at p. 539). The object of the enrolment is to get a complete list of the medical men in all districts who are of military age and capacity, and then to ask those who can best be spared to hold themselves in readiness, after a date they are invited to specify, to take a commission in the Royal Army Medical Corps. That this is the object in view has very often been stated, and an endeavour to make the matter clear with respect to one particular difficulty was made in the article on hospital staffs and the war emergency published in the last issue of the JOURNAL at p. 509.

MEDICAL CERTIFICATES FOR MUNITION WORKERS.

WE have several times expressed the opinion, and most recently only last week, that the way to get the highest output of efficient work in munition works was not by encouraging an undue amount of overtime and discouraging reasonable holidays. We have advanced this

opinion not only on general physiological principles but also on the result of experiments and observations both in the laboratory and in the workshop. We believe it to be a matter calling urgently for the serious attention of employers and managers of works, and it will, no doubt, be considered by the Committee which the Minister of Munitions has appointed on the health of munition workers. In a controlled establishment one of the rules is that workpeople must not absent themselves without permission, and in the case of sickness must furnish a doctor's certificate. This throws a great responsibility on the doctors practising in areas in which such controlled establishments exist, a responsibility very similar to that which the War Office places on the civilian doctor with respect to soldiers on furlough. A few months ago a circular was issued by the Insurance Commission in Scotland calling attention to this matter in the following terms: "In view of the large number of soldiers who, having been granted short terms of furlough, obtain extensions thereof on medical certificates given by insurance practitioners, the Scottish head quarters command desire that the necessity should be impressed upon practitioners of exercising the closest scrutiny of cases coming before them, and of bearing in mind that, when the question of a soldier's fitness to return to duty is in doubt, the military authorities are entitled to the benefit." This seems to put the matter very neatly; obviously it has its application to workers in munition factories, although the conditions under which they work are very much less favourable to health than those enjoyed by the soldier, who for the most part lives an open-air life, and for the preservation of whose health the Army Medical Service exists. We fully appreciate the fact that the doctor may often be placed in a very difficult position when a munition worker who complains of illness applies for a medical certificate, and we recognize also that if he were to make a mistake he must expect very little consideration from a coroner or his jury; at the same time the doctor should—and we have no doubt, as a rule, does—take care not to allow himself to be used merely to ensure that a workman may secure a holiday which he might otherwise find it difficult to obtain. We have no doubt that those medical men who have not yet considered the matter only need to have their attention called to it to recognize its importance. At the same time we would repeat what we said at the beginning—namely, that the real remedy lies largely with the persons responsible for the management of controlled establishments. They ought to recognize the physiological limits of useful work, and should take care to make it possible that a man who really stands in need of a holiday can get it without resorting to subterfuge.

DIARY OF NAPOLEON'S UNDERTAKER.

Two years ago (January 11th, 1913, p. 53) we published a lecture by Professor Arthur Keith, in which he sought to show that two specimens in the museum of the Royal College of Surgeons were, as Sir Astley Cooper had alleged, authentic parts of the great Napoleon. Distinguished Napoleonic scholars, such as Lord Rosebery and M. Frémeaux, regard them as spurious because of the strict watch kept over the Emperor's body both during and after the *post-mortem* examination by Antommarchi on May 6th, the day following Napoleon's death. We learn from the Literary Supplement of the *Times* (September 30th, 1915) that Major M. F. Foulds, who is at present in medical charge of the troops stationed in St. Helena, has unearthed the diary of Napoleon's undertaker, Andrew Darling, which he copied and transmitted to Dr. Arnold Chaplin, the leading authority in all that pertains to Napoleon's last and complex illness. The diary, Dr. Chaplin states, was printed in the *St. Helena Advocate* in 1851, but no copy was known to exist in Europe. Unfortunately, it does not help the historian very much. We find that Dr. Rutledge relieved Dr. Arnott

in the watch over the body—thus explaining the discrepancy between the statements of some recorders, who said that watch was kept by the first, while others give only the name of the second. "Dr. Rutledge had orders not to let his heart be taken out of the room, I having received the same orders, the reason of this, as I was informed, was owing to Dr. Antro Marchi (*sic*) wishing to have his stomach in his own possession to take to Europe with him." It is quite evident that Antommarchi—whom Professor Keith suspects of having abstracted the pieces of bowel now in the College of Surgeons—had no scruples about taking *post-mortem* specimens—when it was possible. The undertaker also gives two other items which are of interest. Dr. Burton accused Antommarchi—probably on good grounds—of having stolen the mould of the well-known mask of Napoleon from him, but that he (Dr. Burton) retained a part. One suspected that a complete mould of the head had been taken, Antommarchi taking away the face part and leaving merely the occiput with poor Dr. Burton. From the diary just published we find that such was the case; a mould of the whole head was taken. We believe that the occipital part—which was in Dr. Burton's possession—is now lost. It is said to have been broken by him in a moment of irritation after he had failed to compel Antommarchi to restore the cast of the face. As plaster-of-Paris was not to be got in St. Helena at the time, Antommarchi attempted to make a mould with the powder obtained by grinding down some small images. This attempt failed for the reason mentioned by Dr. Chaplin in his interesting letter published in this issue (p. 552). The cast was actually made by Dr. Burton with powder prepared from a gypsum rock native to St. Helena. St. Helena records are notoriously contradictory, and Mr. Darling's diary forms no exception.

CEREBRAL HAEMORRHAGE AND THE CORONERS ACT.

Mr. J. CROSE, the Derby Borough Coroner, has lately, according to a newspaper report, made certain rulings which are not, in our opinion, in conformity with the Coroners Act. An inquest was held upon the body of a man, aged 56, who had, according to the evidence, met with an accident about three years before, and being in consequence unable to work, had received compensation from the company by which he had been employed. His condition was duly certified week by week by his medical attendant, and upon these certificates he received his pension. He died rather suddenly from cerebral haemorrhage, and Dr. J. Anderson, who had seen him during life, gave a certificate of death. Dr. Anderson, in his evidence at the inquest, stated that the symptoms he observed were typical of cerebral haemorrhage, and that having heard the history of the case he did not hesitate to certify. The coroner stated that Dr. Anderson had acted wrongly in giving a certificate because he had only seen the deceased whilst he was unconscious, and death ensued within a few minutes. After showing a regrettable tendency to browbeat the witness, the coroner said that he was liable to a heavy fine. We do not know of any legal enactment which limits the power of a medical practitioner to give a death certificate in any case. It is for the registrar who receives such certificate to decide whether it shall be accepted or referred to the coroner. It is no part of the legal duty of a practitioner to make any report to the coroner or to any other authority, although circumstances may arise in which he will be well advised to do so. Provided that his certificate discloses the cause of death and is given bona fide, his legal responsibility ends, and it rests with the registrar to either register the death or to decline to do so. It is interesting to note that the jury gave a verdict in this case in accordance with the medical evidence, and thereby fully endorsed the certificate which had been given. It is a great pity that some coroners should seem to seek to aggrandize their office by casting

reflections in public on the actions of medical practitioners and the procedure adopted by them. The law relating to medical certification should be within the knowledge of every coroner, especially if, as in this case, he be a solicitor. It is the only excuse for appointing lawyers to be coroners. It is quite clear that in this instance there was no necessity whatever for an inquest to have been held. There was, therefore, a waste of public time and public money which, always indefensible, is particularly reprehensible at this time.

Medical Notes in Parliament.

The Discussion on the Budget.

THE Chancellor's proposals, which were summarized in our issue of September 25th, were received as a whole with general approval, but in the course of the discussion they were subjected to considerable criticism in matters of detail, and some of the points dealt with in the debate on the resolutions are of special interest to the medical profession.

Hitherto medical practitioners have received a rebate of one-half of the existing motor spirit tax, and some interest has not unnaturally been shown in the question as to whether they are to receive any rebate in respect of the increase proposed in the rate of duty. The question was raised on a resolution moved by a private member the effect of which, if carried, would have been to restrict the allowance to one-half of the old petrol duty. The Chancellor adopted a strictly non-committal attitude on the subject, and moved that the House should negative the resolution, on the ground that unless this was done the question of these abatements could not be considered in future. The resolution was negatived accordingly, but it is to be noted that on October 4th a deputation of the Commercial Motor Users' Association was informed by the Commissioner of Customs and Excise that Mr. McKenna had, after consideration of the arguments advanced by the association, introduced into the Finance Bill the necessary clause to secure a 50 per cent. rebate of the new petrol tax to all commercial motor users who had previously been exempt to the extent of 1½d. per gallon when the full tax was 3d. per gallon.

The proposed import tax of 33½ per cent. *ad valorem* duty on motor cars, motor cycles, and parts thereof, is to be subjected to extensive modifications. Mr. Lough, in opposing these taxes, said that of the motor cars imported into this country 65 per cent. were for the purpose of trade and the war, and most of the remaining 35 per cent. consisted of cheap cars used by doctors and other professional men. Mr. McKenna defended the tax as being advisable on several grounds in the special circumstances of the present moment, but at the same time announced that he was prepared to concede exemption to "motor vehicles, chassis, and parts thereof used exclusively for trade purposes." He expressly refrained from giving a more precise definition, but it will be noticed that in any event he does not seem to be committed to any exemption of cars, etc., used solely for "professional" purposes. On the other hand, some of his remarks in this connexion might lead to the belief that the exemption may be intended to apply to such cases, inasmuch as he intimated that one of the chief purposes of the tax was "to limit the import of an article which is extensively used solely for purposes of luxury." This aspect of the proposed import duties was later emphasized both by the Prime Minister and Mr. Bonar Law. If these duties are to be regarded in some measure as constituting a sumptuary tax, and traders are accordingly to be relieved, it is difficult to conceive how the relief can equitably be withheld from professional men.

On the income tax resolution several protests were made against applying the high rates of income tax to officers in the army and navy. The extent of the feeling on this subject is shown by the fact that the protest was made by a Liberal member, was supported by a Unionist, and later by a Labour member, who roundly declared that it would be a mean thing to tax the incomes of young

officers in the new armies. The Chancellor said that if, in view of the incidence of the tax, the officer was insufficiently paid, the relief ought not to be by way of abatement of the income tax, but ought to be graded right through the army. In the subsequent discussion reference was made to the enormous number of officers who had left professional and business occupations, and it was intimated that the question would again be raised when the Finance Bill came before the House.

One member urged that the law governing the income tax ought to be made intelligible to laymen. Mr. Montagu, speaking on behalf of the Government, explained that the consolidation of the income-tax laws was already proceeding; the Government, he said, was pledged to institute a Committee to examine into existing income-tax inequalities, and he suggested that the simplification and codification of the law would be better dealt with when that Committee had made its report.

It will be seen that at present several matters of considerable interest to the medical profession remain open questions. Only when the Finance Bill, based on the resolutions now agreed to by the House, is published will it be possible to deal more definitely with the considerations which will arise.

Military Mental and Nervous Cases.—Mr. Tennant informed Mr. Touche, on September 30th, that so long as accommodation was available hospital treatment was provided for soldiers suffering from nerve disturbance and less of mental balance in the neurological sections of the twenty-three military hospitals of the United Kingdom in which uncertifiable cases amongst the rank and file were treated. In reply to a further question by Mr. Touche on the same day, Mr. Tennant stated that Springfield House Hospital, Wandsworth, to which uncertifiable cases of soldiers suffering from nerve disturbance and less of mental balance were sent, was a block of the Middlesex County Asylum at Wandsworth, and was under the same management as the rest of the institution. Any civilian admitted to the county asylum would have been certified as insane. Cases were not sent to Springfield House Hospital until after a period of treatment in the neurological section of a general hospital.

Invalided from Navy.—Commander Bellairs asked the First Lord of the Admiralty, on September 30th, in view of the admitted facts in regard to the case of Surgeon David Vickery, who was invalided from the navy on a mistaken diagnosis, whether he would now communicate the decision of the Admiralty on his claim for the surgical and medical expense in which he was involved, bearing in mind that the grievance was of many months' standing. Dr. Macnamara said that as an act of grace it had been decided to make a grant of £20.

Hospital Ships at Gallipoli.—Mr. Tennant stated, in reply to Sir Henry Craik on September 30th, that the medical arrangements for dealing with the sick and wounded at Gallipoli were entirely in the hands of the Royal Army Medical Corps. The transport of the sick and wounded involved the co-operation of the naval authorities, who had the control over the working of the ships, which was exercised through a naval hospital transport officer. There were fifty ships regularly engaged on this service; this number, it was hoped, would prove adequate, but as an emergency measure other transports could be utilized in addition. In reply to a subsequent question, Mr. Tennant said he thought he was correct in saying that of the fifty ships referred to forty-nine were hospital ships.

Wounded Medical Officers and Rewards.—Mr. T. M. Healy asked the Under Secretary of State for War, on September 21st, whether doctors wounded while attending to soldiers under fire would receive, or were entitled to, any special recognition for their bravery. Mr. Tennant said that the mere fact of being wounded while attending to soldiers under fire did not entitle a medical officer to special recognition for bravery, but these officers received full recognition for valour shown, their cases being considered on the same lines as those of other officers. Any exceptional circumstances would be given their proper weight.

Medical Inspection of Scholars.—In replying to Mr. Peto, on September 30th, Sir John Simon said that the medical examination under the Factory Acts was for the purpose of testing the fitness of the child for employment in a particular factory, and imposing any necessary conditions as to the precise kind of employment. The requirement applied to all persons under the age of 16, and the bulk of the examinations took place after the child had left school. The question of linking up this examination with the school medical inspection had not been overlooked, but no change in the requirements of the Factory Acts could be made without an amendment of the Acts, and that could not be undertaken at present.

THE WAR.

THE FRENCH ARRANGEMENTS FOR THE WOUNDED FROM RECENT ACTIONS.

As we noted at the time, defects in the medical service of the French army were recently made the occasion of a violent attack on the Government through the Minister of War. The spokesmen of the Government and of the Committee of Hygiene, while admitting that last year defective organization led to many delays and mistakes, alleged that matters had been put into order. This assertion has been tested during the last fortnight, and the results have justified it. M. J. Godart, the new Under Secretary of State for War charged with the supervision of the medical arrangements, has been to watch the work of evacuating the wounded from the front in Champagne and Artois, and has given *Le Journal* an account of his observations.

The medical service had, M. Godart said, two problems to solve: first, to transport the wounded rapidly, and, secondly, to distribute them suitably. The number of automobiles actually in the field has been increased, and they go up as far as the *poste de secours* whenever that is possible. They worked without stopping day or night, so that the time a wounded man was left on the field was reduced to a minimum. The ambulances from the first line to the railway stations are worked in the same way. By an arrangement with the railway companies the speed of the ambulance trains has been increased to from 30 to 45 kilometres (18 to 27 miles) an hour. The trains are heated and ventilated, and are not kept waiting more than an hour in the railway stations. They are completely disinfected after each journey. The distribution of the wounded has been arranged by regions, and the number of wounded each region can receive is known. Each region has a distributing railway station with an experienced surgeon in charge. When the wounded arrive they bear labels indicating the nature and gravity of the wound; the surgeon in charge of the distributing railway station knows the surgical resources of his region, and therefore where to send the wounded. At each such station there is an ambulance where urgent operations can be performed. Before his arrival each wounded man has, as a matter of routine, received an antitetanic injection. The general result of these arrangements has been that the wounded sent to Brittany arrived there twenty-four hours after receiving their wounds, in Paris within fourteen hours, and at Fontainebleau within sixteen hours. The longest period before a wounded man had reached the hospital to which he was assigned was thirty hours.

The automobile surgical ambulances had been so far useful that a considerable number of operations had been performed in them under excellent conditions, but on the whole, as at present organized, their position was found to be ill defined. If they are allowed to be too mobile they are not able to do enough, and if stationary they really duplicate the stationary ambulances. They ought, in M. Godart's opinion, to be replaced by operating and sterilizing cars without any surgical personnel, which could be sent to ease points at which there was special pressure. The radiological cars had worked perfectly, and had rendered it possible to make rapid diagnoses and to undertake early operations, which had been greatly to the advantage of a number of wounded men.

The means taken for preventing the effects of poisonous

gases had been satisfactory, as was proved by the fact that very few cases had occurred in spite of the enormous quantity of those gases employed by the Germans. The soldiers could be well protected by masks and helmets, but in the excitement of an assault it was very difficult to get them to wear them. Nevertheless, during these particular operations the men got through the poisonous zone so quickly that they did not suffer. The British masks and helmets have also, we understand, proved very efficient, and are adapted to neutralize gases the Germans are known to have employed, or are suspected of proposing to employ.

M. Godart said that the new metal skull-cap had proved useful, and had prevented a considerable number of wounds; shrapnel bullets did not penetrate it. Similar metal caps have, we believe, been issued to the British, and probably we are as much indebted to the French in this respect as they are to us with regard to the gas helmets.

The general sanitary condition was good; tetanus had very nearly disappeared and gas gangrene had greatly diminished. The serum of Leclainche and Vallé had given good results. The general sanitary state of the troops was good; this was due to the strict orders given by General Joffre with regard to the removal and incineration of refuse in the camps and the disinfection of places, and as to the war against flies. Soldiers in camps were not allowed to lie directly on the ground, but were provided with wicker hurdles to sleep on. The senior medical officers of regiments were instructed to come to an understanding with the municipalities with regard to the strict scavenging of towns, and the regiments were also provided with laundry carts in which linen could be washed and dried. The result was that the murderous epidemics of previous wars were unknown.

M. Godart concluded as follows: "Things are, it is true, not yet perfect. Our task is heavy. This is as true for the health service of the army as for the manufacture of guns and munitions. Our labour never ends, but we are putting all our energy into it. The prime right of the soldier who has shed his blood on the field of battle is to be well treated and quickly treated."

We are enabled by the kindness of a correspondent to reproduce here a diagrammatic form used by Dr. Baradat in one of the regions—the region of Privas, the chief town of the Department of the Ardèche, which borders the Rhone below Lyons on the western side. With this diagram properly filled up the medical officer in charge of the distributing railway station at Lyons knows how many beds are available in each town, and Dr. Baradat, who is the responsible officer at Privas, the centre of the region, knows in what hospitals the men are, how many are in the convalescent *dépôt* at Privas, and how they have been disposed of when they leave that institution. As will be seen, the number of beds and formations varies very much in the different towns according to the facilities, including in particular the number and size of suitable buildings, available. At Annonay there are eight formations with 511 beds; at Aubenas-Vals there are six formations with 356 beds; at Privas, the county town, five formations with 376 beds. It would, of course, make the work very much simpler to have all the men in one big building—one formation—but this is seldom possible. The difficulty exists also in this country, and was illustrated by the case of Manchester, mentioned last week, where the 3,000 beds available had to be distributed through twenty-two different buildings.

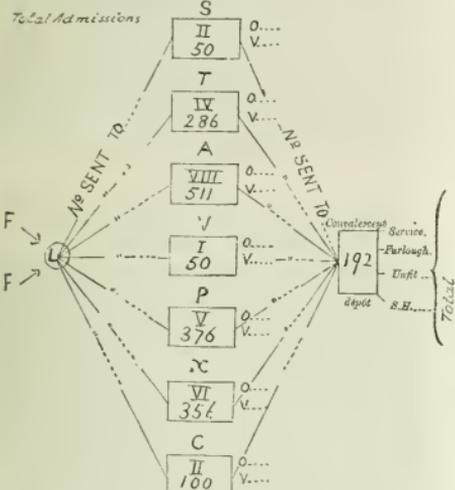
The British system for distributing wounded men to hospitals at home, which has been at work for the last year, resembles that described above as now organized in France, but owing to the sea transit it is rather more complicated. The work of distribution has to be done twice, first at a point on the lines of communication from the front, where the officer in charge has a daily statement showing the number of beds vacant in France, and the number of hospital ships available; with this in his hand he has to decide whether a man shall be sent to a British hospital in France, and if so which, or sent home direct, and in making his decision he must have regard to the man's condition and the nature of his wound. The second sorting takes place at the home port of disembarkation, where information in tabular form, but similar to that in Dr. Baradat's diagram, is in the hands of the officer

responsible for dispatching the ambulance trains to the military general hospitals established in various towns in this country.

Table for recording the distribution of wounded and sick from the distributing railway station to the several towns in a "region" in France, and the manner in which they were finally disposed of from the convalescent depot.

Movement of sick and wounded in the district of Privas from (date to date).

Total number in hospitals in the district
Total number of vacant beds



F = convoys of wounded coming from (the front) to L (Lyons). Number sent to S = Serrieres, T = Tournon, A = Aumont, V = La Voulte, P = Privas, X = Aubenas-Vals, C = Cruas.

The Roman figures within the squares give the number of formations, the Arabic the number of beds. O = the number of beds occupied; V = the number of beds vacant in each place; S. H. = special hospitals.

For purposes of reproduction the diagram has been compressed laterally; the actual diagram was about 12 in. in the horizontal and 8 in. in the vertical measurement.

As to the disinfection of ambulance trains, Professor F. Bordas, a member of the Council of Public Hygiene for France, gave to the Society of Public Medicine in Paris a short time ago an account of the method of disinfecting railway carriages followed for the Paris zone.¹ The trains were disinfected at convenient stations on each railway a short way out of Paris. He points out that any process adopted must be effective both against micro-organisms and parasites. Experiments showed that spraying with mercury perchloride, the vapour of formaldehyde, and cresol were not effective against these parasites, and this fact governed the procedure adopted. The plan eventually worked out consisted of two stages; the first was cleansing. In first and second class carriages the cushions were beaten unless a vacuum cleaner was available, and the compartments thoroughly brushed out, the refuse being immediately incinerated. The woodwork in all classes of carriages was scrubbed out with soft soap and washing soda, and the compartments thoroughly washed out. For disinfection a solution of calcium hypochlorite (chloride of lime, bleaching powder) was preferred to sodium hypochlorite ("autretrois," "liqueur de Labarraque," depuis faussement appelée "Eau de Javelle on Javel"), because it was found impossible to determine the chlorine content of the latter without laboratory tests. A solution of calcium hypochlorite (2 degrees chlorometric, a degree being the number of litres of chlorine gas furnished by 1 kilogram of calcium hypochlorite) was pulverized in a Bertraud apparatus under a pressure of 6 kilograms. This filled the com-

partments with a fog which persisted for more than an hour. The compartments or carriages were kept closed for twenty-four hours. If, however, there was reason to suppose that cushions were infected with human parasites it was considered preferable in the interests of the workmen to reduce the amount of manipulation and to fumigate the carriages with sulphurous acid, using 40 or 50 grams of sulphur to the cubic metre. In first-class carriages, sleepers, and restaurants, this was replaced by benzination, using 13 c.c.m. of benzine to each cubic metre. Benzine was found to be so toxic to each cubic metre, a small proportion in the air destroyed them rapidly. Cushions and bedding soiled by blood or pus were first of all cleansed with warm water and then soiled. The water used for washing was treated with calcium hypochlorite before it was run away. The straw of soiled palliasses was burnt, and the ticking washed in a solution of calcium hypochlorite (two degrees chlorometric). Some of the railway companies had tanks specially designed for heating the soft soap; but in one particular case, where such an appliance was not available, the boiler of an old locomotive was mounted on bricks and used for the purpose. To the solution of soft soap in water a sufficient quantity of sodium carbonate was added to give a strength of 5 per cent. The pulverizer used is the invention of M. Bertrand, engineer to the Nord Railway Company. It consists of a cylindrical receiver (a Westinghouse receiver serves well) having a tube going down to the bottom. The hypochlorite is put in through a funnel, and the receiver must not be completely filled. The air, under pressure of 6 to 8 kilograms, is admitted above. Two india-rubber tubes, the one carrying air under pressure and the other the liquid, meet in a nozzle, and in it the liquid is pulverized. The necessary pressure is obtained either from the engine of the train or from a stationary engine. Benzine vapour is obtained by pouring the liquid into a tub and putting into it another smaller vessel containing hot water. The compartments must be kept closed for twenty-four hours, and must not be entered during that time.

On the arrival of the train at the disinfecting station the medical officer of the train gives to the disinfecting foreman a special note indicating any carriages which have been occupied by men suffering from infectious diseases or infested with parasites. It is the duty also of the medical officer to see that the personnel of the train takes all utensils out of the carriages, all bedding, and any stretchers soiled by blood, pus, or dejections.

GERMAN EXPERIENCES OF WAR SURGERY.

WOUNDS OF THE AEDOMEN.

Dr. H. Boit,¹ in giving an account of his experience of abdominal wounds, did not say where his experience was gained, but stated that as the majority of the cases did not reach hospital within twenty-four hours of the infliction of the wounds, and as there was little time for operating on those rare occasions when the patients were admitted early, the treatment of abdominal wounds was invariably and of necessity conservative. While the mortality among the patients suffering from wounds of the intestine was very high, the mortality from wounds of the stomach was surprisingly low.

Altogether 72 cases of abdominal wounds, not including wounds confined to the abdominal wall, were observed. The diagnosis of wounds of the abdominal cavity was made by locating the wounds and detecting symptoms of peritoneal irritation. In 14 cases the diagnosis was confirmed by necropsy. The spleen was wounded in one case and the liver in eight, and though two of the wounds of the liver were complicated by wounds of the lungs and kidneys, only one of these nine patients died.

Wounds of the Intestine.

Among the 50 cases of bullet wounds of the intestine, there were 30 about which exact information was available. Of these 30 patients 27 died, and judging from the course of the bullet, it was evident that in every case the small intestine, and in a certain proportion of cases the large intestine also, had been wounded. The necropsies showed that the perforations of the intestine were most

¹ Rev. d'Hygiène, T. xxxvii, p. 727.

¹ Deut. med. Woch., June 10th.

numerous when the bullet travelled in the long axis of the body, and in one case as many as fourteen perforations were counted in the same body. The wounds of the intestine were most extensive when they had been inflicted by bullets fired at close range or striking sideways. In about one-third of the necropsies it was evident that the wounds were so serious that a satisfactory operation was technically impossible. In the remaining two-thirds the conditions were such that an early operation in favourable circumstances might well have saved the patient's life. In some cases the intestines were wounded but not perforated, the bullet having incised the serous and muscular coats, but not the mucous lining of the intestine. Such cases showed that the intestine was sometimes displaced by the bullet without being perforated; and this was the explanation also given by Enderlin, who failed to find wounds of the intestine in 3 cases in which the bullet had passed transversely through the abdomen. Of the 30 cases of wounds of the intestine, 14 presented wounds of entry only, while 16 presented wounds of exit also. Among the latter were the 3 cases terminating in recovery. Curiously enough, in 3 cases both the wounds of entry and of exit had been inflicted by bullets travelling sideways. In a considerable number of cases in which the bullet remained in the body, it had either struck the body sideways or had been turned into this position after entering the body. The tendency of the modern infantry bullet to turn sideways was, in Dr. Boit's opinion, largely responsible for the high mortality from abdominal wounds.

Wounds of the Stomach.

Of the 13 cases of wounds of the stomach, 12 were due to rifle bullets and 1 to a fragment of shrapnel. Only 2 patients died, both being wounded by bullets, which remained in the body. In the first case death was due to haemorrhage from a branch of the middle colic artery. The bullet had shattered the seventh rib on the left side in the nipple line, and the severity of the wound of the stomach was largely due to its laceration by fragments of rib. In the second case death was due to diffuse peritonitis. The bullet had entered in the mid-axillary line, below the ninth rib on the left side, and had perforated the stomach at two points. The patient had crawled back a distance of 300 metres to have his wound dressed. It was considered that the low mortality from wounds of the stomach in this series of cases was due principally to the fact that the stomach was empty. In practically every case no food had been taken within five to twelve hours of the infliction of the wound. Another important factor was the level at which the stomach was wounded; in the second fatal case the stomach was perforated in the most dependent part of the fundus, whence the escape of its contents was most easy. The prognosis was best when the stomach was wounded in the lesser curvature, and near its cardiac end; and it was worst when the stomach was wounded in the fundus or near the pylorus. The symptoms were very variable. In some cases vomiting occurred at once, and in others it supervened a few hours later. In other cases, again, the wound provoked nausea only. There was every degree of shock, but only in one case was the wound immediately followed by haematemesis. Many of the patients remained lying where they were wounded, while others walked a considerable distance. The pulse was at first almost invariably rapid, and intestinal peristalsis was either reduced or totally inhibited. Rigidity of the abdominal wall was a constant sign. All the symptoms improved with astonishing rapidity, and usually disappeared in two to four days.

Treatment of Wounds of the Stomach and Intestine.

The favourable course of these cases confirmed Dr. Boit in his view that conservative treatment was the best for wounds of the stomach. Operation should be attempted only when there was severe haemorrhage, and also possibly when there were signs of extensive laceration of the stomach. It was more difficult to decide how to treat wounds of the intestine. It was obvious, however, that a man with an abdominal wound should be kept as quiet as possible, and should not be moved before the fourteenth day after the infliction of the wound. Dr. Boit had made a *post-mortem* examination in two cases in which, owing to the transport of the patients, in one case on the sixth day and in the other on the tenth day, limited peritonitis was converted to a general peritonitis by the breaking

down of adhesions. Motor cars for the transport of the severely wounded had not been available for his patients till the seventh month of the war. Previously they had been, as a rule, transported on straw in primitive carts. When a case of wound of the intestine was admitted to hospital within eight to twelve hours of the infliction of the wound it was, in Dr. Boit's opinion, advisable to operate if other conditions were favourable.

It was, he said, unfortunate that, as a rule, in a field hospital there were many other casualties competing at the same time with the abdominal casualties for the surgeon's help; and as these other casualties promised better results from immediate operative treatment, the abdominal casualties were apt to go to the wall. For this and other reasons it was advisable that field hospitals should be established for abdominal casualties only at points where severe battles were anticipated. They should not be more than 15 to 20 kilometres behind the front, and their position should be notified to the stretcher-bearers so that the abdominal casualties could be transported direct to the special hospital without having to be drafted there from a general field hospital.

THE DIAGNOSIS OF TYPHOID AND PARATYPHOID INFECTIONS.

It was mentioned briefly last week that the Medical Research Committee had made arrangements to supply to bacteriologists and pathologists standard agglutinable cultures and standard agglutinating serums for the diagnosis of typhoid and paratyphoid infections by means of macroscopic agglutination tests, as well as a special outfit for the performance of such tests. The object in view, which cannot but commend itself to every physician and pathologist, and to all engaged in public health work whether for the army or civil population, is sufficiently expressed in the following memorandum issued by the Medical Research Committee:

Memorandum on the Diagnosis of Typhoid and Paratyphoid Infections.

With a view to the convenience of bacteriologists at military hospitals, and the co-ordination of results obtained by different observers at different times and places, the Medical Research Committee have made arrangements for the preparation and supply of sterilized standard agglutinable cultures and standard agglutinating sera, for the diagnosis of typhoid and paratyphoid infections by means of macroscopic agglutination tests.

The standard cultures and sera for *B. typhosus*, *B. paratyphosus* A, and *B. paratyphosus* B will be prepared in the Department of Pathology, Oxford, under the direction of Professor Dreyer, and they will be supplied by the Medical Research Committee free of charge to pathologists working in connection with military hospitals.

Applications for the standard cultures or sera should be addressed to the Standards Laboratory, Department of Pathology, University of Oxford (telegraphic address, "Pathology, Oxford"); telephone, Oxford 467.

To facilitate the performance of agglutination tests under service conditions or otherwise, a special outfit has been prepared. This consists of a special stand, dilution tubes, agglutination tubes, and two dropping pipettes, which can be obtained free of charge by bacteriologists working for military hospitals upon application to the Medical Research Committee, St. Stephen's House, Westminster, S.W., or may be purchased from Messrs. Baird and Tatlock, 14, Cross Street, Hatton Garden, E.C., price 4s. 6d. each set.

Full directions for use will be sent out with each set. In these directions details will be given which will enable bacteriologists in suitably equipped laboratories to prepare their own killed agglutinable cultures, and to standardize them against the standard serum issued. But where such facilities are absent, and under service conditions generally, standard agglutinable cultures will be supplied in quantities sufficient for all ordinary routine work. When application is made for standard cultures, the probable weekly number of agglutination tests to be made should be stated.

The standard agglutinating sera for *B. typhosus*, *B. paratyphosus* A, and *B. paratyphosus* B will be provided either for the identification of these several forms or for the purposes of comparison with any given killed agglutinable cultures. The use of the standard agglutinable cultures, with the set of apparatus as provided, is believed to offer the following advantages:

1. The procedure is simple and rapid.
2. The materials are always ready, and no cultures have to be incubated and prepared.
3. The culture is killed and all risk of infection is absent.
4. The reaction can be carried out at any temperature between 35° C. and 55° C., or even at room temperature if necessary.

5. No microscope is needed.

6. The killed cultures are as sensitive to agglutinins as fresh living cultures, or even more sensitive.

7. Owing to the precise quantitative determination which it allows, the method enables the worker to follow the course of the agglutination curves obtained by successive examinations, and thus facilitates the differential diagnosis between agglutination due to inoculation and that due to active disease.

8. The results obtained possess standard uniformity even in relatively unpractised hands, and are strictly comparable from case to case and from day to day, wherever the tests are performed. The expression of the results in standard agglutinin units will allow the comparison of extensive series of observations in different laboratories and at various times for statistical or other purposes.

The methods proposed and the standardized cultures and sera provided are already in use at the chief military laboratories engaged in work upon enteric fever cases and carriers with the Expeditionary Force and at home.

It is hoped that in the interests of the unification of records the standards now made easily available may be generally adopted.

St. Stephen's House, Westminster, S.W.
July 8th, 1915.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN ARTHUR ERNEST BULLOCK, R.A.M.C., was killed in Flanders on September 27th, 1915, aged 26. He was the elder son of Dr. Bullock, of St. Leonards-on-Sea, was educated at St. Mary's, and took the licence of the Society of Apothecaries in 1912. After serving as clinical assistant in the ophthalmic department, resident obstetric officer, and house-surgeon at St. Mary's, when the war broke out he took a temporary commission as Lieutenant in the R.A.M.C. on August 10th, 1914, and was recently promoted to Captain. He was attached to the Middlesex Regiment at the time of his death.

Captain Ernest Cotton Deane, R.A.M.C., was killed in Flanders between September 25th and 28th, 1915, aged 28. He was the third son of T. Stanley Deane, of Bank House, Rathcraigh, co. Limerick, was educated at Corrig School, Kingstown, and at the Adelaide Hospital, Dublin, and took the licences of the two Irish Colleges in 1909. He entered the R.A.M.C. as Lieutenant on July 28th, 1911, and was promoted to Captain, with all the other lieutenants in the corps, on March 30th, 1915. In his case this special promotion came only four months earlier than he would have been entitled to it in the ordinary course of events. Before the war he was serving in India, at Lucknow; he came to Europe with the Garhwal Brigade, and was attached to the second battalion of the Leicester Regiment when killed. He was a well-known Rugby football player, having been captain of the Monkstown and Adelaide Hospital fifteens, and an Irish International. The announcement that the Military Cross had been conferred upon him appeared in the *London Gazette* on October 2nd, the same day on which his death in action appeared among the obituary notices. It was in the following terms:

Captain Ernest Cotton Deane, R.A.M.C. (attached 2nd Battalion the Leicestershire Regiment).

For conspicuous gallantry on August 22nd, 1915, near Pannesart. A standard patrol 120 yards in front of our line was bombed by the enemy at about 10 p.m., the only notification being two loud bomb explosions. Captain Deane, without any knowledge of the enemy's strength, at once got over the parapet and ran by himself to the spot, under rifle and machine gun fire. Finding four wounded men, he returned for stretchers and got them back into safety. This is not the first time that Captain Deane's gallantry under fire has been brought to notice.

Lieutenant Kenneth Robinson, R.A.M.C., was killed in the recent advance in Flanders on or about September 25th. He was educated at Manchester, took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1907, the degrees of M.B. and B.S.Lond. in 1912. He had been honorary medical officer to the Girls' Home, Bramley Cross, Lancashire, and was in practice at Llandudno when he took a temporary commission in the R.A.M.C. on March 5th, 1915. He was attached to the 12th Battalion Manchester Regiment when he met his death.

Lieutenant Edgar Faulks, R.A.M.C., killed in action between September 25th and 27th, was 38 years of age and was the second son of Mr. and Mrs. Arthur Faulks of

Loughborough. He received his medical education at Guy's Hospital, where he was house-surgeon and house-surgeon to the throat department. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1902. At the time of his death he was senior assistant medical officer at the Bexley Asylum, Kent. He joined the R.A.M.C. three months ago. He had only been at the front a few days before the action took place in which he lost his life.

Wounded.

Captain H. M. Pope, R.A.M.C., Flanders.
Lieutenant G. Millar, R.A.M.C., Flanders.

DEATHS AMONG SONS OF MEDICAL MEN.

Carless, Albert Wilkes Buchan, Lieutenant 1st, attached 5th Battalion Middlesex Regiment, eldest son of Professor Albert Carless, F.R.C.S., Major R.A.M.C. (T.), died of wounds in Flanders on or about September 26th. He was educated at St. Clare School, Upper Walmley; at Caius College, Cambridge; and at King's College, London, where he gained the Warneford entrance scholarship, and was for three years a medical student, and a member of the University O.T.C. He went to the front in November, 1914.

Collison-Morley, Harold Duke, Lieutenant-Colonel, the Buffs, commanding a battalion of the Middlesex Regiment, son of the late Dr. L. Collison-Morley, Medical Officer of St. Paul's School, killed in Flanders, September 25th, aged 37. He was educated at St. Paul's School, the Slade School, and Julien's Art School, Paris. At an early age he contributed sketches to the *Graphic*, and last year he exhibited etchings at the Society of Arts. As a young man he went to Australia, and served with the Queensland Bushmen in the South African war. In 1900-01, when he was present in operations in the Transvaal and Orange River Colony, including the action at Rhenoster Kop, gaining the Queen's medal with three clasps, and a commission as Second Lieutenant in the Lancashire Fusiliers, from May 19th, 1900. He became a Captain on July 16th, 1901, was transferred to the Buffs, or East Kent Regiment, on May 20th, 1908, and became Captain on March 15th, 1911. He was appointed Adjutant of the 7th Battalion, London Regiment, on December 15th, 1911. In 1905 he married Olive, daughter of the late Horace Wood, of Clairmont, Natal, and leaves one daughter.

Coward, Leslie G., Captain 1st, attached 5th Battalion, Middlesex Regiment, youngest son of the late Dr. Coward, of Park Lane, Stock, Lewington, killed in Flanders on September 25th. He was educated at Owen's School, London, got a commission as Second Lieutenant on January 1st, 1915, and became Captain in June.

Dunlop, Kenneth Strickland, Second Lieutenant 4th Battalion South Staffordshire Regiment, youngest son of Andrew Dunlop, M.D., Belgrave House, Jersey, killed in Flanders between September 25th and 28th, aged 35. He got his commission on April 3rd, 1915.

Greenhalgh, Maurice Lomax, Second Lieutenant King's Liverpool Regiment, youngest son of the late Thomas Greenhalgh, M.R.C.S., M.R.C.P., killed in France on September 25th. He was educated at Helm Leigh, Buxton, and at St. Bees, and at the beginning of the war enlisted in the United Public Schools Battalion, getting a commission on October 23rd, 1914.

Handfield-Jones, Neville, Lieutenant Royal Field Artillery, only son of Dr. Handfield-Jones, of 36, Cavendish Square, London, killed in Flanders September 25th. His commission was dated April 22nd, 1915.

Herbertson, William Gray, Lieutenant 8th King's Own Scottish Borderers, killed in action in France, was the second son of Dr. James Herbertson of Johnstone, Renfrewshire. He first joined Lochiel's Camerons, and was afterwards promoted and transferred to the K.O.S.B., where he acted as bomb officer. He was 25 years of age, and a well-known Rugby football player.

Nelson, Cecil, Captain 3rd East Angles, attached 69th Punjab, eldest son of Surgeon-Major Nelson, of Downpatrick, Ireland, killed in the recent advance in France. He was born on September 2nd, 1879, educated at Armagh High School and in Germany, and joined the Royal Irish Rifles as Second Lieutenant on November 15th, 1899, serving with that regiment in the South African war in 1899-1900, when he gained the Queen's medal with two clasps. On August 30th, 1902, he joined the Indian army, being posted to the 3rd Buffs, and became Captain on November 15th, 1908. Before the war he was Station Staff Officer and Cantonment Magistrate at Rurki. He then accompanied his regiment to Egypt, and later on was sent to the western front.

Stiven, Ronald Walker Sutherland, Captain 1st Battalion Royal Scots Fusiliers, younger son of the late E. W. Stiven, M.D., died of malaria as a prisoner of war at Majiza-Ishin, between September 15th and 18th, aged 27. He joined the army as Second Lieutenant in September, 1908, became Lieutenant in April, 1911, and Captain on January 31st, 1915.

Tracey, Geoffrey Engene, Lieutenant 9th Battalion Devonshire Regiment, who was killed in action in France, was the eldest son of the late Dr. H. P. Tracey and Mrs. Tracey of Willand, Devon, and was 19 years of age.

Treharne, Leslie Llewellyn, Second Lieutenant 9th Battalion Welsh Regiment, youngest son of the late Dr. Edward Treharne, J.P., killed on September 9th. His commission was dated November 13th, 1914.

Wilson, D. J. R., Second Lieutenant Welsh Regiment, elder son of Dr. Wilson, of Haverfordwest, Pembroke, killed in France on September 25th, aged 22. He got his commission on October 3rd, 1914.

Wilson, Geoffrey, Captain Wiltshire Regiment, son of Dr. Mervyn Wilson, of Chippenham, killed in the recent advance in France. He was educated at Marlborough, and became Captain on February 2nd, 1915.

MEDICAL STUDENTS.

Fawcett, Richard Wilfrid, Second Lieutenant South Staffordshire Regiment, only son of the late Charles Fawcett, of Rawdon and Bradford, died of wounds in France on September 26th, aged 23. He was educated at Haileybury, at Caius College, Cambridge, and at the London Hospital, where he was a medical student. In the early part of the war he served for some time in the navy as a surgeon-probationer on H.M.S. *Ferret* in the North Sea, then got his commission on March 26th, 1915.

Allan, James Grant, Lieutenant 9th Gordon Highlanders, who has been killed, was the elder son of Rev. W. G. Allan of Edinburgh. He was 20 years of age, and held the degree of B.Sc. of Edinburgh University, where he was studying medicine. He received his commission on November 19th, 1914.

THE ARMY NURSING SERVICE.

The casualty list published on October 2nd contained the names of no less than eight members of the Army Nursing Service as having died on service. This list, however, appears to refer to the whole period of the war up to date, for Miss Cole died at Boulogne so long ago as February 21st (BRITISH MEDICAL JOURNAL, March 6th) and Miss Pearce at Havre on April 29th (BRITISH MEDICAL JOURNAL, May 15th). The names are as follows:

Queen Alexandra's Imperial Military Nursing Service—Miss E. H. Cole, France; Miss P. A. Pearce, France; Miss M. A. Walshe, Mediterranean; Miss L. M. Swaine, Mediterranean; Miss M. H. Johnston, Mediterranean; Miss E. Fearley (Reserve), France.

Canadian Army Nursing Service—Master J. B. Haggard, Mediterranean; Miss F. E. Munro, Mediterranean.

NOTES.

A HINT TO REGIMENTAL MEDICAL OFFICERS.

A REGIMENTAL MEDICAL OFFICER sends a suggestion which he thinks may be useful to those newly commissioned in the R.A.M.C.: In my work (he writes) I have found a simple shilling rubber lettered printing outfit of inestimable value. It has saved me many weary hours of clerical work, and gained for me an unmerited reputation for business methods. Of course, a specially made stamp with one's appointment and medical qualifications is common. The objections to such are the lack of adaptability, cost, delay in delivery, and the not uncommon changes in one's appointment to units. With a printing outfit and a couple of extra type holders a number of stamps can be made immediately. I have one for heading the official "memo" forms, printing:

From the Medical Officer,
to 17th Westshire Fusiliers.

another for all sick reports, letters, memos, and so on, printing:

Captain, R.A.M.C.,
in Medical Charge 17th Westshire Fusiliers.

I have also put together two or three others for special purposes. I was suddenly called on to enter in a thousand soldiers' active service pay books the date of their typhoid inoculation. From my predecessor's returns I found he had only given the dates when he commenced giving each dose to the battalion. I merely had to put together the orthodox symbols and dates as:

T.V. 8 Dec. 1914.

I

T.V. 18 Dec. 1914.

2

X. Y. Z.

leaving the place X. Y. Z. for my initials. In this way I saved many hours' work completing that duty. Again, when I had to enter in the active service pay book the dentures which had been supplied, I put up the type in the required form:

D or D
L or U 10. AUG. 1915.

according as to whether an upper or lower denture had been issued at the date of my inspection.

The printing outfit can be obtained from any stationer for less than two shillings.

THE VESTAL VIRGINS.

Flanders is at the best of times a fly-ridden country, and, of course, the huge accumulation of men and horses

in the area has given the flies an extraordinary chance. The responsible officers of the Army Medical Service realized at an early date that special methods would be necessary; and, as we mentioned some time ago, Sir Arthur Sloggett, in the memorandum which he issued last April as Director-General A.M.S. in France, said with regard to trench latrines that they should be of the shallow variety whenever possible, and constantly supervised to ensure that the excreta are kept covered with earth. "Less than 1 ft. of dry earth over excreta will not infallibly prevent flies from emerging if eggs have been deposited before the faeces were covered." In these circumstances incineration was mentioned as a possible alternative. Shortly afterwards a commission of three—Professor Newstead, of Liverpool; Mr. R. W. Jack, Government entomologist, Southern Rhodesia; and Captain E. E. Austen, the well known entomologist attached to the Natural History Department of the British Museum—studied the subject on the spot and made further recommendations. In the early summer special instructions were given with regard to incineration, and where it was found possible to build incinerators—and it would seem that this has generally been found possible in any large collection of men behind the lines—everybody, officers and men alike, were required to see that excreta were put into the incinerator. These never-dying flies have got, among the officers at least, the name of "the Vestal Virgins," and the meaning and importance of their work seems to be thoroughly understood. Sometimes, no doubt, when the wind was in the wrong quarter the odours were not quite agreeable, but this inconvenience was cheerfully put up with, since it was well known that the vestals were designed to obviate the greater inconvenience of a plague of flies, and the serious risk of the conveyance of disease. It is generally recognized, we gather, by officers of all corps that sanitary work has never been done anything like as well in any previous campaign as in this, and they are taking a professional pride in the fact, which makes for greater efficiency in the future.

MEDICAL OFFICERS WANTED.

21st Eastern Mounted Brigade Field Ambulance, R.A.M.C.(T.F.). Three officers are required by this unit. As the 11st Eastern Mounted Brigade Field Ambulance is abroad, medical officers will be required from this unit for service overseas. Application to Major C. G. Kay Sharp, Commanding 21st Eastern Mounted Brigade Field Ambulance, R.A.M.C., Tadworth Camp, Epsom.

2nd Line Welsh Border Mounted Brigade.

Two medical officers, willing to undertake the imperial service obligation, are urgently required for service with the 2nd Line Shropshire Royal Horse Artillery and Cheshire Yeomanry. Pay and allowances as in the regular army, also outfit and camp kit grants. Full particulars on application to Lieutenant Colonel D. C. Leyland Orton, Senior Medical Officer, 2nd Line Welsh Border Mounted Brigade, The Camp, Morpeth, Northumberland.

England and Wales.

THE MANCHESTER UNIVERSITY.

PERHAPS the most interesting event in the academic year 1915-16, which commenced on October 7th, is the assumption of office by Sir Henry Miers, the new Vice-Chancellor. At a meeting called by the Council of the Workers' Educational Association, and held on September 25th at the Students' Union, a hearty welcome was accorded to the new Vice-Chancellor, Mr. H. Pilkington Turner presided, and, in responding to the cordial vote of welcome, which was carried with acclamation, Sir Henry Miers expressed his fullest sympathy with the aims and objects of the Workers' Educational Association, and said that one of the things that made him feel at home in Manchester was that he was coming among people who shared the ideals of those among whom he had worked in London. A resolution was also carried expressing appreciation of the work done by Professor Weiss as Vice-Chancellor. In reply, Professor Weiss took the opportunity of welcoming Sir Henry Miers on behalf of the members of the University.

The new Vice-Chancellor, coming from the Principality of the London University, assumes office in Manchester at a time when the whole work of the university cannot fail to be unusually difficult. It is noteworthy that in the

prospectus of the different faculties for the coming session the arrangements are in nearly every case issued with the special proviso that the number of lectures in the courses may have to be diminished owing to rearrangements necessitated by the war. Last year the number of students entering the university was between three and four hundred less than the average, and the authorities appear to expect that in the coming session there may be a still further decrease in the number of entrants taken as a whole. In the Medical Faculty, however, judging from the number of inquiries, a large number of entrants are expected; as a rule medical students commence their five years' course before attaining military age.

MANCHESTER ROYAL INFIRMARY.

In normal times before the war the work of the Manchester Royal Infirmary was divided among three establishments: the Royal Infirmary in Oxford Street, the out-patients' department in Parker Street, and the accident and out-patients' department in Roby Street. Owing to the demands of the war, the out-patients' section at Roby Street had some time ago to be discontinued, as sixty beds had there to be set up for sick and wounded soldiers. These beds were in addition to the large number at the infirmary itself set apart for the wounded. Practically the whole of the staffs of the three institutions are now engaged in war work, though some of them only as part-timers; as so large a proportion of the staff have either already gone away on active service or have volunteered and expect to be called on at any time, it is announced that the Board of Management has decided to close the Parker Street out-patient department from October 11th; after that date all out-patients will have to attend at the infirmary itself. This will, of course, cause some amount of inconvenience, as the distance to the infirmary from the centre of the city is considerable; but with the depleted staff (which, in addition to military cases, has to attend all the ordinary cases as usual) the temporary change in arrangements appears to be unavoidable. At a meeting of the Board of Management held on September 29th under the chairmanship of Sir William Cobbett, the position of secretary and general superintendent of the institution, which had become vacant by the resignation of Mr. W. G. Carnt, was filled by the appointment of Mr. Frank Hazell. Mr. Hazell has been for the last fifteen years secretary of the Norfolk and Norwich Hospital at Norwich, and before that was for nine years assistant secretary of the St. Luke's Hospital for the Insane, London.

THE LIVERPOOL MILITARY HOSPITALS.

The territorial military general hospitals established so rapidly a year ago, in accordance with the scheme elaborated by Sir Alfred Keogh during his first tenure of office as director-general, have been extended from time to time as further demands were made by the army so quietly that it is difficult to grasp the magnitude of the work that has been done. The *Liverpool Daily Post* published the other day an article on the military hospitals of Liverpool, and was clearly surprised to realize how extensive the provision has now become. The City Hospital at Fazakerley—to which, it is stated, stretcher cases are, as a rule, most conveniently drafted—has 500 beds. It is a pavilion hospital surrounded by airy grounds. Highfield, lent by the Select Vestry, is an almost new hospital with 500 beds, in a healthy situation. At the Mill Road Infirmary, West Derby Union, there are 400 beds, and at the Toxteth Union 100. The Royal Infirmary, the Royal Southern Hospital, and the David Lewis Northern Hospital each offer 40 beds, the Stanley Hospital 20, and the Bootle Borough Hospital 25. The tropical school at the Royal Infirmary has been adapted to provide 200 beds, and the old hydropathic home at Woolton has been taken over to provide as many more. In addition the orthopaedic centre for wounded soldiers at the Alder Hey Hospital provides 500 beds in a new building on an agreeable suburban site. There are also a number of hospitals maintained by private beneficence. At various Southport hospitals about 600 beds are provided, while Birkenhead furnishes 250, and Wallasey about 100. Lastly, there are a number of convalescent hospitals. Altogether the Liverpool district contains provision for over 5,000 military patients.

Scotland.

We regret to notice that the son of Sir Edward Schafer is reported as wounded and missing, and the son of the Principal of Aberdeen University as killed in the recent fighting.

TREATMENT OF TUBERCULOSIS IN EDINBURGH.

At a meeting of the Edinburgh Insurance Committee, held on September 23rd, the terms of agreement between the Corporation and the Insurance Committee regarding the scheme for the prevention and treatment of tuberculosis in the city were submitted and approved.

By this agreement the medical officer of health, Dr. Maxwell Williamson, will be the chief administrative officer in carrying out the whole scheme for the prevention and treatment of tuberculous disease in the city. The assistant medical officer of health, Dr. John Guy, will act as a tuberculosis officer. His chief duties will be in connexion with cases of tuberculosis in insured and uninsured persons. His services will be placed at the command of the Insurance Committee. He will attend the meetings of the Insurance Committee and the Sanatorium Benefit Subcommittee, and will act as medical adviser to the committee. In the event of the appointment of tuberculosis officer becoming vacant, any new appointment shall be made by the Corporation in consultation with the Insurance Committee. Sir Robert William Philip, M.D., will continue to act as consultant or expert adviser in connexion with the prevention or treatment of tuberculosis in all its forms, whether in the case of insured or uninsured persons. The Corporation agrees that the Royal Victoria Dispensary and its staff shall be available for the treatment of tuberculous cases, whether insured or uninsured, including medicines. The Insurance Committee agrees as from February 26th, 1915, to pay to the Corporation annually in quarterly instalments the following sums: First, a proportion, amounting to £200 per annum, of the salary of the assistant medical officer of health acting as tuberculosis officer; and secondly, the sum of £200 per annum in respect of the Royal Victoria Dispensary, with its nursing staff being made available for the treatment of insured tuberculous cases. The Insurance Committee will make monthly payments to the Corporation for the treatment of insured persons in any hospital administered by the Corporation, for whom the Insurance Committee or the Sanatorium Benefit Subcommittee shall have agreed to provide such treatment. The rate of such payments will be agreed upon annually between the Corporation and the Insurance Committee as at December 31st each year. The agreement is terminable on three months' notice on either side. Early stages of the negotiations were noted in the *JOURNAL* on June 6th, 1914, p. 1265, and July 31st, 1915, p. 195.

Ireland.

ULSTER AND PROVISION FOR SICK AND WOUNDED SOLDIERS.

On October 1st the Marquis of Londonderry and Lady Londonderry opened the new block of the Ulster Volunteer Force Hospital. The original hospital was an adaptation of the old exhibition buildings, near the Botanic Gardens Park, kindly given by the City Corporation. The university authorities granted the use of their adjoining ground, and on it a new L-shaped block has now been completed, and is continuous with the old; a broad verandah runs along the inside of the L, which faces south, and the contained ground is rapidly being planted with shrubs and flower beds. The arrangement and equipment are excellent and up to date, and the general feeling at the public opening was one of surprise and delight that such a bright and useful building could spring into being in such a short time. Counting the verandah, the full buildings will now be able to accommodate over 200 patients. The honorary treasurer said that the total subscriptions amounted to £14,417, and since he had ascended the platform he had received a further promise of £150. Several batches of

patients had already been received, and all did extremely well; in a few days the administration would be ready for double the number.

At a well-attended meeting in the City Hall, Belfast, on September 21st, a public committee and many subscribers handed over to the military authorities twenty-two motor ambulances for the use of the Ulster Division; most of these are ready and fully equipped. The sum of £10,560 has been subscribed throughout Ulster for this object.

Dr. Joseph Fulton, one of the visiting medical officers of the Poor Law Infirmary, Belfast, has returned the £50 for attendance on the invalided soldiers of the Ulster Division during their stay in one of the blocks of buildings given by the guardians to the military authorities, asking them to spend the sum in comforts for the men.

Correspondence.

NAPOLEON'S FUNERAL.

SIR,—The publication in the *Times Literary Supplement* of the diary of Andrew Darling, the upholsterer who acted as undertaker at Napoleon's funeral in 1821, is an event of considerable interest to Napoleonic students. Although it was known that this document had been published in the *St. Helena Advocate* in 1851, all trace of it had been lost, and its contents were unknown. Fortunately, however, Major M. F. Foulds, R.A.M.C., who is at present in medical charge of the troops in St. Helena, is interested in the subject, and is devoting his spare time to a methodical search among the records deposited in the Castle at Jamestown for any facts regarding the captivity of Napoleon that may have been overlooked. Major Foulds happened to be reading a *St. Helena Who's Who*, and he noticed on p. 62, under the heading "Darling," that a document had been written by that person, in which was recorded the dispositions made for the funeral of Napoleon. He therefore prosecuted his search, and amid a mass of records very much un-earthen, found Darling's diary in an excellent state of preservation. Major Foulds sent the document to me with the request that if deemed of sufficient interest, steps should be taken to secure its publication in the *Times*.

From the historical point of view the diary is of great value, for, unlike so much of the St. Helena evidence, it is untinged with political bias; indeed, it is a plain and minute statement of the way in which the "undertaker" carried out his work. In addition, the document brings to light some facts which were unknown, and, as collateral evidence, confirms several points which were in doubt. Some of these may be mentioned. Darling gives us the exact measurements of Napoleon's height, breadth of shoulders, and depth of chest, as he lay dead (length, 5 ft. 7 in.; only 18 in. barely across the shoulders; and scarcely 10 in. deep). In common with all others who saw the dead Emperor, Darling, the undertaker, was struck with the extraordinary beauty and youthful appearance of the face. Then Darling gives us an exact account of the way in which Napoleon's private apartment was fitted up as a "chappelle ardente," and he describes with minute care the making and furnishing of the coffins and the manner in which the heart and stomach were enclosed in their respective silver receptacles. His version of this last duty tallies with that of Dr. Rutledge, who was in medical charge of the body, and with that of Abraham Millington, the armourer, who soldered up the coffins. Finally, Darling gives us some new facts concerning the much-debated question of the death mask. Thanks to the labours of Mr. G. L. de St. M. Watson, in his recent book, *The Story of Napoleon's Death Mask*, the claim of Dr. Burton as the author of the famous mask now rests on irrefutable evidence, and Antommarchi's pretensions are for ever disposed of. Darling informs us that he purchased 150 small plaster figures in Jamestown and had them ground down to serve as plaster for the cast. Of course this material was bound to be ineffective, for he had neglected to have it calcined. No wonder that when Antommarchi made the attempt he failed, and it was not until Dr. Burton had obtained some crude gypsum from deposits found on the island that a satisfactory cast could be obtained. Darling

also mentions that the mattress on which Napoleon rested in death was much "marred by stains of blood from him when he was turned round to shave the back part of his head for the bust." This mattress with the stains can be seen in Madame Tussaud's. All these and many other interesting details will be found in the document, which is well worthy of perusal.

In connexion with this document it is interesting to record the fact that there is still living in London a lady in her 95th year who was present at the funeral of Napoleon in 1821. It is true that she was only 3½ months old at the time, and, of course, remembers nothing of the occurrence, but she is nevertheless the last surviving link with the Great Emperor in St. Helena.—I am, etc.,

London, E.C., Oct. 4th.

ARNOLD CHAPLIN.

MEDICAL SERVICE IN THE HIGHLANDS AND ISLANDS.

SIR,—In the discussion on the above by the Scottish Committee at Perth on September 10th some most important points appear to have been entirely overlooked.

The Committee, apparently, assumed that the Highlands and Islands Board guaranteed to the medical officers of the remote parishes a minimum income of £300 per annum plus travelling and other working expenses. The Highlands and Islands Board have done nothing of the kind; nor is any such guarantee referred to in their proposed agreement with the doctors.

The medical officers, in the proposed agreement, are to charge a fee of 5s. for the first visit and 2s. 6d. for each subsequent visit during the same illness, and moderate charges for medicines supplied. Should the doctor fail to get his fees—he will never get cash payment in a Highland parish—the Board refuse to take any responsibility for the bad debts, and in the proposed agreement nothing whatever is said as to the Board making up the doctor's income to £300 per annum free of all working expenses.

Again, there is no check on patients who call the doctor long distances for trifling ailments and no extra fee for night visits.

Above all, there is no intention to put the parochial medical officer of the remote Highland parishes on a similar footing to his brethren in England and in Ireland, by making him eligible for a fair pension. Many medical men have "existed" in the Highlands and Islands on beggary salaries, doing, practically, Government work single-handed for twenty years and over, and now the Treasury steps in and objects to these poor men being allowed a decent superannuation. It appears as if these medical men are being practically asked to clear out, go to the poorhouse, or rely on charitable relatives or friends in their old age for support.

If the Highlands and Islands (Medical Service) Board have not sufficient funds to institute pensions for the older or disabled members of the Highlands and Islands Parochial Medical Service, then the Highland members of Parliament and their constituents must see to it that the grant is increased, if only for ensuring this mere matter of common fairness and justice.

Had these medical officers elected to enter the army or the navy, they would now be entitled to a pension of at least £1 per day. Instead, they have been all along doing much harder work, receiving much less in pay, and left to retire when unfit for the work without a penny.—I am, etc.,

September 21st.

GUARANTEE.

THE DANGER OF SACCHARINE.

SIR,—The increased taxation of sugar and its substitute, saccharine, thus again increasing their price, seems to be a good opportunity of drawing the attention of the profession to the danger of the latter drug when it is consumed in large quantities. Sugar is a food, saccharine is not; it is a chemical made from coal-tar derivatives having a sweetening property, volume for volume, of about 500 times that of cane sugar. In spite of the fact that before the new taxation its price had already risen by about 25 per cent., it is still consumed in large quantities by the general public in this country, being taken chiefly for obesity. It can be obtained *ad libitum* from druggists, for, although it is chiefly made in Germany and Austria, it is also manufactured in Great Britain.

Recent research at the McFadden Laboratories at the Lister Institute has shown that saccharine is a powerful auxetic like several other constituents and derivatives of coal-tar; and there is now strong evidence that it is these auxetics in tar and pitch that give rise to the predisposition to the epithelioma known as pitch and sweep's cancer. Saccharine, therefore, should be taken internally with caution, and not for long periods, unless the patient is suffering from diabetes or other really serious complaint.

In the United States the sale of saccharine was prohibited by law in 1912, on the grounds that in daily doses of 0.3 gram or more it causes "disturbances of digestion," and also that as a sweetener in canned foods and preserves it is a deception, the public believing "saccharine" to be a form of sugar.

Judging by the verbatim report of the inquiry, the absolute prohibition was enforced chiefly because of the second reason, which does not apply so much in this country, where the industry of canning foods is not such a large one, although, owing to its small bulk, saccharine is used here, especially in tinned infants' foods. But the first reason is also an important one, in that saccharine, after prolonged administration, evidently acts as a chronic irritant to the stomach. This point was demonstrated at the inquiry held by the United States Department of Agriculture¹ in 1911, when the exhaustive experiments of Hörter and Folin² were published. From these investigations it appears that saccharine causes an increased secretion of hydrochloric acid in the stomach, and, after prolonged administration, gives rise to nausea. The sweetening effect of the drug is also lost after a time, and patients frequently take a dislike to it.

From the foregoing facts, therefore, especially as saccharine is a coal-tar auxetic, it appears justifiable to utter a warning against its indiscriminate use as a drug or substitute for sugar. Whether it is actually a predisposing cause of cancer of the stomach is a point impossible at present to determine by any statistics, as the drug has been in use for nearly thirty-five years; but still, knowing the effect of the coal-tar auxetics in the tar and pitch trades, the risk hardly seems worth running unless its administration is essential. In cases of diabetes, when its advantages may outweigh its disadvantages, saccharine can be ordered judiciously by prescription. It is to be hoped that some day the public will be educated not to obtain it in any other way.—I am, etc.,

Lister Institute, S.W., Oct. 1st.

H. C. ROSS.

THE ADMINISTRATIVE CONTROL OF MEASLES.

SIR,—I have to thank Dr. Cook for correcting my reference to notification of measles in Greenock. I knew that householders notified measles in Greenock, but I was not aware that they were compelled to do so. Fortunately the error does not affect the argument, if any conclusions from such figures are justifiable, since the comparison depends on the existence of a stable condition of things in one town, and changing conditions during the same period in another town adjacent. Indeed, if the chart in question gave any support to notification, the argument is now strengthened.

It is questionable, however, if the system of compulsory notification by householders, as practised in Greenock, is quite an efficient means of discovering cases of the disease. The percentage mortality among the known cases of measles for the five years 1910-14, instanced by Dr. Cook, was 2.49 in Greenock, 1.32 in Port Glasgow, and 0.50 in Renfrewshire. These rates are calculated on figures taken from the annual reports of the Medical Officers of Health. Renfrewshire and Port Glasgow represent for this district the extremes of health conditions and weighting of the population at the earlier years of life, and the rate for Greenock should theoretically fall somewhere between theirs. The Greenock rate exceeds that of Port Glasgow by more than three times the standard error, and the excess may fairly be attributed to a deficiency in the recorded cases of measles in Greenock rather than to greater fatality of the disease.—I am, etc.,

Glasgow, Oct. 4th.

RALPH M. F. PICKEN.

¹ United States Department of Agriculture. Saccharine, under the Food and Drugs Act. Government Printing Office, Washington.

² United States Department of Agriculture's Report 34, Influence of Saccharine on the Nutrition and Health of Man. Government Printing Office, Washington, 1911.

Obituary.

EDWARD A. MINCHIN, M.A., F.R.S.,

PROFESSOR OF PROTOZOOLOGY IN THE UNIVERSITY OF LONDON.

The world of medicine, as well as that of biology, to which he more properly belonged, is the poorer by the early death of Professor E. A. Minchin, F.R.S., at the age of 49 years.

Although his fame will no doubt rest upon his zoological work, yet the fact that he did a considerable amount of work also upon those protozoa which are the cause of disease will connect his name with medicine. He was educated at Westward Ho and Keble College, Oxford, where he became a Fellow of Merton College, and was for many years demonstrator of comparative anatomy and held also a Radcliffe Travelling Fellowship. His early work at Oxford was zoological, principally on sponges, knowledge of which he advanced considerably. After holding the appointment of Lecturer on Biology at Guy's for one year he became, in 1899, Jodrell Professor of Zoology in University College, London; in 1905 he went to Uganda as a member of the Sleeping Sickness Committee of the Royal Society to study the tsetse fly in its relation to sleeping sickness and the life-cycle of *Trypanosoma gambiense* in its relation to the fly *Glossina palpalis*. Although these researches were comparatively barren of direct results, an admirable account of the anatomy of the fly was written and much collateral information obtained. In 1906 he was appointed Professor of Protozoology in the University of London. A later development of his African work soon followed in a series of papers on the question of the structure of trypanosomes in relation to microscopic technique, an important and necessary piece of work, showing how structures may be altered, obliterated, or manufactured by imperfect technique. In 1912 he published his most important work, *An Introduction to the Study of the Protozoa*, one of the best books on this very difficult and ever-moving subject. It is full of the most careful criticism, and is, what is too rare in a book of this type, also full of generous appreciation of other men's work; it will probably remain for a long time the best presentation of our knowledge on this subject up to its date. Then last year appeared a monograph, written in conjunction with Dr. J. D. Thomson, on the rat trypanosome in its relation to the rat flea; in this, which was the result of five years' work, although every problem presented by the transmission of the trypanosome and its development in the flea is not solved, a mass of the most careful work is contained, carrying the subject as far as it can go at present. His last piece of actual work was the thoughtful address which he was unable to deliver before the British Association at Manchester a few weeks ago.

He was elected a Fellow of the Royal Society in 1911, and the Linnean Society conferred the Trail award and medal on him in 1910.

As a teacher he was clear, patient, and extremely careful, and as a colleague loyal and sincere.

THE LATE LIEUTENANT T. A. PEEL, R.A.M.C.—A notice of the short career of Lieutenant T. A. Peel, R.A.M.C., killed in the Dardanelles, was published in the JOURNAL of September 11th. His father, Mr. J. E. Peel of Arnhall, has now received a letter from Captain A. C. W. Vincent of the Dorsets, to which regiment Lieutenant Peel was attached, relating the circumstances of his death. The regiment was one of the first to land at Suvla Bay; they had a large number of casualties on August 9th. They and to many men of other regiments Lieutenant Peel was uniting in his attentions. On the day of his death, August 19th, part of his regiment was in support of an attack, which was repulsed with loss, and the stream of wounded men who came through the Dorsets' trench were treated by Lieutenant Peel. About midday he went out to men lying between the trenches to give them morphine. Having exhausted his stock he went back to the trench for more, and then went out again; during the whole time he was being sniped at, and on this second occasion a bullet passed through his body. Two men of the Dorsets went out and brought him in on a blanket, but the wound was quickly fatal. Captain Vincent adds

that Lieutenant Peel's name had on several occasions been sent to head quarters for his continued good work, and was again sent on on the day of his death.

INSPECTOR-GENERAL HENRY THOMPSON COX, R.N. (retired), died on September 16th, aged 64. He was the son of the late Henry Rix Cox, of H.M. Board of Public Works, Ireland, and was educated in the medical school of the Royal College of Surgeons, Ireland, taking the diploma of L.R.C.S.S.I. and the L.R.C.P. in 1871, also that of M.R.C.P.J. in 1881. He entered the naval medical service in 1872, and reached the highest rank, that of inspector-general of hospitals and fleets (now surgeon-general), on January 25th, 1906, retiring in 1909. He served in the Ashanti campaign of 1873-74, with the naval brigade on shore, receiving the medal. He was also serving on board H.M.S. *Anchylus* as medical officer when that ship and H.M.S. *Shah*, two old unarmoured vessels, successfully fought the Peruvian ironclad, *Huascar*, in the hands of rebels against the Government, off the South American coast in 1877.

SURGEON-MAJOR CHARLES GRAY, Army Medical Department (retired), died in London on September 25th, aged 78. He was educated at St. Thomas's, took the M.R.C.S. in 1858, and entered the Army as assistant surgeon on April 22nd, 1858, becoming surgeon on April 22nd, 1870, and surgeon-major on April 1st, 1873, and retiring on November 13th, 1874. His war services are not given in the *Army List*, though the crossed swords against his name in the retired list show that he had seen service in war.

MAJOR GEORGE THOMAS MOULD, Bengal Medical Service (retired), died suddenly in London on September 13th. He was born on November 25th, 1864, took the diplomas of M.R.C.S. and L.R.C.P. (Lond.) in 1888, and entered the Indian Medical Service as surgeon on March 30th, 1888, becoming major on March 30th, 1900, and retiring, as soon as he had qualified for the earliest pension, on July 28th, 1905. He put in his whole service in military employ, being for many years medical officer of the 1st Duke of York's Own Lancers, better known as Skinner's Horse. He served on the north-east frontier of India in the Manipur expedition of 1891, medal and clasp; in the north-west frontier war of 1897-98, in the Tschai valley campaign, medal and clasp; and in the third China war in 1900, when he took part in the relief of Peking, and in the actions of Peitsang and Yangtsun, gaining a third medal and clasp.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are: Dr. C. H. Bradley, sometime clinical instructor in medicine in the University of Minnesota, aged 50; Dr. Marco Luzzato, physician to the Ospedale Civile, Venice, for more than thirty years, one of the founders and sole editor of the *Rivista Veneta di Science Mediche*; Dr. Alphonse Péchin, President of the General Syndicate of French Oculists, and author of numerous writings on the neurology of the eye and other subjects connected with his speciality, aged 63; Dr. Rigal, formerly physician to the Necker Hospital, Paris; Dr. Ugo Schiff, professor of chemistry at Florence, author of valuable papers on subjects within the province of physiological chemistry, and one of the founders of the *Gazzetta chimica Italiana*; and Dr. Horatio N. Spencer, founder of the *American Journal of Otolaryngology*, which he edited during a period of four years, and professor of diseases of the ear in the medical department of Washington University, St. Louis, from 1881 to 1911, aged 73.

V. ZACHARY COPE (*Brit. Journ. Surgery*, vol. iii, No. 9) considers that actinomycosis is by no means so rare in man as is generally believed, and that many cases are diagnosed incorrectly. In the course of the ten years preceding 1912 only 136 cases were admitted into seven of the largest hospitals in London. Yet while the four largest together only reported a total of 50 cases, two of the smaller hospitals admitted respectively 61 and 21 patients subject to actinomycosis. Cope has detected this disease in 13 cases during the last three and a half years.

Public Health

AND POOR LAW MEDICAL SERVICES.

POOR LAW MEDICAL OFFICERS' ASSOCIATION.

The council of this association at its meeting on September 23rd considered the case of Dr. Denning of Epping; he had been suspended by the guardians, but was entirely exonerated as the result of an inquiry by the Local Government Board. Subsequently the guardians had endeavoured to determine Dr. Denning's appointment by giving one month's notice in accordance with the terms of the contract he had originally signed. Thereupon a further appeal was made to the Local Government Board, which ruled that the guardians' action determined only that particular contract and did not affect Dr. Denning's tenure of office as workhouse medical officer. This, it was considered, was an important decision, showing that no contract made by Poor Law medical officers with boards of guardians could over-ride the conditions laid down in the Poor Law Orders. It was reported that Dr. Denning complained that the guardians were now endeavouring to insert in the new contract conditions as to hours of attendance at the workhouse which would seriously interfere with his private practice. The council advised Dr. Denning to insist on the retention of the old terms in the new contract, believing that unless the guardians could show that the interests of the sick inmates of the workhouse demanded a change in his hours of attendance he would be supported by the Local Government Board. The Poor Law Orders gave the guardians no right to fix arbitrarily the hours of attendance of the workhouse medical officer.

The Honorary Secretary reported that a request had been made to the Local Government Board by the Poor Law Medical Officers' Association for permission to give evidence before a departmental committee appointed by that Board to revise existing Poor Law Orders. The Chairman of the Committee had invited the association to present a memorandum; such a memorandum, prepared by the Honorary Secretary, Dr. Major Greenwood, with the assistance of Major Thackray Parsons, R.A.M.C., was approved.

In reply to an inquiry, the council expressed the unanimous opinion that the giving of certificates in the case of mental defectives was no part of the ordinary duties of Poor Law medical officers, who were entitled to the same fee as laid down in the Lunacy Acts for lunacy certificates.

It was reported that Sir Arthur Downes had notified that it had been decided to allot two representatives to the Central Council for District Nursing (London) to the Poor Law Medical Service of the metropolis, and the association was invited to appoint another representative; it nominated Dr. A. Withers Green.

Universities and Colleges.

UNIVERSITY OF GLASGOW.

The following candidates have been approved at the examinations indicated:

M.B. and Ch.B.—Fourth Professional Examination, Medical Jurisprudence and Public Health—New Medical Ordinance: J. Alison, T. Blackwood, C. Buchanan, C. Brown, H. D. Brown, J. A. Buchanan, D. Campbell, D. Clyde, D. H. Costa, W. K. Connell, V. G. Cook, J. Cremer, J. F. Duthie, J. Ewing, T. Gray, S. J. Henderson, A. R. Hill, N. Johnstone, F. C. Logan, A. F. McMillan, F. B. Martin, W. H. Marshall, R. Rodgers, J. Steel, J. A. S. S. S. S. S. Steinberg, C. S. Swanson, H. W. Torrance, R. N. Walker, R. S. Weir, K. J. T. Wilson, Jean L. Hamilton, Margaret Service, H. Rourke, Alison E. Wilson. *Third Professional Examination, Jurisprudence and Public Health—Old Medical Ordinance:* M. N. Bhattacharjee, J. W. Dalglisg, G. del P. M. Devers, T. B. Fulton, T. P. Hutchison, W. F. Kitchin, W. A. MacDonald, D. B. McIntosh, W. W. Morrison, W. O'Brien, J. A. Paterson, T. M. S. Wilson, Margaret O'Rourke Gallagher, Mary Scott.

UNIVERSITY OF LONDON.

ENTRANCE SCHOLARSHIPS.

Guy's Hospital Medical School.—The following entrance scholarships have been awarded:—Senior Science Scholarships for University Students: C. W. W. Armstrong (£75); H. G. Barford (£25). Junior Science Scholarships: E. H. Roche (£120); R. C. B. Ledlie (Certificate). Scholarships in Arts: H. J. Selby (£100); K. H. Hugh Jones (£50).

Middlesex Hospital.—The following scholarships have been awarded:—Entrance Scholarships: Mr. D. S. Muir (£25); Mr. E. W. Riches (Secomb); Mr. P. S. Coleman (Thirl), Freezer Lucas Scholarship; Mr. R. M. McLoyle-Jones, New Zealand Scholarship; Mr. R. Fulton.

University College.—The following elections have been made:—Bucknell Scholarship (135 guineas): Mr. J. P. Padshah. Medical Entrance Exhibition (55 guineas each): Mr. H. L. Heimann and Mr. A. B. Saunders. Epsom Free Medical Scholarship: Mr. D. C. Corry.

VICTORIA UNIVERSITY OF MANCHESTER.

The following candidates have been approved at the examinations indicated:

FIRST M.D. (Part I, Inorganic Chemistry and Physics).—Kathleen Doyle, Georgiana M. Duthie, E. Pickett, A. H. Sudek (*Chemistry*);—H. D. Preston. (*Physics*).—Elizabeth C. Davies, J. G. Nolan. **Part II, Elementary Biology.**—J. N. Laing, F. L. Pickett, H. D. Preston, Edna Ratner.

CONJOINT BOARD IN SCOTLAND.

The following candidates have been approved at the examination indicated:

D.P.H.—Mary A. B. Murphy, J. Crockett, W. S. H. Campbell, J. C. Drysdale, K. A. Maclean.

The Services.

INDIAN MEDICAL SERVICE.

The *London Gazette* of September 17th announced the appointment of eight medical men to the Indian Medical Service as lieutenants.

In the *London Gazette* of October 5th these eight appointments are cancelled, and the eight officers concerned are gazetted to temporary commissions instead, as follows:

E. A. M. J. Goldie, May 20th; S. N. Forbes, M.B., June 9th; M. B. Patel, June 9th; N. R. K. Ubhaya, June 14th; C. P. Fernandez, June 19th; A. P. Pestonji, F.R.C.S., June 21st; N. B. Mehta, June 21st; S. S. Malasani, M.B., June 24th.

EXCHANGES DESIRED.

TERRITORIAL FORCE.

CAPTAIN A. R. PATERSON, R.A.M.C.(T), attached 14th Dorset Regiment, Ambala, India, wishes to find substitute so as to enable him to transfer to a unit at home or in France. Communications should be addressed to Dr. Le Fleming, Wimborne, Dorset, who will give all details.

TWO LIEUTENANTS attached to the 21st Highland Casualty Clearing Station stationed in Aberdeen, desire exchange with two officers serving in France with Clearing Station, Field Ambulance or Regiment. Apply to Major Limes, 21st I.L.C.S., R.A.M.C., Fonthill Barracks, Aberdeen.

Medical News.

SIR ALMROTH WRIGHT will repeat, on Saturday and Monday, October 9th and 11th, at 3 p.m. each day, his demonstration given at the Royal Society of Medicine after the opening of the exhibition of fracture apparatus. The exhibition will remain open until Wednesday, October 13th.

FOUR cases of plague and four deaths occurred in Mauritius during the fortnight ending September 30th. In Hong Kong during the week ending October 2nd two cases of the disease and two deaths occurred.

At a meeting of the Royal Sanitary Institute to be held in the Council House, Salisbury, on the evening of Friday, October 22nd, Dr. Fison, M.O.H. Salisbury, will open a discussion on the recent epidemic of cerebro-spinal meningitis in the city.

The annual commemoration of the benefactors of the Royal College of Physicians of London will take place on Monday, October 18th, when the Harveian Oration will be delivered by Dr. Sidney Coupland, at 4 p.m. The usual dinner will not be held.

OWING to the enforcement of the so-called engenes law, there has been a notable decline in marriages in the State of Wisconsin. In consequence, the *Boston Medical and Surgical Journal* informs us, the law has been amended to make its requirements less rigid, and to allow physicians greater liberty in granting certificates.

OWING to the temporary closure of the Hall of the new Worshipful Company of Barbers, the first meeting for the new session of the Hunterian Society will be held at the home of the Royal Society of Medicine, Wimpole Street, W., next Wednesday, at 9 p.m. The first Hunterian Society lecture will be delivered by Dr. Samuel West on "Bright's disease in some of its clinical aspects." To this and to all other meetings of the society all members of the medical profession are cordially invited.

The first meeting of the session of the Medical Society of London will be held on Monday next at 8 p.m., when the incoming president, Dr. William Pasteur, will give a short address, and Professor J. T. Morrison of Birmingham, for some time Surgeon-in-Chief, Third Military Hospital, Skopje, will relate his experiences in Serbia in 1914-15. Among the arrangements for the coming session are discussions on gunshot wounds of the peripheral nerve on October 25th and on gunshot wounds of the head on November 15th.

THE annual report of the Chief Medical Officer of the Board of Education for 1914 (Cd. 8055; to be obtained of any bookseller, price 1s. 3d.) has been issued, and will call for further notice on a future occasion. Meanwhile, we may say that among the subjects dealt with are the school medical service, education and infant welfare, tuberculosis in school children, medical treatment and a special chapter on such treatment in rural areas, dental disease, open-air education, physical training, and the education and care of the crippled child.

EVERY one must admire the courage of Miss Mary Davies in inoculating herself with a cultivation of the bacillus of gas gangrene, and then asking Dr. Kenneth Taylor, of the Ambulance Americaine, Neuilly-sur-Seine, to test a method of treatment by quinine hydrochloride which he had devised. Although the injection was made into the muscles of the leg, Miss Davies was fortunately quite well again in twenty-four hours. Miss Davies is the youngest daughter of the late Sir Henry Davies, K.C.S.I., of Pumpsaint, Carmarthenshire, and for the last five years has been working as a bacteriologist at the Pasteur Institute. Since that time she has assisted Dr. Taylor in his study of gas gangrene. Dr. Taylor came from America some time ago with the intention of joining the staff of the Imperial Cancer Research Fund, but was diverted by the war. We suspect that had he considered it proper to make an experiment on a healthy human being he would not have chosen this particular form. A full account of his investigations would be welcome.

UNDER the auspices of the Chadwick Trust Dr. D. Noel Paton, Regius Professor of Physiology in the University of Glasgow, commenced a course of lectures on food in war time at the Hauptstead Central Library on October 4th. The first lecture dealt with food and work; the second, to be given on October 11th, will deal with good and bad food; and the third, on October 18th, with food and drink. The lectures are given on each day at 8.15. On October 20th Dr. R. O. Moon, recently physician to the Serbian Isolation Hospital at Skopje (Uskub) will begin a course of three Chadwick lectures at the Royal Society of Medicine on typhus in Serbia, in which he will deal with the lessons from previous epidemics, the relation of typhus to plague, relapsing fever, and enteric fever, and will discuss prophylaxis and treatment. Other Chadwick lectures will be given in November by Mr. A. Saxón Sueli, F.R.I.B.A., on emergency military hospital construction; and by Mr. W. E. Riley, F.R.I.B.A., on the housing of workers.

SIX demonstrations of the anatomy of the human body, designed to meet the needs of first aid and ambulance students, will be given in the theatre of the Royal College of Surgeons of England, Lincoln's Inn Fields, at 5 p.m., by Professor Arthur Keith, Conservator of the Museum, on the following dates: Fridays, October 15th, 22nd, 29th, November 5th, 12th, and 19th. The demonstrations are open to all men attached to companies of the Royal Army Medical Corps, and to members of ambulance and Red Cross classes. Professor Shattock and Mr. Colyer will also give some demonstrations intended for advanced students and medical practitioners. Professor Shattock's will be given on Mondays, October 18th and 25th, and November 1st, at 5 p.m. They will deal with rickets and cretinism, with foreign bodies, and with actinomycosis and leprosy respectively. Mr. Colyer's demonstrations, at 5.30 p.m. on Wednesdays, October 20th and 27th, to which dental students are specially invited, will deal with injuries and diseases of the teeth of the anthropoid apes, and with irregularities of the teeth in man.

AMONG the many periodical publications published by military units of one sort or another are some issued by the staffs of hospitals. The *Craigleith Hospital Chronicle* was, we believe, the earliest of these periodicals to be founded. It has reached its tenth number and second volume; it presents quite an imposing appearance with its quarto page and its bright cover bearing the Union Jack and Red Cross flags, and a sketch of the building which was the Craigleith Poorhouse until it was taken over by the 2nd Scottish General Hospital. Among the contributors is some one who knows how to make excellent initial letters and tail-pieces. The first number of the *Chronicle of the 3rd London General Hospital, Wandsworth*, was published this month. Lieutenant-Colonel Bruce Porter, the officer in command, begins in it a history of the hospital, telling how it came into being. The number contains a considerable admixture of the humorous and possesses more than one artist of unusual ability. It is edited by Private Ward Muir, R.A.M.C.(T.), and while we do not wish it a long career, we hope it may never fall behind the promise of the first number.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Hyde Park Gate, London, W.*; telephone, 2531, (Gerrard). (2) FINANCIAL SECRETARY and BUSINESS MANAGER (Advertisements, etc.), *Articulate, Strand, London, W.*; telephone, 2530, (Gerrard). (3) MEDICAL SECRETARY, *Medicera, Strand, London, W.*; telephone, 2534, (Gerrard). The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

N. asks for advice in the treatment of a male patient who for eight years has suffered from leucoderma on the back of the hands and on the soles. The patient resides in India, and the spots disappear or fade so as to be hardly visible, when he goes to Europe.

THE PRICE OF BROMIDES.

W. P., M.D., asks: Can any of your readers say what is the best substitute for bromides? I am a parish doctor to a district of nine or 20,000 inhabitants, and as such I have at present seventeen epileptics who must have their full dose of bromide. Lately I have received a parish order to attend another very severe case who in the ordinary way would not have been granted an order at all; now one has been given because they say they cannot afford to buy the medicine at its present price.

WEIR'S VACCINATION INSTRUMENT.

VACCINA asks if any reader could inform him whether the instrument bearing the above name in dealers' lists was invented by Dr. Alexander McCook Weir (M.D., Queen's University, Ireland) of Nottingham, who wrote a work called *Vaccination Reform* in 1878. This book is mentioned under Dr. Weir's name in the *Medical Directory* of 1888, but our correspondent cannot find any review of it in the medical papers of the date when it was published, nor any note of it, or of the instrument in question, in the catalogue of the United States Surgeon-General's Library. If Dr. A. McC. Weir did not invent this instrument, which bears a lancet at one end and a scarifier consisting of four steel needle ends at the other, who was the Dr. Weir who invented it? Is it described, as well as figured, in any medical work? A sample of Weir's instrument is to be seen amongst Lord Lister's instruments now preserved in the museum of the College of Surgeons.

INCOME TAX.

Superannuation Allowances.

PALINURUS receives £65 superannuation allowance as a retired district medical officer. He inquires whether income tax would be paid by him at the "earned" or "unearned" rates.

The income is to be regarded as "earned"—*vide* Sec. 19 of the Finance Act, 1907—and should be assessed at the lower rate of duty provided "Palinurus" has complied with the statutory requirement to make a claim to that relief before September 30th. If no such claim has been made he is liable for the current year at the full—that is, "unearned"—rate of tax. If the total income of himself and wife should be less than £700 he can still claim to have the "abatement" of £70 to be set against the £65 assessed.

PHENOLPHTHALEIN COLOUR REACTION.

DR. C. DE R. (Guanaratinga, Brazil) asks for an explanation of the following colour reaction: A mixture of phenolphthalein and magnesia was ordered; when the chemist was triturating the two powders together they assumed a light pink colour, which became crimson when some drops of water were added.

* * * This colour is due to the formation of a small quantity of the magnesium salt of phenolphthalein. Although magnesia is only very slightly soluble, it is sufficiently so to interact with phenolphthalein when the two are triturated together, and the magnesium salt of phenolphthalein is red, as are its sodium and potassium salts. We have not heard that the salts of phenolphthalein differ in action from the substance itself.

ANSWERS.

PRESIDENT of a DISTRICT NURSING ASSOCIATION.—Measles must undoubtedly be classed as an infectious disease, and the infection can be carried by a nurse to other patients, but with reasonable precautions it is unlikely. Our correspondent would do well to obtain a copy of a report on district nursing in relation to measles and whooping-cough, presented to the meeting of the Central Council for District Nursing in London, as reported in the *JOURNAL* of July 24th, p. 156. (London: P. and S. King and Son, Limited. Price 3d.)

LETTERS, NOTES, ETC.

PARON'S *List of Schools and Tutors* (London: J. and J. Paton, 1915. Cr. 8vo, pp. 1107; illustrated, 2s.), now appearing for the eighteenth year in succession, is a book for parents. It gives particulars and pictures of many of the best English schools for boys and girls, with lists of the scholarships and exhibitions obtainable, and information as to the curriculums and fees. The book circulates in England, India, the Dominions and Colonies, so that it makes a wide appeal. The second half of the volume contains information as to the occupations and further educational studies that may be taken up by adolescents when schooling days are done—engineering, agriculture, the civil services, the medical profession, domestic science, music, and the like.

SHIP SURGEONS AND THE WEARING OF UNIFORM.

NAUTICUS writes: From the number of advertisements appearing in the *BRITISH MEDICAL JOURNAL* I gather that there is a serious difficulty in obtaining ship surgeons. One of the obstacles in the way of applicants is the wearing of uniform. I know several men who would like to take a voyage, but will not go to the expense of providing, or face the indignity of wearing, a uniform which places them in the same category as a purser or second engineer. The uniform is the distinguishing mark of the mercantile marine profession, to which the medical man does not belong. A surgeon on board is a person without any authoritative status; he is there to treat illness and give advice as to the health of the ship; therefore the uniform is meaningless beyond that of a badge of servitude to the company. Now that ship surgeons may charge fees for the treatment of passengers, thus bringing the relationship between them purely to that of doctor and patient, the wearing of uniform is all the more unnecessary. If shipping companies would abolish the rule, they would receive more applications, as most self-respecting practitioners would prefer to be regarded as the "doctor on board" rather than a member of the ship's crew. Conversely, if applicants would emphatically state their objection to wearing uniform, I feel sure that the companies would appreciate the point.

FOREIGN WINES AND TOBACCO.

DR. C. BARRIE TAYLOR (Manchester) writes: I appeal to the medical profession to support the Coalition Government in their endeavour to check the vast importation of foreign luxuries. Medical men can largely assist in the diminution of the consumption of foreign wines and tobacco by their patients. In the case of tobacco, it is well known, particularly amongst the working classes, that there is a considerable amount of nicotine poisoning from the use of cigarettes, and it is to be hoped that it should be diminished, and tobacco only allowed or prescribed in cases of pain and in a comparatively few other cases. Only this morning I had a patient in my consulting-room who smokes five packets of cigarettes a day, and he seemed glad to know that he would improve if this practice were discontinued. When wine or a stimulant is considered advisable I think most authorities will agree that a good old British whisky diluted with water or effervescent mineral water is equal if not superior to the foreign stimulant. British ales and stout are superior to the foreign production. Even brandy should be greatly diminished in its use. I have attended the recent debates in the House of Commons, and it was particularly impressed upon me that the increase of the tobacco duty by 50 per cent. was made in order to diminish the foreign imports. Some have the mistaken view or excuse that when they are purchasing tobacco they are helping the Government, but the latter is far better assisted by the non-purchase of the foreign article. We cannot have much influence in the cases of other luxuries, such as automobiles, cars, watches, musical instruments, hats, etc.—but we have with tobacco and foreign wines. Will the 25,000 medical men help the Government and the country to check the stream of gold that is flowing to the U.S.A., and so help the foreign exchanges in our favour, and at the same time benefit their patients?

GAS POISONING: A CORRECTION.

IN Dr. Aitchison's letter on gas poisoning, published in the *JOURNAL* for September 25th, after the word "overflowing" (p. 489, col. 1, line 6) add, "and then perhaps was obliged to open the chamber doors and empty it into the open air."

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

URETERAL CALCULUS: ITS SYMPTOMS AND TREATMENT.

WITH A FEW ILLUSTRATIVE CASES.

BY
DAVID NEWMAN, M.D., F.R.F.P.S.G.,
CONSULTING SURGEON, GLASGOW ROYAL INFIRMARY.

In the great majority of cases met with in practice, by means now at our disposal, little difficulty is experienced in discovering a stone in any part of the urinary tract, and in defining its size, shape, composition, and location. In some instances its presence may be detected by one method alone—by vaginal palpation (Case iv), by the cystoscope (Cases ii and iii), or by x rays (Cases v and vi); in others, and these are not few, on account of the absence of symptoms or physical signs, not one, but all our methods of investigation must be employed before a diagnosis is arrived at and the surgeon is placed in a position to advise for or against an operation.

The surgeon who has but a limited experience in renal work is often too readily convinced of the presence of stone. He is misled by what he believes to be clear evidence: he undertakes an operation: he exposes the kidney, opens the pelvis, and examines the ureter, but no stone is found. On the other hand, when the symptoms are atypical, a case of stone is liable to be mistaken for lumbago, appendicitis, perityphilitis, pleurisy, cystitis, lumbar abscess, or spinal disease. No one symptom or physical sign is free from fallacy.

At a time when the diagnosis of calculus in the ureter depended upon a consideration of symptoms, helped by a chemical and microscopic examination of the urine only, great difficulties and uncertainties presented themselves to the surgeon, but now, in almost all cases, with our modern physical methods of inquiry, the surgeon knows beforehand what he will require to do in operating.

Many other lesions of the urinary tract may present all the symptoms of calculus, so that when the surgeon had subjective phenomena as his guide, helped only by palpation and an examination of the urine, the cases were very rare where even an approximately correct diagnosis could be made, and he approached an operation with considerable solicitude, and his active intervention required some courage. The problem now is greatly simplified and the diagnosis reduced to a certainty. With the aid of x rays, the cystoscope, wax-tipped and metallic ureteral bougies, and palpation of the terminal portions of the ureters, exact information can be gained. But even with all these valuable physical aids, in a goodly number of cases patience and careful watching are necessary, and not one but frequent examinations may be required before a definite course of treatment can be determined.

Conversant with the recent advances both in scientific and practical urology, the surgeon knows how valuable all the physical corroborative evidence is in helping him to

gain a full knowledge of the lesion. It must, however, always be carefully borne in mind that the diagnosis of a case is not simply locating and understanding the nature of the local disease demanding the aid of the surgeon, but the possession of a full knowledge of the patient's general condition. The surgeon must be a physician, a physiologist, and a pathologist as well as an operator. The actual operation is the smallest part of his work. After knowing the patient and all about him the two problems to be solved are: (1) Are the symptoms due to a stone in the ureter, and, if so, where is it situated? (2) Is the function of the suspected kidney and its neighbour interfered with, and are there any secondary lesions?

These questions can only be answered by making a very complete examination involving the general clinical history (haematuria, pain, anuria), examination of the urine, palpation, cystoscopic inspection, ureteral catheterization, the use of wax-tipped bougies, and x-ray photography and the fluorescent screen. The symptoms depend upon whether the morbid processes involve one or both kidneys.

When one organ is free from disease, and a stone becomes embedded in the ureter of the other kidney, the phenomena are regulated by the amount of obstruction caused by the impacted body. If the plugging is complete the indications are generally acute but short in duration, and unless the obstruction is speedily relieved the corresponding kidney is rapidly destroyed. The blocking of the ureter is generally preceded by symptoms of stone in the corresponding kidney, renal colic on one side coincident with the presence of blood in the urine. The injury produced by an im-

acted calculus seldom causes much bleeding, but in some instances considerable haematuria may occur. The following case is an example of this, due to a stone impacted in the ureter at the point where it passes over the brim of the pelvis.

CASE I.—Renal Colic on Three Occasions from Impaction of Renal Calculus in the Left Ureter: Transitory Hydronephrosis and Haematuria.

A lady, aged 28, who had suffered from two attacks of acute renal colic, consulted me during the third onset of the pain. The patient was thin and the abdomen extremely lax. On palpating the left kidney the renal pelvis was found to be occupied by a hydronephrosis, and on passing the hand along the tract of the left ureter on deep pressure a very painful spot was discovered, just at the point where the ureter passes over the brim of the pelvis (Fig. 5). The distended ureter could be traced down to the same point, and an examination per vaginam in the elbow-knee position showed the lower segment of the left ureter to be normal; the bladder and orifices of the ureters were also healthy. After the calculus had been impacted for five hours relief was obtained and 16 oz. of blood-stained urine was passed, the colour being like dark port wine. When a week had elapsed after the onset of the last attack the left ureter was carefully massaged three times daily, and nine days after this treatment had been instituted a smooth uric acid calculus, the size of a lentil seed, dropped into the bladder.

Sometimes the loss of blood is considerable, and the blood

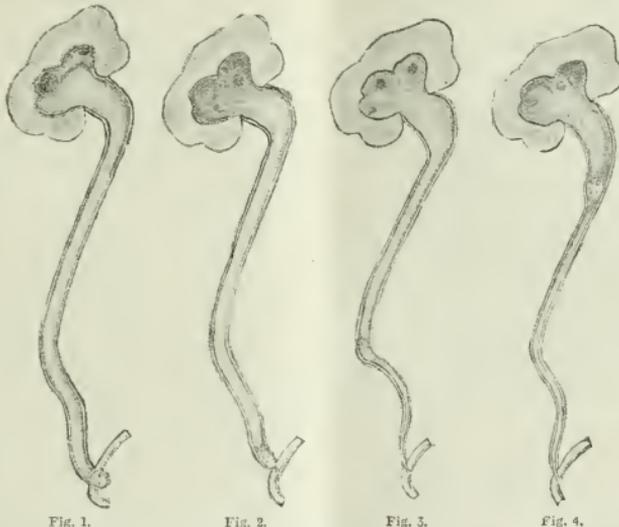


Fig. 1 shows distension of the renal pelvis and of the ureter throughout its whole course, from impaction of a calculus in the duct as it passes through the wall of the bladder. Fig. 2 shows the stone caught just outside the bladder; Fig. 3 at the brim of the bony pelvis, and Fig. 4 a little below the point where the renal pelvis contracts to form the ureter. The lumen of the ureter is smallest as the duct passes through the bladder wall.

comes away immediately after the relief from the acute colic (Case vi).

In other cases the quantity of blood present in the urine may be very small; this is generally so when the calculus is little and its surface smooth, and when it is impacted close to the orifice of the ureter. When the patient is suffering from an attack of renal colic there may be little or no blood in the urine, but if there is even a little it may be taken as evidence that the ureter is not completely obstructed by the stone, unless possibly the blood is escaping from the ureter of the unaffected side. When the attack passes off, either as a consequence of the escape, or from displacement of the calculus, a small quantity of blood is almost certain to be found in the urine if a careful watch is kept for it.

The dull and aching pain is for a time localized in the lumbar region only, but suddenly it shifts to the groin, and on pressure with the hand over the line of the ureter the suffering of the patient is markedly increased; at the same time it may be observed that the hæmaturia is suddenly stopped. Disappearance of blood from the urine coincident with sudden shifting of the locality and an increase in the severity of the pain are symptoms strongly in favour of the diagnosis of a stone fixed in and completely plugging the ureter. While the ureter on one side is blocked and no urine is being excreted by the corresponding kidney, the organ on the opposite side may be over-active and secreting a large quantity of urine of low specific gravity.

Figs. 1, 2, 3, and 4 show the ureter as seen when the stone is impacted in various parts of its course. In normal conditions the ureter is found to be narrowed in three places (1) at a point $1\frac{1}{2}$ to 2 in. below the pelvis of the kidney; (2) as it crosses the common iliac artery; and (3) just as it enters the wall of the bladder. These, consequently, are the points where a stone is liable to be delayed in its descent or impacted. Above the impacted stone the duct is dilated, elongated, and its walls are thickened. I have seen instances where the ureter had a lumen as large as the normal small intestine, and at the operation difficulty was experienced in recognizing it, until it was traced to the kidney.

The duct is always dilated on the proximal side of the obstructing body, so that at an examination the calculus may be readily pushed up from the spot where it has been impacted, and so may be found not always in the same place at different examinations by x rays or by the finger (Figs. 1, 2, 3, 4).

With calculus in the ureter alone the urine seldom gives any significant indications. Certainly the presence of blood may attract attention, but as a rule it is so small in amount that as a sign it is not of much value. Pain and suppression of urine are the important symptoms. The conditions other than calculus which may cause obstruction to the ureter are numerous.

Table showing the Causes of Acquired Hydronephrosis in 665 Cases (from Neuman: "Lectures on Surgical Diseases of the Kidney," p. 114).

	Hydronephrosis.	
	Double.	Singl.
Simple or malignant tumours of pelvic organs causing pressure on ureters	143	41
Stricture of the urethra, enlarged prostate with hypertrophy of the bladder	195	39
Tumours or abscesses of pelvic organs leading to torsion of the ureters	23	9
Tumours or abscesses of abdominal organs ...	17	7
Displacement of pelvic organs, causing torsion of ureters	23	20
Bands and adhesions	7	5
Renal calculi	17	51
Displacements of the kidney	1	16
Tuberculous disease of the bladder	13	17
Tumours of the bladder	3	7
Ureter entering pelvis	6	5
	448	217

One important distinction between the course of events in calculous obstruction and that due to pressure from

without is that while the latter is gradual and almost always produces considerable dilatation of the pelvis of the kidneys, the former is sudden, and on one side at least is unassociated with hydronephrosis. It is unnecessary to discuss in detail the points of distinction between pressure symptoms as induced by the diseases above enumerated and the obstruction produced by calculus.

As a general rule, the disease causing pressure upon the ureters is itself so prominent that it is not likely to escape observation. But while a lesion may be discovered in one of the pelvic organs which may reasonably account for the obstruction, the surgeon must not conclude that a ureter is not also impacted by a calculus. A very striking example of this came under the observation of the writer. A woman with a large uterine fibroid complained of symptoms resembling renal colic, followed by suppression of urine, which lasted on several occasions for more than twenty-four hours, after which came relief with the escape of a large quantity of urine of low specific gravity. The conclusion came to was that the hydronephrosis and anuria were due to pressure of the tumour upon the ureters, but after death a calculus was found impacted in the left ureter as it passed over the brim of the pelvis. The most important cases to distinguish from calculous obstruction are those in which the flow is impeded by kinking of the ureter, as in movable kidney, or where the impediment arises from angular insertion of the ureter. Transitory hydronephrosis is met with in cases where the ureter is occluded only occasionally. Sudden accumulation and rapid subsidence of the swelling is an important characteristic of transitory hydronephrosis produced in this way, and while on the affected side the pelvis is still filling and becoming more and more tense, on the healthy side there may be complete inhibition of the function of the kidney. But while anuria may last sometimes for days, it is hardly ever so prolonged as to endanger the life of the patient. Calculus of considerable size may be present in the ureter for many months without producing any symptoms, or the local symptoms may be referred entirely to the bladder or urethra, giving all the classical signs of stone in the bladder.

Calculi in one ureter causing complete occlusion, the other kidney being incompetent, leads very soon to complete suppression of urine. Before suppression occurs the patient experiences in the region of the affected kidney pain which may be limited to the lumbar region, or it may extend along the line of the ureters to the bladder or down the thighs. This may be associated with considerable vesical irritation and a desire to micturate, even although the bladder is empty or nearly so. The course of events that follows depend upon the nature of the obstruction and the degree to which the function of the kidney on the opposite side is impaired. Calculous anuria may last for many days without the development of symptoms of toxic poisoning, and if the kidney has previously been the site of hydronephrosis the period will be more prolonged than if the organ is not so affected. This delay in the development of so-called "uraemic symptoms" is the feature which distinguishes obstructive anuria from suppression of urine due to disease of the renal parenchyma; indeed, in calculous anuria death may occur without the occurrence of any of the ordinary symptoms of uraemic poisoning. The early appearance of symptoms of toxic poisoning in the anuria of organic disease of the kidney is explained by the circumstance that during a long period prior to the actual suppression of urine there has been a steady impairment to the elimination of waste products and a gradual storing up of toxins in the system, so that when the kidneys stop working the poisoned state of the circulation cannot be relieved sufficiently by the complementary action of other organs, such as the skin, the lungs, or the alimentary tract.

In a few instances the employment of all the special methods may be necessary; in other cases one may suffice. Such easily diagnosed cases are not met with every day; it is only with very good fortune that an observer can have easy success, consequently all methods which throw light on the diagnosis are of use.

Considered in order of their relative value, they are:

I. Radiography.

For the detection of stone x-ray photography was first used in 1896 by Dr. John Macintyre in the Glasgow Royal

Infirmity, when calculous matter was discovered in the pelvis of the kidney of a patient under the charge of Dr. James A. Adams. When first employed many difficulties had to be met: the thickness of the parietes, the chances of the stone being overshadowed by bone, and the movement of the kidney during respiration are all difficulties which have been overcome by improvement in technique. The subject was carefully worked out by Albaran, Ringel, Braatz, Wagner, and others at an early stage in the development of this method, and they showed that even with the most careful attention to detail the results from radiography were valuable only in exceptional cases, where probably the diagnosis could have been made without the aid of the rays.

This was the general opinion and experience regarding the value of the Roentgen rays in the diagnosis of urinary calculi to begin with, and for a number of years after their general introduction. Now this method of investigating the urinary tract has been wonderfully improved and has become indispensable to the urologist, but it must not be allowed to exclude other methods of investigation. The danger is that it may become a short cut to diagnosis, and so lead to serious errors.

It is now so perfect that even a small uric acid stone in the lower segment of the ureter can easily be discovered. This field of diagnosis has been extended by the use of stilettered ureteral catheters, and by the injection into the ureter and kidneys of certain metallic salts which throw a shadow, and maps out for us the position of the renal pelvis and the line of the duct.

There are certain points the surgeon requires to attend to, and others should be looked after by the skiagrapher.

The surgeon should see that the bowels are clear of any substance likely to throw a shadow, and for this purpose a mild aperient should be given on two successive nights prior to the examination, and the patient should have only light diet the day before, and should fast on the morning of the examination.

In searching for ureteral calculus we use both the fluorescent screen and the photographic plate. These methods have the advantage that they not only demonstrate the presence of stones, but they also afford valuable information as regards their number, position, shape, and size.

There are many dangers of obtaining shadows which are liable to be mistaken for those of stone, and we must admit that the difficulties of obtaining a shadow of calculi *in situ* in the kidney or ureter are due to many causes. It is by recognizing these difficulties that we have practically overcome them, and steadily the percentage of our failures have become less and now are very few indeed. In each individual case the tension of the rays and the length of the exposure must be carefully considered, and before the shadow photograph is taken, or, better still, while it is being taken, the penetrating power of the rays must be observed through the fluorescent screen. Before taking a photograph the position of the stone as seen by the screen should be marked by cross wires which come out in the radiograph. The wire can then be removed and the relationship of the stone to the cutaneous surface fixed by marking with ink.

Errors in diagnosis may be considered in two divisions: (1) Those in which the shadow is given, and believed to be due to stone, but the surgeon fails to find one, and (2) those in which a stone is removed by the surgeon, but no shadow betrayed its presence. The most common causes of false shadows are the presence in the abdomen or in its walls of substances with a high absorptive index, such as faecal accumulations, fruit stones, the presence of bismuth salts, enlarged and calcified glands, old purulent accumulations, gastritis, and phleboliths.

The most common and characteristic position for a stone is in the angular space formed by the eleventh rib and the spinal column. Very often the shadow of the stone is covered by the last rib. A clearly-defined shadow in this position is almost certainly due to calculus; it is when shadows are found in other regions that doubt arises. Those due to calculus may, of course, be found in any part of the urinary tract, and the more closely the situation of the shadow corresponds with the anatomical position of the pelvis of the kidney and the ureter the greater the suspicion of stone. It is therefore useful in doubtful cases to pass a soft metal bougie into the ureters and photograph

it along with the stone; but, on the other hand, a shadow well outside the line of the ureter may be caused by a calculus in a diverticulum (Cases VI and VII, Figs. 11 and 12).

The employment of boudies charged with metallic salts or injection of the pelvis and ureter with innocuous solutions of metallic salts furnish an additional shadow picture of the structures under examination, and afford valuable information in certain cases.

Ureter bougies made of fine-wire are easily introduced and are superior in many ways to others. They mould themselves easily to the duct. On account of contortion of the duct causing variation in the course of the ureter it is difficult to judge from a skiagram whether a shadow is in the course of the ureter unless the x-ray picture is taken with a bougie in the ureter. In operations on the ureter, or on organs in close proximity to it, it is important to determine the topography of the ureter throughout its entire course.

By injecting a warm solution of collargol (10 per cent.) or an emulsion of silver iodide in emulsion of quince seed (5 per cent.) into the pelvis of the kidney through a ureteral catheter the urinary tract can be silhouetted on the x-ray plate. Great care is required in using this method, and it is not always free from danger, as shown by Rorsing of Copenhagen, Geraghty and Zachrisolms. A very good review of this method is published by Lequeux, Papin, and Maingot.¹ As far as the diagnosis of stone in the ureter is concerned the ureter catheter fulfils all that is required. It is arrested by the stone and the radiogram shows the stone shadow at the tip of the bougie or in close relationship to it, whereas if the shadow is away from the line of the bougie the shadow is either caused by the stone being in a sac (Cases VI and VII and Figs. 11 and 12), or it is thrown by a foreign body outside the urinary tract.

An x-ray plate should be marked clearly with the patient's name, the date, and the *right* and *left* sides should be shown by L and R. This may seem a very elementary instruction, but it is an important one, and failure to carry it out gives rise to endless trouble. To avoid all possible error, metal letters R and L should be fixed to the patient's skin. The edge of the psoas muscle and the lower poles of both kidneys should be seen unless the liver is unusually dense or enlarged. The bones should be distinctly outlined, particularly the transverse processes of the lumbar vertebrae. A large plate should be taken showing the whole region of the urinary tract, and, if a shadow is seen anywhere, a smaller plate should be used to bring out detail.

II. *Sounding of the Ureters and the Use of Wax-tipped Boudies.*

In cases of stone impacted at the lower end of the ureter the ureteral catheter may fail to pass more than a short distance into the duct, but on introducing a ureteral resonator the sound of the metal coming in contact with the stone can be detected by the ear, as well as by the hand, of the observer. The instrument consists of a probe which is fixed in a small flat handle and prolonged into a hollow brass globe or resonator. One end of an india rubber tube is fixed to the proximal end of the resonator; to the other end of the tube is fixed a wooden ear tube, made to fit the external auditory meatus of the observer. The probe is introduced into the ureter, and when an obstruction is met with the ear tube is fixed in position and the instrument is rotated slightly. If a calculus is present the sound produced by the probe grating upon it is easily heard.²

A method proposed by Kelly is to introduce a ureter catheter or sound coated with wax. When the smooth wax coating comes in contact with the rough stone its surface is scratched, and this, when carefully carried out, gives not only corroborative evidence of the presence of a calculus, but the distance of the stone from the urethral orifice can be measured. While this method may be employed with advantage in women through Kelly's speculum, it is not so easily employed when direct illumination cystoscopes are used. When the waxed catheter has to be introduced through the shaft of the cystoscope scratch marks may be made by the catheter canals, and consequently lead to erroneous conclusions. Kelly, in

¹ Made for the writer by Messrs. J. Gardner and Son, surgical instrument makers, Edinburgh.

referring to his own method, says: "There are three sources of error which must be borne in mind in order that they may be avoided. In the first place, the contact of the wax with the side of the speculum may produce a facet. This should never be taken for a scratch, and the wax need not touch the edge of the speculum if the catheter is introduced with a steady hand and the inner rim of the speculum utilized as a fulcrum. In the second place, the catheter should be introduced into the ureteral orifice with one direct forward movement; any to-and-fro movement near the vesical rim of the speculum is liable to produce scratches. In the third place, when withdrawing the catheter, the speculum having been already removed, the vulva must be held open, so that there is no contact with the genital hairs."

This method was employed with advantage prior to the introduction of x-rays and even for a number of years thereafter, but now that the technique of skiagraphy is so thoroughly understood it is seldom used. All stones are discovered by the experienced skiagrapher.

Sounding the ureters also only marks an advance in physical diagnosis, but is a method I have not resorted to for many years.

III. The Cystoscope.

The cystoscope may prove the existence of complete obstruction to the ureter by the fact that, even although the mouth is patent and the duct admits a catheter, no

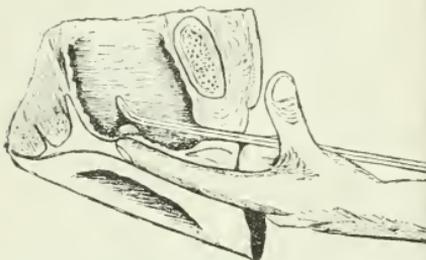


Fig. 5.—A sound in the bladder and the left index finger in the vagina, as seen when the stone is in the ureter outside the bladder wall.

CASE III.—*Repeated Attacks of Renal Colic from Ureteral Calculus, which ultimately became impacted in Orifice of Left Ureter and was clearly seen by Cystoscope; Removed by Suprapubic Route: Cure.*

A lady, aged 31 years, was suddenly and without any warning seized with a severe pain in the left lumbar region associated with suppression of urine, on November 10th, 1907. After twelve hours of agony the pain gradually passed off, and almost immediately she passed a few ounces of dark-coloured urine, but as no medical attendance was sought at the time it is not known that the coloration was due to *bi-ox.* She enjoyed good health for over four months, when a second attack seized her, and I was asked to see the patient six hours after the onset of the pain, which had all the characteristics of renal colic. The attack lasted for eight hours but recurred the following day. A cystoscopic examination was made, when the bladder was found to be practically normal, but from the orifice of the left ureter the point of a phosphatic stone protruded, and by palpation through the vagina the stone was made out to be the shape of a horse bean but about one-half larger. It was removed by a suprapubic operation.

IV. Abdominal Palpation and Palpation through the Vagina or Rectum.

By palpation through the abdominal parietes much information may be gained when the stone is situated above the brim of the pelvis, provided the walls are flaccid and the patient thin; but when the muscles are rigid, which is often the case, or the patient is corpulent, the detection of a stone in the upper part of the ureter is almost impossible. Pressure with the hand, however,

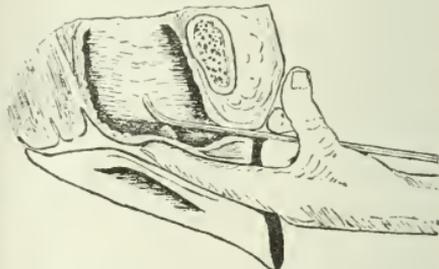


Fig. 6.—When the stone is simply covered with mucous membrane of the bladder.

fluid escapes. This is most accurately observed after a hypodermic injection of indigo-carminé or of aniline blue and the patient has taken a full drink of warm fluid. Coloured shoots are seen escaping from the patent ureter only.

When a stone is situated close to the orifice of the ureter it may appear in the bladder as a distinct projection of the mucous membrane, or it may protrude through the mouth of the ureter, exposing its surface.²

In some instances the calculus may pass along the ureter through the muscular portion of the bladder wall, and become gripped only by the mucous membrane at the orifice of the ureter, so in place of passing through into the cavity of the bladder, the calculus, by obstructing the flow of urine, leads to the mucous membrane being pushed away from the muscular portion of the bladder, and a rounded tumour-like mass presents itself in the bladder which may be mistaken for a tumour (Fig. 6).

From a number of cases two may be selected where I was fortunate in diagnosing the presence of a stone impacted at the orifice of the ureter by a cystoscopic examination only:

CASE II.—*Renal Calculus Impacted at Orifice of Ureter and pushing Mucous Membrane in front of it; Calculus Movable; Removed by Ilio-inguinal Operation.*

At the first examination the stone itself was not visible, being covered by the mucous membrane of the bladder, but the appearances were so exactly a replica of a view I got in a previous case³ that I felt satisfied that I had to deal with a modernized calculus included in the mucous membrane of the bladder; and after I had expressed my opinion to Dr. J. Souttar McKendrick, who sent the patient to me, he told me that he had an x-ray plate taken, and a shadow was found in the situation I had indicated (Figs. 1 and 6). The calculus was movable, and was removed easily by the ilio-inguinal route.

generally elicits tenderness in the locality of the stone, or may even induce acute pain.

When the calculus has passed to the lower third of the ureter, examination with the finger in the rectum or in the vagina, according to the sex, may lead to the detection of the stone and the exact situation occupied by it. A sound should be passed into the bladder, and, with the left index finger in the vagina or rectum, the back of the instrument is made to press upon the line of the ureters and their orifices (Figs. 5 and 6).

Simply by digital examination a stone may be found, as illustrated in Case IV. By palpating the vagina or rectum the surgeon can, by pressing the point of the finger backwards against the pelvic wall, make out a hard body. During the examination the patient usually complains of pain and irritation of the bladder, with a desire to micturate.

CASE IV.—*Old History of Renal Colic from Calculus at Lower End of Ureter, the Movement of which was Limited; Removed by Ilio-inguinal Route; Ureter not Sutured; Good Recovery.*

Recently I was asked to see a lady who had suffered from symptoms of ureteral calculus for several years. Her husband, a doctor, suspected a stone, and on digital examination I found a hard body impacted just behind the cervix and a little to the left, which slipped upwards on pressure against the sacrum. I felt sure it was a stone, and the diagnosis was confirmed by a cystoscopic examination, the calculus causing a bulging at the orifice of the ureter (Fig. 1). On exploration the stone was found at the lower end of the ureter, but while movable it could not be pressed up more than 2 in. from the ureter orifice, and therefore could not be brought into view through the ilio-inguinal incision. I had therefore to make the incision through the ureter wall by touch, and press out the stone through the opening, and as no sutures could be applied, the wound was packed with gauze. The lumen of the ureter being large the uretro-

drained freely into the bladder, and the gauze packing was almost dry when removed on the fourth day. Uninterrupted recovery.

REFERENCES.

¹ *Exploration radiographique de l'appareil urinaire*, Paris, 1913.
² *Newman*, BRITISH MEDICAL JOURNAL, April 10th, 1900, and March 24th and 31st, 1906. ³ *Newman*: Calculi impacted in Ureters, *Lancet*, April 21st, 1900, Case III.

(To be continued.)

REMOVAL OF A BULLET FROM THE RIGHT VENTRICLE OF THE HEART UNDER LOCAL ANAESTHESIA.

REPORTED BY

LIEUTENANT L. H. C. BIRKBECK, R.A.M.C.(T.C.),

AND

LIEUTENANT G. N. LORIMER, R.A.M.C.(T.C.).

With Remarks by

COLONEL H. M. W. GRAY, A.M.S.(T.C.),

CONSULTING SURGEON TO THE BRITISH EXPEDITIONARY FORCE, FRANCE.

PRIVATE A. was admitted to a general hospital on July 19th, 1915, having been wounded eight days previously. The bullet had passed through and killed a man in front of him. A. was knocked down, but did not lose consciousness, and had not had any discomfort other than slight pain from the wound. There was a small dirty wound ($\frac{1}{2}$ in. diameter) just below and to the right of the xiphi-sternal junction, and also a painful swelling of the right parotid gland, which disappeared next day. The patient showed no other symptoms during the first few days. He was kept in bed. The heart appeared to be normal and regular. The pulse varied between 80 and 90. The evening temperatures rose to 100° to 101° F.

X-ray Report by CAPTAIN S. F. McDONALD, R.A.M.C.

July 21st, 1915.

"There was an entry wound in the right epigastrium, but on examination no shadow could be seen in the abdomen.

"The lungs and pleural cavities were normal. The diaphragm moved well and evenly on both sides. The heart was normally situated, but there was some slight increase of cardiac shadow on the right side. In the lower portion of the heart shadow was a very sharply defined dark shadow moving with the heart, and also apparently laterally in relation to the heart. This last movement suggested that the object was free in the pericardial cavity, but on turning the patient over it was seen to lie quite definitely in the substance of the heart. It had a distinct rocking movement. No antero-posterior movement was visible in relation to the heart.

"The object seemed to be in, or close to, the lowest portion of the wall of the right ventricle. Its shape and size, so far as could be made out, were those of a rifle bullet. Attempts to take radiograms were unsuccessful."

Colonel Gray, consulting surgeon, saw the patient first on July 25th, and again on July 26th, on which day a sharp pain developed suddenly in the left leg. As the pulse during the night of July 26th had shown some irregularity, rate 65 to 95, and the heart had occasionally dropped beats, an operation was decided on and performed on the morning of July 27th. Veronal, gr. v, was given on the evening before, and three doses of morphine, amounting in all to $\frac{3}{4}$ gr., during the morning before operation. The patient was not unduly under the influence of morphine. He was screened again just before the operation and conversed, sat up, and turned himself smartly when asked to do so.

Operation.

Under local anaesthesia (eucaine 1 per cent., potassium sulphate $\frac{1}{4}$ per cent., and adrenalin) Colonel Gray made a wide horseshoe-shaped incision, convexity upwards, extending along the sixth costal cartilage on each side and across the sternum at the level of the attachment of the fifth cartilage. This incision was used so as to make an

exposure of the track of the bullet in the depth. The perichondrium was separated from the left sixth cartilage, which was cut across at the costo-chondral junction and used as a lever to elevate the sternum while the triangularis sterni, pericardium, etc., were being separated off the posterior aspect of the flap. A small portion of the right sixth rib was removed close to the costo-chondral junction. The sternum, at the lower border of the fifth costal cartilages, was grooved deeply with a gouge and divided with bone forceps. The soft parts were then separated from the sternum and ribs so that the flap could be turned downwards and forwards. When the flap was pulled forwards a hole about an inch long appeared in the pleura on the right side, in the track of the bullet. The right lung collapsed. The respirations became laboured and quick, the patient coughed jerkily; he became anxious and complained that he was breathless. The colour remained good, and he settled down in about one minute, after being reassured by the surgeon. Except for this disturbance there was apparently no discomfort during the entire operation.

The flap was held forward by hooks, and the pericardium opened obliquely from the base to near the apex of the heart. About a drachm of slightly bloodstained fluid was noticed in the pericardial cavity. The heart looked normal. No wound could be seen. On digital exploration the bullet was felt to be lying, apparently fixed, at the back of the heart, either in the wall or cavity of the right ventricle. The point of the bullet was near the apex of the ventricle. During the manipulations the heart was noticed to miss a beat occasionally—when touched at the upper and back part of the interventricular septum.

The right ventricle was seized with a pair of catch forceps near the apex. When it was seen that this caused no disturbance a suture was passed through the muscle adjacent, and by these the heart was held forward. This in no way agitated the patient. On further exploration the bullet was definitely located by probing with a needle, and was thought to be fixed in the right ventricle near the posterior coronary vessels. After manipulation, the bullet was felt to change position and to be free inside the ventricle. It was worked away as far as possible from the coronary vessels and grasped between the thumb and finger. Two stitches were inserted into the muscle wall over the bullet. The wall of the ventricle was incised for half an inch, and the bullet removed with forceps. While the wall of the ventricle was still being held firmly between the finger and thumb the stitches were tied.

On removing the catch forceps there was brisk bleeding, which was stopped quickly by an under-running stitch. The pericardial cavity was wiped free of blood-clot and was filled with normal saline to expel the air; it was then sewn up. The right pleural cavity was next filled with saline and the injured pleura sewn up. While the wound was being closed the chest was aspirated to remove the saline. This aspiration was the only part of the operation which seemed to cause the patient any pain.

The patient was wonderfully comfortable on being taken back to bed, but about four hours after the operation the respirations rose suddenly to 48 a minute, and remained at about that level till he died, except for part of the day of July 29th and 30th, when, the patient being deeply under the influence of morphine, they dropped to 28 a minute.

He was much troubled after this occurred by mucus collecting in large quantity in the throat and the upper part of the trachea. Various remedies were tried for this, with little avail. He took nourishment fairly well. Cardiac stimulants were used after the first two days.

On July 29th his mind began to wander, and he was often delirious till the time of his death on July 31st. He lived nearly four and a half days after the operation.

There was never any indication that the operation on the heart had interfered with its action, which, though quick (average 120 to 130), was wonderfully strong up to within a few hours of his death. No dropping of beats was noticed after the operation.

Necropsy.

At the post-mortem examination it was found that the external wound had healed well; there was no sign of any

inflammation. There was no fluid exudation of either blood or pus in the pericardial cavity, but the heart was covered by a shaggy layer of lymph about one-sixth of an inch thick. The wounds in the heart had healed perfectly.

There were several shredly, *ante-mortem* clots entangled in the chordae tendineae of the right ventricle and a long narrow clot in the pulmonary artery extending into its right branch, besides the usual *post-mortem* clotting. There was an abrasion of the endocardium of the posterior wall of the right ventricle where the bullet had been lying, but the cavity looked normal otherwise. No wound of entrance was discovered. The heart was sent to the Royal College of Surgeons of England for further investigation.

There were several small clots in the branches of the pulmonary artery with corresponding infarct areas in the lungs. The right lung had expanded to about two-thirds the size of the left. There were about two pints of blood-stained serous fluid in the right pleural cavity.

The cause of death was judged to be multiple pulmonary infarction from clots derived from the right ventricle.

REMARKS BY COLONEL H. M. W. GRAY.

I should like to add to the notes of Lieutenant Birkbeck and Lieutenant Lorimer that the irregularity of the pulse-rate (65 to 95) without extraneous cause, the occasional dropping of a beat, and the sudden pain and swelling in the right parotid and left leg (due possibly to small emboli) made me decide to operate. The patient was otherwise extraordinarily well, and showed no distress whatever. One did not care to risk postponing operation till the patient could be transferred to England.

The method of using the local anaesthetic was by infiltration of the line of incision and blocking of the intercostal nerves on each side from the fourth to the seventh. No anaesthetic was injected into or around the pericardium or pleura.

Interesting points about the operation are:

1. The complete success of the local anaesthetic. So far as I can gather, this is the first occasion on which any operation on the exposed heart has been done with local anaesthesia alone. The patient was not deeply under the influence of morphia. He responded to questions, requests, or suggestion at once.

2. The evanescent nature of the distress when the right lung collapsed.

3. The absolute absence of sensation of the pericardium, both parietal and visceral, and of the heart itself, to squeezing, pulling, pricking, cutting, or suturing. These manipulations caused, apparently, no interference with the cardiac action. During the extraction of the bullet at least one half of the right ventricle was firmly grasped between the fingers and thumb. The heart missed a beat repeatedly whenever the upper and back part of the interventricular septum was pressed, but began to beat again at once when this pressure was removed. I could not assure myself that the ventricles alone were implicated. The patient denied having any discomfort during these times, or indeed at any time during the operation, except when the right lung collapsed, and when the aspirating needle was being introduced into his chest, when he complained loudly of pain. Even swabbing out the pericardial cavity caused no pain. All these observations are very interesting when one thinks of the effect of similar manipulations of either bowel or parietal peritoneum.

4. There was a little difficulty in being certain of the position of the bullet, owing to its proximity to the interventricular septum, which, when contracted, gave a similar sensation on palpation. Therefore, a straight needle was used to locate the bullet definitely.

5. The method used to obtain rapid distension of the lung at the end of the operation—in the absence of a positive pressure apparatus. On account of commencing respiratory distress, aspiration was stopped after about 25 ounces of the saline solution were removed. It was thought that the remainder would be rapidly absorbed.

6. The possibilities of future successful operations for intracardiac conditions which are conjured up by the virtual success of this one. I understand that a French surgeon recently removed, with permanent success, a rifle bullet which had lain in the right ventricle for five months. Unfortunately, I cannot meantime give a reference to the account of his operation.

OBSERVATIONS ON THE DRAINAGE OF GUNSHOT WOUNDS.

By C. MAX PAGE, M.S., F.R.C.S.,
CAPTAIN R.A.M.C. (S.R.).

ONE of the prominent features of the surgery of the present war has been the necessity for the use of some form of drainage in a large proportion of the wounds met with.

It must at once be admitted that the practice is an undesirable one. Any drain inserted into the tissues has the irritant effect of a foreign body, and in the cases in point, an infective one. However, no means has yet been devised by which the evacuation of discharges and the prevention of the spread of infection can otherwise be secured. This being so, till the ideal method of treatment comes to light, one must employ the type of drain which most efficiently serves its purpose.

In civil practice, when drainage is necessary, standard rubber tubing has been commonly adopted, and in general the same material has been applied in the treatment of gunshot wounds. In this latter work I do not think that simple rubber tubes, either perforated or split, have proved entirely satisfactory, and I propose to describe a type of drain which, when it is a question of maintaining of wound track open in its whole extent, appears to have certain advantages over these.

It is difficult to form a judgement of such an appliance, as the standard of effectiveness does not admit of exact measurement. I will therefore merely attempt to present the reasons which suggested its design.

PRINCIPLES CONTROLLING WOUND DRAINAGE.

The first action of any drain is to prevent obliteration of the cavity by adhesion or apposition of its walls. The introduction of any foreign body effects this purpose, and it is the second action—namely, the evacuation of discharges from the wound track—which determines the surgical value of any particular pattern.

Supposing that no outside hydrostatic or pneumatic force be brought to bear, the movement of wound discharges is effected by two forces—namely, gravity and capillary tension.

1. *Gravity*.—The action and value of gravity in wound drainage is so well accepted that it need not be enlarged upon here.

2. *Capillary tension* is the only force effecting drainage in the reverse direction. Its activity is directly proportionate to the capillary surface in action, and is affected by the viscosity of the fluids in question. The coefficient of capillarity is higher for water than for any other fluid; it becomes lower in proportion to the albuminous material added.

The condition and nature of the surface dressing also controls the movement of fluids in the subjacent wound—thus, when the dressing is completely saturated, no further movement of fluid along the capillary column abutting upon the dressing will occur.

The value of the above forces will vary in respect of different kinds of wound; three main types may be recognized, namely:

1. A cavity—for example, an empyema or a definitely localized abscess.

2. A potential cavity—for example, the track of the wound caused by a missile which has lodged.

3. A potential tubular space—for example, the track formed by the passage of a missile through the substance of a limb.

The method by which drainage is effected in these three types may now be considered.

1. A Cavity.

In the case of a cavity the volume of fluid to be removed will be relatively large, and the drainage of the track about the surface will be usually of little importance. In these circumstances a simple tube placed so as to reach the inner surface of the cavity will, if acting in the direction of gravity, give ideal results.

2. A Potential Cavity.

In the case of a blind track there may be a foreign body or dead material at the end which cannot be completely

removed, and, as far as the drainage of this part is concerned, the above considerations hold good. Drainage of the track, however, is also probably necessary, and the observations made below on the third type of wound will then apply.

3. A Potential Tubular Space.

The track formed by the passage of a missile will contain blood clots and debris; the collapse of its walls will in most cases obliterate the cavity. The injury will have opened up a series of connective tissue planes, and the aim of drainage is to prevent the spread of infection along them. As the exact position of the openings of these planes cannot be determined, the ideal drain should evacuate discharges from the entire inner surface of the wound track. Thus a simple tube lying in the track will permit discharge in the capillary space between its outer surface and that of the wound track; but when, as rapidly occurs, this space becomes clogged by clots or by the viscosity of the discharge, the movement will cease. In this instance the action of gravity is acting at a disadvantage in the small capillary space.

If a rubber tube with side holes be used, its action will not be very different. The perforations are rapidly filled in with granulations and intruded tissue. The discharge which there may be in the direction of gravity from the lumen of the tube will come from these buds of half-strangulated tissue, and satisfactory drainage from the connective tissue planes is impossible. The same observation holds in relation to a perforated metal or glass tube.

A gauze wick acts ideally for a time, but it becomes so rapidly saturated and put out of action that it is of no value in practice.

In general it will be admitted that drainage is rapidly inhibited in all wound tracks, whether a drain is inserted or not, either by the clotting of the discharges or by the obstructive action of the surrounding tissues.

The aim must therefore be to overcome this tendency to stagnation. The hypertonic saline advocated by Sir A. Wright induces a fluid discharge which does not clot. Its use, therefore, facilitates as well as increases wound discharge. But to obtain the best results this solution must be brought into contact with the entire surface of the wound, either by continuous irrigation or by frequently repeated lavage.

The above-mentioned types of drainage tube do not allow this purpose to be fully effected, but I think the form I describe below fulfils this requirement, and also increases the capillary drainage surface in action.

THE GUTTER DRAIN.

The tube should be made of rubber. In section it is star or pinion shaped (Fig. 1). The outside diameter should be the same as that of full-sized ordinary drainage tube.

For certain cases the drain should be provided with a central lumen (Fig. 2). The tube is passed through the entire length of the wound track; the upper projecting extremity is capped by a piece of thin rubber tubing (shown in Fig. 2)—for example, a cut rubber glove finger—which extends just into the entry of the wound.



Fig. 1.



Fig. 2.

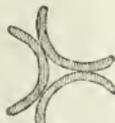


Fig. 3.

Fig. 1.—Section of gutter drain. Natural size.
Fig. 2.—Section of gutter drain with a central lumen. The section also shows the cap. Natural size.
Fig. 3.—Gutter drain externalized from sections of ordinary rubber tubing sewn together centrally. The cap is not shown. Natural size.

It will be seen that, as a result, a series of gutters lying against the wound surface extend the length of the track. When fluid is syringed into the cap, it passes down each gutter, so as to bring the solution into contact with practically the whole wound surface, at the same time clearing away from the same area all debris. After lavage, the maximum capillary surface in proportion to the size of the drain is in action. When this type of tube is employed

for blind wounds (Type 2), the provision of a central lumen (Fig. 2) allows the fluid to be syringed to the bottom of the track, whence it will return along the various gutters.

Theoretically, it might be expected that this drain would give good results with continuous irrigation, but in practice relatively forceful periodical washing out of the gutters has proved more satisfactory.

It has not been possible to obtain drains quite in the form depicted, but I have for some months used a substitute made from ordinary rubber tubing. The tube is halved longitudinally; three lengths are then lightly sewn together to form the drain. It is capped as described above.

The appearance of a section is shown in Fig. 3. As stated above, whatever drain is put in the tissues the reactionary tissue formation round it soon leaves only a capillary space between wound surface and drain; for this reason, if it is necessary to leave the drain in place for more than a few days, and, in addition to lavage, periodical movement of the drain of the gutter type is desirable.

Conclusion.

In conclusion, it should be repeated that the above drain has only been used in its extemporized form. It is not suggested that it affords an ideal method of wound treatment, but in two respects it appears to be an improvement on the patterns in common use—namely:

1. The drain forms with the surface of the wound track, in proportion to its diameter, the maximum capillary space, along which the evacuation of fluids can occur.
2. It admits of lotions being brought into general contact with the surface of the wound track while the drain is in place.

REFERENCE.

1. Magnus, *Hydrostatics and Pneumatics*, p. 89, 1909.

THE RECRUIT'S HEART.

A MEMORANDUM FOR MEDICAL EXAMINERS.

BY

SIR JAMES MACKENZIE, M.D., F.R.S.,

LECTURER ON CARDIAC RESEARCH AT THE LONDON HOSPITAL.

SINCE the outbreak of the war I have seen a large number of healthy young men rejected as recruits because of some manifestation of the heart which the examiner took to be abnormal and a sign of weakness. I have also seen a number who have been invalided out of the army because of these manifestations.

At the request of the War Office I drew up recently a memorandum upon this subject to serve as a guide to medical examiners of recruits, and as this memorandum may not come before all the examiners, Sir Alfred Keogh has asked me to call attention to it. It is as follows:

THE SIGNIFICANCE OF ABNORMAL SIGNS IN THE RECRUIT'S HEART.

It should be understood that the healthy heart in the young can exhibit murmurs, and variations in rate and rhythm, which are perfectly physiological in origin and indicative neither of disease nor of impairment.

The Functional Efficiency of the Heart.

Before examining the heart, find out the functional efficiency by ascertaining how it responds to effort. This is shown by finding out the amount of exertion the candidate has been accustomed to take in the past in his work or play, and if he can undergo severe bodily exertion without distress.

Murmurs.

The physiological murmurs are always systolic in time, and the situation of the greatest intensity may be at the apex, mid-sternum, or base of the heart. If the candidate's response to effort be normal, and the heart normal in size, the murmur is negligible, for it is manifest that, if the cause which produces the murmur hampers or embarrasses the heart in its work, the size of the embarrassed chamber will increase, and its functional efficiency be impaired.

Irregularities of the Heart.

There are only two forms of irregularity that need be considered. Irregularities indicating serious mischief will be associated with such diminution of the functional efficiency that the candidate would not seek to recruit—such as the irregularity of auricular fibrillation or of heart-block.

Youthful Type of Irregularity.

The most common irregularity is that which occurs in the healthy heart of the young. It is characterized by a lengthening and shortening of the pauses between the beats; it will often be found to vary with the respiration, the beat increasing in rate during inspiration and decreasing during expiration. When it does not have the characteristic respiratory character it can be made to take on the character by getting the candidate to breathe slowly and deeply for a few minutes. It is frequent in perfectly healthy hearts, and is therefore of no importance, and candidates should not be rejected on account of its presence.

Extra-systoles.

In rare cases the pulse may be found intermitting more or less frequently. If the heart be auscultated, two short sharp sounds rapidly following one on the other may be heard during the pause. If this is the only sign present—that is, if the functional efficiency of the heart be good and the size normal—then these extra-systoles are of no significance and the candidate should not be rejected.

The Effects of Excitement.

Many candidates whose hearts are perfectly healthy suffer from palpitation or excited action of the heart during examination. The beat becomes forcible and rapid and a systolic murmur may be present. If such a candidate be told to lie down and breathe slowly and deeply for a few minutes the heart's action becomes less violent and the rate slows during expiration. With a history of good functional efficiency the candidate may be considered suitable for enlistment.

Memorandum

ON

THE EMPLOYMENT OF BANDAGES FOR THE IRRIGATION OF WOUND-SURFACES WITH THERAPEUTIC SOLUTIONS, AND THE DRAINING OF WOUNDS.By COLONEL SIR ALMROTH E. WRIGHT, M.D.,
F.R.S., C.B.,

A CONSULTANT PHYSICIAN TO THE EXPEDITIONARY FORCE IN FRANCE.

THE irrigation of wounds has over the application of wet dressings the following advantages.

We can bring our therapeutic solution continuously into application, maintaining its concentration unaltered. I have elsewhere, in my lecture, emphasized that this is, in treatment with saline solutions, of fundamental importance.

We can, given proper arrangements, apply our therapeutic agent to all the internal and external surfaces of the wound, and at the same time obtain ideally effective drainage.

I propose in this Memorandum to describe a series of simple arrangements which, I think, satisfy all requirements.

In the ordinary arrangement in which the irrigating fluid is supplied in the form of a "drip" falling into the wound—and it is the funnel-shaped wound I have in view—the fluid makes its way down along the side of the wound in a runnel, and we thus treat only one small sector of the wound. We have, in fact, the conditions of a rock valley or cave, where a thread of water flows to the bottom in a single channel, leaving all the rest dry.

Let me show you that by an arrangement of bandages the water can be led into the wound where we require it, that it can be distributed so as to wash down all the walls,

and that it can then be carried away without any leakage into the bed.

It will be convenient to begin by considering the properties of bandages and strips of gauze as conduits for carrying water. They may be regarded as conduit pipes

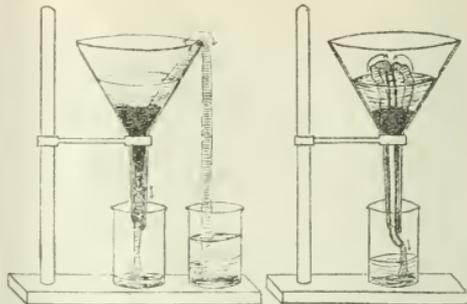


Fig. 1.

Fig. 2.

with porous walls—pipes which will convey water uphill by capillary attraction, downhill by gravity, and first up and then down hill when arranged as siphons.

We may, as a matter of fact, confine our consideration to bandages, for the ordinary bandage is, as comparative experiments bring out, a more effective water carrier than a strip of gauze cut to the same width.

The first point which comes up in connexion with the employment of bandages in supporting wounds is their liability to be obstructed by the lodgment of particles in the meshes. The method which is employed when the dependent opening of a wound is plugged with a strip of gauze would seem specially designed for the purpose of compassing such obstruction. Here gravity carries the undiluted pus directly down into the wick, and we obtain instead of a drain an impermeable bung which effectually confines the discharges.

The arrangements shown in the models (Figs. 1 and 2) show how these difficulties can be circumvented and the wick be kept free from obstruction. We have in these—we may call them "mud-funnel" experiments—funnels filled in with a glutinous mixture of flour and water and in each case a bandage arranged as a siphon. In the first model (Fig. 1) the siphon is a simple loop of bandage carried over the rim of the funnel. In this model a wick carried up into the stalk of the funnel. In the second model (Fig. 2) we have a rubber tube introduced through the stalk of the funnel and standing out above the surface of the fluid. This rubber tube is threaded with a bandage, and its end has been cut into two strips which hang down into the muddy fluid. The siphons are here, as you will appreciate, working in what would correspond to wounds standing full of pus, and they have, as you see, in each case carried over a very considerable volume of muddy fluid. And if they were continually refilled they would—for only the distal ends of the ascending limbs of the siphon bandages can here be obstructed and put out of functioning—continue to siphon over indefinitely through the upper segment of each ascending limb. You will also note that the wick in Model

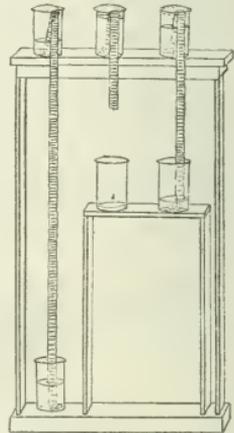


Fig. 3.

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No. 1 has become obstructed and has carried out only very little fluid. Finally, in connexion with Model No. 2, I would like, in passing, to call your attention to the principle that we can always, as occasion may require, reinforce the one or the other limb of the siphon; and that in this model we have in the two strands of bandage which compose the ascending limb of the siphon two streams of fluid which are tributary to the descending stream.

I pass on to certain further points having also a general application. You will appreciate that though water will, when it has a clear fall, run down a bandage without leakage, it will, as soon as contact is made with any surface, flow away over that surface. Again, it will leak out at any point when we constrict the bandage, or at any point where we loop up the bandage. For water refuses to run quickly uphill.

To prevent trouble from these sources we must, where our irrigating fluid has to be carried through obstructions

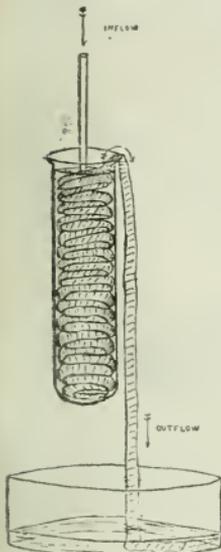


Fig. 4.

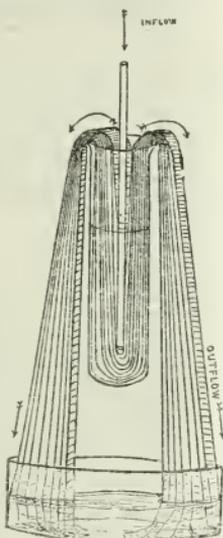


Fig. 5.

in the wound, or uphill, substitute rubber tubing for bandage. If, however, we have to resort to a siphon arrangement for drawing off our irrigating fluid from the reservoir, it will be of advantage to thread a bandage into the ascending limb of the siphon, and to carry it sufficiently far in to pass down some little way into the descending limb. It will also be advisable to leave in position the wire which we have used for threading in the bandage, and to bend it round into the form of a narrow U, so as to prevent the end of the rubber tube kicking itself out of the water. The great advantage we get from the use of a wick in our delivery tube is that we cut down the delivery from what the rubber tube would carry (which would be excessive) to what the wick will carry (which will be amply sufficient). Moreover, the siphon, when furnished with a wick, will start itself automatically, and also restart itself when the reservoir comes to be refilled.

I pass on to consider the factors upon which the efficacy of bandage siphons depends. The volume of fluid delivered is determined (a) by the height to be climbed in the ascending limb; (b) by the length of, and weight of water in, the descending limb; and (c) any obstacle to delivery encountered at the distal end of the descending limb.

In addition to these the rate of delivery will be affected (d) by the nipping of the bandage when it rests upon a knife-edge, this factor coming seriously into account in experiments with a long length of descending limb heavily weighted with water.

The experiment here set up (Fig. 3) shows the influence of factors (b) and (c); these being the factors we have to take special note of in connexion with the drainage of wounds. It will be seen that where other conditions are the same it is always the siphon with the longer descending limb which gives the more efficient drainage. Again, it will be seen that, other conditions being the same, a larger volume of water is delivered from a bandage whose end is immersed in water than from a bandage suspended in air. In the case of water dripping off from a bandage into air, consideration will show that the bandage will, just before the drop falls, be overfull of water, and that the inflow into it will for that moment be suspended, to be accelerated as soon as the drop has fallen off. As a result, we have in the bandage which is dripping off into air a cyclically interrupted flow. In contrast to this we have, where the descending limb of the bandage goes down into water, a continuous unobstructed delivery.

The practical application of this in connexion with wounds is that the siphon bandages which carry off the washings from wounds ought to pass down from the patients' beds into water in vessels placed on the floor. And if any bandage happens to be too short to dip into

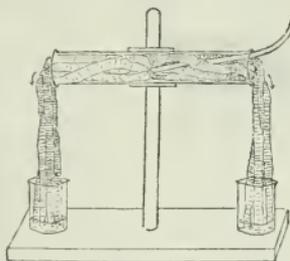


Fig. 6.

the water the drip from it will be accelerated if it is torn into tails.

Where only little water is flowing off through bandages draining a wound evaporation must be guarded against, for this will, by diminishing the load of water, retard the outflow into the descending limb.

Up to the present we have considered only siphons formed from a single loop of bandage—that is, drainage carried out through conduit-pipes very much smaller in calibre than the vessel they are draining.

One may in many cases—in particular in wounds where the bandages may be obstructed by pus—desire to provide an ampler outflow. This can be done by packing the wound full of bandages, but there is here a right and a wrong way.

In this model (Fig. 4) I have packed a test tube in the ordinary method by taking a strip of bandage and coiling it up into the wound, and I have then taken the loose end of the bandage and, leading it out of the test tube, have employed it as the descending limb of my siphon. Side by side with this I have packed a test tube (Fig. 5) by taking a number of loops of bandage, laying them one above the other over the mouth of the tube, and then pushing them down so as to form with the strips outside a sort of rough letter M. We may call this the *multiple loop method of packing*. When I now turn on the water and fill up these companion test tubes you see that while the one which is packed with a single strand of bandage coiled up inside it empties itself only very slowly, the one

which is packed with multiple loops empties itself almost as fast as I can fill it in. You will note in connexion with the first system of packing that it is quite effective, really more effective than the second so far as relates to the conveyance of fluid along the tube. In point of fact, the contiguous coils of bandage fuse together, and give us all that a full calibre wick could. The real fault of the system lies in the out-flow. It is as if we had a large

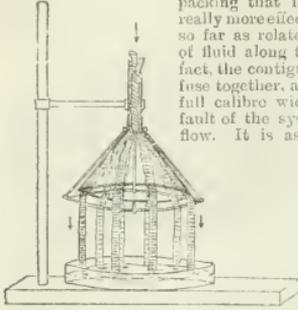


Fig. 7.

main running out into a small pipe. Holding these principles before us, we may now consider how we can in each particular type of wound arrange for feeding in the therapeutic solution, for distribution,

irrigating it all over the walls, and effectively draining the wound.

Wounds may for our purposes be classified into cylindrical wounds disposed horizontally; funnel-shaped wounds with the funnel opening disposed upwards, downwards, and laterally; and finally ascending or descending cul-de-sac wounds. We may take these in order.

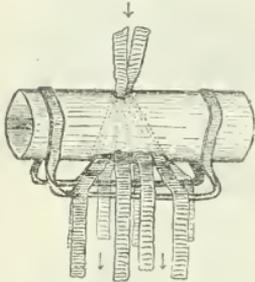


Fig. 8.

Arrangement for Irrigating a Cylindrical Wound which Perforates a Limb Horizontally.—Here, as shown in the model (Fig. 6), the irrigating fluid is conveyed into the interior of the wound in a narrow rubber tube. The wound is drained by two leashes of loops, which go down on either side into vessels of water. These

are pulled into position in each case by a strand of bandage fastened, as shown in the figure, round the bight of the loops.

In actual practice, when we want to verify that the irrigation is working properly, we do so by the following devices.

We test the effluent by drawing a line across one of the bandages with a stylographic pen, and note that the ink is carried down in streaks by the current. We test the inflow by piercing the rubber tube with the needle of a hypodermic syringe and driving in a bubble of air just above the point where the glass union provides an inspection chamber. Then holding the piece of glass tubing horizontally we see the bubble of air carried along. Where we want to test the condition in the interior of the wound, we aspirate into the syringe while pinching the rubber tube proximally to the insertion point of the

needle. Where we want to see the effect of the irrigation in prospectus we cut transverse strips from the bandage at different levels, and prepare microscopical preparations from these by streaking them out one by one over the

surface of the microscopic slides. We then, if the wound is getting progressively cleaner, see the microbes falling off, and if the wound were getting dirtier should see the microbes increase, as we travel inwards towards the wound.

Arrangement for Irrigating the Inverted Funnel Wound.—The kind of wound here in view (Fig. 7) is that produced when a projectile entering the thigh from in front fractures the femur and drives it before it, making an extensive wound of exit.

A strip of bandage tied loosely round the bight of a leash of bandages is passed up from below through the stalk of the funnel. This is now drawn tight, and then the strips of bandage hanging bunched up in the centre are one by one looped up over a framework fitted just below the mouth of the funnel. The irrigating stream is now carried through the upper bandage into the neck of the funnel, and here divides up into a whole system of separate streams which together irrigate the whole interior face of the funnel. In connexion with the actual wound we should loop up the bandages, not as in the model through a circular framework of wire, but as in Fig. 8, over a light aluminium cradle placed astraddle over the limb.

Arrangement for Irrigating the Upright Funnel Wound.—The wound here in view (Fig. 9) is that seen in connexion with a compound fracture of the femur with wound of entrance behind and the wound of exit in front. Instead of dividing after entering the wound the irrigating stream must here divide outside the wound and enter in a number of separate streams. We can get this by dividing up the end of a bandage into a number of tails and planting these about the wound.

The arrangement shown in the model embodies improvements suggested by my fellow worker, Lieutenant H. H. Tanner. It will be seen that we have here fitted to the delivery tube which conveys the fluid into the wound the upper end of a test tube. This serves as a receptacle for the bandage. Fitted to the mouth of the test tube we have a rubber cap traversed by a number of small rubber tubes. Into each of these is inserted one of the tails of the bandage. Finally, each of the rubber tubes is stiffened with wire. This enables us to direct its stream in any direction and to ensure the tubes maintaining any position which we give them in the wound.

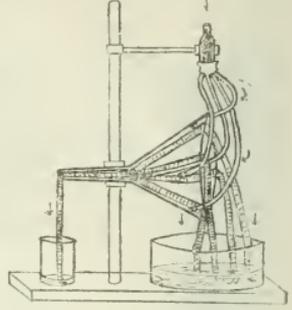


Fig. 10.

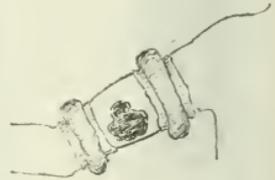


Fig. 11.

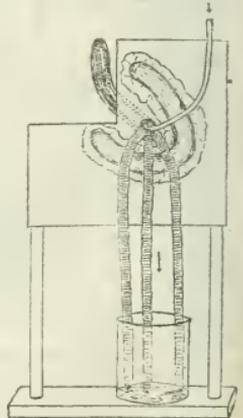


Fig. 12.

Arrangement for Irrigating a Funnel Wound which is Disposed Horizontally.—Except only in the detail of the disposition of the irrigating tubes and the provision for carrying off the washings the arrangement is the same as in the upright funnel wound.

Arrangement for Irrigating an Ascending or Descending cut-de-sac Wound.—Both these wounds are irrigated by the arrangement shown in Fig. 5. In other words, the irrigating fluid is conveyed in a fine rubber tube upwards or downwards to the blind end of the wound, and the washings are carried away by multiple loops of bandage.

Method of Preventing the Irrigating Fluid running away over the Patient's Skin or Clothing and Soaking into the Bed.—It has already been emphasized that bandages resemble tubes with porous walls and that fluid leaks out whenever on entering or leaving a wound they make contact, as they inevitably must, with the external surface of the body.

We need not here concern ourselves with leaking from the inflowing stream. We have already provided against that by feeding the irrigating fluid into the wound through rubber tubes. There remains the leakage from the bandages which carry the outflowing stream. It is a form of leakage which is always liable to occur except where the wound of exit occupies, as the patient lies in bed, the most dependent portion of his body surface. The only method of dealing with this very serious inconvenience is by damming back the water which escapes. We can do this by means of what I may call *irrigation flanges*. Where we are dealing with a wound situated on a limb, what we require is a *ring-flange* above or below the wound (Fig. 11); or, better, irrigation flanges both above and below. Where we are dealing with a wound opening on the outer aspect of the trunk or limb, with, for instance, a wound on the lateral aspect of the shoulder, we require a *horseshoe flange* (Fig. 12) round the opening of the wound.

Such flanges are built up upon the patient's skin in a very simple manner. We first prepare some formalin gelatin. We do this by dissolving 20 grams of gelatin in 100 c.cm. of water—or better, so as to have plenty, twice that quantity in double as much water.

We now, pouring the gelatin solution out into a bowl, add to it one-tenth of its volume of the ordinary 40 per cent. formalin. Then taking a number of short lengths of bandage, previously laid ready to hand, we immerse these in the formalin gelatin. This done we take a roll of cotton-wool and encircle the limb with it, or, as the case may be, bend this round in the form of a horseshoe and then apply it, with the opening of the horseshoe disposed upwards, to the skin round the wound. Going back then to our strips of bandage lying in formalin gelatin, we take them one by one from the bowl, paste one end down on the skin, carry the middle over the ridge formed by the roll of cotton-wool, and then paste down the other end on the far side, taking care always to overlap one strip of bandage by another. When we have covered in our roll of cotton-wool we have completed our task, and we have now, as soon as the formalin gelatin sets—and it sets in a few minutes—a light stiff watertight confining dam firmly fixed down upon the patient's skin.

Let me say in conclusion that I am indebted to my fellow-worker, Lieutenant A. H. Tanner, for setting up and drawing the models, and also for valuable assistance in elaborating the above system of irrigation and drainage.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE PREVENTION OF DEFORMITIES DUE TO ADHESION OF TENDONS AND MUSCLES.

We have had a fair number of cases of deformity due to adherent tendons and muscles at the Cliff Hospital, Felixstowe. Most of the scars were situated on the forearm, but some were on the arm or thigh.

The worst feature of cases of old forearm scars is the inability to flex or to extend the fingers and wrist. Flexion is greatly diminished in cases of scars involving the extensor surface of the forearm, and extension is similarly diminished in cases of scars on the flexor surface. In addition to this loss of movement, the soldiers complain

a great deal of a sensation of inconvenience due to the pulling on the scar by the muscles involved. A similar complaint is made in cases of scars on the arm and thigh.

The cases we have had have resisted all attempts for their improvement by massage and movements, and on operation it has been found that in the majority the condition has been due to the failure of the surgeon to sew up the deep fascia after making an incision for the removal of the bullet. The exposed muscles or tendons become adherent to the skin. The condition can easily be cured by suturing the deep fascia after separating the adhesions, putting up the forearm on a splint in a suitable position, and having recourse to movements and massage some twenty-four hours after the operation. The success attending these steps has been very great. The condition can be still more easily avoided by suture of the deep fascia in every case in which it is opened, following this up by early massage and movements.

Other cases are due to the tendons and muscles becoming adherent in the scar following a wound. The adhesion is, as in the last class, to the skin, and is due to the division of the deep fascia. These contractions can be avoided by early massage and movements, and when the contractions have already taken place, can be cured by similar measures. Too much stress cannot be laid on the importance of suturing the deep fascia in every case in which it is opened by the surgeon.

P. L. GIUSEPPI, M.D., Lond., F.R.C.S. Eng.,
Surgeon to the Cliff Military Hospital, Felixstowe.

THREE-PLY WOOD FOR SPLINTS.

In these times of scarcity of skilled labour any device which will enable comparatively unskilled persons to make efficient surgical appliances is worthy of record, and I therefore offer no apology for drawing the attention of surgeons to the advantages of three-ply wood as a material for splints.

This substance consists of three very thin layers of tough wood which are superimposed, so that the grain of the middle layer runs at right angles to that of the two outer ones. The three layers are then cemented together under pressure. The resulting material is very strong for its weight, has no tendency to warp, and can only be split with great difficulty. It is made of various thicknesses, of which I have hitherto used three, namely: $\frac{1}{8}$ in., $\frac{1}{4}$ in., and $\frac{1}{2}$ in. Owing to the absence of any tendency to split, windows may safely be cut in the splints to allow access to wounds. After softening the wood by soaking it in hot water, it can be bent into any moderate curve, but naturally it is easier to mould the thinner varieties than the thicker. It must be held in the desired shape during drying by bandaging or other means, after which the curve becomes fixed, and there is no tendency to spring back.

For many of the smaller splints, such as those for the forearm, even when windows are cut, no reinforcement is necessary if they are made of the $\frac{1}{4}$ in. stuff, but when using the more easily bent thinner material, or making longer splints, it is wiser to strengthen them by nailing a strip of wood, $\frac{1}{2}$ by $\frac{3}{8}$ or $\frac{1}{2}$ in., along either edge, or wherever it may be seen to be needed. Small $\frac{1}{4}$ in. brass tacks, which do not rust and can be easily clinched, are very suitable for this purpose.

A number of these splints have been and are in use at the Royal National Orthopaedic Hospital in the treatment of wounded soldiers, and have given satisfaction on account of their strength and lightness. This latter quality makes them acceptable to patients and also less likely to shift their position. The cost of a square yard of three-ply wood is about half a crown. Out of this twenty-four forearm splints can be cut, costing for materials, including nails and strengthening strips, not more than 1½d. each. Adjustable jointed splints are made of the same material, with the addition of metallic hinges of various kinds, such as will readily occur to any one of a mechanical turn of mind.

Of course these splints cannot be sterilized by boiling, but if they are given a coat of shellac varnish they will not absorb discharges, and they can easily be cleaned with cold water and soap.

London, W.

E. MURHEAD LITTLE.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN
HOSPITALS AND ASYLUMS.COLONIAL HOSPITAL, PORT OF SPAIN,
TRINIDAD.A CASE OF FIBROSIS UTERI: VAGINAL HYSTERECTOMY:
RECOVERY.(By R. SEHEULT, M.D., Resident Surgeon, Colonial
Hospital, Port of Spain, Trinidad.)

A WELL-NOURISHED, slightly anæmic woman, aged 37 years, was admitted on April 27th, 1914, with the following history:

She had been married for thirteen years, and had four children, all healthy, and no abortions; the last child was born in 1907. During the past six years she had a more or less continuous and rather profuse white vaginal discharge, which at times became creamy and offensive; the menses had been quite regular until August, 1913, when they began to appear more frequently than usual; the loss of blood, however, had never been excessive, and the periods lasted generally four days. There was occasionally pelvic pain irrespective of the periods. In October, 1913, I was asked to see her in consultation; there was then an offensive sanguineous vaginal discharge; examination yielded evidence of endometritis; the cervix was intensely indurated, and exhibited a small nodule about a quarter of an inch in diameter, which aroused a suspicion of malignancy, but microscopic examination of a small excised portion dispelled this idea. The uterus was curetted, and it was observed at the time that the organ was hard and tough. Relief followed the operation for a short time only, the symptoms reappearing in an aggravated form; for seventeen days in April, 1914, there was a more or less continuous sanguineous, foul-smelling discharge.

When admitted the condition of the cervix noted above was again observed, and uterine hæmorrhage was readily provoked by the introduction of the uterine sound. Suspicions of a malignant affection of the uterus were revived, and scrapings from the uterine cavity were submitted to microscopic examination; sufficient tissue, however, does not appear to have been removed for that purpose. It was again noticed at this curetting that the uterus was exceedingly tough; this may account for the failure to obtain the necessary material for microscopic examination.

After careful consideration of the case I advised vaginal hysterectomy, under the impression that the patient had cancer of the uterus. Accordingly on May 5th, 1914, I removed the uterus by the vaginal route; it was uniformly enlarged and weighed 5½ oz.; its walls were considerably thickened, hard and tough, and cut almost like cartilage. The mucous lining appeared to be very thin. Dr. Dickson, the pathologist to the hospital, kindly made sections of the organ for microscopic examination, and reported as follows:

Microscopic examination of the body of the uterus showed atrophy of the endometrium and absence of the tubular glands; the muscular coat was very largely replaced by dense fibrous tissue. There were scattered about in the fibrous tissue small bands and strands of non-striated muscular tissue. The walls of the vessels were thickened. The nodule on the cervix showed the structure of a myoma.

There was no evidence whatever of general arterio-sclerosis; the renal function was quite normal.

The patient made an uneventful recovery.

The clinical features of the case in association with the pathological changes found in the uterus appear to correspond with the interesting and rather uncommon condition described by Sir John Bland-Sutton some years ago, and named by him "fibrosis uteri."

THE *New York Medical Record* announces that the American Association of Workers for the Blind and the American Association of Instructors of the Blind have appointed a commission for preparing a uniform raised-letter system. A conference will be held with the British Uniform Type Committee before any final action is taken.

Reports of Societies.

MEDICAL SOCIETY OF LONDON.

THE President (Dr. W. PASTEUR), in his opening address on October 11th, referred to the difficulties connected with the holding of meetings during the war. One-third of the total number of the members were engaged on active service either abroad or at home. The war was providing plenty of material for investigation, but there was considerable difficulty in making adequate use of the material available. At the advanced bases it was no easy matter for notes to be taken, especially during periods of rush, and even those taken might fail to get through to England. Moreover, patients who were under observation were often, when they improved, drafted to convalescent homes before their cases had been completely investigated. It was inevitable, therefore, that much of the experience gained by individual workers should be fragmentary. He then referred to two groups of cases which had been under his personal observation. The first were cases of *pulmonary tuberculosis*. The special features of this condition, as he had observed it in the soldiers invalided from the service, were the prominence of hæmoptysis, and the rapid improvement which occurred when they were placed under favourable conditions. In the great majority there was a previous history of pleurisy or of actual tuberculosis of the lung. Some had undergone sanatorium treatment, even within a period of two years before they joined the service. Some of the cases followed pneumonia. The physical signs of the condition were very indefinite, moist sounds, especially, being scanty or absent. The second group, which provided material of the greatest interest, was the *enteric group*, including typhoid, paratyphoid, dysentery, trench diarrhoea, and intestinal protozoal diseases. Most of these came from the Near East, but some also from France. They were indefinite in type and benign, for recovery was almost invariable. In the modified typhoid class pyrexia of varying intensity and duration was often the only symptom or only prominent system. The onset was sudden. The pulse-rate, as in ordinary typhoid, was relatively low. There was malaise, but the headache was slight. The abdominal symptoms were indefinite, or perhaps altogether wanting. Spots were not uncommon, but were often indefinite and not always easy to distinguish from the many forms of spots seen on the skins of these patients. The spleen was not usually enlarged. The characteristic toxic appearance of a typhoid patient was little in evidence. The fever ended by lysis and convalescence was often ushered in by a few days of subnormal temperature. The typhoid met with was modified by inoculation; bacteriological tests were difficult to carry out; a single agglutination test was of no use in such cases, but it was necessary to obtain a curve from repeated tests in the early stages of the disease, using very considerable dilutions. It was open to question whether trench diarrhoea represented relapses of modified typhoid fever. Some cases of that disease failed to react to any agglutination test. The suppression of the abdominal symptoms was the chief distinction of the modified disease. It comprised only a small fraction of a large class of enteric diseases, all of which required careful investigation.

Professor J. T. J. MORRISON, F.R.C.S., of Birmingham, related his experiences in Serbia, 1914-15. He outlined the steps leading to the formation of the first British hospital expedition to Serbia in connexion with the war. Under the joint auspices of the Order of St. John and the Serbian Relief Fund, a unit of fifty members was appointed, including medical men, dressers, nurses, and orderlies, with Mr. Morrison as surgeon-in-chief. Their destination was Skopje, the chief town of southern Serbia, better known by its Turkish name Uskub. Here the mission transformed the buildings of a high school into a surgical hospital of 280 beds, equipped with operating theatre, x-ray department, and dispensary. The deplorable plight of the first batch of 160 patients was described. Suffering wounds and septic compound fractures had not been dressed for many days; gangrenous limbs were common; there were cases of typhoid and dysentery; and all were swarming with lice under their tawny clothing. Serbia was then at her lowest ebb, the army being in retreat after the battle of Shabatz, and there was an

almost complete absence of hospital stores, besides a great shortage of surgeons. In the early period the pressure of work in the hospital was so heavy that the day's work was not always finished by midnight. The strength of the staff was reduced by illness, due to scarlatina, relapsing fever, and typhus, and one nurse died. An account was given of the overcrowding of sick and wounded in insanitary factories, barracks, and stables, which were used as hospitals throughout the country. When the surgical demand lessened, after the Austrians were defeated, Professor Morrison was invited to join the Typhus Commission appointed by the Skupstina to cope with the epidemic then rising to its height. Reference was made to visits to Nish, Belgrade, Kragujevatz, and other towns. A tribute was paid to the members of other British and foreign units, and the heroic deeds of Dr. Esther Kadisch and Madame Yankovitch mentioned. Commenting on the Oriental attitude of mind of native officials, a cause of frequent inconvenience and delay, the explanation suggested was the centuries of Turkish domination which found and left Serbia mediaeval. The unit was appointed for a term of three months, extended later to five. Professor Morrison's surgical colleagues were Mr. W. M. Paton and Mr. E. F. Eliot. He spoke in high terms of the competence and comradeship of these gentlemen. The address was illustrated by a series of lantern slides and photographs.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

The opening meeting of the thirty-fourth session was held at the society's rooms, West London Hospital, on October 8th, when the new President, Dr. LEONARD DOBSON, presented the Kestley Memorial medal to Mr. Aslett Baldwin, and afterwards delivered an address on *Progress in treatment*. In the course of it, after references to the profound influence of the discoveries of Lister on medicine as well as surgery, he observed that the procedure of aseptic surgery was so complicated that it could be carried out only under the conditions found in a modern hospital, and raised the question whether the ideal arrangement was not a judicious combination of the antiseptic and aseptic methods. Experience had rendered it possible to estimate the value of certain operations with some degree of accuracy—notably those for the displacements of the uterus and kidney, gastro-entostomy, and appendicostomy. In malignant disease early operation was the only hope of cure, though the action of radium and the x rays was remarkable in many ways. In the domain of medicine equally important advances had been made, resulting in great changes during the last thirty years, and, speaking generally, the use of drugs had given way to other means to a great extent. There was too strong a tendency to follow fashion in the practice of medicine. At one time most patients were put on soured milk; then came the turn for vaccines, and at the present time every patient is said to be suffering from pyorrhoea alveolaris—a craze which was responsible for the needless sacrifice of innumerable sound teeth. After a reference to the discovery of the Wassermann reaction, Dr. Dobson said that he thought there was some cause to deplore the neglect of most physicians to make a serious study of dietetics. Finally, reference was made to the great developments in the applications of electricity and the x rays in the diagnosis and treatment of disease, and to the changes that have taken place in medical practice through the influence of preventive medicine.

DR. NELSON M. BLACK, in the New York *Annals of Ophthalmology*, asserts that face powder sets up a distinct type of conjunctivitis specially marked by very stringy mucilaginous secretion and intolerable itching. When the dust is applied to the face a portion of the fine rice flower dust is driven upwards and lodges in the moist conjunctiva, where it forms a mucilage, which is not dislodged from the conjunctival cul-de-sac by the lacrimal secretion. The woody cells of the hard exterior of the rice grain swell, and the angular corners produce an irritation which is aggravated by rubbing. The cul-de-sac should be flushed with a normal salt or boric solution and an ointment of equal parts of lanoline and vaseline applied; it causes an agglutination of the cells, which can then be more readily washed out.

Reviews.

THE TONSILS.

The mystery that appears to surround the function of the tonsils must in no small measure be held responsible for the opposition to their complete removal for the relief of septic conditions brought about by the absorption of bacteria or the poisonous products of their growth sealed up within the tonsillar crypts.

Dr. HARRY A. BARNES'S monograph on *The Tonsils*¹ should considerably assist in clearing up the mystery. The book is the outcome of a patient and painstaking research into the lymphoid tissues of the throat. Facts ascertained concerning the lymphoid tissues can alone form a reliable basis for any theories about the surgery of the tonsils. The book accordingly opens with a chapter on the general nature of lymphoid tissue, which is followed by chapters on the development, anatomy, histology, function, pathology, bacteriology, diseases and neoplasms of the tonsils. The two concluding chapters are given up to the surgery of the tonsils and its complications and sequelae.

In practical medicine, the more important questions relating to the tonsils concern their function, the indications for their removal, and the best method of removal. Hitherto the lack of certain knowledge, obtainable only by patient research, of the function of the tonsils has led, on the one hand, to a great variety of functions being thrust upon them, and, on the other hand, to a denial that they have any function at all. Of the attributions to them, many, as the author says, are little better than speculations, advanced without apparent knowledge of their histologic structure—as, that they absorb the products of salivary digestion; that they secrete mucus that aids deglutition; or that they secrete an amyolytic ferment. These theories ignore the lymphoid character of the organs, and scarcely need refutation. Histologically, the structure of the tonsils is identical with that of the other lymphoid bodies throughout the alimentary and respiratory tracts and their physiological significance is probably the same.

Dr. Barnes sums up as follows: "That the tonsils are important physiological tissues during childhood; that they should never be removed without adequate cause, but that when such cause exists their function is either permanently impaired or is easily taken up by the other lymphoid tissues. There should therefore be no hesitation on that score in totally removing diseased tonsils." It may be added that there should be no hesitation in accepting the view expressed when it is remembered that among the infections which have been attributed to this source are acute and chronic arthritis, endocarditis, pericarditis, acute or chronic nephritis, osteomyelitis, appendicitis, peritonitis, pulmonary gangrene, infectious jaundice, cervical adenitis of simple inflammatory or tuberculous origin, and chronic toxæmia without localized lesions other than those in the tonsils themselves. Although—as Dr. Barnes goes on to say—in many of them the relation of the tonsils to the disease has not been placed above question, nevertheless, as septicæmia of a high or low degree of virulence may be of tonsillar origin, it follows that the infection may manifest itself by the most varied localizations. In this respect septic tonsils are on the same footing as septic gums. It is reasonable, therefore, to conclude that cutting off the supply of organisms tends to limit the extent of the process, and to advise the complete removal of the tonsils with this end in view.

In the chapter dealing with the surgery of the tonsils Dr. Barnes points out that the partial operation, which consisted in the removal of those portions only that protruded beyond the faucial pillars—the so-called tonsillectomy—has, with the increase of knowledge and experience, been superseded by the operation of tonsillectomy, or complete removal of the tonsil, and, thereby, of the source of infection. Within the limits of this notice enough has been said to show that the partial operation of tonsillectomy

¹ *The Tonsils: Faucial, Lingual, and Pharyngeal; with some Account of the Posterior and Lateral Pharyngeal Nodules*. By HARRY A. BARNES, M.D., Instructor in Laryngology, Harvard Medical School, London: Henry Kimpton; Glasgow: Alexander Sutherland, 1914. (Roy. 8vo, pp. 168; 39 plates. 12s. 6d. net.)

is entirely inadequate in those cases in which the symptoms depend upon absorption from the crypts.

Dr. Barnes makes out a good case for tonsillectomy. The fact is brought out that it is the so-called buried tonsil with the extensive and almost closed supratoruscular fossa which is not reached by the old operation of tonsillectomy that causes systemic infection, and not the large petunulated tonsils which so readily lend themselves to tonsillectomy, and which might easily be spared. It is to be hoped that a study of Dr. Barnes's monograph may be the means of bringing relief to many suffering the ill effects of chronic toxic absorption, or of recurring acute inflammatory conditions, when all that is needed is tonsillectomy.

THE FOUNDATIONS OF PSYCHOLOGY.

In a day when psychology is used as a word to conjure with, and all sorts of crazy notions are put forward as psychological, in a day when the feeble-minded are to be discovered and classified by psychological tests, novels are recommended because they are said to be psychological, and business men are taught to advertise on psychological principles, it is a rest and a comfort to come across a book on psychology¹ whose author knows the meaning of the word, and treats the subject in a manner that is sane and reasonable. Dr. Boris Sidis has much to say that arrests attention and provokes thought. He has original views, and he states them for the most part clearly and well. Whether they will commend themselves to the world of psychologists and become accepted, time alone will settle, but in any case they are well worthy of consideration, and when so much that passes as psychology is mere repetition of what has been said before or is meaningless verbiage, this is a conspicuous merit. There is no subject that novices find so difficult to grasp as psychology, and now that it has become a compulsory subject for diplomas in mental diseases it is important that medical men should have at their command books on the subject that are intelligible to novices, and are adapted to the study of disease. Most textbooks on psychology are badly arranged, badly proportioned, and badly written. They impose on the student a very disproportionate amount of labour, they devote a very disproportionate amount of space to sensation and perception, they are very deficient in their descriptions of the higher capacities of mind, and their teaching has no bearing at all on the vagaries of mind that are discovered in the lunatic asylum and the consulting room. Dr. Boris Sidis is a practising alienist, and recognizes, as few writers of textbooks do, that the processes of sensation and perception are not the only, nor even the chief, processes of mind, nor are they the processes whose disorders are most frequent and most grave.

He starts by disentangling psychology from the other sciences on which it touches at various points, and with which it is often confused. Some there are, who call themselves "mechanists," and would make psychology a branch of physiology, or even of physics; others confuse it with metaphysics. These errors are exposed by Dr. Sidis. While he reduces sensation and perception to their proper position of subordination, he yet propounds a theory of perception that has indeed been foreshadowed by others, but that has never been put so well as he puts it. It is not possible to criticize it here—that must be left for the special reviews—but it must be said here that his criticism of the current view is destructive and telling, and if his substitute does not captivate the judgement, at least it must be reckoned with. One of the best points in his book is his criticism of The Unconscious, that phantom which is just now attracting so much attention and support from amateur and would-be psychologists. The task is perhaps not very difficult, but Dr. Boris Sidis performs it very thoroughly, and leaves the theory without a leg to stand on, and without a rag to cover its naked absurdity. His theories of the thresholds of consciousness and of reserve energy are less convincing, and he has not emancipated himself from some current beliefs that are certainly erroneous—as, for instance, that the child at birth is a purely reflex being. This is curious, for, as a

rule, he hangs but little on authority, but sees things for himself as they appear to him, and he has been an observer of infantile behaviour. It is odd, therefore, that he should have failed to notice, what he must often have witnessed, the spontaneous jerks and sprawlings of the infant, without any provocation from impressions. With all of us a preconceived notion will blind the eyes to the most conspicuous fact, and so it is with Dr. Sidis.

That which is evidently in his own eyes the most important contribution to psychological doctrine is the theory of "moment consciousness," an unfortunate term which handicaps the estimation of the theory, for even after a careful examination it remains doubtful whether the term "moment" is to be understood in its temporal or in its dynamical sense, or in some other sense which is not defined. The theory is important, and would modify very seriously our notion of the constitution of consciousness. It has much to commend it, but it is not explained with the clearness that characterizes most of the book, and it would be out of place to discuss it here. We have said enough to show that the book is an important one, and one that cannot be neglected by the student of psychology.

The printing is bad. On many pages the face of the type is not square with the face of the paper, and consequently the upper or the lower ends of the letters are deeply indented and heavy, while the opposite ends are faint and scarcely impressed at all. Otherwise the book is well produced.

POVERTY AND WASTE.

MR. HARTLEY WITHERS is a cheery soul, who, having set out as an exponent of economic philosophy, finds himself to be the proud discoverer of the philosopher's stone. Starting with the belief that the poverty of the workers is a thing that can and must be abolished, Mr. Withers, in his book *Poverty and Waste*,² dismisses various panaceas such as Socialism, and at the end of each chapter reveals to us that the one thing necessary in order to improve social conditions, is the abolition of luxury. Thus luxury checks the production of necessaries. Luxury causes scarcity and dearth of capital. Luxury keeps wages low. The risks of the middleman might be reduced if luxury were diminished. Against luxury Mr. Withers makes out a plausible case, and incidentally exposes the fallacies of many kinds of social reformer. Apart from the suspicion aroused when a single cause is alleged in explanation of some defect in anything so manifold as human nature, we have an uneasy feeling throughout the greater part of this book that all is not well with the argument. Gradually it dawns on the reader that it is the old, old story of a lack of definition of terms. What is luxury? The question seems as difficult as the famous query, "What is truth?" In the earlier chapters it is only possible to gather that £10,000 spent on fireworks or the keeping of three motor cars would be luxury. But in the last chapter Mr. Withers supplies his answer. "What I mean by luxury is anything that we can do without, without impairing our health of mind and body." Truly we agree that this is an "elastic definition," showing "that luxury varies according to the circumstances and upbringing of every individual." Is it an answer to the question, and if so, whither does it lead us?

However, the book is eminently readable, furnishing much food for thought; and if Mr. Withers is sometimes hard on existing institutions, at least he has the merit of seeking to show that there is good in them as well as evil. Herein he differs greatly from most of our enthusiasts for reform.

NOTES ON BOOKS.

ORIGINALLY published in 1897, MALLORY and WRIGHT'S well-known laboratory manual of *Pathological Technique* has now reached its sixth edition.³ The book is so well known in this country, as it is in the United States of America, that no detailed account of its contents need be given. It contains full accounts of all the more useful and

¹ *Poverty and Waste*. By H. Withers. London: Smith, Elder and Co. 1914. (Post 8vo, pp. 189. 3s. 6d.)

² *Pathological Technique: A Practical Manual for Workers in Pathology, Histology, and Bacteriology*. By F. B. Mallory, A.M., M.D., and J. H. Wright, M.D., of Harvard University Medical School. Sixth edition, revised and enlarged. Philadelphia and London: W. B. Saunders Co. 1915. (Roy. 8vo, pp. 536; 156 figures. 13s. net.)

³ *The Foundations of Normal and Abnormal Psychology*. By Boris Sidis, A.M., Ph.D., M.D. London: Duckworth and Co. 1915. (Post 8vo, pp. 423. 7s. 6d. net.)

trustworthy methods of preparation that may be employed by either beginners or professors working in pathological laboratories. Among the additions to this edition are Bielschowski's silver impregnation stain for nerve fibres, connective tissue fibrils, and reticulum; Bensley's fixation and staining to show the presence of cytoplasmic mitochondria; and G. Herxheimer's new method of staining fat with Sharlach R. The illustrations are well chosen, but the reproduction of many of them leaves much to be desired; there is a good index. The book is indispensable for use in pathological laboratories.

The ABBÉ FÉLIX KLEIN became chaplain to the American Hospital at Neuilly in September, 1914, and has recorded his impressions as a non-combatant down to the close of last year in the simple form of a diary.² The Abbé sets out his daily impressions, his observations, hopes, and fears in a most straightforward manner, with tales to illustrate the faith and virtues of the wounded soldiers and others with whom he was brought in contact. He found much to encourage his belief in the good qualities of human nature, and quotes many an incident to show the depths of religious feeling touched by experience of trench and battlefield in soldiers of the Allied forces. There is a directness and naïveté of soul about the Abbé that makes a strong appeal to the reader. No very profound views of life may be unfolded in his narrative, which deals mainly with the more obvious and superficial emotions of the natural man. These, however, the Abbé reflects and transcribes with great clearness, and the result is a human document of no little sentimental interest. The translator, nudly bound within the fetters of French idiom, has done her work indifferently.

EXPERIMENTS ON LIVING ANIMALS.

The report showing the number of living animals during the year 1914 under licences granted under the Act 39 and 40 Vict., c. 77, has just been issued.

England and Scotland.

The Chief Inspector, Professor Thane, states that, owing to the great stress of work thrown upon the Home Office by the war, it has not been possible to prepare the report in the usual detailed form. The names of all places registered for the performance of experiments during 1914 are given in a table. Nine new places were added to, and one removed from, the register during the year. The names of all persons who held licences during 1914 are given in three other tables; the total number was 673. Reports have been furnished by—or, in a few cases, on behalf of—nearly all those licensees, but in eight instances it has not been possible to obtain a report owing to the absence of the licensees on war service. The reports show that 188 licensees performed no experiments. A table (II) gives the names of the licensees, and shows the number of experiments returned by each. It is divided into two parts, A and B, which contain respectively experiments done without anaesthetics and those in which anaesthetics were used.

Number of Experiments.

The total number of experiments in Table II (A) is 4,889. Of these were performed:

Under licence alone	...	...	2,772
Under Certificate C	...	...	263
Under Certificate B	...	...	1,550
Under Certificate B+EE	...	...	304

Table II (B) is devoted entirely to inoculations, hypodermic injections, and some few other proceedings, performed without anaesthetics. It includes 82,364 experiments, whereof there were performed:

Under Certificate A	...	...	81,891
Under Certificate A+E	...	...	383
Under Certificate A+F	...	...	90

The total number of experiments was 87,253, being 905 less than in 1913; the number of experiments included in Table II (A) showed a decrease of 1,460, and that in Table II (B) an increase of 555. The returns show that during the year 1914, 22,371 experiments were performed by nineteen licensees in the course of cancer investigations. Of these, 625 are in Table II (A) and 21,746 in Table II (B). The latter were almost entirely inoculations into mice.

² *Diary of a French Army Chaplain*, by Abbé F. Klein. Translated from the French by M. Harriet M. Capes. London: A. Melrose, Ltd. (Cr. 8vo, pp. 288. 3s. 6d. net.)

Ninety-four licensees reported over 24,000 experiments performed for Government departments, county councils, municipal corporations, or other public health authorities. Twenty-one licensees reported over 15,000 experiments for the preparation and testing of antitoxic serums and vaccines, and for the testing and standardizing of drugs.

Inspections.

During the year the several registered places had been frequently visited by the inspectors, and a large number of experiments were witnessed. For the most part visits were made without previous notice. The animals were found suitably lodged and well cared for, and the licensees were generally attentive to the requirements of the Act and the conditions attached to their licences by the Secretary of State.

Irregularities.

The irregularities which had come under notice during the year were few and not of a serious character. They were as follows:

In a case where two adjoining laboratories, belonging to different authorities, are registered separately, a licensee whose licence was available for one of these laboratories performed inoculation experiments in the other laboratory for which his licence was not available. It was explained that he was a newcomer, and had not understood that the two places, which communicate together, are registered separately. The Secretary of State accepted this explanation, but pointed out to him that the irregularity would not have occurred if he had taken steps to inform himself exactly as to the premises in which he was authorized to perform experiments.

A licensee holding certificates B, E.E. for certain experiments on cats, performed an operation of a similar character, which was, however, not covered by the terms of the certificate. He explained that the experiment lay entirely within the scope of the work that he proposed, and that it did not appear to him that the experiment went beyond the limit of his certificates. In view of this explanation the Secretary of State did not take any further action, but caused the licensee to be warned that the terms of certificates must be interpreted and observed strictly.

A licensee holding Certificate A, for abstraction of blood, reported that he had performed eight inoculation experiments under that certificate. He explained that he had inadvertently overstepped the limits of the licence, as he thought that the certificate covered these experiments. His explanation was accepted, and he was cautioned as to the necessity of attending strictly to the terms of certificates.

A licensee performed eight experiments on rabbits under a certificate B which had not been allowed to come into operation by the Secretary of State. He explained that from the correspondence that took place he supposed that the certificate had been allowed for rabbits, but not for cats. As it was clear that he acted under a misconception, he was admonished as to the necessity for strict attention to, and compliance with, the terms of the Act and the conditions imposed by the Secretary of State, and his licence was continued.

A foreign professor on a visit to this country performed an experiment on a frog while not holding a licence. As this was evidently done under a misunderstanding of the directions given to him, the Secretary of State did not refuse to grant a licence to him when it was applied for.

Ireland.

The inspector, Dr. Joseph O'Carroll, states in his report that the number of places in Ireland registered for the performance of experiments during 1914 was seventeen. The physiological laboratory of University College, Galway, had been added to the list. The number of persons holding licences at the end of 1914 was 30, an increase of 5 new licensees. A table is given which shows that 340 experiments were performed by 20 licensees, 92 being under licence alone and 248 under certificate; 210 were simple inoculations under Certificate A, of which 86 were made for the investigation of diseases of the lower animals. In 132 the object of the research was physiological; in 198 it was pathological, with either a diagnostic or a therapeutic aim; and in 8 cases the experiment was made for a medico-legal purpose. Ten licensees performed no experiments. Dr. O'Carroll suggests that experimenters dealing with problems of public health should be invited to include in their annual reports a brief note of any definite results to which their research had led them. If such results were recorded in the returns the reports of licensees would acquire a scientific value, while subsequent fuller publication of methods and results would be promoted rather than prejudiced. In conclusion, he states that he has every reason to believe that the holders of licences had obeyed the spirit as well as the letter of the Act, and that experiments had not been unnecessarily multiplied.

OPENING OF THE MEDICAL SCHOOLS.

UNIVERSITY OF LEEDS.

At the opening session of the Faculty of Medicine of the University of Leeds Sir WILLIAM OSLER delivered an address, in which he discussed the relation of science to war. In these islands, he said, which in fruitful ideas, inventions, and discoveries had had the lion's share, there had been a failure to grasp immediately their practical importance. The leaders of intellectual and political thought were not awake when the dawn appeared. The oligarchy, who ruled politically, were ignorant, and the hierarchy, who ruled intellectually, were hostile. Yet the seed was abundant and the soil good; it only needed the cultivation given so freely by members of the past generation, to yield the results to be seen to-day at Oxford and Cambridge and in the new universities, where, as in Leeds and in Sheffield, the problem of linking university work with the scientific industries was being solved. Turning to the contributions of science to the increase of military power of destruction, he said that from 1790 to 1913 there were 18,552,200 men engaged in the great wars, of whom 5,498,097 lost their lives. In the Balkan wars of 1912-13 there were 1,230,000 men engaged, of whom 350,000 were killed; in the Russo-Japanese war there were 2,500,000 men, of whom 555,900 lost their lives. It was estimated that in the present war more than 21 millions were engaged. As weapons had improved, the losses would be yet greater, and it might be expected that at least five or six millions of men in the prime of life would be killed. On the other side—its mission of salvation amid the horrors of war—science had done three things. The first was the organization of the transport and care of the sick and wounded; the second victory of science in war was the prevention of disease, and here the old experimental method, combined with the new chemistry applied to disease, had opened a glorious chapter. The knowledge so gained had been translated into practical effect as never before in history. In a larger army than Britain had ever before had in the field the incidence of disease had often been lower than in times of peace. In the West there had been no great epidemic, and in the East, though dysentery and forms of typhoid were troublesome, the grave camp diseases, such as cholera and typhus, had not prevailed, and were not likely to prevail. The third achievement of science was the great advances in the treatment of wounds. He believed that the methods of treating wounds infected with gas gangrene were giving increasingly good results, and no single aspect of preventive medicine had been more gratifying in the war than the practical stamping out of tetanus by preventive inoculation. In concluding his address he said: "To one who was by temperament and education a Brunonian and free from 'common antipathies' and 'national repugnances,' one sad sequel of the war would be, for this generation at least, the death of international science. An impassable intellectual gulf yawned between the Allies and Germany, whose ways were not our ways, and whose thoughts were not our thoughts. That Germany had made herself a reproach among the nations of the earth was a calamity deplored by all who had fought against Chauvinism in science, and a bitter regret to those who had had close affiliations with her, and lifelong friends among her professors whose devotion to science had made every worker in every subject, the world over, their debtor." In moving a vote of thanks to Sir William Osler, the Vice-Chancellor, Mr. M. E. SADLER, expressed his regret that British universities had neglected scientific study and methods in the training of the young men who passed on to high positions of influence in the Civil Service. If Oxford had cared more in the study of humanity for science and less for philosophical dialectics, the country might have had in its Civil Service men who were so alert to the real drift of things, and so alive to the possibility of the destructive power of science, that they would in trumpet tones have aroused their countrymen, and prevented this war by being more prepared. British universities had helped to provide the remedy, and there was nothing the members of the Leeds University had admired more than the part their colleagues in the medical school had borne in the care of the wounded and the sick.

UNIVERSITY OF EDINBURGH.

The effect of the war was very evident in diminished numbers of students, especially of seniors, attending the medical classes in the opening days of the present session of the University of Edinburgh, which began on Tuesday, October 5th. From the ranks of the teaching staff, too, Mr. Alexis Thomson, the Professor of Surgery, and Dr. Lovell Gulland, the newly elected Professor of Practice of Medicine, were absent, the former serving as consulting surgeon to the Third Army in France, and the latter as consulting physician at Malta, each with the rank of Colonel in the Army Medical Service. Professor Thomson's place in the surgery class has been temporarily supplied by Mr. Alexander Miles, F.R.C.S. Edin. and Lond., whilst Dr. William Russell, the Professor of Clinical Medicine, has taken on Professor Lovell Gulland's work in addition to his own.

EDINBURGH SCHOOL OF MEDICINE FOR WOMEN.

Two years ago there was a notable increase in the number of women studying in the Edinburgh School of Medicine for Women, and this was more than maintained in the following year. In the past summer session there was again a marked increase in the number of students, and to judge from the crowds in Surgeons' Hall on the opening days of the present winter session there is an indication that the accommodation there provided may be strained and that further extension may be required. The number of new students in the summer session was 23, and in the one just begun it is 43, so that the *annus medicus* contains 66 names.

LONDON SCHOOL OF MEDICINE FOR WOMEN.

DR. FLORENCE WILBY, in her address at the opening of this school, discussed the influence of the war on the medical education of women.

The summons to women to fill up the ranks had, she said, come from all kinds of professions and trades, but from none, perhaps, more urgently than from the medical profession. The ever-increasing number of medical men and women employed in military service abroad, together with the number employed in either whole or part time military service at home, had taxed the resources of the medical profession to the utmost. But in more indirect ways the war was creating a future need, since young men who would otherwise now be entering upon a training for some professional career were enlisting for naval or military service, and thus the supply of medical students in the men's schools was seriously diminished; this meant for years to come decreasing numbers of men in the profession of medicine. Women must make good this deficiency, and that they were willing to do so was made clear by the facts that the usual entry of the school had been doubled and that there was a largely increased entry of women medical students in Scottish and other schools. Any national demand which called women from indoor semi-inert habits to lives of activity and usefulness must raise and not lower the standard of general development, so that there was on this account no need to fear that the response to the call was incompatible with fulfilling the country's great need of a sane and stalwart race.

The proportion of women to men entering the medical profession was after all of minor importance; the really serious question was whether the result of the changes would be a total loss or gain in numbers to the profession as a whole. There was very good reason to think that the tendency for some years would be towards a shortage of the total number of men and women required, and it was incumbent upon men and women alike to look to the needs of the future with a vision cleared through our close acquaintance with the tragedies and demands of this strenuous time, and with a desire, freed from all prejudice and self-seeking, that the coming generation of doctors, whatever the proportion of men and women, should be worthy of the best traditions of the past, equipped for their work as no generation had been before, and inspired with high resolve to build on the ashes of a world disaster a healthier, sounder, and wiser humanity. There were many signs that this duty was already making itself felt, and was, indeed, prompting different groups of people to serious consideration and to action. One illustration was the very considerable extension of the premises of the school now in progress—an extension which included not only more lecture rooms and laboratories, but also accom-

modation for the prosecution of research such as it had never been possible to arrange before. Closely associated with this development for primary subjects was the plan for doubling the resources of the Royal Free Hospital to enable it not only to meet more effectively the needs of the poor, but also to provide very complete clinical facilities for the training of students. The extending outpatient work of the hospital was provided for in the building completed just before the war began. It contained, also, modern equipment for the first instalment of development in maternity work, which must play so large a part in the preventive medicine of the future, as well as for extensions in pathology and in x-ray, electrical and massage treatment. The building was handed over to the War Office just after its completion, and was in use for wounded officers. When it reverted to the work of a civil hospital it would allow of greatly extended work in medicine and surgery, and in the special departments, with extension of the facilities through consultative work to the doctors in private practice in the neighbourhood. The special training in nose, throat, and ear work and in the ophthalmic and children's departments prepared students for future work under the Board of Education, and in the clinics for gynaecology, midwifery, and for antenatal and infant care the knowledge necessary for preventive work could be acquired. It was an open secret that the opening of other schools and hospitals to women students was now a matter of careful consideration, but they were faced with certain problems and difficulties. Some questions they had to consider were: How will co-education in medicine work? Will the presence of women drive away the men? Will the presence of men students prevent women from coming to the school? Will women expect, after student days are ended, to occupy posts of responsibility? Might they aspire to staff appointments? Might they even at some time outnumber men on the staff? The other schools which desired to help in the education of women students would, she believed, naturally open appointments, from the lowest to the highest, to men and women alike, for the post-graduate education which experience and responsibility gave was more important than any student work, and no hospital could be said to truly educate which withheld such experience.

Dr. Willey then enumerated some branches of medical work, preventive in character, which would repay all the vitality and enthusiasm the coming race of medical women could give. They were: (1) The study and care of pregnancy, including pathological research into the causes of antenatal death; (2) the study of the art of obstetrics, which should include all that made for skilful delivery on the one hand and relief of pain on the other; (3) the study of those conditions which lead to a high infant mortality and a low standard of health in childhood; (4) the prevention of such diseases as hinder conception, kill the unborn, maim childhood, and produce chronic invalidism in women.

By the generosity of the Duchess of Marlborough a maternity hospital to accommodate twenty patients would be opened in Endsleigh Street, where students of the school would have the opportunity of doing some of their obstetric work under hospital conditions, while the maternity department was required for wounded officers. In considering how to save infant life, the large proportion of illegitimate children untraceable after the first year of life must be remembered. Serious effort had been made to combat this loss, both in the inspection of singly boarded out children since the Children's Act, and in the recent extension of the Notification of Births Act. But mother and child should be kept together. Efforts in the past had been directed towards suitably boarding out children and providing the mother with other work, but medical knowledge should point out to the ardent sociologist that the child needed the mother and the mother needed the child, and no arrangements for their true welfare could contemplate their separation. With regard to the prevention of disease which killed child life and invalidated women, medical women must do their part in the abolition of a national scourge as it affected their own sex; both in the preventive work of education, and in the curative work, which was also preventive, in hospitals arranged for the purpose. This was work yet waiting for medical women to do—to cure disease, and at the same time to restore self-respect to spirits which had been broken for lack of it.

EXHIBITION OF FRACTURE APPARATUS.

The exhibition of fracture apparatus, arranged by officers of the R.A.M.C. to illustrate methods which have been found most useful in this war for the treatment of fractures, was opened on Friday afternoon, October 8th, at the Royal Society of Medicine.

Dr. FREDERICK TAYLOR presided over a very large meeting in the library, and explained that the response to the invitation had been so wide that it had been found difficult to find room for all the apparatus offered, so that the exhibits had overflowed the large Robert Barnes Hall.

Sir ALFRED KEOGH said that if the course of military surgery in the last year were considered, it would be recognized that great progress had been made, and that surgeons in France, in the Mediterranean, and at home had achieved remarkable successes. Nevertheless much difference of opinion as to the best methods of treatment of injuries and of the complications of wounds still existed; for instance, there was as yet no agreement as to how best to treat tetanus, as to whether antitoxin, if it were used, should be injected intravenously, subcutaneously or intrathecally, and as to the value of carbolic acid and other methods of treatment. The object of the exhibition was not to attempt to teach surgeons what they ought to do, but to afford an opportunity for comparing notes, especially as to the indications for operation and the best methods of treating gunshot fractures. The formation of definite opinions on these points was hindered by the difficulty of following up cases; a system of communication was wanted between surgeons at home and in France, so that those in France might learn what happened to their patients afterwards, and those at home might know the nature and object of the treatment to which the men had been subjected. He was anxious that a method should be found, but none of those yet submitted had been found practicable. Whether the apparatus in the exhibition would be applicable to civil conditions was not the immediate question, but he felt confident that for military surgery a system of splinting fractures had been worked out which marked a permanent advance. The objects had been to allow the patients to make those spontaneous movements which would not be detrimental to the fracture, to ensure freedom from pain during transport, and to provide ready access to the wounds, especially for irrigation, which was the rule of the day in France. He appealed to those whose bent was towards research to devote themselves exclusively for the present to researches in medicine and surgery applicable to this war, so as to ensure that treatment was conducted on scientific principles.

Sir ALMROTH WRIGHT then gave an address on the results and practical applications of recent researches in what he called the physiology of wounds. It was, in a sense, a continuation of the address delivered in April¹ and arrangements have been made to publish it in full in a subsequent issue. He began by observing that the wounded men were to be regarded as sick men, since practically all wounds received in this war were infected. He then went on to indicate the principles by which he considered surgeons should be guided in planning a line of treatment. After holding his audience for an hour Sir Almroth Wright offered to stop, but, it being evident that the general desire was that he should continue, he added a little epilogue, in which he returned to the consideration of the question with which he concluded his previous address—namely, whether it would not be proper that some one line of treatment thoroughly thought out, and resting upon physiology, experiment and experience, should be generally followed.

At the conclusion of the address a vote of thanks to Sir Almroth Wright for his address, and to Sir Alfred Keogh, was moved by the PRESIDENT, seconded by Colonel BERGHARD, and carried with acclamation. Afterwards Sir Almroth Wright gave a demonstration, a full report of which will be found at p. 564.

The Robert Barnes Hall was filled with exhibits, and it was interesting to note that the various officers who exhibited apparatus for the treatment of compound fractures had all devised splints which can fairly be described as modifications of the well-known Thomas's knee splint—adapted, in some instances, for use in injuries of the upper limb. The dominant feature,

¹ BRITISH MEDICAL JOURNAL, April 10th, 1915, p. 625; April 17th, p. 655; April 24th, p. 720; and May 1st, p. 762.

however, was that in all the modifications the Thomas skeleton frame was adopted for two reasons: First, because it gave free access to a septic wound for frequent dressing, free drainage, and copious irrigation of the infected wounds; and, secondly, because it gave a means of direct extension with counter-extension from the groin or axilla, so that the patient could be moved without detaching the extension apparatus applied to the limb. Major Sinclair demonstrated the appliances in use in No. 7 Stationary Hospital at Boulogne, which he described in an article published in the BRITISH MEDICAL JOURNAL on September 18th. He showed skeleton splints for the upper and lower limbs, designed on the plan of the Thomas knee splint, and the method of suspension of the limb and splint, shown in the drawings at pp. 430, 431, and 432 of the issue of the JOURNAL just mentioned. This is an interesting illustration of how history may to some extent repeat itself when men at different times set themselves to solve the same problems. Those familiar with the history of the Thomas splint for the treatment of fractures will remember that thirty years ago, when surgeon to the Stanley Hospital in Liverpool, Mr. Robert Jones suspended the splint from a similar truck running on rails above the bed, in order to increase the comfort of the patient. The use of this means of suspension was abandoned at the Stanley Hospital because it was found that the patients often asked the nurse to arrange pillows and sandbags to prevent the limb from swinging when they moved, as they were more comfortable if it was kept steady. The other main object of raising the limb—to allow of room for some vessel with a waste pipe to receive overflow from irrigation—could probably be arranged on some other method. The other part of this exhibit consisted of methods of irrigation by small delivery pipes which, in the case of bullet tracks, were introduced into the interior of perforated flexible wire or metal drainage tubes, or in spiral coils; in the case of surface irrigation the irrigated fluid splashed through a perforated wire gauze contained in a large metal box like a biscuit-box; the supporting framework was made of the aluminium rods supplied in the regulation field fracture box. The efficiency of the apparatus for continuously splashing a considerable portion of the surface of the limb without splashing the surrounding parts of the bed was only equalled by the simplicity and ingenuity of its construction. Putty or plasticine with which cotton-wool was incorporated was advocated as an improvement on formalized gelatin for making flanges to prevent the irrigating fluids from running along the limb and overflowing into the bed. A compound spiral irrigator with a bore of one-sixteenth of an inch, drilled with holes and closed at the end, was shown by Captain E. K. Martin, R.A.M.C.(T.).

From the same hospital Sir G. H. Makins showed a splint for exerting traction on the soft parts of an amputation stump; it consisted of a short Thomas's knee splint to which the flaps were attached by strapping. Sir G. H. Makins also showed, in association with Major H. G. Pinches, R.A.M.C., the "Boulogne box" for the transport of fractures of the femur.

Captain Max Page had an exhibit of splints brought from Abbeville, made from the aluminium rod materials supplied in the regulation field fracture box, after the manner described and illustrated by him in the issue of the BRITISH MEDICAL JOURNAL for May 15th, 1915, p. 839. Here again the splints were designed on the model of the Thomas splint, and were specially designed for easy transport of the wounded back to hospitals. Though rough in appearance they have proved efficient in practice.

Dr. Ogier Ward's exhibit consisted of aluminium rods and specially prepared sheets of aluminium which could easily be twisted and fitted together to make splints to fit any limb. With the addition of perforated aluminium sheets prepared on Dr. Ogier Ward's principle, the field fracture box materials might be made still more useful in the rapid manufacture of emergency splints combining the advantages of both exhibits.

The dominant characters of Major Robert Jones's exhibit of various forms of Thomas splint and its modifications were simplicity of design and excellence of finish. Commencing with splints for minor injuries of the fingers, the importance of using dorsiflexed splints at the wrist and the method of treating Colles's fracture

were demonstrated. Splints were shown for the ambulatory treatment of compound fractures of the upper limb, and demonstrations were given of the use of the Thomas knee splint in its original form for all fractures of the lower limb between the small trochanter of the femur and the middle of the tibia and fibula. The use of the modified Thomas's abduction frame for fractures of the femur above the small trochanter and the importance of the abducted position in securing good functional recovery were specially emphasized. The point of view put forward was that of the orthopaedic surgeon, who looked beyond the immediate difficulties of treatment to the ultimate functional result which might be expected.

In the department of dental surgery Lieutenant Valadier showed a beautiful series of casts of jaws and of mechanical apparatus for retaining fractured jaws in correct position, and for forcing back jaws which had been displaced, so that the remaining teeth articulated correctly, and defects might be remedied. The large number of cases figured in photographs and skiagrams served to show how important a part the dental surgeon played in the military hospital of the present day.

Captain C. H. Barber, I.M.S., exhibited a splint for compound fracture of the leg, which he described and illustrated in the BRITISH MEDICAL JOURNAL of July 10th, p. 47.

Captain Thomas Warrington, R.A.M.C.(S.R.), showed an extension splint the principle of which was that the weight of the leg resting on a movable inclined plane produced extension. The principle could be applied to the femur, knee, or tibia.

Mr. Herbert J. Paterson, M.C., honorary surgeon-in-charge, Queen Alexandra's Hospital for Officers, Highgate, showed an extension splint for the treatment of compound fracture of the humerus and a splint for compound fracture of the radius.

Colonel C. W. Cathcart showed an extension apparatus as a substitute for wire splints, and Mr. B. Sangster Simmonds sent from the Graylingwell War Hospital, Chichester, an exhibit illustrating a method of treating septic compound fracture to facilitate the use of plates. Colonel Culbert Wallace and Captain Maybury showed an extension leg splint designed by them for use in the treatment of gunshot wounds of the femur and capable of producing powerful extension of the leg during the process of plating fractures of the femur or tibia. The splint consisted of a Thomas crotch ring with two lateral steel rods fitted in sockets and two transverse bars, the upper being fitted with wooden footplate, and the lower carrying a long screw for producing extension.

Captain F. Arthur Hepworth, R.A.M.C.(T.), surgeon to the Wharfedale War Hospital, showed a tripod folding leg sling and cradle for use in fractures of the lower limb, and Captain P. B. Roth, R.A.M.C.(T.), a Thomas sling for treating gunshot wounds of the humerus.

From the 3rd London General Hospital, Wandsworth, Captain Gosse, R.A.M.C.(T.), sent casts of limbs for moulding splints, and from the Kitchener Indian Hospital Major A. Neve, R.A.M.C., sphagnum moss pads and sawdust pads for dressings.

There can be no doubt the exhibition fulfilled one of the objects mentioned by Sir Alfred Keogh in his opening remarks. The men who have been doing work in different ways in different hospitals have met and interchanged ideas and experiences and talked of them to hundreds of surgeons who came to see and to learn, and out of this must grow a better understanding of how there may be established a continuous and uninterrupted systematic treatment of cases of compound fractures as they pass from one surgeon to another from the field dressing station to the base hospital at home.

It is reported that the Vienna Academy of Sciences has made a grant of £160 to Professor R. Foech to enable him to conduct anthropological researches among the various races represented by the Russian prisoners of war.

THE *Journal of the American Medical Association* announces that on a Sunday in August coloured physicians from all parts of the States addressed audiences in the coloured churches of Chicago on topics relative to public health. On the three following days clinics conducted both by white and coloured doctors were held in three hospitals in Chicago.

British Medical Journal.

SATURDAY, OCTOBER 16TH, 1915.

WAR ORTHOPAEDICS.

A SHORT discussion took place last week in the French Chamber of Deputies on the provision of artificial limbs and other appliances for wounded soldiers. A deputy, M. Caudace, complained that the State had been made to pay high prices for defective apparatus, and that there had been great delays. He proposed, therefore, that the factories where such apparatus were made should be included among those controlled by the State. M. Charles Bernard, a member of the Commission on Hygiene, said that that body was concerned to establish types of apparatus, those hitherto supplied having been found worthless. M. Godart, the Under Secretary for the Medical Department of the War Office, after stating that the most ingenious improvements in apparatus had in most instances been designed by men who had themselves been injured, said that one Government factory had already been established (at St. Maurice), that another was being installed at Lyons, and that others had been sanctioned at Bordeaux and elsewhere. In other places efforts had been made which he desired to encourage. The establishment of these factories would put an end to the opposition of the trade and to the technical incompetence that had been shown, for he believed that France was behind other countries in this respect—a conclusion which will seem surprising to many who know the very high excellence of the operating instruments turned out by French makers. M. Godart went on to say that he had had a conference with the makers of apparatus, and had appointed a special orthopaedic committee, which he proposed to enlarge; it was instructed to settle types which the makers could then copy. Until the supply of proper apparatus equalled the demand temporary apparatus would be issued so that the men might go home.

In this country the subject of what may be called war orthopaedics is being carefully studied by a few surgeons. There is the Queen Mary's Auxiliary Hospital at Roehampton where, with the cordial co-operation of the medical departments of the navy and army, men are admitted to be fitted with artificial limbs. Each case is carefully studied by the surgical staff, and a great deal of most useful work has already been done. There is also the military orthopaedic centre at Alder Hey, near Liverpool, of which we have some reason to think sufficient use is not being made.

With the best stump in the world the designing and fitting of an artificial limb is no easy matter, as any one who has had an ill-fitting boot will be ready on reflection to believe. But all stumps are not as good as they might and would be if operating surgeons at the time of the operation could give more thought to the apparatus that will eventually have to be fitted, and during the after-treatment always had the same

point in mind, taking pains to prevent contractions and adhesions in the stump and in the joint above, which must limit movement in the future. In this connexion we will venture to quote the sentences with which Major Robert Jones concludes his recent primer on injuries to joints: "During the recovery of stumps after amputation, care should be taken to procure a free range of movement in the neighbouring joints. Otherwise difficulties will arise when the time comes for fitting artificial limbs. This is especially important in the hip and shoulder. Quite a large proportion of cases are returned with flexion at the hip, which can only be accurately detected by flexing the sound limb on the patient's chest, when it will be found that the stump cannot be fully extended; in other instances there will be limitation in abduction, adduction, or rotation. The shoulder may be similarly handicapped after amputation through the arm. To prevent this, the position of the stump should be frequently changed during healing—a process so often delayed by suppurative—and, in addition, the joint should be put through its full range of movements two or three times a week. Deformities which have been allowed to take place during recovery will require complete correction before an artificial limb can be effectively worn. If deformity is threatened by contraction of scar tissue, it is imperative that the limb be placed for an extended period in a position opposed to the pull of the scar."

But there is more to be said on this head in relation to wounds which fortunately do not call for amputation. One such point is very opportunely raised by Dr. Giuseppe of Felixstowe in a memorandum published in this issue. He says that he has met with a number of cases in which the functions of a limb have been seriously embarrassed owing to the adhesion of muscles or tendons to the skin scar. They can be treated successfully by a secondary operation to sever the adhesions and close the fascia over the muscles and tendons, but he thinks that the condition could be prevented if the surgeons into whose hands such cases first come were to take care to suture the fascia. The suggestion seems worthy of consideration and discussion, but we suspect that it may often be impossible of realization. The surgeon dealing with an infected wound involving the muscles is mainly concerned to prevent the dire consequences of the infection by ensuring adequate drainage. He may well consider it wiser to leave the future functional integrity of the limb to be procured by a secondary operation.

However this may be, facts of this kind seem to emphasize the wisdom of the observations made by Sir Alfred Keogh in opening the exhibition of fracture apparatus at the Royal Society of Medicine last week, to the effect that it was very desirable to get established a good working system of communication between the surgeons at the clearing stations and hospitals abroad and those working in the hospitals at home. He said that he was anxious to see such a system established, but that no practical plan had yet been devised. There is nothing like leather, and for our own part we believe that in matters of general principle there is no medium of communication which approaches a medical journal in width of reach, and particularly—with all proper humility let it be said—this JOURNAL. But Sir Alfred Keogh had in mind also the tracing of the cases of individual wounded men, so that the surgeon abroad could tell his colleague at home what he had done and why, and the

colleague at home could tell the surgeon abroad how things had turned out, when there had been success, or why and how there had been failure.

MIGRATIONS OF EARLY CULTURE.

To state that scientific opinion is constantly changing is to give utterance to a truism. Some persons have indeed thought that the so-called exact sciences are not subject to this law, and Macaulay remarked that "nobody ever heard of a reaction against Taylor's theorem"; by so saying he laid himself open to the sarcasm of Professor Whitehead, who observed that it was a fairly safe assumption to make that Taylor's theorem was both enunciated and proved wrongly in every English textbook in existence at the time Macaulay wrote his essay. These revolutions of thought are, however, naturally more obvious to the non-expert in the case of the descriptive sciences, and in particular that dealing with the customs and beliefs of primitive races. Most men past the age for military service can recall the disputes of the rival schools of comparative mythologists, Max Müller and his followers on one side, and such writers as M. Gaidoz and the late Mr. Andrew Lang on the other. The spirit of these controversies is discernible in the works of many living anthropologists, and is not absent from a most interesting memoir recently contributed by Professor G. Elliot Smith to the *Proceedings of the Manchester Literary and Philosophical Society*, and now published in book form.¹

In opposition to the view, now widely held, that similar or even identical rites and customs connected with the disposal of the dead have been independently evolved, Professor Elliot Smith's thesis is to maintain that a highly complex culture compounded of a remarkable series of peculiar elements, including sun worship, the custom of building megalithic monuments, and that of mummification, was developed in Egypt between 4000 and 900 B.C. This culture-complex, which may be described as "heliolithic," began to be disseminated somewhere about 800 B.C., travelled eastwards, and eventually reached the American coast, being modified in transit by various local accretions. Professor Elliot Smith's general method of reasoning is as follows. If a certain practice A, flourishing in a certain country X, be in that country associated with certain other practices B, C, D, etc., the association being purely dependent on local circumstances, there being no essential connexion between A, B, C, and D; then if in some other country, Y, at a later period we find A still associated with B, the presumption that the practice has been communicated from X to Y is created, and the larger the number of extraneous elements of the B, C, D, etc., series retained, the stronger the presumption. *A fortiori*, if in X we find a custom, a, associated with A, such custom owing to local peculiarities being really helpful to A, then if a is retained with A when the conditions of Y are such that a is meaningless or harmful to the success of A, the case for importation is established.

As an example of the former method, Professor Elliot Smith adduces the blending of the sun's disc with the uræus, often combined with the wings of the horus-hawk, a symbolism originally attributable to the dominance of the sun-god Ré in the northern capital of Egypt, which also happened to be the seat of serpent worship. This composite symbolism has

encircled the world. As an illustration of the latter method may be cited the practice of ancient Egyptian embalmers of making circular incisions around the fingers and toes, the aim being to prevent the finger and toe nails being carried off with the general epidermis first scraped off and the vestiges shed when the body was steeped for weeks in a preservative brine bath. The same incisions were made by Torres Straits natives, but they neither scraped off the general epidermis nor used a brine bath. Further, they deliberately removed the skin thimbles and nails, thus defeating the very object the operation was designed to carry out.

Professor Elliot Smith meets the apparently cogent argument that if the practice of mummification were really derived from Egyptian sources by the various tribes that practised it, the latter would also have acquired certain useful arts well known to the Egyptians, of which they were and have remained ignorant, by an appeal to Rivers's important researches, which demonstrate that all knowledge of an art or craft once practised may be completely lost by the tribe's posterity.

Professor Elliot Smith naturally puts stress upon the combination of customs the independent evolution of which, each taken by itself, is no unlikely event. No doubt this argument is open to certain criticisms. Even if we assume that the associated customs or beliefs are strictly independent, in the sense of the mathematical statistician, the improbability of their concurrence can only be used as an argument in favour of interdependence, with full recognition of what is implied thereby. Dr. Venn, in his well-known treatise on the logic of chance, called attention to the popular fallacy often involved in arguments from statistical improbability. Thus, the chance that a six will be thrown twenty times running with a single die is very small, but if we regard the particular set of throws as a member of an enormous series of throws comprising all those made since dice were first used, the event ceases to be extraordinary or abnormal in the sense popularly attaching to the words. This caution is applicable to the interpretation of cultural associations unless we possess an absolutely exhaustive knowledge of all the combinations which have occurred, and still occur, throughout the "universe" under consideration. This caution becomes of still greater importance if one remembers that such cults as sun and serpent worship may not arise independently, but both take their origin in the observation of natural phenomena coexisting in different and remotely separated quarters of the globe. In this connexion Sir J. G. Frazer's observations on serpent worship² are deserving of notice.

We do not think, however, that the other line of argument adopted by Professor Elliot Smith, namely, the persistent performance of a stage in the technique of an operation which has ceased to subserv the function to which it was adapted, can be criticized in this way, and it will be interesting to see how his opponents endeavour to meet him on that ground. The case seems identical with that established by Sir J. G. Frazer and others in favour of the importation into modern religious rituals of ceremonies forming a natural or even logical part of older religions, but now devoid of meaning and usually supported by their votaries on wholly fictitious grounds.

We have said enough to prove that Professor Elliot Smith's work is of great interest and must be carefully considered by all anthropologists. The monograph is provided with a good bibliography.

¹ *The Migrations of Early Culture*. By Professor G. Elliot Smith, M.A., M.D., F.R.S. Manchester: The University Press, 1915. (Demy 8vo, pp. 145, 2 maps. 3s. 6d. net.)

² *Adonis, Atis and Osiris*, 2nd edition, p. 73 et seq.

THE RECRUIT'S HEART.

SIR JAMES MACKENZIE has done a very useful piece of work in calling attention to the unconscious skill with which the young recruit may simulate heart disease in his anxiety to pass his medical examination. The memorandum in which Sir James does this is printed at page 563. Its issue has been occasioned by the fact that its author has met with many cases in which recruits have been rejected, or soldiers have been invalided out of the service, for cardiac abnormalities that actually in no way impaired the heart's functional efficiency, however much they have impressed the imagination of the medical examiner. These abnormalities fall naturally into two classes, namely, those characterized by the presence of murmurs and those exhibiting abnormal cardiac rhythm; both are likely to lead astray the over-conscientious medical man. The murmurs described by Sir James as "physiological" have in the past received a great number of names, and may be found in the literature described as "haemic," "cardio-pulmonary," "inorganic," "functional," or, best of all, "accidental," for the term "accidental" commits its user to no theory as to the murmur's genesis. In brief, cardiac murmurs without cardiac enlargement may be disregarded. The study of the cardiac irregularities to which Sir James refers owes more to himself than to anyone; here again he puts the matter in a nutshell by emphasizing the fact that irregularity of the heart is negligible so long as its functional capacity remains good and its size normal. In the same way undue rapidity of the heart, such as is frequent in recruits or soldiers who are nervous or unduly fond of tobacco, may be disregarded if there is a history of good functional efficiency of the heart to be obtained. In fact, so far as the heart is concerned, any candidate is fit for the army if he can undergo severe bodily exertion without distress. So long as this is the case, and there is no great cardiac hypertrophy, compromising physical signs may be bidden go hang.

PENSIONS FOR SOLDIERS AND SAILORS.

THE Naval and Military Pensions Bill, having been amended in the House of Lords, now awaits consideration in the House of Commons. The amendments include an alteration in the name of the central committee, which it is proposed to call the War Allowances Committee, and also its constitution. The financial provisions seem still rather vague, and liable to break down between the two stools of the State and private benevolence. The question of pensions and compassionate allowances is under consideration also in France. A Select Committee appointed some time ago has settled its report, which will come before the Chamber at the end of this month. M. Pierre Masse, the reporter of the committee, has given some indication of its recommendations. He points out that the matter of military pensions, which hitherto has concerned a relatively small number of persons, chiefly officers or professional soldiers, will in future affect the whole nation. Every little village will have its pensioners, or persons claiming to be pensioned, and the law governing the matter will become one of the most important on the statute book, since it will most nearly touch everyday life, as happened in the United States after the War of Secession. The law at present in force dates from 1831, and its provisions cannot equitably be applied to an army representing the nation in arms as France now is. It made no provision for parents or other relatives who had been dependent on a wounded man, nor for illegitimate children; the classification of wounds was bad, and the provisions with regard to invaliding for sickness opened the door to many abuses. The temptation to make a clean sweep had to be resisted, as it would have involved the reconsideration of a large number of instances in which persons were already in the enjoyment of allowances, but the Committee proposes a number of important amendments. With regard, in the

first place, to widows and orphans, it appears that hitherto the pension has been an unchanging minimum, irrespective of the number of children; this is to be remedied, and the right of a child is to be recognized without detriment to the widow. Illegitimate children are to benefit to the same extent. Hitherto small pensions given to a father or mother dependent on a son were subject to review every eighteen months; in future a life pension will be given to them as well as to widows and orphans; the amount and the conditions will be determined by the civil court without fee. The Committee recommends that wounded men shall in future have a claim in respect of each child, and that the scale of allowances for various degrees of invalidity shall be revised in accordance with the experience gained in respect of workmen's compensation. It will be proposed to take power to give a supplementary pension to the very seriously wounded who require the constant help of an attendant. Under the old law, any man invalided for sickness, or his heirs, had to show that the disease which caused his invalidity or death was contagious or endemic, or had been contracted in the execution of military duties. In future the onus of proof is to be on the other side, and it will be assumed, unless evidence can be brought to the contrary, that diseases contracted or aggravated during the war were due to the conditions of service. Other matters with which the Committee has dealt are the need for the reconsideration of pensions already enjoyed in respect of new services rendered, the ease of soldiers returned as missing, and the position of railway men and all persons mobilized for civil work. A society called the "Orphelinat des Armées" has been established, under the patronage of the President of the Republic, to supplement pensions granted by the State to widows and orphans. Its main objects are to ensure that the child shall be left in charge of its mother, to board out children without mothers or with incompetent mothers, and only to send them to orphanages in the last resort.

THE AMERICAN RED CROSS IN ENGLAND.

DR. HOWARD BEAL, an officer in the medical service of the United States army, who for the past year has been in charge of the Red Cross hospital established by American women in England at Paignton, Devonshire, is about to return to America, and was entertained by Sir William Osler at a farewell luncheon in London on October 15th. Dr. Beal came over with the first American Red Cross units in September, 1914. The two units then allotted to England each consisted of three surgeons and twelve nurses; one unit was sent at once to Paignton; the other was for a time attached to Haslar Naval Hospital, but afterwards it also went to Paignton, and the hospital there then had a staff of six surgeons and twenty-four nurses, with an equal number of British and Australian nurses. Later on Dr. Crumley, of the Mayo Clinic, was attached as pathologist and bacteriologist. Sir William Osler proposed a composite toast to the American women in England who had achieved a fine piece of organizing work at Paignton, to the American Red Cross which had supplied the staff, and to Dr. Beal. Sir Alfred Keogh bore testimony to the admirable work done by the American Red Cross at Paignton, and by the Harvard and other units in France. In the name of the R.A.M.C., he thanked Dr. Beal and the American women in England, who, headed by Mrs. Harcourt and Lady Randolph Churchill, had made the enterprise possible. Dr. Beal gave some particulars of the hospital, stating that it now possessed 250 beds, with 20 others in an isolation block. During the year which had just been completed it had treated over 1,900 patients with so much good fortune that it had had to record only five deaths. The staff had greatly valued the visits of the consulting physician, Sir William Osler, and those who had not yet attended one of his ward visits had a most interesting experience ahead. Americans who, like himself, were of English ancestry, felt the call of the blood,

and he was confident that if the British War Office wanted to widen the scope of its medical service he could get a corps of Americans with British blood in their veins who would be delighted to come over. Among Sir William Osler's other guests were the Director-General R.N., Sir Arthur May, Surgeon-General Carleton Jones, Colonel Adams, professor of pathology in the University of Montreal, the Hon. Dr. Pync, and other representatives of Canada and the United States.

A SURGEON ON PHARMACY.

THE opening of the new session of the School of Pharmacy in association with the Pharmaceutical Society of Great Britain took place on October 6th, when Sir Rickman Godlee delivered an inaugural address, in the course of which he said that last August, wishing to destroy the wasps which threatened his fruit garden, he went to a chemist in a neighbouring country town and was supplied unhesitatingly with 2 oz. of potassium cyanide. The incident served to impress upon him the heavy responsibility which rested upon the dispensing chemist. The difficulty of avoiding mistakes seemed enormous, and if it was true that death was ever flitting about the point of the surgeon's knife, it was also true that death was ever hovering about the chemist's shelf. No doubt the chemist, from his study of repeated prescriptions, did learn a great deal as to the medical use of drugs, and when people, who should have consulted a doctor, came to get something from the chemist, he might be tempted to use his accumulated knowledge and accept a patient's diagnosis, or even make a diagnosis himself. It was a dangerous and immoral thing to do, and it had to be remembered that ordinary sore throat might mean diphtheria, and ordinary stomach-ache appendicitis, and the delay of a few hours, due to the assumption by the chemist of a doctor's function, might involve a fatal issue. The last excuse for this kind of thing had vanished with the passing of the National Insurance Act, but only by setting his face rigorously against it could the chemist keep a clear conscience and deserve that epitaph which was still to be seen in a country churchyard: "He was a man without guile, and an apothecary without ostentation." There had always existed a kindly relationship between pharmaceutical chemists and doctors, and the introduction of medical students to pharmacy began at an early age. Under the direction of the dispenser he had himself made up many a bottle of medicine, and always had marvelled at the ingenuity shown in concocting a pharmaceutical blunderbuss, though even this was loaded with a far less promiscuous charge than in the days of their ancestors. He did not know whether physicians ordered such elaborate medicines now. Surgeons certainly did not, unless it was some old favourite of their youth from which they could not cut themselves adrift. In his earlier days the giving of minute globules became the vogue, and he remembered the practice being compared to putting an ounce of Epsom salts into the Sea of Marmora and then drinking the water of the Mediterranean. But it was not surprising if the homoeopathic dose engendered a certain scepticism:

If it be good in such complaints
To take a dose so small.
It surely must be better still
To take no dose at all.

The advent of the compressed tablet must have saved the pharmacist considerable time and trouble; he often wondered how it had affected his income. The manufacture of patent medicines had led to the piling up of enormous fortunes, but it was equally possible to make great incomes out of the legitimate pursuit of pharmaceutical chemistry. Much of this had been taken out of our hands by our friends the enemy, who before the war sent 270 tons of fine pharmaceutical products annually to our markets. Sir Rickman concluded

with a tribute to Ehrlich, whose methods of investigation opened up a new field for the science of pharmacology. They suggested that the knowledge of the living cell and the living microbe increased, the chemist and physiologist, working in concert, might be able to predict the action of any drug when once its chemical composition was known. Sir William Tilden moved a vote of thanks to Sir Rickman Godlee, and the other business of the afternoon was the award of the Hanbury Gold Medal for research to Mr. Edward M. Holmes, the society's curator, and the presentation of prizes to students, when it was announced that for the first time in the history of the school the number of women students equalled that of men.

DISEASES OF ANIMALS.

THE Annual Report of the Chief Veterinary Officer of the Board of Agriculture and Fisheries for the year 1914¹ is a very interesting document, and makes a strong appeal to students of epidemiology. The opening pages describe a series of minor outbreaks of foot and mouth disease in various parts of the country. One series, consisting of eleven outbreaks, occurred in and near Lindsey, Lincolnshire, during August and September. The origin of this outbreak seems obscure. Another instance was traceable to the landing place of Irish cattle at Birkenhead, and it may be remarked that a much more serious outbreak arising in this landing place was the subject of a special report. Swine fever was very prevalent in 1914, no less than 1,785 more outbreaks having been confirmed than in 1913. Glanders was less and anthrax more prevalent than in 1913. Sheep-scab gave rise to slightly fewer outbreaks in 1914 than in 1913. Special attention is directed to the prevalence of tuberculosis among swine, and it seems clear that not less than 3.5 per cent, and possibly more than 11 per cent, of swine are affected with this disease. A special section is devoted to the subject of swine erysipelas, a disease often confused with swine fever, and various inferences are suggested by the statistics. Since the data are necessarily based upon the findings on premises reported as under suspicion of swine fever, we doubt whether epizootiological conclusions can safely be drawn without concurrent analysis of the swine data, for the material is not a random, but a biased sample of the true distribution. The report includes two scientific papers. One, by Sir Stewart Stockman and Mr. W. G. Wragg, makes it probable that *Piroplasma bigemimum*, the cause of tropical redwater, and *Piroplasma ateygens*, an organism found in the blood of certain British cattle suffering from redwater, are not only morphologically but also physiologically distinct, cross immunization being impracticable. The second paper, by Sir Stewart Stockman, deals with epizootic abortion. The author points out that it is necessary to distinguish between bovine, equine, and ovine abortion, describes the bacteriological and epizootiological differences, and records the results of extensive immunizing experiments. The results achieved by immunization with live bacilli in bovine abortion are decidedly promising. A more extended report on the matter will be published later on. The whole report testifies to the zeal and efficiency of the Board of Agriculture's scientific staff.

A STUDENT OF INSECT LIFE.

JEAN HENRI FABRE, the entomologist of Provence, has died at the age of 91. He was a village schoolmaster for the greater part of his life, although at one time he had taught natural philosophy at the College of Ajaccio and the Lycée of Avignon. It was in and near Scignan in the Vaucluse, the department which has Avignon for its capital, that he made most of the observations which have rendered his name so well known. As an observer of the

¹ Annual Report of the Chief Veterinary Officer for the Year 1914 (Board of Agriculture and Fisheries). C. 8013.

habits and mode of life of certain classes of insects, their larvae and pupae, he was probably unequalled. He was endowed with infinite patience; it carried him through many long days in the field under conditions of personal discomfort which would have deterred most men. He was also exceedingly ingenious in devising experimental conditions for studying the life-history of insects. In this way he threw light on the insect parasites of insects, illuminated many dark places, and showed the extraordinary complexity of the arrangements of Nature and the interdependence of one insect upon another. Some of his observations, as he was himself ready to point out, put great difficulties in the way of the evolutionist; he was content to state the problems and to leave their solution to the future. But had he been no more than an observing naturalist his name would probably not be known to one in a thousand of those to whom it is familiar. He possessed a happy power of popularizing scientific facts in a style which was at once clear and graphic, and selections from his writings, recently published in an English translation, have charmed many who have not had the opportunity of reading his *Souvenirs Entomologiques* in the original tongue.

EXTIRPATION OF THE PINEAL BODY.

We are still very much, if not completely, in the dark as to the functions of the pineal body. In a recent exhaustive account of its histology, Krabbe¹ has developed the theory that it may have a sensory function, that of regulating and keeping constant the pressure of the cerebro-spinal fluid secreted by the ependyma of the choroid plexuses. Flesch, in 1888, had supposed that it might regulate the production of heat, a view unsupported by any evidence; Walter, in 1913, described it as a sort of reflex organ, whatever that may be, and a year later wrote of it as a regulator of the pressure of the cerebro-spinal fluid. From the developmental point of view the pineal body is said to be homologous with the parietal eye of cyclostome fishes, though not with that of saurians. From the point of view of comparative anatomy, Crenzfeldt showed, in 1912, that the pineal body is best developed in animals with relatively thin skins. Histological examination of the pineal body leaves us quite uncertain as to its functions, according to Krabbe; it is probable, though not proven, that it has an internal secretion, and that is all that can be said, for the results of injections of pineal extracts have been quite inconclusive so far. The feeding of children and animals with pineal extracts has led to very ambiguous results at the hands of different observers. Another line of investigation that might throw light on its functions is the pathological; observation, that is to say, of the systemic disturbances associated with disease of the pineal body. According to Krabbe, about 70 cases of pineal tumour have been recorded up to the present time, and in 5 of these premature development of the sexual organs was noted, while in a few others the patient was obese. These few exceptional observations are hardly enough to base hypotheses upon, or to justify the attribution of sexual precocity to hypopinealism, for example, and of obesity to hyperpinealism. One more method of investigation remains for consideration, and that is the experimental ablation of the pineal body, followed by prolonged observation of its results. A contribution to this study has been made by Dr. Dandy,² who notes the extreme difficulty of the operative removal of a structure so deeply seated in the brain. His experiments were made upon young puppies; the chief difficulty surmounted was the tendency to haemorrhage from the veins (particularly Galen's vein) in the immediate neighbourhood of the organ. It is reached from in front, through the third ventricle, rather than

from behind, after free division of the splenium of the corpus callosum, in the latest and most successful method of operation devised by Dr. Dandy. One puppy survived the operation fifteen months, several others survived it for from three to eight months, another died of distemper after a year. The pineal was also removed in several adult dogs and bitches, and three of them were still alive four months after the operation. Dr. Dandy comes to the following conclusions. Removal of the pineal produces no sexual precocity or indolence, no adiposity or emaciation, no somatic or mental precocity or retardation. The pineal is apparently not essential to life, seems to have no influence upon the dog's well-being, and appears to have no active endocrine function of importance in either the puppy or the adult dog. What, then, are we to suppose is the function of the pineal gland? Dr. Dandy refers incidentally to what he calls "the anatomical evidences of its involution after the early years of life." This view of the gland's obsolescence is stoutly combated by Krabbe, whose extensive histological studies have convinced him that the fibrosis and calcareous concretions commonly found in the adult pineal are not to be taken as evidence of degeneration or involution. If, as appears to be the case, the pineal body has no internal secretion capable of individual recognition by the action of either its excess or its defect, Krabbe's view that it serves to regulate the pressure of the cerebro-spinal fluid is not without its attractions.

HYPOCHLORITES AS ANTISEPTICS.

The revival of the use of hypochlorous solutions for treatment of wounds in war, marked by the publication in this JOURNAL of the paper by Professor Lorrain Smith and his colleagues at Edinburgh, giving the results of their experimental observations on the antiseptic action of hypochlorous acid (July 24th), and that by Dr. H. D. Dakin on the use of a particular hypochlorite solution (August 28th), which he considers, and Dr. Carrel appears to agree with him, presents certain advantages, is one of the interesting developments of military surgery brought about by the experiences of the present war. A report by Dr. John Fraser on the value of hypochlorous acid in the treatment of cases of gas gangrene, published last week, contains striking evidence of the remarkable effect of the Edinburgh hypochlorite preparations to which the names "eusol" and "eupad" have been given. We understand that the Medical Director-General, R.N., has arranged with Sir Watson Cheyne, one of the consulting surgeons to the navy, to test the value of the hypochlorite solution devised by Dr. Dakin, and that they are now working together in a hospital ship employed in the Mediterranean. We hope that the medical profession as a whole may shortly have an opportunity of learning the results of their investigations and experiences.

THE NEW TAXES.

A copy of the Finance (No. 3) Bill, which incorporates the recent proposals of the Chancellor of the Exchequer, reaches us as this issue goes to press. Next week we shall deal more fully with the questions involved, but in the meantime we note that while the existing rebates on petrol duty will be extended to apply to the increased rates of duty now in force, no allowance in respect of the new import tax on motor cars will, as the bill stands at present, be made where cars are used for professional purposes.

The second meeting of the Pan-American Scientific Congress, which is to be held at Washington, will open on December 27th, 1915, and adjourn on January 8th, 1916. Among the nine sections into which the work of the Congress will be divided is one devoted to public health and the medical sciences. The chairman of this section is General William C. Gorgas.

¹ K. H. Krabbe. Abstract in *Review of Neurology and Psychiatry*, Edinburgh, 1915, xiii, 300.

² W. E. Dandy, *Journ. Exper. Med.*, New York, 1915, xxii, 237.

THE WAR.

THE WOUNDED FROM THE RECENT FIGHTING.

WORKING OF THE MEDICAL ARRANGEMENTS.

THE following extracts are from a letter written by an officer in France which has been placed in our hands. They show how the arrangements for the evacuation of the wounded after the recent fighting have worked. They will, we feel sure, interest many readers.

September 23th, 1915.

My dear —,

The medical arrangements are once more proving excellent. Everybody and every part of the machinery must, like the rest of us, have been working at very high pressure, but at the same time the system has been, and still is, working smoothly and with very effective results. In other words, the wounded are being picked up as rapidly as the operations in progress at the moment permit, and carried to the regimental aid posts by stretcher bearers, whence they are passed steadily through the field ambulance advanced dressing stations and field ambulance head quarters (being carried by the field ambulance's own vehicles) to the casualty clearing stations, which they reach by the motor convoy ambulances. At the casualty clearing stations they remain until fit to proceed further, and are then placed on the hospital trains (which are provided with nurses and doctors) and taken to the various hospital bases.

All this sounds, perhaps, rather complicated, but that the process is rapid you will agree when I tell you that I was talking this time yesterday (that is, about lunch time) to some men who had been wounded the previous evening and were already in the hospital train on their way to a base.

Another detail will emphasize the same point. I timed the loading of one particular hospital train. It reached the railroad at 12.45 p.m. and by 2 p.m. was ready to start on its return journey. Meantime, 450 patients had been placed in its beds, the actual time occupied in transferring them from the ambulances being less than an hour—to be precise, fifty-eight minutes. I was astonished when I found the total was so high, as throughout the process of loading there was no appearance of hurry. This was the day before yesterday, and by now many of these patients have probably been installed in hospitals on your side for several hours at least. They had all had their wounds overhauled at a casualty clearing station and any early operation desirable had already been performed; so many are likely to have been shipped across straight away.

I judge this to be probable even in the case of some of the more severe injuries, since the thigh and other splints now being used at the front, the fashion in which the wounds are dressed, the skill with which the patients are handled, the comfort of the trains, and the splendid equipment of the hospital ships all combine to make it possible to send a patient on a long journey without increasing his sufferings or interfering with his progress towards recovery.

The rapidity with which the evacuation of casualties goes on day by day seems to be due to several factors, of which the most important, perhaps, is that the medical authorities are not relying on a single route. In effect they have split up the country behind the active fighting line into three evacuating zones—a northern, a central, and a southern zone—each of which has its own means of access to the hospital bases. Each zone includes a proportionate number of casualty clearing stations, lying at varying distances from the actual fighting line, the majority of these being billeted, that is to say installed, in permanent buildings, such as schools, monasteries, and the like.

With the fighting line progressing as it now is, it is impossible to make any precise statement as to the distance that intervenes between any given casualty clearing station and the field ambulances which it serves, but in no case is it great. Taking, for instance, one of the more distant, an officer in charge of the Motor Ambulance Convoy connected with it told me yesterday that unless the road were really blocked with traffic he could go out

with his section of twenty motor ambulances, take his sick on board, return at loaded ambulance pace, unload, and be ready for another journey all within the space of three hours.

But even this statement is possibly a little misleading, for the casualty clearing stations are not being filled and emptied haphazard. Whenever possible the patients are classified, I find, at the field ambulance head quarters and the more serious cases sent to the nearest casualty clearing stations, the less serious to the more distant.

A good many serious cases, indeed, are not being sent to a casualty clearing station at all, but evacuated by means of large ambulances. Experimentation with these has been going on during the past few months, and there is now quite a number of them. The tendency to increase them is not remarkable, considering the degree of comfort they present. Three days ago I looked up a man on one of them, and found it difficult to realize that the thirty patients I saw had all been fighting the previous afternoon in the pouring rain. They were spotlessly clean and lying in real beds, which were even provided with mosquito curtains. They were bound for a port where they would be placed straight on board a hospital ship. The majority of them seemed to be chest cases.

Another point worth noting is that there are special arrangements for the treatment of abdominal cases. At several of the casualty clearing stations there are surgeons who in civil life take a special interest in abdominal work, and as many as possible of the patients with gunshot wound of the abdomen are being sent to these stations, one at least of which is very close up indeed. Such patients do not reach the casualty clearing stations concerned in what may be called the ordinary course, but are sent straight in by a field ambulance wagon as soon as picked up. The arrangement has been in existence for some little time in the area of the army now principally engaged, but this will be the first time on which it has been tried on a large scale. It will be interesting, therefore, to learn later on whether the results obtained have proved superior to those secured elsewhere. Should this not be the case, it may of course be objected that the arrangement does not satisfy the ideal, this apparently being that abdominal cases should undergo operation practically where they fall in mobile operating units. I doubt if the notion has ever been seriously entertained by persons really conversant with the conditions of twentieth century warfare, but should there be any one out here who has clung to it until now the events of the last few days must surely have sufficed to disabuse his mind.

The enemy aeroplane observers direct fire on any and every place where they see men to be collecting. For instance, the day before yesterday, an acquaintance of mine who is in administrative medical charge of a division, and therefore further away than would be a "mobile operating theatre," saw the building he had just been using as an office destroyed by shell fire. It was out of reach of rifle and field artillery fire, and shells from very heavy guns should have passed harmlessly hundreds of yards above it and a mile or two beyond; but a German aeroplane having managed to cross the line for a few moments spotted that the place was occupied and caused three high explosive shells to be plumped in its neighbourhood. The A.D.M.S. himself was not hurt, but several privates and a padre were killed.

I am afraid, indeed, that among officers and men of the R.A.M.C. the casualties during the last few days will be found to have been as heavy as in the same corps in the Dardanelles. Anyhow, I know of several casualties among medical officers of my own acquaintance, and I do not suppose that it is only my acquaintances who have been unlucky. Losses in the R.A.M.C. are inevitable when battalions are advancing. If they are very fortunate their medical officers may be able to comply with the standing order, which is, to establish their aid posts in a sheltered position, but it is not always possible. Besides this, when looking for such a place the medical officers are certain to be exposed to rifle fire, and when established they cannot be protected from shell fire. In "peace times" they can dig themselves in under cover of night, or otherwise contrive to secure for themselves and their patients a fairly safe position, but when an advance is being made little attention can be paid to the point. Indeed, even in the case of field ambulance head quarters the best that can

often be done is merely to keep them in a position where it is only to heavy artillery fire that they are exposed. Consequently, if you see that the casualties among the R.A.M.C. are as heavy on this occasion as I expect, do not conclude that they are due to inexperience or foolish recklessness on the part of the men concerned. Medical officers being both costly and valuable, it is part of their job not to get hit if they can help it, but, if they cannot, why "Quo fiero?" as we say in the lingua franca of the front. Anyhow, I hope I have now set your mind at rest to some extent. I have tried to make things plain, but have necessarily scribbled this letter at a great rate.

P.S.—An accident prevented my sending this off, so I am now able, three days later, to add a postscript which will bring you right up to date. The medical work has gone on as successfully as it started and that, as you will have already gathered, is in top-hole position. We already knew that the arrangements had been perfected to meet every contingency of the siege-like operations of the past few months, and we now see that the organization is so skilfully arranged that it can be transformed at a moment's notice and without a hitch to meet the conditions prevailing during a real advance. To know this will be consoling not only to you and your people, but is so even to ourselves, for at the back of our minds we know that the R.A.M.C. may any day have us in their hands. We do not think about it more than possible; we always think it is going to be the other fellow, but I know all the same how much reliance we place on the R.A.M.C., and the R.A.M.C. knows it, too. That is one reason why, even in "peace times," its officers get hit. The medical officers come along into the trenches while fighting is in progress, instead of staying at battalion head quarters, and I know how he backs up a wounded man when he finds he is getting first aid from a medical officer instead of from only a trained regimental orderly.

To complete what I told you in the first part of my letter, I now add that the evacuation of the whole of the casualties incurred during the four or five days that the recent fighting may be considered to have lasted has now, I hear, been completed. When an official statement is made as to their number, you will be able to gauge what a fine performance this represents. For evacuation does not merely mean getting the sick and wounded out of the way of the fighting troops. It means getting a wounded man off the battlefield and out of the field hospitals, which, although they have never been equalled in any previous war, are not ideal places for a badly wounded man, down to the splendidly equipped hospitals at the bases, where every comfort is available, where everything that modern knowledge can suggest is done for the men, and where, if their cases are unusually serious, they can even be seen by their friends. What the actual number of casualties has been I do not know; but whether it be two thousand or twenty times that number, their successful evacuation will always mean that the said number of helpless men have not only been skilfully treated by medical officers at the front, but, in addition, have been fed and transported a long distance by the same corps—in other words, a triumph of professional organization.

THE MEDICAL SERVICE OF THE AUSTRALIAN IMPERIAL FORCE.

THE defence forces of the Commonwealth of Australia are strictly, what the term implies, for home defence. The Commonwealth is divided into six military districts, and each district into military areas. The medical service is under a Director-General, and each district under a P.M.O., while each area has its medical officer. The various brigades have their full equipment of field ambulances and medical officers, while regimental service is also provided for. In addition a reserve of medical officers has been formed, consisting for the most part of the staffs of the various hospitals, for service in time of war.

When the war broke out the Commonwealth sent an Australian contingent, composed of men who volunteered for service abroad, and the troops so formed were called the Australian Imperial Force. With the first contingent went, as D.M.S., Surgeon-General W. D. C. Williams, the

Director-General of Medical Services, and as A.D.M.S., Colonel C. Ryan, P.M.O. of the third military district; three field ambulances, under the command of Lieutenant-Colonel Sutton, Newmarch, and Sturdee respectively; one light horse ambulance under Lieutenant-Colonel Sutherland; and the requisite number of regimental medical officers. Practically all of these men were already in the Australian Army Medical Corps. After the first contingent had been mobilized it was decided to send further medical units for lines of communication—namely, two general hospitals, two stationary hospitals, and one clearing hospital.

The 1st Australian General Hospital was commanded by Lieutenant-Colonel Ramsay Smith, of Adelaide, and its staff was formed largely of the leading surgeons and physicians of Melbourne and Brisbane, with x-ray specialist, pathologists, and bacteriologists of high standing. It consisted originally of 250 beds, but has been greatly expanded. The 2nd General Hospital was under the command of Colonel Martin, of Sydney, with a staff of leading practitioners from Sydney and New South Wales. The 1st Stationary Hospital, commanded by Lieutenant-Colonel Bryant, of Melbourne, had on its staff some of the leaders of the profession in Adelaide. The 2nd Stationary Hospital was under the command of Lieutenant-Colonel White, of Western Australia, with one surgeon from Melbourne and well-known West Australian practitioners on its staff; the Clearing Hospital, commanded by Lieutenant-Colonel Gblin, of Hobart, had one Melbourne surgeon and a leading Tasmanian practitioner on its staff.

All these hospitals were very fully equipped with up-to-date instruments, appliances, and laboratories. They were conveyed to Egypt by a specially fitted ship, the *Kyarra*, which was subsequently used as a transport for taking invalided soldiers back to Australia. All the hospitals remained in Egypt for about three months. When the Australian divisions went to Gallipoli the two stationary hospitals and the clearing hospital went with them, while the two general hospitals remained at the base in Egypt. Before this occurred, however, a fourth field ambulance, under Lieutenant-Colonel Downes, and another field ambulance, with the third brigade, under Lieutenant Colonel Beeston, had been dispatched from Australia. With the various reinforcements a great number of medical officers of varying ranks have been sent, and more recently the third general hospital has gone to the front, with a large staff of leading surgeons and physicians from Sydney and Melbourne, under the command of Colonel Fiaschi, of Sydney. Still more recently the staff of another general hospital has arrived in England, under the command of Lieutenant-Colonel Hayward, of Adelaide. In England an auxiliary hospital of 500 beds (which it is proposed to increase to 1,000) has been established at Harefield Park, and the medical staff for it, and for 500 beds (to be increased to 1,000) at the convalescent home at Woodcote Park, Epsom, and for 500 beds at the City of London War Hospital, Epsom, have been supplied from Australia. Finally, two Australian hospital ships have been staffed and equipped, each carrying 40 officers and 1,400 other ranks. A transport for invalids has been fitted up and staffed, carrying 15 officers and 450 other ranks, and is now on her way to Australia, taking back men permanently unfit for war service. She will be followed by similar transports at suitable intervals.

It may be mentioned further that besides what has been done by the Commonwealth Government, the Australian Voluntary Hospital, under the command of Lieutenant-Colonel Eames, of New South Wales, and staffed by Australians and ex-Australians, left London for France on August 21st, 1914, and has been situated in turn at Havre, St. Nazaire, and Wimereux. Lieutenant-Colonel Bird, lecturer on surgery at Melbourne University, volunteered at the beginning of the war with the staff of his private hospital. He was given a commission in the R.A.M.C., was for a time consultant surgeon to the forces in Egypt, and then on the hospital ship *Sicilia*. In response to a request from the War Office 150 medical men from Australia have joined the R.A.M.C.

An unfortunate incident has unhappily occurred in connexion with the 1st Australian Hospital. From a report in the *Age*, we learn that on the motion for the adjournment of the House of Representatives on August 19th,

Mr. Mathews said that he understood that as a result of an investigation Dr. Ramsay Smith and others were returning to Australia; he asked for further information. The Minister for the Navy, in reply, said that the chief medical officer, Dr. Fetherston, was proceeding to Egypt to inquire and report on the matter. The *Adelaide Advertiser* of August 25th contained an article purporting to explain the incident. It stated that the High Commissioner in London had telegraphed early in July to the effect that the Director-General of the Army Medical Service at the War Office had reported that complaints received regarding the administration of the 1st Australian General Hospital, Cairo, were of such a nature as to justify an immediate investigation. The High Commissioner concurred with the proposal, and the Army Council, which had expressed its willingness to undertake an inquiry, was invited by the Commonwealth Government to investigate the complaints and submit recommendations. An inquiry was accordingly instituted, and recommendations made to the Commonwealth Government that certain changes in the personnel should be made which involved the recall of Lieutenant-Colonel Ramsay Smith and the matron to Australia.

Lieutenant-Colonel Newmarch has, we understand, been appointed commandant of the hospital, and Lieutenant-Colonel Barrett will act as ophthalmic consultant with the force in Egypt, an appointment which he had held concurrently with that of registrar of the hospital.

THE HOSPITALIZATION OF THE CANADIAN EXPEDITIONARY FORCE.

(From a Canadian Medical Officer.)

IN connexion with the Canadian Expeditionary Force it is well to make a sharp distinction between the care of the Canadian wounded and the Canadian Medical Service. It is true that at the beginning of the war this distinction was not by any means fully realized, even by those at head quarters. The Canadian Army Corps was part and parcel of the British Expeditionary Force and, Naomi-like, felt that "my people are thy people." So it still feels. It is proud that its field ambulances, casualty clearing stations, and general and stationary hospitals overseas are of service to lend and treat all branches of the service and all divisions of the forces of the Empire; proudest of all that no less than five Canadian hospital units are either at the present moment with the Mediterranean Forces or on the way there—and this wholly irrespective of the presence or absence of any Canadian troops in that field of operations. But, granting this, the last few months have made it more and more evident that here in Great Britain, when Canadian invalids return from overseas, it is best that, instead of being scattered throughout the length and breadth of the British Isles, they should be collected together in hospitals and convalescent depôts of their own, and this not merely as a matter of discipline but as most conducive to the content and good spirits of the wounded and to their more rapid recovery. At first it seemed good policy that the men from across the ocean should be scattered through the old land, should be cared for as special—and most often, as it happened, as honoured—guests, should come to know the old home people and the old homeland. And as a matter of fact, innumerable letters to Canadian homes, which have found their way into Canadian papers, have revealed how the beauties of the English countryside, the treatment received in little country towns, and the kindly, not to say wonderful, hospitality lavished in many a luxurious country house on our convalescing soldiers have left an ineradicable impression.

There is, however, another side to the picture. When, a few weeks ago, Sir Robert Borden, being in Manchester or its neighbourhood, wished to visit the Canadians in hospital there, it was found that twenty-seven Canadian soldiers were distributed between twenty-four hospitals! It is not surprising that many of these men felt isolated and depressed; after the long months of intimate comradeship they, or many of them, felt wholly adrift from their battalions, longed to be with other Canadians, to swap

stories and find friends with whom to live over again the unforgettable days. So many petitions in fact have been carried at head quarters in London from individual soldiers asking to be transferred to the Duchess of Connaught's Red Cross Hospital at Cliveden or other centre where they might be with other Canadians, that evidently it is for the good of the Canadian Expeditionary Force as a whole that distinctively Canadian hospital centres should be established. It is interesting to note that both Australia and New Zealand have come to a like conclusion and have taken steps in the same direction.

So this policy is in the course of being carried out. With great consideration Mr. Waldorf Astor has consented that the hospital in his grounds at Cliveden be not only Canadian as regards its staff, but Canadian also as regards its patients. The hospitals in the Shorncliffe area are becoming more and more Canadian as regards their occupants. The Moore Barracks Hospital, Shorncliffe Military Hospital, and the Tent Hospital at St. Martin's Plain, are staffed by the C.A.M.C., and have almost exclusively Canadian patients; the Canadian War Hospital at Walmer also takes in only Canadian patients, and the Helena Hospital at Shorncliffe has wards devoted exclusively to the members of the same Expeditionary Force. All tuberculous patients from the C.E.F. are sent to Pinewood, Wokingham. What is more, arrangements are being made for other special hospitals for nervous patients, for eye, ear, nose, and throat cases, and the likelihood is that in the course of the next few months these special hospitals and special "clinics" will be considerably augmented. The Granville Hotel at Ramsgate will shortly be opened as a hospital for special conditions.

For a considerably longer period the advantages of this policy have been realized in the case of convalescents, and this because numbers of Canadian patients treated in convalescent homes throughout the country were granted furlough indiscriminately without notification to the Canadian authorities, and were as a consequence lost sight of for months, many being proceeded against as deserters. Thus ever since early summer non-commissioned officers and men from the hospitals in the London district have been gathered together at Bromley Park, those from the rest of England at the larger hospital at Monks Horton, near Shorncliffe. Now, as autumn is advancing, and tent life is becoming uncomfortable for invalids, a series of other Canadian convalescent hospitals is being thrown open. There are already close upon 600 Canadian convalescents in the huts at Woodcote Park, Epsom. Hillingdon House, Uxbridge, is being used as the convalescent annexe for Cliveden, while the Friendly Society's Convalescent Hospital at Dover, the Glack Convalescent Hospital at Deal, Mrs. Flemming's Convalescent Hospital at Luton House, Selling, and Lady Northcote's lovely home at Eastwell Park, Ashford, are all devoted to Canadians—this last since the early part of June. Bearwood Park, Wokingham, will be opened within the next few days with the same object. Many homes have been thrown open specially for Canadian officers—more, in fact, than can be utilized. Among these, special mention must be made of Nuneham Park, Oxford, the home of the late Colonial Secretary and Mrs. Harcourt; Holme Pierrepont, offered by Lord Manners; Merlewood, Virginia Water, the home of Mr. Donald Macmaster, M.P.; and the Moorings, Sunningdale, offered by Mr. Wills.

While these preparations are under way, the people in Canada have not been idle. With the active support of their Royal Highnesses the Duke and Duchess of Connaught, from one end of the continent to the other there has been an enthusiastic movement to provide convalescent hospitals for the wounded; that where healing is likely to be a lengthy process, Canadian soldiers may be returned home and there undergo recovery. By private generosity and public subscription numerous well-appointed homes or hospitals have been offered and accepted by the local Governments, one or more in each province, so that at the present moment it is likely that at least eleven such institutions, capable of caring for 2,000 or more wounded, will, when this appears in print, be ready to receive patients. At Quebec the Immigration Building, admirably adapted for the purpose, acts as a receiving hospital, from which the patients are distributed throughout the Dominion. When the St. Lawrence becomes closed to

navigation in November this will be replaced by a similar receiving hospital at Halifax.

At first thought all these preparations may seem excessive, but when it is remembered that competent authorities have placed the casualties in the present campaign at something well above 100 per cent. per annum, it is seen that even now more may have to be accomplished.

CANADIAN MILITARY HOSPITALS.

From our Correspondent in Montreal.]

THE MCGILL MILITARY HOSPITAL IN FRANCE.

THE McGill Hospital, No. 3 Canadian General Hospital, has been at work in France since August 10th last, when it received its first two convoys of wounded. The hospital is well situated on sandy soil, and in the immediate vicinity are four other general hospitals of 1,000 beds each, among them No. 1 Canadian General Hospital, under Colonel Murray MacLaren, and the Harvard unit, No. 2 Stationary Hospital, under the command of Colonel Shillington, is also situated near by. With the exception of the operating-room, which is a wooden structure, the McGill Hospital is under canvas. The Durbar tents in use were supplied by the British Government, and are part of a presentation made to the War Office by the Begum of Bhopal and other Indian magnates. Some of these tents hold nearly 50 beds; they are floored, and are to be lighted with electricity. Each tent has an outer shell, and a narrow corridor from 2 to 3 ft. wide runs between it and the inner tent, thus securing shade and coolness in summer and warmth in winter. The covering of both outer and inner tent is composed of three layers, the innermost being a soft yellow cotton beautifully decorated in Oriental style; the tent poles and other wooden fixtures correspond in colour. Some of the nursing sisters who left Canada with the unit were scattered for a time amongst other hospitals, for instructional purposes chiefly, but all have now rejoined the hospital.

THE LAVAL MILITARY HOSPITAL.

No. 6 Stationary Hospital, which has been organized by the medical faculty of Laval University, Montreal, has been recruited in Montreal under Lieutenant-Colonel G. E. Beauchamp, who is in command. The officers are: Major J. O. D. LaCroix, Major J. P. Décarie, Major Georges Bourgeois, Captain J. A. Lussier, Lieutenants J. U. Gariépy, J. de G. Joubert, J. E. Lorrain, L. D. Collin, Henri M. DuHamel, and Honorary Lieutenant E. R. LaMontagne, Quartermaster. The unit will probably spend a few weeks at Valcartier before leaving Canada about the beginning of November. A few days ago a special convocation was held at Laval University, at which members of the different faculties were present, when the following resolution was passed: "We learn with pleasure of the initiative of the Faculty of Medicine in organizing the Laval Stationary Hospital."

CANADIAN MILITARY HOSPITALS IN EGYPT.

No. 5 Stationary Hospital, Canadian Expeditionary Force, is in Egypt. This unit was supplied by Queen's University, Kingston, and is under the command of Lieutenant-Colonel Etherington. No. 1 Stationary Hospital, which left Canada with the first contingent of the Expeditionary Force, and is under the command of Lieutenant-Colonel S. Hanford McKee of Montreal, is also reported to have gone to Egypt, as well as No. 3 Stationary Hospital, commanded by Colonel Casgrain of Windsor, Ontario.

THE ST. JOHN'S BRIGADE HOSPITAL.

The hospital known as the St. John's Brigade Hospital, erected at Etaples by the St. John Ambulance Association, was projected last February, and has now been at work for some three or four weeks. It is a 520 bed hospital, consisting entirely of huts. The huts are of wood both inside and outside, the outside being stained or painted dark brown. Each hut is 20 ft. wide and 100 ft. long. The end of each hut furthest from its main entrance is partitioned off to provide space for a bathroom and a ward scullery; between these is a passage leading to a

sanitary annexe. The short corridor between annexe and ward has cross ventilation. The ward units are connected to one another and to the administration block and reception block, as also with the huts containing the kitchen, the dispensary, the x-ray room, and the life, by wooden corridors provided with roofs but open at the sides. All the ward units are disposed in lines parallel with the central corridor, but at varying distances from it. This central corridor forms a spine to the whole building, and has at one end the kitchen and the store-rooms and at the other the administration block and the reception department. At intermediate distances along the central spine and opening straight on to the corridor that forms it are various huts arranged as dining-rooms for the patients, for the sisters and medical staff, each provided with a large anteroom, as a pathological laboratory and dispensary, as a dental department, and as a splint-room, etc. The operation block contains two operation rooms with natural overhead and side lighting, as well as with electric lamps. They are so arranged that the operation table can, if necessary, be run into the adjoining x-ray room and the operation then completed. The upper halves of the ward windows drop inwards from the bottom, but are built in at the sides, so as to secure an upward inlet of air without draught. The beds are not of the pattern generally used in field hospitals, but of the pattern commonly employed in civil hospitals at home. They have a fairly high head rail and all are bored for the reception of an arm to support a pulley. The ward doors are sufficiently wide for the beds to be wheeled out on to the corridor.

In one of the huts at the kitchen end is a very large dynamo which provides current both for the x-ray department and for a refrigerating machine. The same room contains a soda-water manufacturing plant. The sleeping quarters for the officers are divided from the hospital by a road, and stand under a small grove of pine trees. They consist of two huts divided up into a number of separate rooms or cubicles. It is the kitchen end of the hospital that faces this main road; lorries bringing supplies are thus able to unload without causing disturbance. The reception room at the other end faces a private road for ambulances. The reception block consists of several rooms of which the central one is provided with four tables, opposite each of which is a movable stretcher stand. The whole of one ambulance load can therefore be dealt with simultaneously, the process consisting in taking down particulars as to the patient's name and regimental number and pinning on to him a brass disc showing the number of his ward, as soon as the reception room medical officer has settled with which ward the patient is to be sent. These preliminaries completed, the patient and his stretcher are placed on a bicycle-wheel stretcher-carrier, and he is wheeled off to his ward. The whole process is rapid. At one end of this central reception room are benches for walking cases, who are dealt with on much the same lines, but before being sent to the wards they pass into rooms adjoining the main room, and there they get rid of their uniforms and other clothing and then pass into another long room, provided with a dozen or more baths.

All the huts, as also the corridors, are raised on piles to a distance from the ground varying from 6 in. to 2 ft. The height varies because the site is a sandy slope with an irregular surface. It is possibly the character of the surface which first suggested not only raising the whole of the buildings on piles, but also the provision of connecting corridors. The corridors are very useful, for owing to them nothing need be carried by hand; everything can be wheeled about on light trolleys—patients' meals, medicine baskets, ward linen.

The solid excreta and refuse of the hospital are burned in a Horsfall incinerator. The liquid refuse is removed by drains to catchpits on waste ground lying a considerable distance below the slope on which the hospital stands. The hospital is very well equipped, but there is no evidence of extravagance in its outfit. The general appearance suggests that everything has been thought out in minute detail and in advance. The distinctive features of the hospital are: (1) Its erection upon piles which make the state of the weather a matter of indifference; (2) easy communication with all parts of the hospital by covered corridors, which, as already indicated, greatly facilitate

work; (3) the arrangement of the reception room; and (4) the carrying away of all refuse water by easily controlled drains.

WAR MEDICAL MOBILIZATION IN FRANCE.

(From an Occasional Correspondent in France.)

In France all medical men in good health, under the age of 50, are mobilizable, but a large proportion of valid men over that age volunteer for service, and are accepted, though they are not sent to the front unless they expressly solicit the privilege. Their uniform comprises a cap (*képi*) bearing a broad band of crimson velvet, which serves to identify them as belonging to the *service de santé*. The civil practitioner enters as *aide-major* with one or two stripes, but most practitioners have done their military service, and already have the grade of lieutenant or captain. When mobilized, practitioners are not allowed to undertake private practice, though their services are available on an emergency. In fairness to all, it has been decreed by the Minister that no practitioner in charge of a hospital or *formation sanitaire* shall be allowed to take a post in the district in which he normally resides, but this is a rule which apparently admits of numerous exceptions, though of late an outcry on the part of those who have been distinguished under it against those who have contrived to elude its operation, has led to a reshuffling of the cards.

All wounded whose injuries entail functional disturbances likely to be benefited by thermal spa treatment are sent to one or other of the famous watering places and given a course of baths, douches, and massage, etc., the maximum duration of the treatment being fixed at three weeks. Similarly, advantage is taken of the various mechano-therapeutic institutes to restore mobility to damaged or stiffened joints. At the termination of the course of treatment the men are returned to their regimental *dépôt*, thence to be sent back to the front, or to be accorded a furlough of from one to three months. If permanently disabled, they are discharged from military service. Men not strong enough to return to the front but still capable of discharging less exacting duties are drafted into the auxiliary departments—hospitals, secretarial duties, and the like.

The *formations sanitaires*, or auxiliary hospitals, distributed all over France, are placed in charge of one or more mobilized medical men with, as a rule, one *chirurgien de carrière* in each district for the big operations. An average number for each surgeon in charge would be about 150 beds, inclusive of medical cases. Inasmuch as at least 15 per cent. of the patients have serious wounds necessitating protracted dressings, this means that the surgeons have their hands full, especially when allowance is made for operations, x-ray research, etc. Each town or district is provided with a *médecin en chef de la place*, whose function is to see that the accommodation is sufficient for a specified number of wounded, to keep a record for transmission to the central authorities of the number of beds vacant each day, to provide medical assistance, and to superintend arrangements generally. These *médecins en chef* are usually elderly professors from the universities or practitioners who have passed the age for active service. I may add that no surgeon is authorized to perform any grave operation without previous consultation with a colleague.

One noteworthy shortcoming is a lack of provision for enabling the wounded to take baths, with the unavoidable consequence that they are usually very dirty, especially round about the feet; indeed, it could hardly be otherwise. In a certain *dépôt* where seven or eight hundred soldiers are interned the only bathing accommodation is a washing tub (half a wine barrel), the water for which has to be heated over the gas or brought a distance from the kitchen.

One great difficulty in France is the provision of nurses—I am not referring to the properly trained nurse, because she is, to all intents and purposes, non-existent. Those we have are, for the most part, young women drawn from the middle classes, who have had a few weeks' prefactory training (not comprising any practical hospital training) in bandaging and the principles of antiseptic. Even so, there is a decided lack of adequate assistance, and advantage has to be taken of English, American, and Swiss

volunteers. *Infirmières* are never paid; at most they are given their meals, washing, and, in some instances, sleeping accommodation; consequently the choice is restricted to young women not dependent upon their earnings for a living. This may account for the difficulty experienced in obtaining an adequate number of recruits. Nurses are expected to take their turn at night duty without relinquishing their daily duties in the wards, and their hours are unmercifully long, from 8 a. m. to—well, until there is nothing left to be done, say, 9 or 10 o'clock at night.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN THOMAS HENRY STANLEY BELL, R.A.M.C., was killed in France on October 1st. He was the eldest son of Dr. A. Lees Bell, of Ballochmyle House, Dunfermline, was educated at Dunfermline High School and at the universities of Glasgow and Edinburgh. He graduated M.B. and Ch.B. at Edinburgh in 1914. He was for four years a member of the Edinburgh University Students' Representative Council, and served in the Serbian Army Medical Corps during the war in the Balkans. He joined the Special Reserve of the R.A.M.C. as Lieutenant on September 3rd, 1914, and was promoted to Captain on completion of a year's service.

Captain Sydney Francis Macalpine Cesari, R.A.M.C., was killed in France on October 3rd. He was the second son of the late Edward Cesari of Inverness and Birnam, and was educated at Perth Academy and at Edinburgh University, where he graduated M.B. and Ch.B. in 1913, and afterwards filled the posts of house-surgeon at Greenock Infirmary and house-physician at the Royal Infirmary at Edinburgh. He was a keen football player, and was a member of the Edinburgh University and Greenock Wanderers fifteens successively. He joined the R.A.M.C. Special Reserve on April 8th, 1913, was called out for service on August 12th, 1914, and was recently promoted to Captain on completion of a year's embodied service. His death was due to a bullet fired by a German sniper.

Captain Edward Worsell Carrington, R.A.M.C., was killed in France on September 25th or 26th, 1915, aged 26. He was the youngest son of the late Sir J. W. Carrington, of Avenue House, Reading; was educated at Marlborough, at Keble College, Oxford, and at King's College, London, and took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1913. He joined the R.A.M.C. as a temporary Lieutenant on August 10th, 1914, was sent to the front soon after, and had been attached to the 2nd Battalion Worcester Regiment for over a year. He was promoted to Captain on completion of a year's service, and last February received the Military Cross for gallant behaviour.

Lieutenant Edward Henry Pollock Brunton, R.A.M.C., was killed in France on October 8th, aged 25. He was the younger son of Sir Lauder Brunton, M.D. F.R.S., was born in January, 1890, and was educated at Fettes, at Trinity College, Cambridge, and at Bart's. After taking the M.R.C.S. and L.R.C.P. Lond. in 1913, he served as house-surgeon to the Royal Portsmouth Hospital, and as house-physician at Bart's, took a commission as temporary Lieutenant in the R.A.M.C. on April 2nd, 1915, and in July was attached to the 4th Battalion Grenadier Guards, with which he was serving when he was killed.

Lieutenant Robert Montgomery, R.A.M.C., was killed in the recent advance in France on September 26th. He was the son of Mr. Robert Montgomery, schoolmaster, Broxburn, and took the M.B. and Ch.B. at Edinburgh in 1913. Afterwards he acted as medical officer to the garrison of Edinburgh Castle, and then as an assistant in Leith. He joined the Special Reserve of the R.A.M.C. as Lieutenant on July 11th, 1913, and was called out on August 12th, 1914.

Lieutenant Edward Jocelyn Nangle, R.A.M.C., attached 1st Battalion Royal North Lancashire Regiment, was killed in the recent advance in France. He was a native of East London, Cape Province, South Africa, was educated at Cambridge, where he took the B.A., and at St. Mary's, where he was a member of the Rugby football fifteen, and served as house-physician and house-surgeon. He took the M.R.C.S. and L.R.C.P. Lond. in 1912, and got a

temporary commission as Lieutenant in the R.A.M.C. on August 14th, 1914.

Lieutenant James Richardson Spensley, R.A.M.C., attached 8th Battalion East Kent Regiment (the Buffs), was killed in the recent advance in France. He was educated at the London Hospital, and served as house-surgeon there, after taking the M.R.C.S. and L.R.C.P.Lond. in 1901. He then settled at Genoa, where he was port surgeon. He was a keen supporter of the boy scout movement, of which he was chief commissioner for Italy. He had only recently taken a temporary commission in the R.A.M.C.

No less than eleven officers of the R.A.M.C. have now been reported as killed in the recent advance in France since September 25th.

Died on Service.

Captain Gurney White Buxton, R.A.M.C.(T.F.), died at the Dardanelles in September. He was educated at St. Bartholomew's Hospital, took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1891, and was in practice at Fenny Stratford, Bucks. He was an officer of the 2nd South Midland Mounted Brigade Field Ambulance, in which he attained the rank of Captain on November 13th, 1911.

Wounded.

Captain E. Gordon, R.A.M.C. (temporary), Flanders.
 Captain C. Robertson, R.A.M.C. (temporary), Flanders.
 Lieutenant C. T. Bishop, R.A.M.C. (temporary), Flanders.
 Lieutenant W. S. Martin, R.A.M.C. (temporary), Flanders.

DEATHS AMONG SONS OF MEDICAL MEN.

Allan, Marshall T., Lieutenant 6th Battalion Royal Scots Fusiliers, son of the late Dr. George R. Allan, of 19, Woodside Place, Glasgow, killed in France September 25th to 28th, aged 26. He was educated at Glasgow University, where he was a medical student, was in the Officers' Training Corps for four years, and was in the university football, cricket, and hockey teams. He got a commission as Second Lieutenant on September 1st, 1914, went to France in the spring, was bomb officer of his battalion, and was promoted to Lieutenant in August.

Allen, Herbert Thomas, Captain 9th Battalion Seaforth Highlanders (Ross-shire Buffs), youngest son of the late Brigade-Surgeon W. E. Allen, I.M.S., killed in France on September 25th, aged 32. He had served as a civil engineer in Africa, India, and Trinidad, was an A.M.I.C.E. and F.R.G.S. In the early part of the war he held a commission in the Royal Naval Reserve, and served for four months of his service in the North Sea; joined the army in January, and became Captain on February 1st.

Cameron, Roy Douglas, Lieutenant 6th Battalion Cameron Highlanders, second surviving son of Lieutenant-Colonel C. S. Cameron, I.M.S. (retired), killed in France September 25th or 26th. He was educated at Exeter College, Oxford, and got a commission on August 29th, 1914.

Carswell, John Jamieson, Second Lieutenant 10th Battalion Cameronians (Scottish Rifles), younger son of Dr. John Carswell, Commissioner, Central Board of Control, Scotland, 25th to 27th. He was born in Glasgow in 1889, educated at Glasgow Academy, the Glasgow School of Art, and apprenticed to an architect with Mr. James Millar, A.R.S.A. He enlisted in the 9th (Glasgow Highlanders) Battalion of the Cameronians at the beginning of the war, got a commission on October 24th, 1914, and went to the front in July.

Cordeux, Edward Henry Noble, Second Lieutenant 7th Battalion Sherwood Fusiliers, only son of the late Dr. Robert Henry Cordeux, of Burton Park, Nottingham, killed in Flanders on September 30th, aged 19. He got his commission on September 26th, 1914.

Cressley, George E. L., Lieutenant 2nd Battalion Yorkshire Regiment, younger son of Dr. Cressley, of Tunbridge Wells, killed in France on September 26th, aged 20. He was educated at Tunbridge School, where he held a Junior Scholarship, and left school in July, 1914, with a scholarship at Cambridge. Called up in August, 1914, he was a member of the 1st Battalion in the Kent Cycle Corps on August 6th, 1914, went through the special war course at Sandhurst in spring, and was gazetted to the Yorkshire Regiment on May 12th, 1915. He went to France in July, was employed there on special trenching work, and joined his regiment shortly before his death.

Dobson, Montague Charles, Major, Royal Garrison Artillery, second son of Nelson C. Dobson, F.R.C.S., of Clifton, killed in France on September 25th-28th, aged 38. He was born on October 14th, 1879, joined the Artillery as Second Lieutenant on February 26th, 1898; became Lieutenant on February 16th, 1901; Captain on October 24th, 1905; and Major on October 30th, 1914. He served in the South African War in 1899-1902; took part in operations in the Transvaal, Orange River Colony, and Zululand; was twice mentioned in dispatches; and gained the Queen's medal with three clasps and the King's medal with

two clasps. After the war he was employed for four years in surveying Basutoland, and in the early part of the present war was assistant embarkation officer at Southampton.

Donaldson, Denis Harrison, Second Lieutenant 7th Battalion London Regiment, elder son of Dr. T. C. Donaldson, the Elms, 19. He was educated at Epsom College, and at the City and Guilds Engineering College, London, enlisted in his battalion early in the war, went to France in March, served in the action at Festubert, and was gazetted to a commission from September 24th, the day before his death.

Duirs, Morris Williams, Second Lieutenant 7th Battalion King's Own Scottish Borderers, youngest son of the late Dr. D. E. Duirs, of Johannesburg, South Africa, killed in France, September 25th to 27th, aged 22. His commission was dated December 12th, 1914.

Fitzmaurice, Richard, 1st Battalion London Scottish, fourth son of Dr. Richard Fitzmaurice, of Littlehampton, Sussex, late of Lindfield, killed in France, September 25th-28th, aged 25.

Gillett, Edward Francis, Second Lieutenant Royal Field Artillery, eldest son of Dr. Jermyn Francis Gillett, Elvin House, Audover, killed in France on September 28th, aged 21. He got his commission on January 23rd, 1915.

Hare, Bernard Crumston, Second Lieutenant First Battalion Middlesex Regiment, youngest son of E. H. Hare, F.R.C.S., of Aylesford Lodge, Hornsey, killed in France, September 25th-28th, aged 22. He was educated at Highgate School, where he was in the Officers' Training Corps, and joined the Artists' Rifles before the war. He took an interest in social work, and was Scoutmaster of the 66th North London section, and a commission in the 14th Battalion of the Middlesex Regiment on November 23rd, 1914, but was senior in command of the bombardiers of the 1st Middlesex when killed. His eldest brother, Amys, was killed at Neuve Chapelle, the second is serving in the Indian Army in command of a destroyer, and the third, Jack, a Lieutenant in the 210th Middlesex, has been wounded at Gallipoli.

Hopkins, Lewis, Second Lieutenant, 8th Battalion Somerset Light Infantry, youngest son of the late Surgeon-Major Nathaniel Hopkins, I.M.S., killed in France, September 25-27th, aged 29. His commission was dated March 1st, 1915.

Lloyd, Cecil D., Norton, Second Lieutenant, 8th Battalion West Kent Regiment, second son of Dr. Hugh Lawson of Chislehurst, killed in France, September 25th, aged 19. He was educated at Halesbury, enlisted in the Public Schools Battalion at the beginning of the war, and got a commission on September 22nd, 1914.

Moore, William Henry Walker, Second Lieutenant, 6th Battalion Wilshire Regiment, son of Dr. Moore of Walton Grange, Sandhurst, killed in France, September 23rd, aged 18. His commission was from September 23rd, 1914.

Moran, Herbert James, Lieutenant, 8th Gurkhas, younger son of the late Lieutenant-Colonel James Moran, I.M.S. (retired), killed in France, September 25-28th, aged 24. He was born on January 17th, 1891, joined the army as Second Lieutenant on January 20th, 1912, and joined the Indian army on March 11th, 1914.

Moran, William Paul, Lieutenant, 10th Gurkhas, eldest son of the late Lieutenant-Colonel James Moran, I.M.S. (retired), died at Malta on July 8th of wounds received in the Dardanelles. He was born on January 23rd, 1887, educated at Bedford, joined the East Surrey Regiment as Second Lieutenant on January 29th, 1906, and the Indian army on October 5th, 1907, as Second Lieutenant on November 29th, 1908.

Myddleton-Gavey, Francis Edward, Captain, 2nd, attached to 4th, Battalion Worcester Regiment, only son of Major E. H. Myddleton-Gavey, R.A.M.C.(T.F.), late of Eastbourne, killed at the Dardanelles on September 26th, aged 27. He was born on January 24th, 1888, became Second Lieutenant on September 9th, 1908, joined the Indian army on November 7th, 1909, being posted to the 1st Gurkhas, became Lieutenant on December 9th, 1910, and resigned in 1913. He returned to the Worcester Regiment as Lieutenant on February 9th, 1915.

Paramore, Charles Gordon, Captain 8th Battalion Royal Berkshire Regiment, fourth son of the late Dr. Paramore of Gordon Square, London, killed in France on September 25th, aged 30. He became Captain on February 18th, 1915.

Ryan, James H. A., Captain 1st Battalion King's Liverpool Regiment, younger son of Dr. W. H. Ryan, of Road, Northamptonshire, killed in France, September 25th. He was educated at Downside School and at Sandhurst, which he represented at Association football, cricket, and athletics, and also won the half-mile at the army athletic meeting at Aldershot in 1913. He joined his regiment in February, 1912, became Captain on August 5th, 1914, went to France in August, 1914, and served in the 1st Regiment from March to June at the end of which he was the only officer of the battalion who was wounded in August, 1914, still unwounded. He won the Military Cross early in the war. As a cricketer he had also played for Northamptonshire.

Treameane, Arthur John Newman, Major 8th Battalion Seaforth Highlanders (Ross-shire Buffs), eldest son of the late Mr. John Treameane, M.R.C.S., of Melbourn, Cambs., killed in France, September 25th, aged 38. He was educated at Geelong School, Ormonde College, and Melbourne University, and had the degrees of M.A., M.Sc., and LL.M., and was also a barrister-at-law of Gray's Inn. In 1899 he went with the first Victorian contingent to South Africa, where he served in the operations in Cape Colony, including the action at Colenso, was wounded, and received the Queen's medal with two clasps.

He went from the Cape to West Africa, where he was on special service in the Ashanti campaign of 1900, receiving another medal and clasp. He subsequently served as Adjutant of the West African Regiment at Sierra Leone, as Superintendent and Staff Officer of Police in North Nigeria, and as Political Officer on the Boundary Commission. He acquired a thorough knowledge of the Hausa language, for which he got a scholarship at Christ's College, Cambridge, and was appointed lecturer in that language to the university. On December 25th, 1909, he was appointed Major and second in command of the 22nd (Queen's) Battalion of the London Regiment, but was transferred to the Reserve on taking up work in the Hausa colony in Tunis and Tripoli. When he broke out he was in Australia. He came home at once, and was reappointed Major on October 24th, 1914, this time in the Seaforths. He was the author of several works on the Haussas.

MEDICAL STUDENTS.

Calder, George M., Second Lieutenant 8th Battalion Seaforth Highlanders (Ross-shire Buffs), youngest son of George M. Calder, of Pressley, Forres, killed in France September 25th-28th, aged 24. He was educated at Aberdeen, where he had taken the M.A., and had completed his second year in medicine when the war broke out. He then enlisted in the Gordon Highlanders, and went to France as a sergeant in that regiment. He got a commission on February 25th, 1915.

Cruikshank, Harold A., Lieutenant 2nd Battalion Royal Scots Fusiliers, only son of the late William Cruikshank, of Kimberley, South Africa, killed in France on September 28th, serving as machine gun officer of his battalion. He was in his third year of medical study at Glasgow University. His commission was dated April 1, 1915.

Finlay, Thomas Pressell, Captain 3rd, Attached 2nd Battalion Gordon Highlanders, killed in France September 25th-28th. He was the only son of the late Robert Finlay, of Blackhill, Bonybride. He was in his final year of medical study at Glasgow University, and in the O.T.C. there when the war broke out. He got a commission as Second Lieutenant in the 4th Battalion of the Argyll and Sutherland Highlanders from August 15th, 1914, later was transferred to the Gordons, where he got his Company in July.

Harley, George Melven, Captain 12th Battalion Highland Light Infantry, killed in France on September 25th, aged 25. He was a medical student at Anderson's College and the University, Glasgow, and in the O.T.C. there. Three years ago he joined the Special Reserve of Officers, on May 18th, 1912. He became Lieutenant on October 15th, 1914, and Captain on February 1st, 1915.

James, Douglas Charles, Second Lieutenant South Staffordshire Regiment, died in France on September 30th, of wounds received on the 25th, aged 20. He was the second son of Charles Henry James, Esq., J.P., of Ingledene, Plymouth, and was a medical student at Bart's. His commission was dated November 4th, 1914. His elder brother, Lieutenant William Douglas James, Royal Garrison Artillery, was also killed on September 25th.

NOTES.

THE MOTOR LABORATORY OF THE WELSH DIVISION.

The equipment and personnel of a divisional bacteriological laboratory has been sanctioned in connexion with the 38th Welsh Division. The war establishment is one captain, one lieutenant as assistant bacteriologist, one laboratory attendant (a sergeant or corporal), and one driver A.S.C. (mechanical transport). The transport consists of the motor laboratory (five tons), with one driver provided from the divisional supply column, and one motor cycle for the use of officers for inter-communication. The laboratory, it may be remembered, was presented by Mr. and Mrs. Lynn Thomas. The bacteriologist is Captain Emrys Roberts, professor of pathology and bacteriology in the University of Wales, and pathologist and bacteriologist to the King Edward VII Hospital, Cardiff. The laboratory has been working with the division for some months.

THE LORD DERBY WAR HOSPITAL, WARRINGTON.

The Lord Derby War Hospital, Warrington, has been established in the asylum buildings of the Lancashire County Council at Winwick; it provides accommodation for over 2,500 men. Within five weeks of being taken over it was ready to receive patients. Three operating theatres, each with anaesthetic and x-ray apparatus, have been established. In addition to services rendered by surgeons in Warrington and Manchester, there is a staff of twenty-one resident medical officers. The hospital is under direct War Office control and regulations, but there is also a visiting committee. The number of patients in the hospital is about 1,700, and since it was taken over as a war hospital nearly 3,500 patients have been admitted. The administrator is Lieutenant-Colonel Alexander Simpson, who was medical superintendent when the buildings were used as an asylum, and the deputy administrator is Major F. M. Rodgers, previously assistant medical officer.

THE SOUTH-WEST AFRICAN CAMPAIGN.

In the BRITISH MEDICAL JOURNAL of October 2nd we published a summary of the medical statistics of the Union Defence Forces for the period covered by the duration of hostilities in South-West Africa. This was taken from a report by Colonel P. G. Stock, Director of Medical Services, which was published in the *Medical Journal of South Africa* for July. In the August number of our contemporary there is a letter correcting an error in the number of doses of antityphoid vaccine supplied by Dr. Pratt Johnson from the Clinical Research Laboratories, Johannesburg. The figure should have been 67,580 doses, and not 33,000, as originally stated.

BLIND SOLDIERS.

Following the example of Great Britain and France, Italy is establishing institutions for the training in new lines of work of soldiers blinded in the war. One has been set up in Florence for some time under the direction of Dr. Bartolomeo-Iloli and Professor Pietro Landriani, both of whom, being blind themselves, are specially qualified to understand the difficulties of persons who have lost their sight. The municipality of Milan has appointed a committee, of which the Sindaco, Signor Caldera, is chairman, to study the best means of organizing means of enabling blinded soldiers to earn their living. The Council of the Pie Istituto dei Ciechi has placed its services at the disposal of the committee.

MEDICAL OFFICERS WANTED.

2nd 1st City of London Field Ambulance (T.F.).

There are vacancies for medical officers in this unit. Pay and allowances as in the regular army, with promotion to the rank of captain after six months' service. Apply to Major C. S. Brebner, 2nd City of London Field Ambulance (T.F.), Ipswich.

2nd West Riding Field Ambulance (T.F.).

There are vacancies for officers of this unit for service overseas. Applications to the officer commanding 2nd West Riding Field Ambulance, Thoresby Camp, Worskop.

67th (Howe Counties) Division.

Commanding officers are wanted for the Divisional Sanitary Sections of the First and Second Lines of this Division. Medical officers of health or medical men possessing the D.P.H. preferred. Applicants should not be above 45 years of age. Further particulars can be obtained from Colonel William R. Smith, Divisional Sanitary Officer, Head Quarters Tumbridge Wells.

Ireland.

DUBLIN CASTLE RED CROSS HOSPITAL.

A REPORT recording the steps which led to the transformation of Dublin Castle into a Red Cross hospital has been issued, and its new aspects are illustrated by excellent photographs. The wards were equipped for the reception of 250 officers and men, and were ready for the reception of patients on January 27th. On February 17th the first convoy of wounded soldiers numbering 100 arrived; on March 19th 162 arrived, on April 30th 142, on May 28th 96, and on June 27th 119. The number discharged convalescent was 588. The radiographs taken numbered 304, and the operations 212.

The Committee of Management states that no grant has been received from the War Office, nor any aid from the British Red Cross Society, towards equipment. While the War Office agreed to pay the clinical hospitals of the city at the rate of 4s. a day for each bed occupied, the Committee had not been able to get any claim, beyond 3s. a bed occupied a day, acknowledged. The Committee claims equality of treatment, and regards the situation as particularly illogical when it is considered that the cost of the staff and much of the running expenses have to be incurred whether the wards are occupied or empty, whereas in the hospitals existing before the war only a small addition to the staff was needed to meet the requirements of the number of wounded soldiers that they take in. In these circumstances the Committee is satisfied that, to carry on the work of conducting the affairs of the hospital and ensuring that all supplies shall be promptly paid for, it will be necessary for the City of Dublin Branch to make a strong effort to augment the fund for the maintenance of the Castle Hospital. The statement of income and expenditure from December 12th, 1914, to June 30th, 1915, shows receipts of 46,000 from the Red Cross Branch and 22,791 from the War Office, and expenditure of 24,433 on furniture and equipment, 11,374 on salaries and wages, and 22,568 on supplies. It is stated that the cost of maintenance during May, with 182 beds occupied, was 3s. 5d. a bed, and during June, with 121 beds occupied 3s. 11d. a bed.

In a leaflet issued with the report of the Red Cross Branch it is stated that a working margin of £1,000 is required to relieve the financial strain. The Committee has been asked to equip 50 additional beds for open-air treatment, to be placed on a long balcony temporarily roofed over. The additional cost would be £1,000 and, if the funds were available, the equipment would be undertaken. A letter acknowledging the receipt of the report has been received from the Queen, who expresses the pleasure with which she has learnt that the Branch is in an efficient state of organization and is doing such excellent work.

ARRIVAL OF HOSPITAL SHIP AT DUBLIN.

The hospital ship *Oxfordshire* arrived off Dublin about midnight on Sunday, October 3rd, with about nine hundred men and officers on board. Owing to a fog she was not able to land the men until the evening, when some twenty units of the Irish Automobile Club ambulance service and about forty private cars were ready to receive them and squads of the R.A.M.C. and St. John Ambulance Brigade were in attendance. Nearly three hundred of the wounded were sent to Belfast in two trains. One man died on the journey. A large number of the men came from the fighting round Loos, and many regiments were represented.

SCALE OF FEES FOR PRIVATE PRACTICE.

At a recent meeting of the Swinford Board of Guardians Dr. J. M. O'Reilly, Salford Royal Hospital, was unanimously elected medical officer of the Charlestown dispensary district, subject to his signing a scale of fees not exceeding 5s. for all visits on patients under £5 valuation, and over £5, 10s. for the first visit, and 5s. for succeeding visits; maternity cases not to exceed £1 is. Several attempts have been made recently to induce doctors to sign such an undertaking, which is not only unreasonable but illegal.

Scotland.

SIR ALEXANDER OGSTON AND THE GENEVA CONVENTION.

A LARGELY attended meeting was held at Inverurie on October 9th in connexion with the County of Aberdeen Branch of the British Red Cross Society. Sir Alexander Ogston, who has been doing valuable work among the sick and wounded in Serbia, delivered an address on the Geneva Convention. That Convention, he said, was signed by all the European powers and also by the United States, Japan, and other ex-European nations, and it was thought that the horrors of war were to be enormously mitigated. He was afraid, however, that all their dreams of humanity were very much the same as they were in the days before benevolence began to be preached as a doctrine, and aimed at as a principle. They saw two of the leading nations of Europe throwing over by the first part of their military work the whole of the Geneva Convention. These nations no longer regarded neutral men as neutrals; they were prisoners; cruelties could be exercised upon them, and that with zest. Those who attended upon the wounded could no longer go free, taking all their materials with them. They were all made use of by those two unscrupulous nations who had rent the Geneva Convention into fragments, and no one would ever in future believe in the Geneva Convention. Who could? After the example they had had, it seemed an impossibility that any one without ridicule could hold up the idea of the Geneva Convention. It seemed that in the future it would be quite recognized as one of the features of the war that the non-combatants should be made prisoners, ill-treated, shot, executed, and that the individuals of the country where the war was being carried on—however helpful they might be to the sick and wounded of either army—would be looked upon as enemies, and all their efforts under the Geneva Convention would amount to nothing whatever. After some severe remarks on the conduct of individuals among ourselves whom greed had led into a course of action which meant a betrayal of their own country, Sir Alexander Ogston went on to say that long before the crisis came there were persons who perceived that there was at home an avenue open to them for good in connexion with possible war work in the future. Although Voluntary Aid Detachments and the Red Cross Society did not meet with a vast number of

supporters, they met with a few, and that of the very first quality, and he thought those who had joined the Red Cross Society before the war broke out, or undertook the work of Voluntary Aid Detachments, could not help feeling a pride in what they did. When they started the little voluntary hospitals the idea was entertained that a check must be put upon the soldier patients by having a sergeant or constable in supervision over them in case they might break out of the ward. But a very few weeks of actual experience showed that that was all nonsense, especially in the case of the Territorials, who were absolute gentlemen. A word from a nurse was sufficient restraint, and a remonstrance was sufficient to make them do anything.

Canada.

PROPOSED RESIDENTIAL COLLEGE AT MCGILL UNIVERSITY.

The athletic sports of the McGill Auxiliary Battalion of the Canadian Officers' Training Corps were held on September 18th on the new camps, which is beautifully situated at the foot of the Montreal Mountain. The property was purchased by Sir William Macdonald and presented to the university a few years ago. A stadium, capable of seating 8,000, the funds for which were subscribed by graduates of the university, is almost completed. In the future it is proposed to erect residences for the students, and towards the funds required for this purpose 150,000 dollars has just been given by Dr. James Douglas of New York, son of the late Dr. Douglas, a well-known practitioner in Quebec. Dr. James Douglas took the degree of B.A. at Queen's University, Kingston, and is an honorary LL.D. of McGill University, of which in the past he has been a generous benefactor; he was recently elected Chancellor of Queen's University.

A MEDICAL LIEUTENANT-GOVERNOR OF ALBERTA.

Dr. R. G. Brett, of Banff, Alberta, has been appointed by the Dominion Government to be the next Lieutenant-Governor of the province of Alberta. He was born at Strathroy, Ontario, in 1851, and graduated in medicine from Victoria University, Toronto, in 1874. After practising for some time in Ontario he went to Winnipeg, and became one of the founders of the Manitoba Medical College. In 1886 he established the Banff Sanatorium, of which he became medical director. From 1889 to 1892 Dr. Brett served on the Advisory Council of the North-West Territories (now the provinces of Saskatchewan and Alberta), and from 1892 to 1900 was a member of the Assembly. He was also President of the College of Physicians and Surgeons of the North-West Territories, and is now a member of the Medical Council of the Province of Alberta.

Correspondence.

THE WAR EMERGENCY.

A QUESTION OF UNIFORM.

SIR,—In view of the heavy demands which are about to be made on the medical profession to furnish medical officers to the navy and army, it is important that the reasonable requirements of those who may elect to serve should be at once stated to the Admiralty and War Office, and, if possible, given effect to while there is yet time.

Every medical man who now signs himself willing to serve when called upon is placing his future on the cast of a die and conferring an obligation on the nation. He is virtually enlisting, yet seems to be promised nothing in return for his devotion.

The meanest man who enlists in the navy or army receives a uniform—a token to the world that he is serving the nation—and medical men who give their promise to join when required ought, after being found physically fit, to be required to wear a uniform and receive a bounty of, say, £10 to purchase it.

No one who knows the inducements that lead men to serve can doubt that this, more than anything, would induce a large number to offer themselves. The whole

subject might be argued out at length, and I think the reasonableness of what I suggest would be admitted, but I abstain from encroaching on your space, as probably all who know the feelings of the profession, as I am convinced I do, will at once admit it.—I am, etc.,

October 10th.

A. O.

THE NEED FOR SELECTION.

SIR.—As Chairman of the War Emergency Committee of the Chesterfield Division of the British Medical Association, I cannot allow the letter from Dr. Barwise in this week's JOURNAL to pass without some explanation from me, although the enrolment of all junior men has to some extent done away with the necessity for his letter and my reply.

Our Committee recently received a communication from the Central Committee in London, stating that more men were urgently needed for the R.A.M.C., and that our area should produce six more men.

After discussion it was decided to send a circular letter to men under 40 years of age, pointing out the urgency of the call, and appealing to them primarily as coming within one or more of the following classes: Unmarried, in a partnership, on whole time service, assistants, or hospital residents. There was a strong feeling that the men who stood to lose least should be asked to join first.

Now the tuberculosis officer resident at the Chesterfield Sanatorium, which has only been opened a few months' certainly fulfilled these conditions, for he could return to his post at the close of the war without loss of capital or income. The Committee, I understand, were willing, if necessary, to close this sanatorium for the duration of the war; moreover, they actually offered the use of this sanatorium to the War Office, who refused it, saying that they did not need the sanatorium, but they did want the staff. In any case, there should have been no great difficulty in finding a man over military age to do this work, or a medical lady, many of whom are specially qualified. A copy of our letter to this medical officer was forwarded to Dr. Barwise also, with a request that no barrier should be put in his way if he desired to enlist. No special pressure was, so far as I am aware, put upon the particular officer in question.

At the same time, the Committee here realize that medical men in general practice with much to risk both in capital and in income are not encouraged to join when they see suitable whole-time officers still in their posts.

Dr. Barwise, in his letter, refers to the fine response made by his staff in general, for which the Committee heartily applaud them, and it may be of interest to know that most, if not all, of these men have been replaced; but I fail to see that these statistics alter the fact that an eligible man is not being encouraged to go.

Dr. Barwise makes some ungenerous remarks about the recruiting returns of panel doctors in the county of Derby. He should know that these men deal with the urgent and constant needs of the civil population in a large colliery area, with many thousands of munition workers. Unless this class of people have an efficient staff of doctors there will certainly be the risk of an outcry in the country. Another grievance against the panel doctor is that a few of us have been fortunate enough to secure a holiday. Let Dr. Barwise be thankful that he at any rate goes to bed every night secure against any disturbance of that holiday.

His Utopian scheme to divide the country into areas and compel each doctor to limit his energies to his own little corner would kill the free choice of doctor with a vengeance, and could only be suggested by a man who knows nothing at all of the work of a general practitioner. This letter has been submitted to the War Emergency Committee, who unanimously approve.—I am, etc.,

ARTHUR COURT,
Chairman.

Chesterfield, Oct. 12th.

SIR.—In a letter from Dr. Barwise in your last issue there appears to be a veiled imputation against the patriotism of the panel doctors in Derbyshire. He fails to realize that a large number of assistants to panel doctors have undertaken military duties, thus in many cases doubling the work of practitioners. His statement that the panel doctors have been able to take their holidays as

usual is absolutely incorrect. I am sure we are all very interested to hear the amount of work that Dr. Barwise is doing, but although we do not advertise the fact in the medical papers I feel convinced that the majority of panel practitioners in Derbyshire do more hours' work in a week than Dr. Barwise, and a large percentage of that work is on dependants of men on active service, for which we receive nothing, thus differing from the patriotic work performed by Dr. Barwise, for which he receives remuneration from the State.—I am, etc.,

Alfreton, Oct. 11th.

RAYMOND G. BINGHAM.

Dr. H. E. LITTLEDALE (Charing, Kent) writes to express his entire agreement with Dr. Barwise's suggestion that the entire medical profession should be taken over by the Government, and that practitioners left at home should be removed from their own to other districts. He has, he adds, already made this suggestion to the War Emergency Committee.

GROUSING.

SIR.—Your editorial under the above heading is a timely call to—let us say—the less thoughtful of our profession.

I had the honour of serving in France for over six months, my position being such as to bring me in contact with some hundred or more medical officers. After the rush in October, November, and December of 1914 I was frequently asked by my colleagues if I could not do something to break the monotony of "having nothing to do." My reply to one and all was this:

"I am very pleased to hear it, for it means that our poor chaps up at the front are not being smashed up. We did not come out here for experience at the expense of our pals, so carry on and wait for the next rush, when you will be busy enough."

"I never looked at it in that light," one and all replied, and I heard no more grouching.—I am, etc.,

A. MACBETH ELLIOT, M.D.,

(Temporary) Lieutenant-Colonel, R.A.M.C.

London, W., Oct. 10th.

ABSENT CONSULTANTS.

DAKRYON asks for suggestions for the "solution of a problem serious to me and to others similarly situated if they should join the R.A.M.C. A large part of my income is derived from consultations with neighbouring practitioners. Even supposing that my friendly rivals did not wish to profit by my absence, I do not see what scheme could be arranged which would be feasible and just."

INFANT FEEDING.

SIR.—At a time when faddism is rife in the artificial feeding of infants, and alternative methods, each of which is lauded by its own particular adherents, are abundant, I own it is with some temerity that I write to support any one of them. But my experience with whole citrated milk bears out so exactly Dr. C. W. Vining's contention that I feel his protest should not go altogether unsupported. To me, as to him, the infant fed by this method bears little resemblance to the majority of those who receive diluted milk. When I began to advise with regard to infant feeding in an out-patient department I thought, as I had been taught, that diluted milk with certain definite proportions of sugar and cream added would satisfy all needs. Disillusionment soon followed, for I found that diluted milk in the case of the poor meant literally milk and water, with perhaps some sugar. Cream or any substitute for it was seldom added, despite the most detailed instructions. The hospital babies fed on diluted milk I found were listless, pale, and pasty, with flabby muscles and loose joints, prominent abdomens, and unhealthy motions, and were not seldom rickety. My conception of them fits Dr. H. C. Cameron's description fairly closely.

With some scepticism and misgiving I tried whole citrated milk, for it seemed to me that even if such a method attained no more than an equal degree of success, the absence of the need for adding sugar and fat would be greatly in its favour. I was agreeably surprised by its results, and now after a trial extending over some nine years, I am led, like Dr. Vining, to the opinion that as a routine method for infants without gastro-intestinal

disorders it surpasses all others. Infants fed on whole milk, to my mind, contrast most definitely with those fed on diluted milk, and show to an unusual degree for artificially fed babies those criteria of good nutrition—healthy skins, firm muscles, taut joints, physical vigour, and mental alertness.

I use 2 grains of sodium citrate to the ounce of milk, not 1 grain as advocated by some writers, and regard the difference as important. When, however, the time arrives for giving more than 4 oz. feeds, the citrate may often be reduced to the lesser amount. The milk is always brought to the boil; there appears to be some special advantage in boiling the milk in this method of feeding, in addition to those which are usually claimed for it.

No hard-and-fast rule can be made with regard to the amounts suitable for each feed, varying as they do, not only with the age of the baby, but with its weight, vigour, previous feeding. As a rule, a satisfactory amount is one which is slightly in excess of that of the milk, which would be given in a diluted milk feed. As in other methods of feeding, it is wise to give a small amount at first, and to increase it gradually, using as guides the baby's weight chart, appetite, and general condition.

The dietetic treatment of exceptional infants and those with gastro-intestinal disorders is another chapter.

Dr. Vining has made his attitude quite clear. No more than he should I regard whole citrated milk as the key to all the difficulties which surround this complicated but important subject. I agree with Dr. Cameron that there is no room for dogmatism, but much for careful and systematic observation. Whether from the work of the school of Finkelstein and Meyer, of which Dr. Cameron is such an able exponent, there will emerge a principle from which a method, or methods, of feeding will be devised as generally applicable as whole citrated milk remains to be seen.—I am, etc.,

London, W., Oct. 6th.

FREDERICK LANGMEAD.

BOYS IN RECRUITING RALLIES.

SIR,—Yesterday afternoon in the company of many thousands of the inhabitants of this health resort somewhere on the English seacoast, I was a spectator of a great recruiting rally and march-past. From a medical standpoint I observed several matters that I think require readjustment. As the whole subject hinges upon one fact—namely, the introduction of children into the ranks of adult marching troops, to take on muscular strain for which their immature limbs are unfitted—I shall not take up space with unnecessary detail. What I saw yesterday was a considerable body, of whom, at a low estimate, 30 per cent. were boy scouts, boy cadets, and boy non-descripts. Although one could not avoid admiring the pluck many little fellows of 4 ft. and less displayed in striving to keep up with the long quick strides of their seniors, yet one could see that the strain was excessive and in some cases was doing the children positive harm. The conditions were accentuated in the case of the boys who played the wind instruments and who marched along discharging sweet music as they went, but at what a cost!—I am, etc.,

October 11th.

M.D.

THE WAR REFUGEES' DISPENSARY.

SIR,—For nearly a year, with the express sanction of the Government, the Committee of the War Refugees' Dispensary, 265, Strand, W.C., has been providing domiciliary medical attendance for refugees residing in the London area. It has been able to do this solely by the devoted and enthusiastic co-operation of Belgian doctors, themselves refugees. Owing, however, to various causes, the number of Belgian medical practitioners available for this work has diminished almost to vanishing point at the moment when the colder weather is daily increasing the calls for domiciliary attendance, and the Committee finds itself confronted with many more such appeals than it is able to meet. It has occurred to it that even in these days of unusual stress there are probably many English practitioners with a sufficient knowledge of French who would be willing, if not eager, to help it by undertaking in case of need to visit sick refugees living in their immediate neighbourhood. It is not likely that any doctor would be asked to undertake more than two or three such cases at

a time. The Committee does not offer any remuneration, and all its work up to the present date has been entirely gratuitous, but it would pay for all necessary medicines and appliances. The areas in which help is most needed are those lying to the south of the river, in the East End, and in the Finsbury and Hammersmith districts. The Committee would be glad to receive the names of any doctors willing to help it, addressed to the War Refugees' Dispensary, 265, Strand, W.C.—I am, etc.,

J. H. PHILLOP,
Chairman of Committee, War
Refugees' Dispensary.

October 12th.

Obituary.

SURGEON-GENERAL SIR CHARLES MACDONAGH CUFFE,
K.C.B., LL.D.,

ARMY MEDICAL STAFF (RET.).

SURGEON-GENERAL SIR CHARLES CUFFE died at 2, Cadogan Gardens, S.W., after a short illness, on October 4th, aged 73. He was born in Dublin on April 15th, 1842, the son of the late D. B. Cuffe, was educated at the Catholic University, Dublin; at the Richmond Hospital; and in the medical school of the Irish College of Surgeons, Dublin; and took the diploma L.A.H. (Dubl.), and the double qualification of the Edinburgh Colleges, in 1863. He became F.R.C.S. (Edin.) in 1893. He entered the army as assistant surgeon on September 30th, 1863; became surgeon on April 1st, 1873; surgeon-major on September 30th, 1875; brigade surgeon in 1888; surgeon-colonel in 1893; surgeon-general on November 30th, 1896; and retired, on attaining the age of 60, on April 15th, 1902. From 1867 to 1874 he served in the 11th Prince Albert's Own Hussars, and, after attaining administrative rank, was principal medical officer successively at Belfast, 1893-94, of the Allahabad and Narbadá Division 1894-95, and at Rawal Pindi 1895-96. He served in South Africa in 1877-79, in the Kafir war of 1877-78, the operations against Galekas; and in the Zulu war of 1879, including the battle of Ulundi; he was mentioned in despatches in the *London Gazette* of August 2nd, 1879, and received the medal with a clasp and the C.B. He saw active service also in Burma in 1887-88, receiving the medal with a clasp. In 1905 he was promoted to K.C.B. He was also an honorary associate of the Order of St. John of Jerusalem, a J.P. for London, and a vice-president of the Irish Medical Schools' and Graduates' Association. He had been a member of the Kensington Borough Council since 1906 and had served on a number of committees, including the Public Health Committee. He had also been a member of the board of guardians for St. Mary Abbots', Kensington, since 1907.

Sir Charles Cuffe was for several years a member of the Naval and Military Committee of the British Medical Association; he was vice-president of the Section of Public Medicine at the annual meeting at Portsmouth in 1899, was vice-chairman of the Kensington Division from 1908 till 1911, and represented that Division at the annual meeting at Sheffield in 1908.

DR. AUSTIN FLINT, of New York, who died suddenly on September 22nd, was born in 1836, and was therefore in his 80th year. He was the son of a well-known physician. He received his literary education at Harvard, and then studied medicine at the University of Louisville, and afterwards at Jefferson Medical College, Philadelphia, where he graduated in 1857. He settled first in Buffalo, where he was visiting surgeon to the General Hospital and professor of physiology in the university of that city. He was also editor for three years of the *Buffalo Medical Journal*. In 1859 he was appointed professor of physiology in New York Medical College. He was one of the founders of Bellevue Hospital Medical College, and the first professor of physiology in that institution. In 1898 he became professor in Cornell University Medical College, where he remained till the end of his active career. Dr. Flint was well known as the author of several valuable works. Among them may be mentioned the *Physiology of Man*, in five volumes, of which two editions have been published; *Chemical Examination of the Urine in*

ANALYSIS OF CASES OF TETANUS TREATED IN HOME MILITARY HOSPITALS FROM AUGUST, 1914, TO AUGUST, 1915.

BY
SIR DAVID BRUCE, C.B., F.R.S., F.R.C.P.,
SURGEON-GENERAL, A.M.S.

The object of this paper is to give medical officers serving in military hospitals at home the result of various methods of treatment in cases of tetanus.

In December, 1914, a return of cases of tetanus was called for from home military hospitals, and an army form issued. Up to the present, notes on 231 cases have been sent in: of these, 98 recovered and 133 died. This gives a mortality of 57.7 per cent. In the *Memorandum on the Treatment of Injuries in War* (July, 1915)¹ it is reported from overseas that 179 cases of tetanus have been treated. Of these 179 cases, 140 died, a case mortality of 78.2 per cent.

The death-rate in untreated cases is stated to be 91 per cent. in those of short incubation, 50 per cent. in those of delayed incubation.

On examining the rate of mortality at the various hospitals where cases of tetanus have been treated, it is seen that at Netley it stands at 81 per cent. This is probably due to the fact that as this hospital is near the port of disembarkation the most serious cases and those already showing symptoms of tetanus would naturally be sent there.

There were 6 cases at Aldershot with 6 recoveries. As this result is very satisfactory, it may be useful to describe the method of treatment employed.

Cases of Tetanus treated at Aldershot.

Case 40.—The wound was in the right arm and caused by a shrapnel bullet. Five days after the wound, on his admission to Aldershot Hospital, he had 1,500 units of antitetanic serum injected subcutaneously as a preventive measure. Symptoms of tetanus occurred nine days after this injection, fourteen days after the date of wound. He now had 3,000 units injected subcutaneously and intrathecally on two days. Recovered.

Case 41.—Gunshot wound of middle finger of the left hand. On his admission to Aldershot Hospital he received 1,500 units as a preventive measure. Symptoms of tetanus occurred fourteen days after this injection and nineteen days after wound. Same treatment as in Case 40. Recovered.

Case 42.—Gunshot wound, scrotum and right thigh. He received 1,500 units on admission, five days after wound. Four days after this symptoms of tetanus appeared, and he received 4,500 units intrathecally in three doses on two days. Recovered.

Case 43.—Shell wound in left hip. On admission, three days after wound, 1,500 units were injected. Symptoms of tetanus appeared seven days after this injection, about ten days after the wound; 3,000 units subcutaneously and intrathecally. Recovered.

Case 44.—Gunshot wound, thorax. No preventive dose was given in this case on admission to the Aldershot Hospital. Symptoms of tetanus appeared six days after wound; 4,500 units in three doses, all intrathecally: 1,500 each, two on one day and one the day following. In addition, 2 c.cm. of a 25 per

cent. solution of magnesium sulphate were injected into the spinal canal with each injection of serum. Recovered.

Case 45.—Gunshot wound of left hand. A preventive dose of 1,500 units was given on admission and thirteen days after wound. Symptoms three days after this injection and sixteen after wound; 3,000 units in one day subcutaneously and intrathecally. Recovered.

It may be that these cases were slight, and would have recovered spontaneously, but two things must be remarked. In five of the cases a prophylactic dose of serum was given immediately on admission to hospital at Aldershot, and in the curative treatment the direct injection into the spinal canal was always used. In England resort to this preventive use of serum seems to have been rare, and it is suggested that in suspicious cases it seems a sound line of treatment. After onset of symptoms the intrathecal way of approach appears also to be by far the most effective.

At Aberdeen there were 3 cases with 3 recoveries. None of these had a preventive dose on admission to the Aberdeen Hospital. One had 147,000 units (140,000 subcutaneously, 4,000 intravenously, and 3,000 intrathecally), another 18,000 units (16,500 subcutaneously, and 1,500 intrathecally), while the third had only 3,000 subcutaneously.

Colchester also had good results—7 cases with 5 recoveries. Here also there was no prophylactic treatment on admission, and nothing noteworthy in the manner of curative treatment.

THE DISTRIBUTION OF CASES OF TETANUS BETWEEN AUGUST, 1914, AND AUGUST, 1915.

The first cases occurred in August, 1914, and the following diagram represents as nearly as possible the number of cases which occurred in each month until the following July. It is impossible to show the proportion of cases of tetanus to the number of wounded, as the information is not at present obtainable.

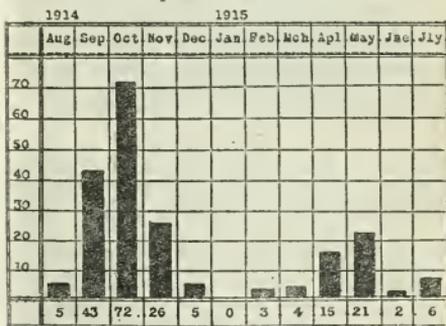


Diagram I.

From Diagram I it will be seen that most of the cases occurred during September, October, and November, 1914. This may have been due to the fact that the wounded

¹ BRITISH MEDICAL JOURNAL, August 2nd, 1915, p. 305.

TABLE I.—Particulars of the Six Cases treated at Aldershot.

No. of Case.	Date of Wound.	Prophylactic Injection of Serum.			Onset of Symptoms.		Curative Treatment by Antitetanic Serum.					
		Date.	No. of Days after Wound.	Method.	Units.	Date.	No. of Days after Wound.	No. of Days after Prophylactic.	Date.	Subcutaneously.	Intrathecally.	Result.
40	1914. Oct. 18	1914. Oct. 23	5	Subcutaneously	1,500	1914. Nov. 1	14	9	1914. Nov. 2 Nov. 3	— 1,500	1,500	Recovered.
41	Oct. 18	Oct. 23	5	Subcutaneously	1,500	Nov. 6	19	14	Nov. 6 Nov. 7	— 1,500	1,500	Recovered.
42	Oct. 18	Oct. 23	5	Subcutaneously	1,500	Oct. 27	9	4	Oct. 27 Oct. 28 Oct. 28	— — 1,500	1,500	Recovered.
43	Oct. 26	Oct. 29	3	Subcutaneously	1,500	Nov. 5	10	7	Nov. 5	1,500	1,500	Recovered.
44	Oct. 25	—	—	—	—	Oct. 31	6	—	Oct. 31 Nov. 1	— —	3,000 1,500	Recovered.
45	Oct. 20	Nov. 2	13	Subcutaneously	1,500	Nov. 5	16	3	Nov. 5	1,500	1,500	Recovered.

were more exposed to contamination of their wounds at that time, which included the retreat from Mons; that there was less opportunity of receiving surgical treatment as rapidly and as effectually as later on; that during this time the preventive use of antitetanic serum had not been developed, as it has during the last six months, when it is reported that, wherever possible, every wounded man has received a prophylactic dose; and generally that experience has taught medical officers how better to cope with the conditions obtaining in time of war, to unlearn the lessons of modern aseptic surgery, and to revert to the older methods of free incisions, thorough drainage, and constant removal of septic products by baths or irrigation. At the present time it is impossible to say which of these factors has been the most important.

RELATION OF THE NUMBER OF DAYS WHICH ELAPSED BETWEEN THE DATE OF WOUND AND THE ONSET OF SYMPTOMS, AND THE RATE OF MORTALITY.

It is well known that the rate of mortality depends on the length of time which has elapsed between the date of the wound and the onset of symptoms, and the following diagram shows that the cases of tetanus under consideration follow the same law.

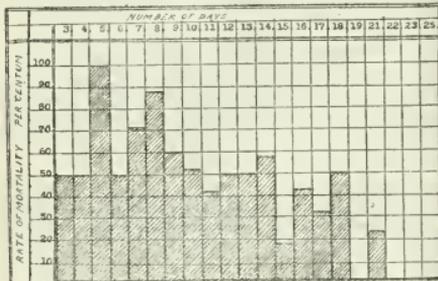
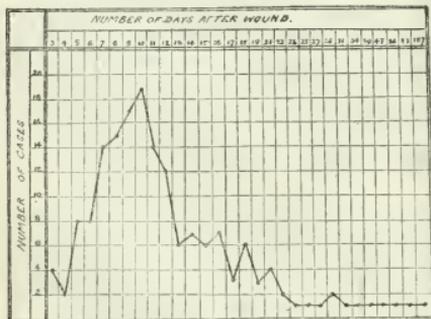


Diagram II.

Diagram II shows that in the cases dealt with, if the symptoms of tetanus appeared within ten days of receiving the wound, the mortality was 66.6 per cent.; if between the eleventh and twenty-fifth day, 39 per cent.

The Incubation Period, or Number of Days which Elope between the Date of Wound and the Onset of Tetanus Symptoms.

The following curve shows the number of cases which occurred on each day from the third day after date of wound.



Curve I.

From Curve I it will be seen that, in the cases of tetanus under consideration, more occur on the tenth day after the wound than on any other. The incubation period may be as short as three days and as long as 157.

TREATMENT OF TETANUS BY ANTITETANIC SERUM.

A.—Preventive Treatment.

Among the 231 cases, only 37 are noted as having been treated with antitetanic serum before the onset of symptoms: 20 in France, 7 in England, 10 not specified. Of these 37, 18 recovered and 19 died, giving a mortality of 51.3 per cent.

The usual dose was 1,500 units (8 records), but 1,000 were given in 3, 500 in 8, and 4,000 in 2.

TABLE II.

	Recovered.	Died.
8 cases inoculated on day of wound	3	5
3 " " one day after wound	2	1
3 " " two days after wound	2	1
2 " " three days after wound	1	1
2 " " five days after wound	1	1
3 " " six days after wound	3	0
2 " " seven days after wound	0	2
1 " " eight days after wound	0	1
3 " " nine days after wound	2	1
1 " " eleven days after wound	1	0
9 cases were unaccounted for.		

The average incubation period of 17 fatal cases was thirteen days; of 15 cases which recovered, 18.5 days.

B.—Curative Treatment.

Out of the total of 231 cases the numbers treated with antitetanic serum after the onset of symptoms was 215 (93 per cent.). Sixteen cases did not receive curative treatment with antitetanic serum in England. Of these, 3 recovered and 13 died; mortality, 81.25 per cent. Of the 3 which recovered all had been treated prophylactically in France. Of the 13 who died 6 had been treated prophylactically in France.

Of the 215 cases 116 were treated by subcutaneous injections alone; 46 recovered, 70 died. Mortality, 60.3 per cent.

Of the 215 cases 7 were treated by intravenous injections alone; 1 recovered, 6 died. Mortality, 85.7 per cent.

Of the 215 cases 14 were treated by intrathecal injections alone; 8 recovered, 6 died. Mortality, 42.8 per cent.

Of the 215 cases 27 were treated subcutaneously and intravenously; 5 recovered, 12 died. Mortality, 70.9 per cent.

Of the 215 cases 41 were treated subcutaneously and intrathecally; 23 recovered, 18 died. Mortality, 43.9 per cent.

Of the 215 cases 2 were treated intravenously and intrathecally; 1 recovered, 1 died. Mortality, 50.0 per cent.

Of the 215 cases 16 were treated subcutaneously, intravenously, and intrathecally; 3 recovered, 8 died. Mortality, 50.0 per cent.

Of the 215 cases 73 were treated intrathecally with or without subcutaneous or intravenous injections; 40 recovered, 33 died. Mortality, 45.2 per cent.

It would appear from Diagram III, which represents this graphically, that injections of antitetanic serum into

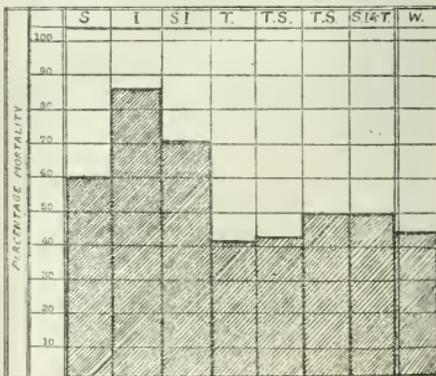


Diagram III.—Treatment of tetanus by antitetanic serum, showing rate of mortality in subcutaneous, intravenous, and intrathecal methods of injection. S, Subcutaneous; I, intravenous; S.I, subcutaneous and intravenous; T, intrathecal; T.S, intrathecal and subcutaneous; S.I & T, all three; W, intrathecal with or without others.

the spinal canal are more effective than subcutaneous or intravenous injections.

The Influence of Dosage on the Curative Action of Antitetanic Serum.

It is generally held at the present time that success in the treatment of tetanus by antitetanic serum depends on the use of big doses.

Out of the 231 cases under review, in 200 only was the amount of serum recorded. In analysing these 200 cases it must be noted that the amount of serum given is the total amount, not the daily amount or the amount of each dose. For example, if a serious case came into hospital, received 10,000 units, and died at the end of one day's treatment, this would be put down as 10,000, whereas a milder or more chronic case receiving the same treatment for ten days would be returned as having had 100,000 units. It would be false to argue that as the one got ten times as much serum as the other and recovered, the result was due to the larger amount of serum given.

In the returns sent in the daily amount is seldom given; what is recorded is the total amount given from the beginning to the end of treatment.

It is suggested that in the returns sent in future the daily amounts should be specified, and the mode of injection, intrathecal or otherwise, carefully recorded.

Out of the 200 cases 4 received 1,000 units or under; 2 recovered, 2 died. Mortality, 50 per cent.

Out of the 200 cases 61 received from 1,001 to 5,000 units; 24 recovered, 37 died. Mortality, 60 per cent.

Out of the 200 cases 50 received from 5,001 to 10,000 units; 14 recovered, 36 died. Mortality, 72 per cent.

Out of the 200 cases 20 received from 10,001 to 15,000 units; 12 recovered, 8 died. Mortality, 40 per cent.

Out of the 200 cases 19 received from 15,001 to 20,000 units; 6 recovered, 13 died. Mortality, 68 per cent.

Out of the 200 cases 19 received from 20,001 to 30,000 units; 10 recovered, 9 died. Mortality, 47 per cent.

Out of the 200 cases 14 received from 30,001 to 40,000 units; 9 recovered, 5 died. Mortality, 36 per cent.

Out of the 200 cases 13 received from 40,001 to 147,000 units; 9 recovered, 4 died. Mortality, 38 per cent.

The main conclusion to be drawn from a study of these cases of tetanus treated therapeutically by antitetanic serum is that it seems highly probable that the serum has little or no effect on the course of the disease. There is a little evidence that, if the serum has any effect at all, then the intrathecal method of injection is the most effective. It hence arises that, if serum is to be used at all, then it should first and foremost be injected intrathecally in as large dose as possible, and repeated as often as safe and practicable, as long as symptoms persist. If there is any likelihood that tetanus toxin is still being absorbed into the blood stream from the wound, then, in addition to the intrathecal injection, a further quantity of serum may be introduced intravenously and subcutaneously. In this way 3,000 to 5,000 units could be injected into the spinal canal and 10,000 to 20,000 into a vein and under the skin.

On account, doubtless, of the ease of giving serum by subcutaneous injection, this method is most used. In 116 cases out of the 215 under consideration (54 per cent.) it was the only method used. In 190 cases (88 per cent.) it was one of the methods used. The intrathecal method was only used in 73 cases out of the 215 (33 per cent.).

Now the contention is that the intrathecal path should be used in every case where serum is used, either alone or in conjunction with the other methods.

OTHER THERAPEUTIC REMEDIES.

1. Carbolic Acid Injections.

The treatment of tetanus by carbolic acid injections was described by Baccelli in 1888, and consists of the subcutaneous or intramuscular injection of carbolic acid. It is generally used in a 1 in 20 solution, and from 3 grains to 12 grains of the acid constitute a daily dose.

In the present series 33 cases were treated by this drug; 12 patients recovered and 21 died (63.6 per cent.).

In Table III the single injections and daily quantities are expressed in grains of carbolic acid. The cases are arranged according to the amount of carbolic acid given per diem, from 0.45 grain in Case 75 to 80 grains daily in Case 206.

From a study of the table it would appear that there is no evidence that carbolic acid has any favourable therapeutic effect on cases of tetanus. It is also suggested that

small doses, such as half a grain a day, are quite inadequate.

TABLE III.

No. of Case.	Single Dose, in Grains.	Quantity per Diem, in Grains.	Total Quantity Injected.	Recovered.	Died.
75	0.45	0.45	2.25 gr. in 5 days	R	
92	0.2	0.6	1.2 gr. in 2 days		D
214	0.22	5.2	?		D
51	0.9	5.4	5.4 gr. in 1 day	R	
219	0.9	7.2	27.0 gr. in 4 days		D
10	2.6	7.8	?		D
14	0.7	8.4	94.5 gr. in 18 days	R	
20	0.75	9.0	18.0 gr. in 2 days		D
223	0.9	10.8	42.0 gr. in 3 days		D
13	1.0	12.0	?	R	
229	1.1	13.2	36.0 gr. in 2 days		D
231	2.25	13.5	108.0 gr. in 14 days	R	
155	1.35	16.2	24.0 gr. in 1½ days		D
6	1.5	18.0	?	R	
9	0.75	18.0	75.0 gr. in 4 days		D
46	0.75	18.0	144.0 gr. in 18 days	R	
47	0.75	18.0	?	R	
48	0.75	18.0	?	R	
50	0.75	18.0	93.0 gr. in 5 days		D
164	1.5	18.0	?	R	
225	1.5	18.0	36.0 gr. in 4 days		D
228	1.5	18.0	20.0 gr. in 1½ days		D
16	1.0	24.0	72.0 gr. in 3 days		D
216	1.5	35.0	85.5 gr. in 4 days		D
205	10.0	80.0	900.0 gr. in 21 days	R	

Case 206 received altogether 900 gr. of carbolic acid subcutaneously during a period of twenty-one days. The strength of the solution was 2 per cent. He received 10 gr. every 3 hours for 48 hours, every 4 hours for 96 hours, and every 6 hours for 48 hours; then 20 gr. every 12 hours for 9 days, and afterwards every 24 hours for 3 days. At no time were there any symptoms of carbolic acid poisoning. In addition, he had the chloral and bromide by the rectum three times a day, the effect of which was augmented by hypodermic injections of heroin and morphine whenever he was restless. The longest general spasm lasted for about two hours, but throughout the course of the illness the spasms were always well under control; the last occurred fourteen days later than the first. The patient developed tetanus six months after the date of wounding. No focus of infection was discovered.

2. Magnesium Sulphate.

This method of treatment seems to have been first used in America, and its value depends on its powerful sedative or anaesthetic action on the spinal cord. Few of the cases under treatment in England have received this treatment. One case was given 2 c.cm. of a 25 per cent. solution intrathecally; another, one injection (amount and strength not given) subcutaneously; another received 2 c.cm. of a 25 per cent. solution with each dose of serum intrathecally. Three doses were given, and the patient recovered. Two cases received intrathecal injections, one of them 7 c.cm. of a 25 per cent. solution. In other cases it was given by the mouth and by the rectum, but in these it could not have been intended to exert its action on the spinal cord. Nine cases in all were treated with magnesium sulphate; of these 7 died and 2 recovered.

It would appear that this method of treatment is powerful and not without danger, so that great caution ought to be used in its exhibition. Stromeyer treated 5 cases, giving an injection of 8 c.cm. of a 15 per cent. solution. In 2 of these there was marked anaesthesia of the trunk and lower extremities; in the other 3 no anaesthesia was noted. In all 5 cases after the injection there was a cessation of the spasms and muscular rigidity, the patient slept, and respiration was slowed.

1 drop added to 1 c.cm. of cell emulsion will induce haemolysis, I have not yet found, where 15 drops of urine do not haemolyse, that 30 drops will. In other words, if 15 drops do not haemolyse, doubling the amount has no effect. While stating this it must be emphasized that a marked difference occurs between urines. With some, 1 or 2 drops added to the cell emulsion will cause almost instant haemolysis. This phenomenon is seen most frequently with urines having an alkaline reaction; although by no means all alkaline urines haemolyse, even in an amount of 15 drops. It has therefore been made a rule, whenever a strongly haemolytic urine is encountered, to test for the smallest amount which will give the reaction. But clearly the laking action is not purely a matter of quantity, for in testing a urine which has been reacting daily, a very curious thing is often noted, in that 1 or 2 drops cause laking before 10 or 15 drops, and indeed 30; and at times the 15-drop doses may require two and a half hours to completely lake the corpuscles, and the 30-drop dose may cause no laking whatever.

And also, if the minimum laking dose of the urine is ascertained, and several doses added to the cell emulsion—where, for example, 1 drop lakes 1 c.cm. of blood cell emulsion—take 3 drops of the urine instead of 1 and add to the 1 c.cm. cell mixture. When complete laking has taken place, add 1 c.cm. more emulsion. This last remains not laked, the excess of haemolytic substance all having been taken up by the first lot of cells. This in alkaline urines.

IV.

Subjection of the blood cell-urine mixtures to incubator temperature of 37° C. is essential, and I am inclined to believe that neglect to consider this one detail is responsible for this simple phenomenon not having been observed long ago. It is true that at ordinary room temperature, haemolysis, notably with alkaline urines, does at times occur, but a parallel series of tests at room and incubator temperatures shows that warmth is an essential factor in the majority of the reactions, and in all of those in acid urines. Repeatedly no haemolysis occurs in 18, or 24, and often 48 hours in the cool of an ordinary room, when it is decisive in 2½ hours at 37° C.

V.

So far I have never observed haemolytic activity in the urine of healthy persons.

I hope in a later paper to attempt to go more fully into the cause or meaning of this phenomenon.

RESULTS.

As already noted, if carefully studied, the urine from cases of pernicious anaemia will be found to give this reaction. Just as the disease itself has its periods of remission, so is it with the haemolytic activity of the urine; but no relation has been made out between the two, nor do I pretend that I am calling attention to a test which will be of diagnostic or prognostic value in this disease, because this haemolytic action of urine is by no means confined to pernicious anaemia, as was ascertained when urine from other types of disease was studied.

Briefly, this appearance of a body or bodies in urine of a more or less actively haemolytic nature, is a fairly frequent accompaniment of grave disturbances of metabolism. In severe chronic anaemia the reaction is frequent, but not of daily occurrence, and after having tested and cross-tested the red cells of several pernicious anaemia cases, it appears that some patients' cells are much more resistant than others, but also that all are less resistant than normal cells.

The reaction is obtainable in erysipelas, gout, acute rheumatic fever, advanced tuberculosis, and certain cases of syphilis. In acute rheumatic fever, as so far studied, the urine was found to lake blood cells in all cases at some period during the course of the disease, in most cases all through the acute stage. The same has been true of severe erysipelas and streptococcal throat cases. In syphilis the reaction depended on the severity of the symptoms.

In all severe burns the urine has been regularly haemolytic and has remained so until death, or recovery was well assured. In some cases of skin disease, where a large part of the skin surface has been involved laking by the urine has been common and persistent. In two cases of

carbolic acid poisoning the urine, twenty-four hours later, was intensely haemolytic and remained so till death; here possibly other factors may have been at work.

In starvation the reaction appeared to depend upon the severity of the symptoms. In cancer with wasting, the reaction has always, so far, been present. In septic cases also it is common.

To see if possible whether this reaction was the result of some definite acidosis, urine from cases where this condition was well defined was studied—in children and certain post-operative states—and the haemolytic action obtained; so, again, it obtains in diabetes, if coma is approaching, or if after a period of well-being the condition becomes aggravated. Possibly associated with this group of cases I may note that in only four cases of pregnancy did I obtain this reaction (during the last week of pregnancy) and, curiously, all these four cases became eclamptic.

There is also a group of kidney and heart cases which exhibits urinary haemolysis. In so-called chronic Bright's disease laking is uncommon, but if acute nephritis supervenes, then in many cases haemolysis shows itself. In acute nephritis two groups have apparently become manifest, in one of which I have not noted this reaction, and another in which the reaction is present. All the cases of this last group succumbed. In heart cases with broken compensation the reaction is very regularly present, varying apparently directly with the clinical symptoms. One case with ascites was very interesting; the urine was daily haemolytic over a long period, except for a few days following each paracentesis.

Yet another order of cases I am inclined to regard as of importance. In the routine examination of all new cases entering hospital (and altogether I have now tested urine for this reaction from 5,000 cases) I have often observed that the urine obtained the first day following the patient's entry was haemolytic, but never again during his stay of days or weeks in hospital. So also in shock following accidents urinary haemolysis is frequently present in the same way. These observations led me to examine urines from post-operative cases, with the result that this reaction was found the day following operation in many cases; in some only once or twice, in others persisting for days or weeks. I am hoping to continue this study in connexion with the important group of cases of grave shock developing under shell fire.

FACTORS INFLUENCING THE HAEMOLYTIC PHENOMENON.

To gain, if possible, some understanding of the nature and significance of this reaction I have instituted a detailed study into the haemolytic activity of the various urinary constituents. This study is not yet complete, but is being continued by Mr. S. W. Cole at the Bio-chemical Laboratory at Cambridge. We hope to publish the results later. At most I would lay down:

1. Haemolytic action does not depend upon the acidity or alkalinity of the urine alone, although it is true that the majority of the most powerfully haemolytic urines are alkaline.

2. A urine with alkaline reaction does not increase in haemolytic power when kept at room temperature for twenty-four or forty-eight hours. Many lose markedly in strength. Paradoxically, a urine which is alkaline on passing I have never yet found to haemolyse at once, but only after standing for three or four hours after having been passed.

3. Acid urines tend to lose their haemolytic power on standing twenty-four or forty-eight hours, although the reaction remains acid. In this connexion the study has revealed a fact which I have not seen noted elsewhere: that urines seem to be of two orders—(1) one which is alkaline on passage or becomes so in a short time; (2) an acid group which remains acid despite bacterial contamination and fermentation. I have, indeed, incubated this type of urine for twenty-four hours without causing an alkaline change. As these observations have proved of interest and application outside this particular research, it is thought best to bring forward this study in a separate note later.

4. Bringing the urine to the boil appears to have different effects. It has no action on some urines, and in others weakens or inhibits the laking power. I have still to study the effects of boiling for longer periods.

5. The results of a study of the haemolytic powers of

the various urinary constituents may be summed up by saying that although alkalis like ammonia, acids such as acetic acid, and acid salts such as acid calcium phosphate, possess haemolytic powers, it is evident that these are not responsible for the phenomenon seen in actively haemolytic urines. The amounts of all these necessary to induce a similar haemolytic effect when added to (a) NaCl 0.85 per cent, solution, or (b) normal urine, being far greater than exist in urines that are found to haemolyse.

My observations during this work yield, as might be expected, different results as regards alkaline and acid haemolytic urines respectively, and must be left for full discussion later. Here I would only call attention to the protective action of sodium bicarbonate.

It was found, in the first place, that normal sodium bicarbonate solution, when added to a haemolytic urine in varying amounts, from 10 to 40 drops per 10 c.cm. of urine, prevented the haemolytic action, and this whether the urine was previously acid or alkaline, more being required in the case of a very powerfully haemolytic acid urine than in a correspondingly powerful alkaline urine. Following this observation, it was discovered that in patients affording a haemolytic acid urine the administration of sodium bicarbonate by the mouth in sufficient dosage caused the haemolytic action of the urine to disappear. This was tried only in a few cases with very powerful haemolytic acid urines, and never in a case with alkaline urine, and although in my few cases the administration seemed to be of clinical value, they are far too few to use as a basis for treatment.

6. The attempts at removing or neutralizing by the various absorbents, precipitants, filtration, etc., and the influence, if any, of the H ion concentration, as well as other studies, will be left for future discussion.

SUMMARY.

1. A phenomenon of fairly constant occurrence in certain morbid states, which apparently has hitherto escaped notice, is here described, namely, the rapid laking of blood corpuscles by the urine.

2. It has never been noted in the urines of normal individuals.

3. The agent causing this haemolysis is left an open question, but there seems no doubt that it is not a normal constituent of the urine.

4. Save in the case of certain strongly haemolytic alkaline urines, of which one drop sometimes causes instant laking of the blood emulsion at room temperature, the haemolytic process requires incubator temperature of 37° C.

5. Sodium bicarbonate definitely influences the reaction *in vitro*, and possibly when administered to patients by mouth.

6. A curious and apparently definite grouping of stable and unstable urines, so far as change of reaction from acid to alkaline is concerned, has been remarked. This group of unstable urines may perhaps be found of prognostic value.

URETERAL CALCULUS: ITS SYMPTOMS AND TREATMENT.

WITH A FEW ILLUSTRATIVE CASES.

BY

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(Continued from p. 561.)

TREATMENT.

Expectant Treatment.

THE treatment must depend upon an exact appreciation of the state of the patient and of the morbid condition present. If there is reason to believe that one ureter only is blocked, and that the kidney on the opposite side is healthy, it is advisable to wait the course of events, as in many instances the obstruction is relieved spontaneously within a short time and no permanent harm results. This is especially to be recommended when there is evidence that the obstruction is incomplete or transitory, or when the patient is suffering little pain and the stone is known to be a small one.

While a stone in the ureter is certainly a source of danger, being liable to cause obstruction and its consequences—sepsis, haematuria, and hydronephrosis—it does not necessarily demand operation. Whenever a stone is suspected, x-ray detection is used, and, as a consequence, we find that a goodly proportion of ureteral stones are evacuated spontaneously. By having an x-ray plate taken from time to time its progress can be watched, care being taken to keep the patient under supervision. At regular intervals a thorough examination must be made, including a cystoscopic inspection, to ascertain that there is no blocking of the ureter. The following case is a good illustration:

CASE V.—*Repeated Attacks of Renal Colic during Nine Months; Descent of Calculus Watched; Ultimately passed per Urethram.*

The history was that of repeated attacks of renal colic, with the passage of gravel on several occasions. With x-ray a stone was discovered in the first instance (January, 1904) at the level of the transverse process of the fourth lumbar vertebra. The patient was examined at intervals of two months, and on September 9th, 1905, an x-ray photograph was taken, when the shadow of stone was found corresponding in position to the union of the lower and middle third of the left ureter—that is to say, well below the brim of the true pelvis. On some earlier examinations the stone was seen much lower down; there, was, freely movable. On September 10th a cystoscopic examination was made, when the mucous membrane of the bladder was found to be practically normal, but, on account of the enlargement of the middle lobe of the prostate, the examination was difficult. The orifice of the right ureter was normal; that of the left was considerably dilated and the shadow of a median stone. The margins were very slightly thickened, and on the left lip the line of the mouth was obscured by a trickle of blood escaping from it, so that the whole contour was not clearly seen. The line of the ureter was very distinctly marked, and the mucous membrane covering it was pigmented and congested. On September 11th I received a letter from the patient saying that he had passed the stone on the evening of September 10th, and that he "felt alright now," but should I wish him to do so he was willing to undergo another cystoscopic examination.

A second x-ray photograph was taken on September 11th, and failed to show the shadow seen in the first plate, proving that the shadow seen was due to the stone which had been passed. A second cystoscopic examination showed the same appearances as formerly presented, with the addition that close to the middle of the upper lip there was a small submucous haemorrhage, and a similar spot was seen on the margin of the lower lip, but no blood was found escaping from the orifice. The stone passed was the size of a horse bean, but very irregular in shape and distinctly nodulated. It is worthy of remark that the passage of this concretion caused no laceration of the lips of the ureter or other injury recognizable with the cystoscope further than the minute submucous haemorrhages just described.

I have occasionally found that the ureter stones escape soon after a cystoscopic examination, which, I suppose, may be explained by the manipulation inducing a certain amount of muscular contraction or spasm of the muscular fibres of the ureter, which are often greatly hypertrophied in the presence of calculus.

While the patient is under observation attacks of colic may be prevented or relieved. In such cases the use of massage, shampooing, and the application of fomentations sometimes relieves the spasm. Pain may be alleviated during an attack by the administration of anodynes such as morphine, belladonna, and opium, but the latter drug must be employed with great care, as even a small dose may produce alarming effects when there is any interference with the proper action of the kidneys. It is much safer to employ hot fomentations, emollient enemata, and hot baths; should the pain be extreme, it may be necessary to place the patient under the influence of an anaesthetic, which not only has the advantage of relieving the suffering of the patient for the time being, but may also, by abolishing spasm, facilitate the passage of a calculus from the ureter. Under similar circumstances, warm diluents and diuretics have been given with the view of forcing the calculus down by an increased secretion of urine, but probably the beneficial action of these remedies is due more to the power they possess in reducing the irritating qualities of the urine than to any mechanical effect the increased flow of urine may exert. Changes in the position of the patient sometimes give relief from suffering by altering the situation of the stone, by dislodging it from the position where it causes most complete obstruction; in the same way external manipulation in the renal region or along the course of the ureters has been

recommended. If the calculus is known to be close to the bladder, manipulation through the vagina or rectum may immediately relieve the pain by pushing the stone upwards into the dilated portion of the ureter and so allowing the pent-up urine to escape. Unless during the attacks, the patient should not be kept in bed. Large quantities of fluid should be given to increase the excretion of urine and promote the downward passage of the stone.

With careful treatment directed to promote the progress of the stone into the bladder in many cases we have been able to avoid an operation. When one stone has passed successfully from the ureter we must be assured that no others remain. The stone may pass into the bladder and be seen with the cystoscope, but fail to escape. Dilatation of the urethra with a large bougie may facilitate matters, if not it must be removed. If the stone escapes, well and good, but it must be remembered that in other respects the patient is in the same position as he occupied before the calculus showed itself. Another one may form unless precautions are taken.

Operative Treatment.

If the attacks of pain are frequent or severe; if the patient requires to lead an active life and is likely at times to be beyond the reach of an operating surgeon; if there is any evidence of hydronephrosis or of sepsis; if the stone is fixed in one place or is large in size; if there is only one working kidney; if the patient's general health is becoming impaired and the kidney excretion is not efficient, the stone should be removed as early as possible.

When the ureter of the only working kidney is sealed, it is evident that the first point to attain is immediate relief of the obstruction. In most cases there is a short period during which medicinal remedies may be employed, but unless relief is very speedy valuable time must not be wasted in waiting for the action of drugs. The only working ureter is plugged, and the obstruction can be removed by the surgeon, or an artificial exit can be made in the loin so as to provide a channel for the passage of urine. In this way the immediate danger to life may be averted, and later on a careful search can be made for the stone, and a method devised for its removal.

The operative procedure depends upon the position occupied by the stone:

- (a) When the stone is in the upper third of the ureter.
- (b) When the stone is too high up to be felt by the finger, but occupies the middle third of the ureter.
- (c) When the stone is sufficiently low down to be detected by digital examination in the vagina or rectum.

The stone may be removed without opening the peritoneal cavity by any of the following routes:

1. The lumbar route prolonged extraperitoneally.
2. The paraperitoneal route used in exposure of the kidney by stripping the peritoneum from the abdominal parietes.
3. The hypogastric route, opening the bladder above the pubes.
4. The sacral route.
5. The perineal route.
6. The vaginal route.
7. The vesical route.

The extraperitoneal route is the one now almost exclusively employed in exposing the ureter. During the early stages of the operation the position of the patient is similar to that for renal operations, but it is well to have him placed upon his back with the legs flexed and the thighs brought well up over the abdomen while exploring the pelvic portion of the duct.

The lumbo-ilio-inguinal route is the only one to be recommended in the great majority of cases, the exceptions being those in which the calculus is known to be in the pelvic segment of the ureter.

The incision usually employed commences an inch below the last rib at the outer edge of the erector spinae muscle, and extends inwards and downwards in front of the anterior superior iliac spinous process. The distance to which the incision is extended inwards depends upon the necessities of the individual case. If the patient be short and stout the space may be increased by making a T-shaped addition to the above, or by incising a portion of the quadratus lumborum.

When the fascia transversalis has been exposed and divided the colon is seen. It should be retracted and the hand introduced through the wound behind the peritoneum, when the kidney can be felt embedded in its adiposo capsula. The soft fat is easily separated from the kidney,

and after the organ has been fully exposed a systematic examination must be made before it is disturbed from its bed. The ureter should be searched, and if a stone be found it may sometimes be pushed up into the pelvis and removed by an incision through the convex border of the kidney; generally this is easily accomplished, as the ureter is dilated above the point of impaction of the stone, but if it be firmly fixed an incision should be made through the wall of the ureter above the level of the stone, and after the calculus has been extracted the incision may be closed by sutures.

If the kidney is diseased and the tissues around it are indurated and adherent, it is very difficult to detect the ureter. Under such circumstances it is necessary to trace the ureter from below upwards, beginning at the point where it passes over the brim of the pelvis, or where it crosses the iliac vessels. In disease it is usually more easily discovered than in health, but on account of prolonged irritation the peritoneum is more firmly adherent to it than under normal conditions. When the duct is

discovered by the forefinger the intestine and the peritoneum should be gently pressed aside with a thin gauze pad held by an assistant, in such a way as to leave the ureter freely in view (Fig. 7). The serous membrane should then be carefully dissected from the duct as far down as may be necessary. Whether to separate the ureter upwards or downwards from the point in view is easily determined by its lumen; the duct is always distended above the point of obstruction.

The pelvic segment can only be seen by extending the incision in the parietes well forwards, but before doing this it is well to pass the forefinger down into the pelvis and explore, and not infrequently, when the obstruction be due to stone, the concretion can be displaced and slipped upwards so as to be brought into view without enlarging the opening.

A difficulty occasionally met with which should be kept in view is the lodgement of the stone in a diverticulum of the ureter, so that while the concretion is not in the lumen of the duct its presence causes distortion of the passage and obstruction to the escape of urine.

In opening the ureter, an oblique incision should be employed rather than a longitudinal one, which is liable to produce diminution in the lumen of the duct by the suturing, while a transverse incision is likely to be followed by a fistula.

When only the pelvic portion of the duct requires to be exposed, the incision through the parietes may be limited,

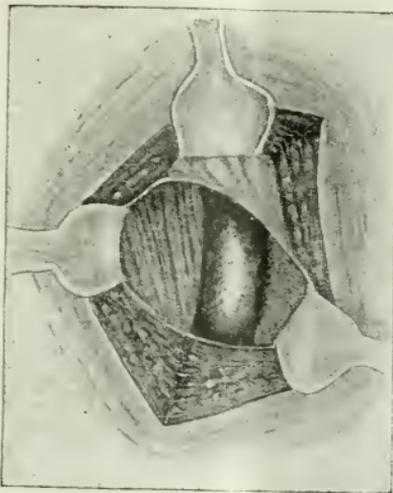


Fig. 7.—The right ureter exposed in the ilio-inguinal region, and drawn downwards and forwards, so as to be fully seen. With a little manipulation the stone can be slipped up to the most easily exposed segment of the ureter before being removed.

Instead of starting from a point an inch below the last rib, the incision may be made as for tying the common iliac artery, commencing immediately outside the centre of Poupart's ligament, and $\frac{1}{2}$ in. above it; this incision is carried outwards towards the crest of the ilium, then upwards and slightly inwards. The abdominal muscles are cut through till the fascia transversalis is reached; it is picked up and divided, and the extraperitoneal fat is exposed to view. The peritoneum is then separated, and, with the bowel, is held to one side by an assistant while the surgeon explores the posterior wall of the bladder for the ureters. Owing to the small size and depth of the wound, it is necessary to throw light into it with an electric forehead-lamp or a mirror.

When the ureter is exposed for the removal of a stone, if it be found that the calculus can be displaced from its bed and pressed upwards, the opening in the duct should be made in the dilated ureter well above the point of impaction. By adopting this plan the incision is made through comparatively healthy tissue, whereas if the cut is made directly over the concretion the line of incision passes through unhealthy tissue, the mucous membrane is apt to be eroded, and the walls of the ureter diseased. After the ureter has been opened and the stone removed it is difficult to adjust the edges of the wound in the flaccid duct. To obviate this difficulty in recent operations I have adopted the following plan, which has given perfect results.

Before the incision is made six catgut sutures should be passed through the wall of the ureter parallel to the line of incision, and one-sixth of an inch away from the cut. Three on each side (Fig. 8, *a, a', b, b', c, c'*) pass through the ureter wall outside the mucous membrane. These are used as braces to steady the wall of the ureter while the incision is being made, and to draw the lips of the wound apart (Fig. 9). When the stone is freely



Fig. 8.

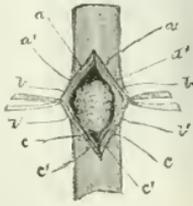


Fig. 9.

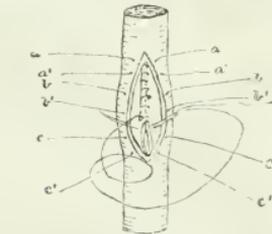


Fig. 10.

Figs. 8, 9, and 10 illustrate a method of applying strands of gut before the incision is made (Fig. 8), which may be used as braces to keep the wound apart during the operation (Fig. 9) and utilized as sutures later. Fig. 10 shows the suturing of the mucous membrane with a continuous fine catgut. The strands *a, a'* are passed parallel to the line of incision, but when used as sutures *a* on the right-hand side is tied to *a'* on the left side and *a'* to *a*, and so on, *b* to *b'* and *b'* to *b*.

movable and well down the ureter the operation is simple, but in actual practice many difficulties are encountered, the more common of which I may illustrate by the following cases:

CASE VI.—*Old-standing Calculous Hydronephrosis with Diverticulum in which Calculus usually lodged: When displaced the Stone blocked the Ureter and caused Symptoms: Stone removed by Lumbar Incision: Good Recovery.*

The history dated back over a period of twenty years. The patient was the colonel of an Indian cavalry regiment, and consequently lived in the saddle. The first attack of renal colic

came on while playing polo, and lasted for over thirty-six hours. From then till he consulted me he had severe attacks of renal colic, the pain being limited to the right lumbar region; at one period they were frequent, at another time many months passed free from pain. Within the last few years the attacks have been more severe, and always associated with hæmaturia; these are now brought on by any sudden movement while lying, and the patient says that the only thing that relieves the pain is a cross-country ride. This, he says, is a certain cure, but relief from pain is always followed immediately by a considerable hæmaturia. A long shadow was seen close to the body of the third lumbar vertebra on the right side.

At the operation, by a lumbar incision, the kidney was found to be hydronephrosed, and very firmly adherent, so that much difficulty was met with in exposing the ureter and pelvis. The stone could be felt in the thick mass of connective tissue, but when the pelvis and dilated ureter were opened the stone could not be reached. It was found, however, in a diverticulum (Fig. 11, *a*) communicating with the upper end of the ureter (*b*) and was removed, but by cause of the adhesions the diverticulum could not be dealt with. The condition found clearly explains the history that while the stone was in the sac and the patient maintained the erect posture the calculus caused no trouble and was not likely to be displaced, but when he suddenly moved in bed, from lying on his right side, the stone was liable to drop into the diverticulum into the dilated ureter, and so cause obstruction. Jolting on horseback, while it caused bleeding, evidently pitched the stone back into its pouch, and at once relieved the colic, also no doubt the long periods of freedom from pain were due to the calculus remaining at rest in its receptacle outside the ureter.

Another instance of a stone lodged in a diverticulum may be of interest. In this case the pouch is level with the brim of the bony pelvis.

CASE VII.—*Renal Colic of Old Standing, becoming lately Less Acute: Hæmaturia and later Pyuria from Right Kidney: Stone just below Brim of Pelvis: Hydronephrosis: Stone found in Diverticulum, and removed by Ilio-inguinal Incision.*

A lady aged 40 years had attacks of renal colic during several years, but no severe pain had been complained of for two years. There is, however, constant dull pain in the right kidney, occasional slight hæmaturia, and moderate pyuria.

When I first examined the patient in August, 1908, the quantity of pus deposited was moderate. The urine was acid and contained *Bacillus coli*. The temperature was normal and the pulse good, but the general health was poor, and she said that she was becoming weaker. The bladder was normal, but the orifice of the right ureter was dilated. A shadow was found a little below the level of the brim of the pelvis, and the right kidney was considerably enlarged. The left kidney normal. Both kidneys were working well, but all the pus came from the right. On account of the enlargement of the kidney, the pyuria, and the failing health, an operation was advised.

On exposing the ureter, which was easily done by an ilio-inguinal incision, a diverticulum (Fig. 12) was found in which the stone was lodged. The sac was opened, the stone removed, and the diverticulum excised. A curious circumstance was that the lumen of the ureter above the level of the stone was very little greater than normal and suggested the

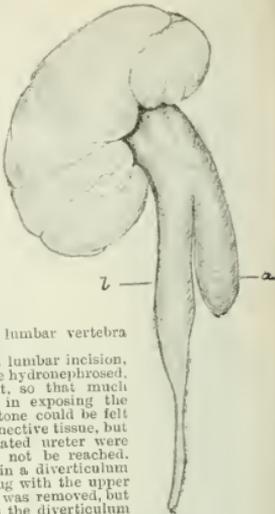


Fig. 11.—Rare case of diverticulum of ureter (*b*) which contained a long finger-shaped stone

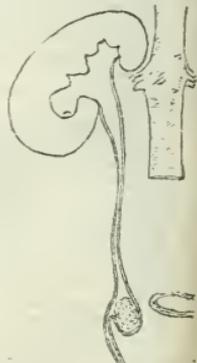


Fig. 12.—Diverticulum at level of brim of pelvis containing a stone. The ureter was not much dilated, but a moderate hydronephrosis developed.

idea that the diverticulum existed prior to the formation of the stone or that the stone had increased in bulk greatly after it had become lodged in the pouch. The opening of the diverticulum (Fig. 12) was much smaller than the stone. The edges of the wound in the ureter were brought together, and the patient made a good recovery.

After the stone has been brought to the opening in the ureter, difficulty may be found in removing it, as, if smooth and rounded, it may repeatedly slip away from the grasp of sequesterum or dressing forceps. In such cases the writer has used cup-shaped forceps similar to Mackenzie's laryngeal forceps, or a small lithotomy spoon. Again, in cases of phosphatic concretion associated with *Bacillus coli* infection, the stone may be so friable that it breaks into small fragments as soon as it is grasped with forceps. Here again a spoon is useful. After the stone has been removed, the ureter sound should be passed upwards and downwards to make sure that the duct is patent, that all concretions have been removed, and that no stricture remains. The mucous membrane is separated from the outer wall of the ureter so that it may be sutured separately with a continuous fine catgut suture (Figs. 8, 9, and 10). This completed, the sutures used as braces are tied, *a* to *a*, *a'* to *a'*, *b* to *b*, *b'* to *b'*, and so on. In some instances the opening in the ureter is so low down that sutures cannot be used (Case IV). Then the wound should be carefully packed with gauze and a free drain established.

The Paraperitoneal Method.

This is carried out in the following way: The patient is placed on his back and an incision is made $\frac{1}{2}$ in. to the outer side of the linea semilunaris, beginning close to the border of the ribs and descending to the anterior superior spinous process of the ilium. The parietes are divided down to the peritoneum, the cavity of which is not opened, but the membrane is separated from the abdominal muscles gently by the hand of the operator and, along with the abdominal contents, is dragged towards the middle line by an assistant. The kidney, with its surrounding fat, is then brought into view and the ureter exposed and examined as described above.

Should the patient be short and stout it may be necessary, in order to gain sufficient room, to make an incision at right angles to the first one, possibly as far as the quadratus lumborum. The advantage of this method is not so evident in operations upon the ureter as when lesions of the kidney require to be dealt with, but it is certainly to be preferred to the transperitoneal route.

When old adhesions have formed the peritoneum is very liable to be torn, and, should this accident occur, the wound must be carefully sutured before the ureter is opened.

The Hypogastric Route.

This has been occasionally employed by the writer for the removal of calculi. If the stone has passed through the muscular wall of the bladder and pushed the mucous membrane in front of it the appearances presented by the cystoscope are liable to be mistaken for those of a tumour. In employing this method the bladder is opened by a suprapubic incision and the intramural segment of the duct is examined with one finger in the bladder, the other in the vagina or the rectum. It may be possible to grasp the impacted body with forceps and by careful manipulation drag it away without making any incision in the vesical wall, but if the stone be too large for this it is well to make a small incision and dilate the ureter with sinus forceps before attempting to extract the calculus.

The Sacral Route.

This method has been employed by Sir Henry Morris⁴ for the removal of a calculus impacted $2\frac{1}{2}$ in. from the orifice of the ureter. He describes the method as follows: "I employed a straight incision parallel with the median line and 1 in. from it, 5 in. in length, commencing about 2 in. above the border of the gluteus maximus muscle, and extending nearly to the transverse level of the anal aperture, but a little behind it. The edges of the gluteus maximus and great sciatic ligament were divided, and the rectum and vagina were pushed towards the opposite side by breaking through the cellulose-fatty tissue between them and the pelvic wall by means of the forefinger and a few touches with the scalpel. In one of these cases the dorsal position, with the haunches well raised on a firm pillow placed beneath the loin, was found to facilitate the identi-

fication, isolation, and removal of the lower end of the ureter; in the other case the patient had to be turned upon her back before it was possible to fix the calculus. This was done by the forefinger in the vagina, and the patient was again placed on her opposite side with her face downwards and the calculus cut down upon and extracted."

The Perineal and the Vaginal Routes.

These routes also are used for the removal of stones impacted close to the bladder.

Ceci has removed a ureteral calculus through the rectum, and Fenwick has employed a perineal incision; removal through the vagina has been employed by Kelly, the writer, and others. In such cases the ureter is dilated above the point of obstruction, so that it can be easily felt with the finger. The patient is placed in the knee-breast position. The bladder is fully distended with air and the posterior wall of the vagina is retracted backwards so as to give a good view of the anterior wall. The stone having been located with the finger, an incision is made through the vesico-vaginal septum between the orifice of the ureter and the cervix, large enough to admit the forefinger. The mucous membrane covering the stone is now incised and the lips of the wound are held apart, and the stone is pressed into the bladder through a finger in the vagina and a finger in the bladder. The use of forceps should be avoided. The ureter being dilated above the level of the stone, the introduction of the forceps is liable to push the calculus upwards, and once it is loosened it is very difficult to get hold of.

Another method may be used without opening the bladder. The ureter and the stone should be fixed by a small sharp hook, and an incision is then made through the vaginal wall, cutting on the stone; when this is completed a rush of urine takes place and the calculus escapes along with it. A catheter or sound should be passed up the ureter to the pelvis of the kidney to see that no other stones are impacted higher up. The opening may be closed with sutures, but probably it is safer to keep it open for a time by passing a drainage tube into the dilated ureter.

Vesico-Uretero Lithotomy.

In the male, when the stone becomes arrested where the ureter enters the bladder wall, by doing a suprapubic cystostomy the calculus may be removed. The patient is placed in the Trendelenburg position. With the finger in the rectum the stone is fixed in position by an assistant, the bladder is opened, and a small probe-pointed grooved director passed into the ureter from the bladder; the ureter is slit up for a third of an inch, fine sinus forceps are inserted, and the stone is extracted.

As the ureter is always distended above the obstruction it may be found difficult to fix the stone, which is apt to recede upwards and evade the grasp of the forceps. But this may be done by the assistant gripping the ureter above the stone with dressing forceps introduced into the bladder, helped by the finger in the rectum.

A Transperitoneal Operation.

This operation is now only adopted when the surgeon is uncertain as to the situation and nature of the obstruction, or is doubtful as to whether one or both ureters are involved. A median incision may be employed under such conditions, but if there be no doubt as to which ureter is affected, the incision should be made along the semilunar line, and curved towards the middle line at its lower end. There are many objections to the transperitoneal method. Unless the ureters be considerably altered by disease they are difficult to find behind the abdominal viscera. The peritoneum is opened both behind and in front, and in the event of any leakage of urine from the ureter may become infected; the position of the wound does not permit of free drainage; and, finally, no additional information can be gained which cannot be ascertained by other and safer methods.

After the abdomen has been opened, the first point is to ascertain the position of the kidney and find the hilum; then, passing the fingers downwards in front of the psoas muscle, the ureter may be traced as low down as the bifurcation of the common iliac artery. When diseased and distended the ureter is more easily traced than in

health, and often the stone can be felt occupying its lumen, while above the obstruction the greatly distended ureter is easily traced behind the peritoneum; indeed, it may be so dilated that, were it not outside the peritoneal cavity, it might be mistaken for small intestine. When the ureter is not the seat of serious pathological changes, when the subperitoneal fat is abundant and the intestine is over-distended with gas, much difficulty may be experienced in tracing the course of the duct. The point at which it is most easily detected is where it crosses the brim of the pelvis.

With the improvements in the operating cystoscope attempts have been made to extract calculi from the orifice of the ureter by dilating the duct with a catheter and removing the stone with McCarthy's flexible forceps passed through the cystoscope. Such an operation may be very nice if it succeeds, which is very questionable, but it is not surgery. It is very true that there are many operators but few surgeons. If a stone is so small that it can be picked out of the orifice of the ureter by forceps passed through a cystoscope, the strong presumption is that if a little more patience and a little less zeal for operating had been exercised the stone would in a short time have found a way out for itself.

The case is a very exceptional one where the Jumbo-ilio-inguinal operation is not the most suitable operation to employ. It has many advantages over all the others; when any unusual features present themselves, as, for example, in Cases VI and VII, they can be dealt with easily.

REFERENCES.

- ¹ Sir Henry Morris: *Surgical Diseases of the Kidney and Ureter*, 1901, vol. ii, p. 526.

EPIDEMIC JAUNDICE IN WAR TIME.

BY

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JAUNDICE has been known to occur epidemically in peace time among the civil population, affecting then preferentially children. More frequently it has been observed in barracks, prisons, etc., but the largest epidemics have occurred in armies in war time—thus in the American war of 1862, in the Franco-German of 1870, and the Boer war. Its occurrence in this war seems probable.

The etiology of epidemic jaundice is still obscure. Jaeger described, as the cause of the disease, a micro-organism, the *B. proteus flavescens*, which he separated from the urine of patients affected with infectious jaundice.

There is no doubt that epidemic icterus is a disease *sui generis* due to some infective agent. Rainy and damp weather are mentioned by some authors as predisposing causes, but these might be excluded, for we find that the epidemics of jaundice have occurred more frequently in the summer and not in the rainy season. The supposition that the infective agent might be introduced into the human system by food or drinking water seems to be controverted by the fact that in several of the epidemics which have occurred only those men in the army were affected who had been digging dykes or trenches or had been engaged in earthworks. The infection seems to be due, therefore, rather to a virus or organism which develops in the soil during the decay of organic matter (excrements and dead bodies) and which is either swallowed or inhaled. There is no doubt that bad camp conditions were the principal cause of the large epidemic in the American war. In this war, in round numbers, out of 1,087,000 men in the Atlantic army 22,000 men fell ill with icterus; of 1,100,000 men of the central army 20,500 became affected, while of the 30,000 men of the Pacific army only 100 became icteric. The troops most affected were those of the Potomac Camp before Washington (1861-62), those before Yorktown (April, 1862), and those on the Chickahominy (January, 1862).¹ The total number of cases of jaundice among the white troops observed in that war amounted to 71,691.²

The accumulation of huge masses of men, bad drainage and ventilation, the superficial interment of the bodies of the fallen in the immediate neighbourhood of the camps, gave rise to this, the largest of all known epidemics.

Similar causes no doubt prevailed in the siege of Paris (1870), where 2½ per cent. of the troops of the Bavarian army corps were affected with icterus.

The course of epidemic icterus is generally benign. Out of 10,000 cases affected in the first year of the American war, only 40 died from this disease. Sometimes the symptoms are very slight, but usually the illness runs a characteristic course.

The illness usually commences suddenly with rigor and rise of temperature without premonitory symptoms. At the same time there is lassitude, vertigo, and headache, due no doubt to the fever. In severe cases there is soon some stupor or delirium, and these symptoms occur much earlier than they do in typhoid fever. The tongue is furred, and diarrhoea is usual. The liver and spleen enlarge moderately. Between the third and the fifth day, rarely earlier, the icterus commences, so that until then the diagnosis may appear doubtful. The liver and spleen are found enlarged on percussion, the edge of the liver may be distinctly felt, and is sensitive on pressure. The urine often contains moderate quantities of albumin, hyaline and epithelial casts, sometimes blood corpuscles.

The bowels usually become more and more relaxed, and the stools clay-coloured. The temperature remains high, often up to 104°, with irregular remissions during four to eight days; it then goes down quickly, and becomes normal in further four to six days, and simultaneously the hepatic and splenic enlargements and the albuminuria disappear, whilst the jaundice may last ten or fourteen days longer and then fade slowly.

In about 25 to 40 per cent. of the cases a relapse takes place three to eight days after the temperature has become normal. The relapse is usually less severe than the first attack.

There is usually great loss of strength, loss of weight (to 20 lb.), and prolonged convalescence. In most cases severe muscular pains, principally in the calves or in the back, are felt from the commencement of the illness, and these pains may persist even during the period of convalescence. Occasionally a spotty erythema of the skin of the thorax and abdomen is seen, in others herpes labialis, rarely an erythema of the fauces and tonsils. Occasionally hæmorrhages in the skin, conjunctivæ, or retinae have been observed. Coryza, hæmaturia, melæna, or hæmoptysis may occur; still rarer complications are parotitis, laryngeal paresis, neuritis, and iridocyclitis.

The duration of the febrile attack is from eight to ten days, that of the relapse from five to eight days; the whole duration of the illness from three to four weeks.

In regard to differential diagnosis, simple catarrhal jaundice, recurrent fever, and bilious typhoid come into question. Until the micro-organism of epidemic jaundice is found it will be impossible to distinguish slight cases of this illness from simple catarrhal jaundice. In some of the epidemics of recurrent fever many of the cases (25 per cent.) are affected with jaundice; the presence of spirillæ in the blood will clinch the diagnosis.

As icterus is said to interfere with Widal's reaction, the differential diagnosis from typhoid may be difficult.

The "bilious typhoid," described by Griesinger fifty years ago as endemic at Cairo, as well as the epidemics of febrile icterus described by Kartulis in Alexandria (1838) and Diamanthopolus in Smyrna (1886), were probably of the same nature. Though records of epidemic jaundice can be traced back at least to the year 1699, and perhaps to Hippocratic times, Weil of Heidelberg, in 1886, described a small number of cases, and since then the "epidemic jaundice" has been described under the name of "Weil's disease," not only in German, but also in English textbooks (*vide* Clifford Allbutt, Osler, etc.).

REFERENCE.

- ¹ Woodward: *Outlines of the Chief Camp Diseases of the United States Armies*, Philadelphia, 1853. ² *The Medical and Surgical History of the War of the Rebellion*, Part III, Washington, 1873.

STATISTICS published by the Bureau of Preventable Diseases of the Department of Health of the City of New York show that the number of cases of rabies found in animals examined in the laboratory of the department decreased from 64, recorded for the second quarter of the year 1914, to 15 in the corresponding quarter of 1915. There was also a reduction in the number of persons examined for dog-bite, and in that of dogs examined for rabies.

MALARIA CONTRACTED IN FLANDERS.

BY

LIEUTENANT J. MCG. H. REID, R.A.M.C.,

AND

LIEUTENANT H. E. HUMPHRYS, R.A.M.C.

THE following cases were admitted to a general hospital from various parts of the front:

CASE I had lived in Hull all his life and never previously left England. He came out to France in July feeling very fit, but on August 28th had pains in the head, followed next day by shivering fits. This continued every second day, and he was admitted to hospital on September 9th. The blood, examined the following day, showed the presence of a typical benign tertian parasite. He said that he had never been near Indian troops, but that he was encamped beside a river.

CASE II had lived in London and had never been out of England before. On August 29th he had an operation for appendicitis, which was followed three days after by shivering attacks. He had been in excellent health before. He had never been in close proximity to Indian troops, but said there was a small pond near where he was billeted. The blood film showed benign tertian.

CASE III had lived in Suffolk and had never previously been out of England. He said that he had attacks of shivering two months ago in France, but did not report sick. On August 24th he again had had shivers, which occurred every other day. He said that he was in close contact with Indian troops. The blood showed benign tertian.

CASE IV belonged to Fifeshire. He had never previously left Scotland. He came to France in May feeling very fit and was only in contact with Indian troops one day. He had shivering attacks and vomiting a month ago. These attacks had continued ever since and occurred at night. He was admitted on August 28th; the blood film showed benign tertian.

CASE V lived in Staffordshire, and had never been out of England before. He was in close contact with Indian troops for three months. He was taken ill with shivering attacks and headache on September 5th; the shivering attacks occurred every day. The blood film showed benign tertian.

CASE VI, a native of Birmingham, had never previously been abroad. About the middle of June he was stationed at Ports-mouth for about four weeks, and then proceeded to Bulford. After he had been there about a month he had a very severe shivering attack. He left for France about July 17th, and kept quite fit till the middle of August, when he had a severe shiver similar to the first. From that day to September 9th he had similar shivers every day. He was sent to hospital as "query enteric," but examination of the blood showed benign tertian. He was stationed near Indian troops.

The probable explanation of these cases seems to be that infection was conveyed by mosquitos either from Indian troops or troops who had been abroad. The last case is rather more interesting than the others, inasmuch as the patient is quite certain that his first attack occurred while stationed in England. The fact that for some time he was in a large seaport town where he was likely to come in contact with troops from abroad is to be noted. On the other hand it is possible that infection may be conveyed by some other means.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RECURRENCE OF LOCAL SEPSIS.

The most interesting article by Mr. Bond on the recurrence of local sepsis in completely healed wounds¹ reminds me of a number of cases I have come across in ordinary surgical practice. Here are, in outline, four of them:

1. An appendix abscess was opened; the patient's condition did not warrant search for the appendix. When the gridiron incision had healed the appendix was removed through Battle's incision; this healed by primary union, but the gridiron scar broke down and suppurated.

2. A man was admitted to hospital for obstruction due to adhesions eighteen months after a gangrenous appendix had been removed. The new incision healed; the old appendix scar suppurated, although the operation was an absolutely "clean" one, and the old scar was not touched.

3. A man had eczema of the foot. Weeks after it was healed he stood at a football match on a very cold day, drank more than was good for him, and went home fagged. The foot became red and swollen, and a small collection of fluid formed which was aspirated, and a pure culture of staphylococcus grown. The condition cleared up rapidly during the exhibition of an autogenous vaccine.

4. A man who ten months previously had had suppurative appendicitis developed croupous pneumonia. Just after the crisis the temperature went up, and the old appendix scar suppurated, discharging offensive smelling pus resembling in a mild degree that coming from the original abscess, and did not heal for five or six weeks. Here there was no traumatism, surgical or otherwise, to account for the suppurations.

Cases like these suggest that for long periods after a wound has healed organisms remain in the tissues—it hardly seems to depend on the presence of foreign bodies; there was no foreign body present in any of my cases—and that the recrudescence of suppurations depends upon some lowering of resistance or of the quantities of antibodies, or whatever happens to be the popular phrase of the moment to indicate that the soil is favourable to the growth of pus germs.

It would seem, *a priori*, that increasing the immunity by such means as autogenous vaccines prior to any further surgical interference would be the most likely way to prevent the recurrence of sepsis.

JAMES PHILLIPS, F.R.C.S.Ed.,

Surgeon, Royal Infirmary, Bradford.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

ALTRINCHAM HOSPITAL.

INTUSSUSCEPTION OF THE BOWEL: OPERATION AFTER FOUR DAYS: RECOVERY.

(By E. L. LUCKMAN, M.R.C.S., L.R.C.P., Surgeon to the Hospital.)

A BOY aged 10 years was playing at school, when he was suddenly seized with pain in the right iliac region, and was taken home. When I saw him he complained of very acute pain in the region above mentioned, which after a time became continuous. Hot applications were applied, but with little benefit. As he was constipated, warm enemata with soap and oil were administered, and there was a slight action of the bowel. There was some vomiting, but this did not relieve his pain. On inquiry I found that he had had a similar attack two years previously, which simulated intussusception. I gave him medicine to relieve pain, glycerine and belladonna fomentation to the abdomen, and warm oil enemata.

It was not until the fourth day that the parents gave consent to an operation. He was then cyanosed, with subnormal temperature and weak pulse. There was stercoraceous vomiting, and the abdomen was tympanitic and greatly distended, and there was some dullness in the right iliac fossa. The symptoms all pointed to intussusception.

He was removed to the hospital and put under an anaesthetic. I performed laparotomy and found 6 in. of the ileum invaginated; by gentle pressure the inner tube was squeezed out, the intussusception being thereby relieved.

We had to hurry with the abdominal sutures on account of his condition. It was with difficulty that the two sides of the incision were brought together on account of the bowels being distended with flatus. Two hours after the operation he passed flatus and the tension was relieved. His temperature and pulse afterwards ran a normal course, and he made an uninterrupted recovery.

The chief points to note are: (1) That the operation was on the fourth day; many authors state that it is hopeless to operate after the third day. (2) Six inches of bowel were intussuscepted.

The Journal of the American Medical Association states that an action has been begun before the Supreme Court by Attorney-General Woodbury to determine the right of the State to sterilize defectives. The individual on whom the State Procreation Commission proposed to perform the operation is a young man, 22 years of age, one of a family of sixteen, practically all defective. To date, this family has cost the State 10,000 dollars (£2,000) for hospital care and maintenance. On the decision in this case depends whether the Procreation Commission will enter on its work of sterilizing mentally defective persons in New York.

¹ BRITISH MEDICAL JOURNAL, September 25th, p. 467.

Reports of Societies.

DISCUSSION ON THE TREATMENT OF CEREBRO-SPINAL MENINGITIS.

In opening a discussion at a meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on October 19th, when Dr. W. HALE WHITE was in the chair, Sir WILLIAM OSLER said that the features of the recent epidemic resembled those of previous ones in that there was a low case incidence; that it was widespread; that there was a high case mortality, a high incidence among soldiers—especially young soldiers—and that the epidemic declined with the end of the winter. During the first year of the war there had been 462 deaths from this disease, and it was the second highest cause of death from infectious diseases. From the Registrar-General's report during twelve months, 9,269 deaths were certified as due to meningitis. In 3,819 of these the cause of the meningitis was not specified. There was need for more information concerning this group. The meningococcal variety was the only one from which recovery could be anticipated. He had never personally seen a recovery from tuberculous meningitis, and only once from streptococcal. Two points called urgently for discussion in connexion with treatment of the meningococcal form: (1) The prophylactic measures which should be taken in view of the probable recurrence of the epidemic this winter; (2) the value of serum treatment. An increase of the disease must be expected during the winter months; how was it to be combated? Many observers held that the epidemic was in the carrier; in this it resembled pneumonia. Two truths stood out prominently—one, the correlation between its seasonal prevalence and that of naso-pharyngeal catarrh; the other, the influence of overcrowding. He advised that three steps should be taken: (1) That the young soldier should be guarded from over-fatigue; (2) that naso-pharyngeal catarrh should be reduced to a minimum; (3) that good ventilation should be procured for the sleeping quarters, combined with comfortable warmth of the bed. Anti-meningococcal serum was still on its trial. In the present state of knowledge specific therapy combined with lumbar puncture was the rational treatment. The value of the specific treatment was much debated, and in many quarters disappointment had followed its use. The epidemic had been unusually severe and the mortality high. In an outbreak among the Canadian forces, of 40 cases treated 26 had died. The progress of a few treated with Mulford's serum suggested that some improvement had taken place, but no benefit had followed other serums. The results at Haslar and elsewhere had been no better. The main cause for this want of success was, he believed, inert serums. Another possibility was infection by parameningococci. The contrast was great between the results in this country and those obtained by Flexner and others in America.

Dr. A. G. ROBB gave his experience of the severe epidemic which occurred in Belfast, and contrasted the mortality before and after the use of Flexner's serum. At first the mortality in hospital was 72 per cent. Flexner's serum was then used, and the death-rate fell at once. For the three months before its use the death-rate was 85 per cent.; for the three months after, 26 per cent. A like disparity occurred between the death-rates of the cases treated in hospital by serum and those treated outside without serum during the same period. It was important that in published statistics the gross mortality should always be given. He had hoped for better results during the last epidemic, but they had been worse. Of exactly 100 cases treated 36 ended fatally, although the cases, he thought, had not been more severe. So far as he could ascertain no single case in the north of Ireland not treated by serum had recovered. The greatest benefit from serum treatment had been noted in young children. Before its use the mortality among them was 90 per cent.; in the last epidemic only 4 out of 17 children under 5 years old had died; there were two cases in children under 1 year old, and both recovered. Possibly another strain of organism might be responsible for the disappointing effects of serum. He

had taken strains from various sources to the Rockefeller Institute, and although the investigation was not complete, no radical difference had been found between them. In some, however, lower dilutions had been necessary to produce agglutination. Serums obtainable in this country from various sources had been tested by Flexner, who had shown that much of it was unsatisfactory. At the outbreak of war large quantities had come from America, where little was being prepared. Few horses had previously been immunized, and, as a result of the demand, these were bled far too often. At the present time, however, it was thought that a serum even better than the original one had been prepared. He discussed the views of Sophian, who insists on the importance of noting the blood pressure during the intrathecal injection and on the inadvisability of giving a general anaesthetic. Dr. Robb had, however, come to the conclusion that no additional anxiety need be felt if a general anaesthetic were given, and that in such circumstances no sudden fall of blood pressure need be feared. He had tried the new serum in 8 cases, only one of which had ended fatally.

Dr. H. D. ROLLESTON (temporary Surgeon-General R.N.) gave the results obtained in the navy from the beginning of the war to the end of last August. There had been 170 cases, mostly in dépôts, and he had abstracted the notes of 163 of them. Serum had been tried in 105. The death-rate of the whole series was 53 per cent. Cases treated by serum fell into two groups: (1) Those treated by lumbar puncture and serum alone; and (2) those which received both serum and other forms of treatment. Of the 105 serum-treated cases, 64 died. The mortality of those receiving serum alone was 70 per cent.; the mortality when other treatment was also used, 46 per cent. When serum had been used before the third day of the disease the mortality was 60 per cent.; when between the fourth and seventh day, 58 per cent.; when after the seventh day, 73 per cent. The failure was not due to the serum being given too late in the disease. It had been procured from many different sources. Afterwards the serum treatment had been combined with soamin, or vaccines, or hexamine. The results of the serum compared badly with those obtained by almost any other method. Of 21 treated by soamin alone 33 per cent. died; of 18 treated by soamin and serum 61 per cent. died. It almost appeared as though the administration of serum had done harm rather than good. He did not think that the gravity method (Sophian) was necessary, nor had there been any serious anaphylactic symptoms. In a few cases autogenous vaccines had been used, with a mortality of 25 per cent. Hexamine appeared to be inert.

Captain MICHAEL G. FOSTER, R.A.M.C., said that as he had lost a high percentage of cases treated with serum he had abandoned it for lumbar puncture only. Of 42 cases so treated 14 died, a result which would bear comparison with those obtained by serum. The advantages of lumbar puncture were the striking relief from symptoms, especially if the puncture were fairly frequently repeated, and the possible prevention of hydrocephalus. Lumbar puncture was a safe operation; a general anaesthetic was advisable. He removed the amount which would run off, and had never met with ill effects.

Captain J. F. GASKELL, R.A.M.C., gave further details of the same cases. He had found that in those which were unresponsive to treatment the meningitis was chiefly verticillate, the base of the brain being comparatively little affected. A table of the cases showed that it was important to commence treatment early. In certain fatal cases the theca was distended with tough adherent pus not removable except with a scalpel. In a group of hydrocephalic cases it was found that the patients could be kept alive by artificial respiration, denoting that death was due to intraventricular pressure. *Post mortem*, in such cases tough adhesions were often found, which had made it impossible to remove the excessive fluid by puncture. In one case the patient's own serum had been used, the symptoms improving immediately, but similar sudden improvement had been noted in other cases not so treated. In his opinion, patients did as well with daily lumbar puncture if as much fluid as possible was run off, as with serum treatment.

THE late Sir Thomas Clouston, for many years physician-superintendent of the Edinburgh Royal Asylum, Morningside, left personal estate of the value of £27,453.

Reviews.

SANE PSYCHO-THERAPY.

A SANE and well-reasoned method of investigating and treating the multitudinous manifestations of neurasthenia, hysteria, and the allied maladies that are grouped together under the somewhat questionable title of psycho-neuroses, comes as a refreshing dip into a cold bath after stifling in the heated and unwholesome atmosphere of psycho-analysis and the unpleasant mystification of the new German school. Such a method is provided by the teaching of Professor DEJERINE.¹

Psycho-therapy is a word of many meanings. It may mean suggestion, either hypnotic or non-hypnotic; it may mean Christian Science, so-called; it may mean psycho-analysis; it may mean the influence of a strong character on a weak one; and may have other meanings. To Professor Dejerine it means first a thorough understanding of your patient, and a recognition of his point of view, his fundamental weakness, and, as far as possible, of the origin of his malady; it means, in the second place, an attitude of cordial sympathy with the patient; it means, in the third place, the winning of the patient's confidence by sympathy and by candour; and it means, lastly and mostly, persuasion, by which is meant the combined influence of sympathy, reasoning, and authority. Professor Dejerine examines, one after another, the usual methods of treating these maladies, and one after another he condemns them upon grounds that are well and carefully reasoned, and carry the reader's assent. Treatment by drugs, whether they are active or are mere vehicles for suggestion, he condemns unreservedly. He admits that by giving the patient bread pills under a high-sounding title, and with the positive assurance that they will do him good, the patient will very likely improve; but he argues that in the first place we have no right to deceive our patients and to practise on their credulity, even for their own good; and in the second, that although the patient may improve in this way and in that, yet some day he will wake up to the fact that, taking all together, he is as bad as ever, and his last state will be worse than his first. No one who has practised this method can deny that this is very often the result. Suggestion is called by Professor Dejerine a medical trick, and he very justly says that it is not enough to abolish the symptoms; it is necessary to change the whole mental state of the patient, or the symptoms will infallibly recur. Hypnotic suggestion is very carefully examined. It is no small problem for a physician to determine whether he has the right to suppress the free will of his patient, and make him act against his own volition. We cannot with impunity accustom a subject to accept suggestions from others. Very few of those who have been used as experimental mediums have ever been able to return to normal life. The effect of hypnotism is not towards development and strengthening of the character, but towards deterioration and weakness. Moreover, Professor Dejerine is convinced that a deeply-hypnotized person may be induced by suggestion to commit any act, even crime; and this objection has often been urged against hypnotism, and has never been answered. Finally, hypnotic suggestion deals with but one isolated mental state, and can never produce the general mental revolution that is required. This reasoning seems unanswerable. Direct suggestion without hypnosis is less dangerous than hypnotic suggestion, but as it is less powerful, so it is less efficacious, and it has special dangers of its own.

In therapeutics by persuasion there is no more stage-setting, no more drawn curtains, no more closed shutters, no more over-riding the will of the patient. It consists in establishing the complete confidence of the patient in the physician by a thorough investigation of the case and a candid explanation of it to the patient. Appeal is made to the patient's reason, but not to his reason alone; no hysterical or neurasthenic was ever cured by syllogisms. He is led on to cut his own way through the tangle, and to save himself by his own efforts. His self-confidence and self-reliance are developed, and his character

strengthened. The method appeals no less to the reason than to the conscience, and altogether the book is fascinating reading.

The translation is more literal than into idiomatic English, and bears many marks of its American origin; it is, however, clear and intelligent. The book is printed upon the heavily loaded paper that for some reason is general in America, and in consequence needs a bookstand for comfortable reading, and is expensive to send by post. This is the less reasonable as it contains no illustrations, which are the usual excuse for selling books by the pound *avoirdupois*.

STEREOROENTGENOGRAPHY.

THE hybrid and repulsive term "stereoroentgenography" is employed by Dr. J. T. CASE² as the name for the illustration of pathological and normal conditions of the viscera and other tissues by the use of stereoscopic skiagrams, a method that has been in use for nearly twenty years. During the last few years the technique of the method has been vastly improved, particularly by Dr. Case himself, and he is now in a position to take the two skiagrams that are required within the space of a single second; as he points out, the greatest speed obtainable is advisable in work of this kind. As for the apparatus employed, Dr. Case uses an intensifying screen for taking stereoscopic skiagrams of the intestine. The interrupterless type of transformer, operated on a 110 or 220 volt direct or alternating current circuit, is advised; the exposures given vary from one-twentieth to one-fourth of a second. The second photographic plate must occupy exactly the position of the first; before exposing the second plate the x-ray tube should be shifted laterally a distance of six centimetres, which is the average interpupillary distance. The distance between anode and plate recommended is usually sixty-five centimetres for chest and abdominal work. The use of tubes with two anodes, in place of shifting the tube before the second skiagram is taken, has hitherto proved unsatisfactory. The photographic plates employed should be of large size, in the case of gastric skiagrams measuring 11 by 14 inches.

Dr. Case has published an *édition de luxe* of a hundred double stereoskiagrams of patients with disorders of the alimentary tract. The book is in four volumes, with loose leaves, in folders and cases, and is published under the aegis of Dr. Howard Kelly of Baltimore. There are 205 leaves in the four volumes, each leaf consisting of text, or text and diagrams, or text and a stereoskiagram. The stereoskiagrams are apparently bromide prints, reduced to 3 by 2½ inches; a stereoscope for looking at them is given with each set of volumes. The cases illustrated are for the most part gastric and intestinal cases of all sorts, illustrating both organic and functional diseases of the alimentary tract, as well as the normal condition of affairs. The text gives an ample description and discussion of both the cases and the skiagrams, so that the reader is able to profit fully by the detail of the excellent pictures reproduced. One of these gives a very interesting view of a pelvis containing two calcified uterine fibroids (p. 199). Dr. Case finds that acute intestinal obstruction gives quite a diagnostic x-ray picture; the gas-distended small intestine here shows a pathognomonic reticulated appearance, and the use of a bismuth meal is unnecessary (p. 117). In many cases he gives two bismuth meals, at intervals of from six to twenty-four hours, particularly when it is desired to visualize the entire alimentary tract for observation at one or two sittings (p. 129). Dr. Case believes that when gall stones are present they may be demonstrated on the skiagram in nearly half the cases (p. 102). We have nothing but praise for the contents and the get-up of these sumptuous volumes. Neither care nor expense has been spared in their production. There is no skiagrapher who would not learn much from their study, and they cannot be too widely made use of.

OXFORD WAR PRIMERS.

THE amazing number of explosive missiles used in the present war have produced a vast variety of injuries to the chest and its contents. The experience gained in the treatment of them has enabled some very definite lines to

¹ *The Psycho-neuroses and their Treatment by Psycho-therapy*. By Professor J. Dejerine and Dr. E. Ganecker. Authorized translation by Smith Ely Jelliffe, M.D., Ph.D. Second English edition. Philadelphia and London: J. B. Lippincott Co. 1915. (Med. 8vo, pp. 407, 13s. net.)

² *Stereoroentgenography: The Alimentary Tract*. By J. T. Case, M.D. In four parts. Troy, N.Y.: The Southworth Co. 1915. (Cr. 4to, pp. 205, and 100 stereograms in the four parts.)

be laid down, more especially as regards the injuries to the internal organs. Many of the leaders of surgical teaching have already published their views, and a useful handbook, in which the whole subject is considered in detail, has recently been compiled by Staff Surgeon J. KEOGH MURPHY, R.N.V.R.³ His own experience, derived from naval as well as from military practice, has enabled him to form some very definite opinions, which are set forth in interesting form and deserve close attention. The modern rifle bullet is a merciful missile so long as it encounters soft tissues only in its course. It becomes terribly destructive if its course is obstructed by any hard tissue such as bone. The hard envelope of the bullet may split and break up into a vast number of sharp fragments which may cause widespread laceration.

In spite of the fact that the thorax contains so many vital parts, the mortality from chest wounds is not so great as might be expected. Very many of the injuries are inflicted in the sides and in the back. The prone position, which has to be so much used, lays the head, neck, and back open to rifle fire, and many longitudinal wounds are thus inflicted which are very fatal in their ultimate results. The shock produced by wounds of the chest is often very severe, but is sometimes surprisingly small, nor is there usually much hæmorrhage, unless a large vessel has been injured. Pain, too, is seldom severe, except in superficial injuries to the back, and dyspnoea, which may be very severe at first, tends to pass off fairly soon. Injuries to the pleura and their results form a large proportion of the conditions calling for special care and caution. Hæmorrhage, so seldom met with in civil practice, is common in military surgery, and the writer devotes much attention to the questions arising as to treatment under varying conditions. The great danger of a collection of blood in the pleural cavity is that it should become septic. If a hæmo-pyo-thorax should be thus set up, its free drainage is obviously indicated, but so long as the blood remains uninfected the less it is interfered with the better. Even the use of the exploring syringe is deprecated. Simple pleuritic effusion as a result of a wound is not often met with. Some form of infection usually takes place from the beginning. In dealing with penetrating wounds of unknown depth and extent the processes of nature should not be interfered with by the introduction of a probe or by the injection of antiseptic fluids. The use of the latter in general seems to be regarded with disfavour, as being useless as a disinfectant and only too liable to interfere with the normal protective action of the lymph that has already begun the healing process. The cleansing of the external wound and the removal of any dead tissue or foreign bodies, a gentle sponging with hydrogen peroxide or 5 per cent. carbolic, and a light inunction with iodoxy, a preparation with which the writer expresses great satisfaction, should be followed by fomentations of boracic acid, the greatest care being taken to avoid sepsis. By such means the natural flow of lymph is assisted with as little interference as possible.

The treatment of shock in deep thoracic injuries is often urgent, and of all the methods hitherto employed the writer expresses his strong preference for slow injection of hot saline into the rectum. An ingenious application of the siphon and the thermos bottle enable this to be done at a uniform temperature. The difficulty of applying bacterial therapeutics in military practice is great, but a good deal can be done to supply autogenous vaccines which in some cases have proved useful and are always worth trying, as they are not productive of any evil results.

Mr. Murphy's little handbook will be found of real value to the very large number of young military surgeons who may be called upon to treat thoracic injuries. It is full of detailed information of the kind that is most needed in actual practice.

The war primer on *Nerve Injuries and Shock* by Captain HARRIS is divided into two parts. The first of these deals with direct injuries of the central and

peripheral nervous system; the second with the nervous shock and loss of moral so commonly met with in the present day of high explosives, and characterized by many of the nervous manifestations irrationally known as "hysterical." Captain Harris gives a brief but clear exposition to cover the ground of the title of his book, describing the nature of the cases likely to be met with and giving fairly full instructions as to their treatment, but leaving pathological and theoretical considerations severely alone. The little manual should be of service to those for whom it has been written.

During the last twelve months both civil and military practitioners of medicine have seen relatively large numbers of cases of epidemic and sporadic cerebro-spinal meningitis, although the disease has not, fortunately, shown anything like the extensive spread noted in American and Continental epidemics occurring in the last twenty years. A full, scientific, and lucid account of the disorder has been written by Major T. J. HORDER.⁴ His *Cerebro-spinal Fever* is quite the best book on the subject we have seen, and it should be in the hands of all medical men who have to do with the disease. The descriptions of the symptoms, diagnosis, treatment, and prophylaxis given are admirable, and leave nothing to be desired. Should cerebro-spinal fever re-emerge in epidemic form again during the coming autumn and winter months, the practitioner could hardly have a better guide in his dealings with the disease than Major Horder's little volume.

BEHIND THE LINES.

The title *War Pictures Behind the Lines*⁵ expresses well the scope of the book which Mr. IAN MALCOLM, M.P., has written, describing his experiences, chiefly in France. For about eight months—beginning in October, 1914—he worked for the department of the British Red Cross Society now known as the Inquiry Department, and was specially engaged in tracing the fate of men returned as "missing." The system established of examining the hospital registers and questioning the wounded and the lists of prisoners furnished weekly by the International Red Cross Society in Geneva afforded a great deal of information, but there were always some not accounted for, and the prosecution of inquiries with regard to them led Mr. Malcolm into almost every part of France where the British have fought in this war. A sad part of his task was to attempt to identify graves, and he pays the warmest possible tribute to the sympathetic attitude of the French, including the humblest peasants, towards the dead of their ally. To most readers the most novel part of his book will be the chapter on the Red Cross work which is being done by Switzerland. The International Committee of the Red Cross at Geneva is international in the sense that it operates as a clearing house between nations, not that it is composed of representatives of all nations, for each of its members must be a Swiss resident in Geneva. It has established an *Agence des prisonniers de Guerre*, and twelve hundred voluntary workers have organized a card-index system, in which every man whose name reaches the agency as a prisoner (whether military or civil), or as missing, or as killed, is registered. From October 15th, 1914, to June 30th, 1915, this agency corresponded with 234,731 families; received 1,800,000 letters and 50,000 visitors, and forwarded about 71,300 letters and 11,500 telegrams to various destinations. In addition to this work a *Bureau des Repatriés Civils* has been established, and on its lists are nearly 20,000 names of exchanged civilians of all nationalities who have passed through its hands, and of no fewer than 65,000 poor refugees from French territory. When the refugees arrive there is an inspection of clothing, and in most cases it has to be renewed. Bathrooms and changing rooms have been fitted up in a large gymnasium, and in three or four hours each convoy is ready to be sent off in tractors to the French frontier. In Berne there is a committee of ladies supplying prisoners in French, German, and British camps with comforts of various kinds: from the French section bread and clothing

³ *Wounds of the Thorax in War*. By J. Keogh Murphy, M.C., Cantab., F.R.C.S., Staff Surgeon, R.N.V.R. Oxford War Primers. London: H. Frowde, and Hodder and Stoughton. 1915. (Fcap. 8vo, pp. 156; 20 figures. 2s. 6d. net.)
⁴ *Nerve Injuries and Shock*. By W. Harris, M.D., Cantab., F.R.C.P., Captain R.A.M.C.(I). Oxford War Primers. London: H. Frowde, and Hodder and Stoughton. 1915. (Fcap. 8vo, pp. 127; 3s. 6d. net.)

⁵ *Cerebro-spinal Fever*. By T. J. Horder, M.D., Major (Temp.), R.A.M.C. Oxford Medical Publications. London: H. Frowde, and Hodder and Stoughton. 1915. (Fcap. 8vo, pp. 179; 17 illustrations. 3s. 6d. net.)
⁶ *War Pictures Behind the Lines*. By Ian Malcolm, M.P. London: Smith, Elder, and Co. 1915. (Fcap. 8vo, pp. 242; illustrated. 6s. net.)

are sent to French prisoners in Germany and distributed under the superintendence of neutral delegates, and the British section dispatches vast consignments of loaves and other articles to our own prisoners; the Russian section is well supplied with money to buy comforts and necessities for the thousands of captive Russians whose families are too far off to send separate parcels. "*In ter arma caritas*, the Red Cross motto, is certainly the guiding principle of Swiss life to-day; generous and indiscriminately kind to the helpless and fallen victims of the German War." Mr. Malcolm's book is very modestly written and well illustrated by photographs of places and incidents and reproductions of official documents.

NOTES ON BOOKS.

C. J. S. THOMPSON'S *Compendium of the Pharmacopoeias and Formularies*⁷ has now reached its fifth edition, and has been brought thoroughly up to date. It includes the alterations made in the last edition (1914) of the *British Pharmacopoeia*, and contains tables and abridgements that make it a serviceable handbook of reference for medical practitioners, pharmacists, and students.

R. R. BENNETT'S *Materia Medica and Pharmacy*⁸ is one of the small books on the subject written for the benefit of medical students, and supposed to contain as much as they require to get them through their examinations in these subjects. It has been altered so as to conform with the *British Pharmacopoeia* (1914); dosage is given in both the newly adopted metric system and the older imperial system to which we are all accustomed.

THE NEW TAXES.

As the Finance (No. 3) Bill was issued so late last week our comments upon it must necessarily appear belated, but it still seems worth while to examine those provisions which have some special interest for medical men more closely than was practicable when the only reliable source of information available was contained in Mr. McKenna's Budget speech.

Section 10 of the bill deals with the duty on motor spirit, which is to be increased from 3d. to 6d. a gallon. The existing rebate of 1½d. per gallon will be raised to 3d.—presumably only to the extent to which the spirit purchased has borne the full rate of duty. In these days the taxpayer is often exhorted to suffer in silence and to be thankful for any mercies the Exchequer can afford to distribute by way of mitigation. Nevertheless, while the medical profession may be suitably grateful for the rebate of 3d. per gallon, the remaining moiety of the duty falls on the individual practitioner with peculiar severity. The fact is undeniable, even though the consequences be accepted, if not exactly with cheerfulness, at any rate without serious complaint. It is to be remembered that no other professional man uses motor spirit to the same extent as the medical practitioner. The position of the latter differs also from that of a trader paying a similar duty on the petrol used in the conveyance of goods, for economic theory and recent experience alike bear testimony to the fact that such general trade taxes slide with remarkable facility from the shoulders of the trader to those of his customers through rising prices, whereas the medical man has not the opportunity—even if he has the desire—to pass on the incidence of the tax in similar fashion.

These remarks apply also to the 3½ per cent. *ad valorem* import duties on motor cars, accessories, and component parts, which are dealt with in Section 12, passed in Committee on October 20th by 78 to 26. Whatever may be the origin and final outcome of these taxes, their effect will certainly be to cause an early and substantial rise in the price of the cheaper varieties of motor cars. These duties have more than once been defended as constituting a "sumptuary tax," and in accordance with that aspect of the question Section 12, Subsection (7), provides for the exemption of

trade motor vans. The phraseology of this clause is so important that we quote the first two paragraphs in full:

§12. (7) Motor cars which are proved to the satisfaction of the Commissioners of Customs and Excise to be constructed and adapted for use, and intended to be used solely, as motor omnibuses, or bona fide motor ambulances, or in connexion with the conveyance of goods or burden in the course of trade or husbandry, and chassis, component parts, and accessories, which are so proved to be intended to be used solely for any such motor cars, shall not be charged with duty under this section.

Provided that in such cases as the Commissioners of Customs and Excise direct, cars, chassis, accessories, or parts, as the case may be, shall not be exempted unless they are marked or stamped in such manner as the Commissioners direct or approve with some distinctive stamp or mark showing that they are only to be so used.

If reference be made to the fifth schedule of the Finance (1909-10) Act, 1910, which deals with the original rebate on motor spirit, it will be found that it bears a considerable resemblance to the above-quoted subsection, but it will also be found that a further clause extended the rebate to motor spirit used for a car "kept by a duly qualified medical practitioner while it is being used by him for the purposes of his profession." The position therefore appears to be that in 1909 the medical practitioner was considered to have an equal right with the trader to partial exemption from a motor tax, whereas now the trader is to have full exemption from the import tax and the medical practitioner no allowance at all. For this we can find no reason based on equitable grounds. The Legislature has already admitted—and in the bill under discussion repeats the admission—that, so far as the petrol duty is concerned, the medical practitioner is entitled to the same relief as the carrier of goods; surely the principle should apply, *mutatis mutandis*, to the tax on the car in which the petrol is consumed. The use of a motor vehicle by wholesale and retail traders may be advantageous, but to the medical profession it is essential. If it be urged that the motor van should be encouraged in the interests of the community as being ultimately more economical, and therefore tending to reduce prices, it can be urged with at least equal force that nothing should be done which might have the effect of reducing a practitioner's ability to visit his patient immediately, and with the least possible cost in time and money, for the services which he brings to his patient are more urgent than the trader's goods, and his time is more valuable than that of the motor-van driver.

We are forced to the conclusion that the reason is to be found in the practical difficulties which may be feared rather than in the realms of economic theory, and this conclusion is borne out by the manner in which the bill seeks in the section quoted above to safeguard the revenue from the subsequent adaptation of imported cars to suit private purposes. There must of necessity be a difficulty in discriminating at the port of entry between chassis for light commercial cars and chassis for private cars; in fact, the only adequate safeguard would seem to lie in subsequent periodical examination of all those foreign chassis which have been exempted from the new import duties. So far as the petrol tax is concerned, periodical consideration of each case occurs automatically when each repayment claim is made. The difficulty of applying some such system to the car itself does not appear to be insuperable. Organization already exists for granting the yearly motor licences, and it would seem that a reasonably simple solution of the problem would be to raise the licence rates on foreign cars imported after October 1st, 1915, or some other convenient date. The chassis of such cars could be stamped on importation and be subject to inspection on the renewal of the yearly licence. A system of taxation on these lines would effectively check the evasion which the authorities appear to regard as at any rate a possibility, and at the same time obviate the practical difficulty which seems to prevent the application of the equitable rule that professional, as well as commercial, users of a motor car shall be relieved—to some extent, if not entirely—from the "sumptuary" tax aimed at the private user, whose car is an article of comfort or luxury, and not part of the equipment by means of which his income is earned. We fear, however, that such a radical alteration is not now possible, and the only way by which the medical profession can receive equitable treatment in this matter is by the

⁷ A *Compendium of the Pharmacopoeias and Formularies*, Official and Unofficial, with Practical Aids to Prescribing and Dispensing. By C. J. S. Thompson. Fifth edition. London: J. Bale, Sons, and Danielsson, Limited, 1915. (Fcap. 8vo, pp. 800, 5s. net.)

⁸ *Materia Medica and Pharmacy for Medical Students*. With an Appendix on Incompatibility. By R. R. Bennett. B.Sc. Lond., F.I.C. Third edition. London: H. K. Lewis, 1915. (Fcap. 8vo, pp. 270, 4s. 6d. net.)

extension of the proposed exemption to cars "kept by a duly qualified medical practitioner" . . . and "used by him for the purpose of his profession"—the language of the petrol rebate section seems suitable for the purpose.

Section 23 needs little comment, inasmuch as it merely provides for the increase of the income tax relief in respect of children from £20 to £25 for each child. It is noteworthy that the allowance remains the same for all incomes not exceeding £500, and ceases at that limit, whereas the expenses actually incurred undoubtedly rise with the growth of the parent's income. If £25 for each child is a reasonable allowance where the total income of the parents does not exceed £200, then it is not sufficient where that income is £400 or £500. An allowance of 10 per cent. of the total income for each child would appear to be more equitable, with possibly a fixed minimum allowance.

It is apparent from Section 24 that the system of quarterly collections is to be applied to all employees, though the bill proposes to give the Commissioners of Inland Revenue authority to exclude any "class" by regulation. Medical men holding appointments from local authorities or hospital boards under "wholtime" conditions will probably prefer a half-yearly to a quarterly payment. If that should prove to be the case, it may be possible to obtain the exclusion of that "class" of case from the quarterly system. In any event the question cannot arise at present, as the system does not operate till 1916.

Section 26 provides, in effect, for the limitation of time for making a claim to relief in respect of earned income to be extended to cover the whole of the year of assessment and the three subsequent years, instead of the period to September 30th only. Strictly construed this section would appear not to relieve persons already assessed at the "unearned" rates on account of the late delivery of a claim to the "earned" rate, though it would operate to grant such relief where the assessment is made after the bill becomes law—that is, subsequent to the Royal assent. This is clearly anomalous, and it is to be hoped that the authorities will recognize the anomaly and avoid it by applying the extension of time to all assessments made or to be made for the current year. The difference between the two scales of duty has increased from the original 3d. to 1s., and the effect on the tax payable is accordingly so substantial that the penalty for procrastination is more than the offence warrants. A general amnesty for this year would suitably accompany the disappearance of the more restricted limitation.

The Excess Profits Duty has attracted a large share of the attention given to the bill by the daily press, but, except in circumstances rather difficult to imagine, it could not affect the medical practitioner, and we need not consider it here at any length. Section 35 exempts, *inter alia*, "any profession the profits of which are dependent mainly on the personal qualifications of the person by whom the profession is carried on and in which no capital expenditure is required, or only capital expenditure of a comparatively small amount." We can conceive of few professions to which the words of this clause apply more clearly than they do to the medical profession. In any case there would probably be few practitioners caught in the intricately woven net of the Excess Profits Duty, but it is none the less satisfactory to have the exemption established on general grounds, leaving individuals free from the obligation of making complicated calculations as to their profits for various years—a freedom especially welcome in these strenuous times.

The proposals detailed in the bill differ in some respects—notably in connexion with the motor car import duties—from those outlined by the Chancellor in his Budget speech, and they may be still further amended. Whatever burdens the State may impose on the medical profession will be borne in the spirit of true and quiet loyalty, but that task will be lightened if it can be felt that the taxes are levied equitably and without unfair discrimination between the various classes of the community. From our point of view, we regard the claim of the medical profession to share in the exemption from the motor import duties as not only proved, but admitted, and we hope that the Chancellor will be able to extend that exemption in the same manner as the motor spirit duty allowance was extended in 1909.

CONFERENCE OF THE NATIONAL SPECIAL SCHOOLS UNION.

The seventh biennial Conference of Teachers, Medical Officers, Managers, and others interested in special schools for defective children, promoted by the Special Schools Union, was held in London from October 14th to 16th, and was largely attended by representatives from all parts of the country. On October 14th typical London County Council special schools were open for inspection, and numerous visitors had the opportunity of inspecting the results of manual training, which, in the case especially of the elder boys' and girls' schools, were simply wonderful considering the infirmities of the pupils who had produced the wood-work, metal-work, clothing, and other specimens.

On October 15th the sittings at the Guildhall commenced under the presidency of the Chairman of the London County Council (Mr. CYRIL JACKSON). After a State opening by the Lord Mayor, the first paper was by Sir W. P. BYRNE, K.C.V.O., C.B., Chairman of the Board of Control, its subject being "Teaching in institutes for defectives." He urged the importance of careful classification for teaching purposes; the slighter and more educable cases were, he considered, alone appropriate for day schools; the graver and permanent cases of mental defect required institutional treatment. He also referred to schemes in progress for training teachers for mental defectives. Mr. J. T. LEGGE (Director of Education, Liverpool), in a paper on "The education of the mentally defective," referred to the scheme outlined by the Royal Commission on the Blind, Deaf, and other exceptional children as long ago as 1869, which he described as excellent in dealing with the needs of the mentally defective—a scheme, indeed, to which we have only been approximating in recent years." An interesting discussion followed, in which Dr. SHUTTLEWORTH (London), Dr. PEARSON (Leeds), Mrs. BURGWIN (Superintendent of Special Schools, London), Miss JAMES (Superintendent of Liverpool Special Schools), Miss DENDY (Commissioner of the Board of Control), and others took part.

The afternoon session, under the presidency of Major WALDORF ASTOR, M.P., was occupied with the consideration of physical defects. Major Astor, in some opening remarks, said that evidence had accumulated that cow's milk was frequently responsible for non-pulmonary tuberculosis; the ideal was a tubercle-free milk supply, but it would be very many years before dairy herds were free from tuberculosis. He advocated pasteurization and the grading of milk into (a) children's milk, (b) adults' milk, (c) cooking milk. Such grading of milk in New York had coincided with the reduction of infantile mortality by over 4,000 a year. Papers were read by Dr. ARTHUR LATHAM on "The prevention of tuberculosis in childhood"; by Mr. C. ELSLIE, F.R.C.S., on "The problem of the physically defective child"; and by Mr. A. C. COFFIN, B.A. (Director of Education, Bradford), on "Special school work in Bradford." The Saturday session was under the presidency of Mr. F. R. ANDERTON, Chairman of the L.C.C. Special Schools Subcommittee, and papers were read by Major LEONARD DARWIN on "Feeble-mindedness in its racial aspects," and by Mr. J. W. BURN (Head Master of the Clondesley L.C.C. school for elder mentally defective boys) on "The practical side of special school work." Major DARWIN urged the importance, on grounds of heredity, of the mentally deficient not being allowed to marry, and asked the aid of teachers in instructing the parents of their pupils as to the risks to progeny attending such unions. The trend of scientific opinion, he said, was that innate, and therefore transmissible, mental defects were irremovable by education or environment. In the discussion which followed Mr. Bunn's paper, questions were raised as to the respective duties of the doctor and of the teacher in the selection or certification of pupils for the special schools, Mr. H. HOLMAN (late H.M.I.) remarking that the co-operation of both was necessary in coming to a satisfactory conclusion.

At its annual meeting, recently held at Washington, the Association of Military Surgeons of the United States passed a resolution by 75 to 1 in favour of compulsory military training.

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SATURDAY, OCTOBER 23RD, 1915.

ABORTIVE TREATMENT OF WOUND INFECTION.

DR. ALEXIS CARREL has communicated to the Académie de Médecine¹ the results of experiments and observations made by MM. Dakin, Daufresne, Dehelly, Dumas, and himself, at the Rockefeller Laboratory and Temporary Hospital 21 at Compiègne, on the use of the hypochlorite solution devised by Dr. Dakin. Dr. Carrel began by quoting Professor Tuffier's statement that of 1,000 amputations at Maison-Blanche, the operations had to be done in about 800, not on account of the gravity of the wound, but owing to complicating infection. He complained that no new doctrine had been formulated to replace that held at the beginning of the war, though at a very early stage it had been proved to be wrong. Like Sir Almoth Wright, he asks that some single method of treatment shall be established and followed by all, even though, in its turn, it may eventually be superseded by something better. In this way, he said, the wounded would be protected to some extent from "therapeutic fantasies" which are now allowed full play for want of a directing principle.

Carrel sees in the proper use of an antiseptic the method which should be universally followed at present. He starts from the position that all wounds due to shells, mines, or grenades are infected, and supports this statement by the results of bacteriological examination, which, when made even as early as about six hours after the wound was received, had in all cases revealed the presence of a varied microbial flora, aerobic and anaerobic. The bacteriological examination brought out certain other facts of importance: first, that the microbes at this early stage were generally present in small numbers, for in a smear preparation several microscopic fields might have to be examined before a micro-organism was found; and, secondly, that they were in the main localized round about the projectile or scraps of clothing; they had not had time to spread through the wound. In a smear examined twenty-four hours after the wound, or later, the appearance was very different; the micro-organisms were so numerous that often they could not be counted in the smears and were found in smears from every part of the wound. Bacteriology, clinical observation, and common sense, Carrel maintains, combine to justify the opinion that during the first few hours it is easy to clear a wound of microbes, but that it becomes more and more difficult if they are allowed time to multiply, to spread over the surface of the wound, and to infiltrate its walls. For an analogy he turns to acute appendicitis, in which experience proves the wisdom of operation within the first twelve hours. He urges that treatment to abort the infection in gunshot wounds of all kinds, even those which appear trivial, should be begun at the earliest possible moment. The first thing—and a relatively easy thing—is to remove foreign bodies, but

it is not possible to remove mechanically all the smaller fragments, nor to get rid of all the microbes lodged in the walls of an anfractuons wound. It is, he said, with a graphic touch which lightened a rather matter of fact paper, no more easy to clean a wound with a gauze swab than to clean a greasy bottle by the same means. As it is not possible to clean away the microbes entangled in the minute fragments of foreign bodies, and in the walls of a wound, it is advisable, he considers, to use some liquid which will penetrate everywhere and can with impunity be left in contact with the tissues for a sufficient length of time.

Dr. Carrel vigorously repudiates the view that antiseptics are useless. He admits that they have been abused, ill chosen, and badly applied, but for him the conclusion to be drawn is not that they should be discarded, but that they shall be better chosen and better applied. Dr. Dakin's search for an antiseptic solution effective, unirritating, and cheap, resulted in the special solution of sodium hypochlorite which he described in this JOURNAL on August 28th. Carrel's contention is that if this solution be caused to penetrate into every corner of the wound, and if it be constantly renewed, complete sterilization of the wound can be achieved. He would have the skin disinfected with tincture of iodine at the first dressing station, and the wound, if its aperture be small, injected with the solution of hypochlorite; he would cover a large wide wound with gauze wet with the hypochlorite solution, but would not have any impermeable material put over this. He does not consider this rapid provisional disinfection essential, though he thinks it improves the prognosis. The essential point is to get the wounded to an ambulance or clearing station as quickly as possible. For him the future of the patient depends upon the rapidity of his transport to some place where his wound can be treated by an effective antiseptic method, so that it may be put on the way to become in a few days an aseptic wound. At the ambulance or clearing station foreign bodies, including scraps of clothing, should be removed at once, usually with a finger of the gloved hand or with dissecting forceps. The object of any operation then done should be to open up the wound sufficiently to allow it to be thoroughly cleaned; it should not be mopped, brushed, or everted, and particular attention should be given to the arrest of hæmorrhage. Having opened up the wound and arrested hæmorrhage and having ascertained the situation and extent of every recess, the next step is to employ an efficient antiseptic. Carrel recommends that devised by Dakin, on the grounds that it is effective if properly used, cheap, and easily made by any ambulance dispenser.²

² Dr. Dakin's directions for the preparation of a 0.5 to 0.6 per cent. solution of hypochlorite are as follows (BRITISH MEDICAL JOURNAL, August 28th, p. 319): "One hundred and forty grams of dry sodium carbonate (Na_2CO_3), or 400 grams of the crystallized salt (washing soda), is dissolved in 10 litres of tap water, and 200 grams of chloride of lime (chlorinated lime) of good quality is added. The mixture is well shaken, and, after half an hour, the clear liquid is siphoned off from the precipitate of calcium carbonate and filtered through a plug of cotton; 40 grams of boric acid are added to the clear filtrate, and the resulting solution is ready for use. A slight additional precipitate of calcium salts may slowly occur, but it is of no significance. The solution should not be kept longer than one week. The boric acid must not be added to the mixture before filtering, but afterwards." We may add that the cost of making this quantity of the solution would be, approximately, 2s. 4d. if ordinary carbonate of washing soda were used, and about 5s. 6d. if a comparatively pure variety of sodium carbonate were employed. In the first instance the cost would be about 1s. 4d. a gallon, and in the second, a little over 2s. 4d. If the chemicals were bought in fairly large quantities, the cost would be slightly diminished in both cases. A little variation in the hardness of the water would not be likely to produce any appreciable effect on the strength of the solution.

¹ *Bull. de l'Acad. de Méd.*, T. LXXV, No. 40.

In the strength of 0.5 per cent., while strongly antiseptic, it causes no irritation even when applied to the skin or tissues for several weeks. But though its antiseptic action is highly effective, it is of short duration, for it is destroyed when in contact with albuminous substances; therefore it must be renewed frequently by injection or continuously by irrigation. At the first dressing it may be injected into the wound with an ordinary syringe, great care being taken to see that it penetrates into every part of the wound, and arrangements must be made that this penetration everywhere shall continue. Carrel uses india-rubber tubes about six millimetres in diameter: a hole half a centimetre from one end, or several holes, as the nature of the wound requires, are cut in the tube, which is then covered with bath towelling, in the manner described in the JOURNAL some time ago. In a narrow wound one tube may suffice, but in a large wound with pockets several may be required. In fracture cases he lets the end of the tube lie among the fragments. The fluid is absorbed by the towelling, and so kept in contact with the surface of the wound. At the first dressing the wound is filled with gauze and the surgeon assures himself by testing the tubes that the liquid can come into contact with every part of it. Over all is placed a layer of non-absorbent cotton through which the india-rubber tubes project. Every hour, or every other hour, a sufficient quantity of the liquid is injected into the tubes unless continuous irrigation can be arranged.

When this plan of treatment attained its maximum success, bacteriological examination showed that the wound had been cleared of microbes and was aseptic; it might then be closed, not with sutures, but with strips of plaster on the surface, and in the depth by efficient compression by proper pads. In the first trials two suppurating wounds of the same kind and in the same patient were treated the one with and the other without the hypochlorite solution; it was observed in the former that the discharges dried up and the number of microbes diminished, while the condition of the latter did not change. Phagocytosis and cicatrization went on in the wound treated with hypochlorite, notwithstanding the continued employment of the antiseptic solution. Gradually the treatment was extended to more recent wounds, and finally to a series in which the interval between the receipt of the wound and the application of the treatment was from six to twenty hours. In all these cases fragments of shell or scraps of clothing had to be removed, and the presence of microbes in greater or less abundance, according to the interval between the receipt of the wound and the commencement of treatment, was established by bacteriological examination. After being irrigated with the hypochlorite solution for from three to five days, microbes had generally disappeared from the discharges which were not copious, and meanwhile any portion of necrosed tissue had disappeared.

When the wounds had been proved to be aseptic, the sides were brought into apposition with strips of plaster, and union was generally obtained from a week to a fortnight after the wound had been received; the scars were small and supple. Carrel went so far as to say that fractures produced by fragments of shell, although infected, could by this method be brought into a condition so thoroughly aseptic that they recovered like simple fractures. The conclusion, therefore, is that infected wounds can be sterilized by the use of a hypochlorite solution, and that then they may be treated as aseptic wounds; the essential thing is to ensure that every part of the

wound is reached by the antiseptic. Even in cases in which it was not possible to achieve asepsis the severity of infection was greatly diminished, the healing of an infected wound was hastened and most of the complications which cause death, render amputation necessary, or produce deformity were prevented. In the long run, according to Carrel, the adoption of a hypochlorite method will largely increase the number of wounded who can be returned to service.

It will be seen that Dr. Carrel's results very closely parallel those recorded by Captain John Fraser in the JOURNAL of October 9th (p. 525). Captain Fraser used the solution of hypochlorite as devised in Edinburgh. Even in cases of gas gangrene he observed that during the first twenty-four hours the foul smell of the wound entirely disappeared; that by the third day the lymph-like discharge set up tended to cease and granulation tissue to form; that sloughs separated with extraordinary rapidity, and that healing proceeded at a very rapid rate.

The observations of Dr. Carrel and Captain Fraser will be studied with interest by all surgeons engaged in the present war, and we hope to publish next week the text of the address given by Sir Almoth Wright, who, if we understood his verbal statement correctly, does not consider the use of antiseptics in this elaborate manner necessary.

MIXED VACCINATION AGAINST TYPHOID FEVER AND PARA- TYPHOID A AND B.

LAST August the members of the French Academy of Medicine began an interesting discussion on the method and value of protecting soldiers and sailors against typhoid and paratyphoid A and B infections by the use of a mixed vaccine. As Chantemesse pointed out, the question is one that has only recently acquired any practical importance. It is only recently that these three varieties of what has long been known as "typhoid fever" have been generally discriminated; and it is only during the present war that paratyphoid fever has proved to be an infection of wide dissemination requiring any specific prophylaxis. The two forms of paratyphoid fever distinguished as A and B in accordance with the variety of *Bacillus paratyphosus* causing them are not, it may be said at once, of equal practical importance. Paratyphoid B fever is rarely fatal, and not a single death occurred among 447 cases of it in the Japanese navy, as Kabeshima recorded (1914); while out of 289 patients with paratyphoid A fever, 7 died. Similarly, it may be noted, among the 70,000 European troops in India during 1913 there were 79 cases of paratyphoid A fever, with 2 deaths, but no cases of paratyphoid B fever. The mortality of typhoid fever among the Japanese sailors was much greater, 45 out of 367 patients succumbing to the infection.

In a general review of the prophylaxis of these three closely connected fevers, Vidal¹ said that the use of mixed bacterial vaccines to protect experimental animals against a number of infections was first described by himself and Sicard in 1897, assuming that protection and the acquisition of agglutinating powers went hand in hand. The subject was further discussed in 1902 by Castellani,² and in 1905 he was using a mixed typhoid + paratyphoid A + paratyphoid B vaccine, among other complex vaccines, for the protection of human beings. In 1910 a

¹ Bull. de l'Acad. de Médecine, Paris, 1915, lxxiv, p. 1248.

² See BRITISH MEDICAL JOURNAL, 1915, i, 445, 758; and ii, 230.

similar triple antityphoid vaccine was employed by Vincent in Morocco, but he appears to have discontinued its use a year later. The use of analogous compound antityphoid vaccines has subsequently been described by a number of authors, and it may be said that their employment has a sound experimental and clinical basis at the present time.

But there are several practical points about their use that require further definition. Is a mixed vaccine to be injected, or are the three component parts of it to be administered successively? In what proportions are the three bacterial strains to be employed in the mixed vaccine? Does the mixed vaccine confer as high a degree of immunity to infection as its component parts do when used separately? Is it necessary to immunize against paratyphoid B at all? On several of these points Castellani has no doubts. He believes that the mixed vaccine, containing the full doses of each of its constituents, does not in practice produce unduly severe local and general reactions. Widal, on the other hand, recognizes the danger of producing severe reactions by the injection of adequate doses of mixed vaccines, and he seems inclined to counter this danger by reducing each individual dose and by giving a series of four injections rather than any smaller number.

Vincent goes still further in the same direction. His experience in Morocco leads him to advise the administration of two large doses of antityphoid vaccine, and to follow these up with two or three subsequent injections of a mixed paratyphoid A + B vaccine whenever circumstances and time allow this course to be taken. As for the relative importance of typhoid and paratyphoid vaccines, Widal describes the use of the former as a necessity, the use of the latter as a matter of local exigency and good fortune, in the military conditions that now obtain; he foresees great practical difficulties in the application of Vincent's method of giving five (or better six) separate inoculations. He would therefore use a triple vaccine, sterilized by heat, and give for choice a course of four injections with it. He holds that an infection with paratyphoid B is not without real danger to soldiers exhausted by the labours of a campaign.

It seems generally agreed that the triple vaccine is as efficient in producing immunity as its components are when used separately. Vincent, in conclusion, added to the discussion the fact that a triple vaccine—known for short as T.A.B.—has been used in the Italian army for three years with excellent results, particularly in Cyrenaica and the Tripolitan, where paratyphoid fevers A and B are both endemic and epidemic.

CENTRAL MEDICAL WAR COMMITTEE.

At a meeting of the War Emergency Committee, held at the house of the British Medical Association on October 20th, Dr. Frederick Taylor moved a resolution to the effect that a more appropriate title would be the Central Medical War Committee, and this was adopted. A deputation from the Committee which had had an interview with Sir Alfred Keogh having made its report, the Committee reviewed the present situation and adopted a resolution to the effect that it should continue to use every endeavour to complete the quota of medical men originally called for by January 15th, 1916, having regard, however, to any modifications in the number asked for wherever the civil needs of any district suggest such modification, and that the enrolment scheme should be modified so that practitioners should be asked to engage definitely for service at a fixed date after January 15th, 1916. This resolution, which was passed unanimously, emphasizes

two facts—first, that a large number of medical men is still required to satisfy the demands of the military authorities for the armies already in being; and secondly, that a further large number will be required later for the new armies now being formed. It cannot be too strongly impressed upon the profession that the military necessities require that every man of military age who is physically fit should be prepared to enter the military service of the country in the present emergency. The only way in which this can be done while properly safeguarding the interests of all concerned, is by every available man placing himself at the disposal of a committee with expert knowledge. It is found that eligible men often express their willingness to go if and when conscription becomes an accomplished fact. This policy, however, must almost inevitably place the medical profession in a far worse position, inasmuch as under conscription the calling up of men would probably be left in the hands of Government officials not fully informed as to the needs of the local community, and totally unacquainted with the difficulties of the practitioners called upon. It was mentioned during the meeting that the number of local medical war committees had been increased to 149, and that in some of the remaining seventeen areas the work was being done by the Executive Committees of the Divisions of the British Medical Association. Before the meeting adjourned a letter was read from a well-known medical agent, suggesting that it might be worth while to call a meeting of agents to discuss questions connected with the putting on their lists of locumtenents fit men eligible for service with the R.A.M.C. It was resolved in reply to this letter to express general approval of the proposal to hold such a meeting.

FASTING TREATMENT FOR DIABETES.

The daily press, misinformed and optimistic as ever in matters of medical and surgical treatment, has quite recently announced a "reported cure for diabetes," alleged, as is so often the case in such matters, to have emanated from America. The cure is said to be based on "bicarbonate of sodium with a small amount of salt." It is added that "in extreme cases the treatment is given hypodermically." This, we take it, is a reference to an interesting article on "prolonged fasting in diabetes" recently published in America by Dr. F. M. Allen.¹ As the result of the treatment of 44 patients suffering from severe forms of diabetes mellitus at the Rockefeller Hospital in New York Dr. Allen is able to speak highly of the treatment of the condition by prolonged periods of fasting. Fasting is not a new thing in the cure of diabetes, having been recommended empirically by many writers in succession, from Nannyn to Guelpa. In the present instance, however, its utility was foreshadowed by certain experiments upon animals, and its application to man was based directly on these experiments. Dr. Allen's experience indicates that the glycosuria in cases of even the severest type of diabetes may with advantage be cleared up by one initial fast, lasting, if necessary, as long as eight or ten days. In one instance it was found that a diabetic patient's total metabolism was 8 per cent. above normal, and that no sugar was being burned in the tissues at all. After a nine days fast the total metabolism had fallen to 20 per cent. below normal, and the respiratory quotient showed that the sugar formed from the tissue protein was being burned. This shows the great improvement that may take place in a weakened metabolic function—namely, the utilization of sugar—when a course of complete rest is prescribed to that function. When the fast is over, the next step is to introduce protein, fat, and carbohydrate into the diet in such a way as to maintain freedom from glycosuria and urinary acidosis,

¹ Amer. Journ. of Med. Sciences, Philadelphia, 1915, cl. 480.

a matter of careful experimentation in each patient. The reappearance of glycosuria is an indication for a day of fasting; indeed, routine fast days once a week may be prescribed with advantage, even in the absence of glycosuria. Two main principles are enunciated by Dr. Allen here: the patient should be kept permanently below weight, and the fat in the diet should be restricted. Both are new ideas, comparatively speaking, in the dietary treatment of diabetes; both are designed to minimize the strain placed on the weakened pancreatic function by the taking of food. Both from his own experience and from that of other medical practitioners who have adopted this starvation treatment in diabetes, Dr. Allen is able to speak very highly of the new method. Its immediate results are most encouraging. As for the remote results, a longer experience is naturally required before any authoritative statement can be made: the cure is yet in its infancy. It removes glycosuria and acidosis more quickly and more surely than has been the practice heretofore, and it is common knowledge that diabetic patients do better when glycosuria and acidosis are removed than when they are allowed to continue. Dr. Allen gives no specific indications as to the particular articles of diet given when the fasting is over, or their quantities; these details are to be stated in a later publication. No mention is made of the administration of either "bicarbonate of sodium" or "small quantities of salt" in the treatment, whether by the mouth or hypodermically, in the American journal. But it is clear that the fasting treatment of diabetes has a rational experimental basis, and its further exposition and developments will be awaited with interest.

THE WAR AGAINST FLIES IN FRANCE.

DR. R. BLANCHARD, professor of parasitology and medical natural history in the Faculty of Medicine of Paris, has written an essay on the fight against the fly for the *Ligue Sanitaire Française*, which the *Ligue* has published in a pamphlet.¹ It begins by describing the different kinds of flies, their habits and their metamorphoses, and then discusses the diseases transmitted by the non-biting and the biting flies. The greater part of the pamphlet is concerned with the methods of preventing the dissemination of disease by flies, which resolve themselves practically into the methods for the destruction of the insects. Dr. Shipley, in his article on the house-fly,² said that the eggs, which are laid a little beneath the surface of the dung-heap in batches of 100 to 150, hatch out at suitable temperatures in something under twenty-four hours. The maggot (larva) undergoes three moults, the third when it is half an inch long, being reached on the fifth or sixth day. "Now," he said, "it leaves the moist situation in which it has flourished, and, crawling through the manure, seeks some dry or sheltered corner," where it is transformed into the pupa which immediately precedes the perfect insect. It appears, however, that although the larva can pupate in a dry corner it prefers to bury itself in the ground. However this may be, the important fact in the present connexion is that the full-grown larva, when about to pupate, has an impulse to migrate from the manure heap, and the method of destroying it devised in Canada and the United States by Hewitt and Hutchison is designed to turn this habit to the discomfiture of the insect. Professor Blanchard is evidently greatly taken with the plan; partly because it demands only a modification of a method of treating manure recommended in France for quite another reason by Dehérain and Ringelmann. Their object was to prevent the loss of ammonia and other nitrogenous bodies by catching the drip from the heap in a tank of water underneath it. A shallow concrete tank is made and a grid of stout laths placed over it; the manure is put on this platform, and if it is dry it is watered from time to time until the

tank is full. When full a pump is fitted, and the liquid in the tank is again pumped over the manure. To make this into a larva trap the only modification necessary is to see that the platform is rather narrower than the tanks, so that not only the larvae which come out at the bottom but also those that wander out at the sides will drop into the water and drown. In this method no antiseptic is used, its success depending wholly upon the fact that it takes advantage of the instinct of the larva to work itself out of the manure when it is going to pupate. Professor Blanchard, however, seems to think that the migration is due not so much to a rooted instinct as to the circumstance that the fermentation which is going on in the manure makes it too hot for the larva. It may be remembered that in the *JOURNAL* of September 18th was published a short note on a paper communicated to the *Académie des Sciences* by M. Roux. The point of this paper was that the eggs of the house-fly could not withstand a temperature of 60° C., and that during fermentation of manure the temperature might rise to between 60 and 70° C. Blanchard states that the larvae object to manure that is kept thoroughly moist, and also that the migration takes place chiefly at night. It is necessary to maintain a certain amount of fluid in the tank and to keep it thoroughly cleaned out from accumulations of straw, which might enable the larvae to climb out. Hutchison estimated that in this way 98.5 per cent. of larvae were destroyed. The method has the advantage that it not only does not deteriorate the value of the manure, but, almost automatically, supplies a quantity of liquid manure; the saving thus effected by preventing the loss of ammonia more than repays the small amount of labour required. The objection is that the tanks afford a breeding place for mosquitos. This disadvantage may be obviated by applying paraffin in the proportion of 15 to 20 c.cm. to the square metre. In an appendix M. H. G. Richter, secretary of the *Ligue*, who is an architect, gives a plan and section of a construction for a manure grid and tank on the principle described.

THE NEW ENGLISH DICTIONARY!

SINCE the notice of the summer instalment of the *New English Dictionary* appeared in these pages (July 17th, p. 104), the veteran editor, Sir James A. H. Murray, has passed to his rest. In the prefatory note to that fasciculus the editor in chief spoke of his "long and serious illness," but he continued manfully at his beloved labours till almost within a week of his death, which took place on July 26th, 1915. To quote from a short sympathetic note, appearing as an inset in the present portion of the *Dictionary*, "Sir James Murray's great wish that he should live to finish the *Dictionary* on his eightieth birthday, in 1917, has not been fulfilled; the unceasing labour of three and thirty years has ended when less than a tenth part of the work remains to be done." The notice continues: "Almost within a week of his death he was still hard at work, showing, as Dr. Bradley wrote of a visit made to him, 'not a little of the mental zest and lucidity that I remembered of old.' In the preceding months, while barely convalescent from an illness that seemed to bring him to the gates of death, he had prepared, and at the appointed date of July 1st published, his usual 'double section.'" For some years Sir James was aided in the editorial work by Drs. Bradley and Craigie, and more recently by Mr. Onions; but, as the inset reminds the students of the *Dictionary*, "it has always been the rule that each of the editors should be exclusively responsible for the portions

¹ *A New English Dictionary on Historical Principles*. Edited by Sir James A. H. Murray, Henry Bradley, W. A. Craigie, and C. T. Onions. Vol. IX. Sp. Pl. Standard-Seed. By Henry Bradley, Hon. D. Litt. Oxford: At the Clarendon Press; London, Edinburgh, New York, Toronto, Melbourne, and Bombay: Humphrey Milford, October, 1915. Price 2s. 6d. (6d. each).

¹ Paris: *Ligue Sanitaire Française*, 72, Rue de Rome. Prix, Fr. 2.

² *BRITISH MEDICAL JOURNAL*, October 17th, 1914, p. 662.

of the work issued under his name. The sections in the hands of Dr. Bradley, Dr. Craigie, Mr. Onions, and their staffs, will not be affected (by Sir James's death). But Sir James Murray at the beginning laid the lines and drew the plan; in the prosecution of the work, when it became clear that it must be shared, his amazing capacity for unremitting labour enabled him to take more than an equal part, and the volumes produced by himself show characteristic excellences which cannot be exactly matched, though they may be rivalled by merits of another kind. He will not write the last pages, but more than that of any other man his name will be associated with the long and efficient working of the great engine of research by which the *Dictionary* has been produced." To those words of whole-hearted recognition from his co-workers we add our full consent, for not once only, but many times in the quarterly notices of the *Dictionary* which have appeared in these pages, have we drawn special attention to the thoroughness of Sir James Murray's knowledge of medical terms, to the scholarly manner in which he always dealt with them, to the new light which he not rarely shed upon them, and to that peculiarly rich interest with which he was constantly able to invest them in his happy choice of illustrative quotations. Indeed, sometimes it almost seemed as if the unusual phenomenon of the infusion of a piquant kind of humour in the selection of the quotations was being witnessed, and as if Sir James were enjoying a quiet dig at the doctors. Although unusual, this character was not without precedent in lexicography, as the fortunate possessors of the early editions of Johnson's *Dictionary* know to their delight. Whether he would or no, Dr. Johnson had much for which to thank the Scots. His own biography, which some have not hesitated to call the greatest life of an Englishman ever written, came from the pen of Boswell; and now another Scotsman, Sir James Murray, has borne the biggest burden in producing the greatest English dictionary which the world has seen and one which would have gladdened Dr. Johnson's eyes to behold. The present section, which carries the alphabetical rubrics from *Standard* to *Stead*, does not contain many medical terms; but a glance through its pages reveals a few which are of interest and also shows the usual carefulness in the registering and illustrating of medical meanings of ordinary words. Thus, on the first page, under *standardize* there is a reference to the pharmaceutical meaning of the term and an illustrative quotation regarding "standardized laudanum." *Materia medica* is likewise represented in this section by carefully prepared articles on *starch* (with references to *starch-bananas*, *starch baths*, and *starch-sugar*), and on *stavesacre*, with many illustrative quotations, including one (of 1630) which says: "Mix'd with *Stavesacre* and *Argentum vivæ*, it will not leave a man a *Louse* alive," and so explains why the plant has been called *Lousewort*. An interesting group of medical terms begin in *Staphyl* (from the Gr. *σταφύλη*, bunch of grapes), and includes *staphyle* (a rare synonym for *uvula*), *staphyline*, *staphylococcus* (first used apparently in 1887), *staphyloma* (protrusion of the cornea), *staphyloplasty* (a plastic operation for the closure of cleft palate), *staphylorrhaphy* (surgical closure of a cleft palate), *staphyloptome*, and *staphyloptomy* (amputation of the uvula). Two new words, *staphylolysin* and *staphylotoxin*, are supplied with one illustrative quotation each, and both are taken from the BRITISH MEDICAL JOURNAL, the former from the number for September 10th, 1904, and the latter from that for April 12th, 1902. Another little group of terms circles round *Stapes*, and includes *stapedectomy*, *stapedial*, *stapediform*, and *stapedius*. *Starblind* is a word which seems to have troubled Dr. Bradley not a little; it would seem to have relations with *stark blind* and through it with *stark dead* and *stark naked*. Other terms are *status*, *stasis*, and *static* (in their medical senses).

ANAESTHETISTS AND INFECTION.

THE subject of the dangers run by anaesthetists in the course of their practice has been little studied in this country. While patients who suffer from syphilis or from tuberculosis would appear to be a source of infection to the administrator of an anaesthetic to them, no reliable statistics exist from which to estimate the real danger. Anaesthetists are at the present time called upon to deal rapidly with a large number of men, many of whom are probably in an infective stage, although any definite history is lacking. There is little doubt that in hot, ill-ventilated rooms the anaesthetist runs a certain risk in respect of tuberculosis, and more than one hospital anaesthetist has been attacked with pulmonary phthisis, although we are not aware if any causal nexus has been established between the work and the infection. Again, both in this disease and in syphilis the sputum of patients often finds its way to the hands and even the face of the anaesthetist. The modern routine method of protecting the mouth and nares by gauze should, if the latter be sufficiently thick, safeguard the anaesthetist from the patient as well as vice versa. The eyes, however, remain as a vulnerable area. The anaesthetist's hands are probably a real source of danger. The necessity of opening the mouth, dealing with sharp snags of teeth, mopping the fauces, seizing the tongue and arranging the lips over a gag, offer a fruitful field for the buccal flora, and the hands readily carry infection to the anaesthetist. Obstreperous patients—and experience has proved that many soldiers belong to this type—have bitten fingers engaged in opening and dealing with the mouth. Although complete manual asepsis is impossible the use of thick rubber gloves is a precaution of which the prudent anaesthetist will make use. The modern plans of employing open masks for the liquid anaesthetics do not act as a wholly efficient safeguard. Salivation is commonly present during the induction of anaesthesia, alike with chloroform and ether, and this usually induces the patient to spit vigorously. To secure cleanliness and safety a second mask should be at hand to be used as soon as unconsciousness has supervened, and the soiled mask should be stripped of its gauze and boiled before further use. When nitrous oxide is given to doubtful patients an all-metal mask should be preferred. The gas bag is safeguarded by efficient inspiry and expiry valves, although it is a wise precaution to rely upon the reversible red rubber bag of Vernon Knowles, which is readily cleansed and disinfected with a mercuric solution. It need hardly be said that in operations about the mouth, nose, and air passages in general the dangers of infection are most likely to arise, and to minimize them careful cleansing by tooth scaling, sprays, mouth washes, and so on, may be systematically pursued. The record of Continental cases of infection is of little value, since many possible sources of infection were present which render futile any attempt to trace the cause to the effect.

DRUG AND ALCOHOL ADDICTION.

SIR WILLIAM COLLINS delivered the sixth Norman Kerr Memorial Lecture before the Society for the Study of Inebriety on October 12th, Dr. Mary Scharlieb presiding. The subject which, as the lecturer said, had been dictated to him, was "The ethics and law of drug and alcohol addiction." In dealing first with the nature of addiction to noxious agents, he said that the pathology of inebriety, which in its confirmed form was indistinguishable from moral insanity, had been too materialistic in accentuating the physical aspect of its causation with its implied irresponsibility. When dealing with agencies which abrogated consciousness and subordinated conscience to appetite, we had passed outside the range of histology, physiological physics, and even of biochemistry. He believed that alcohol and drug addiction ought to be regarded as examples of the surrender of self-control in favour of self-indulgence, of the voluntary preference for the lower

in the presence of the higher alternative of volition, exercised in obedience to appetite rather than to the higher command of conscience. Those who, on the other hand, were committed to the physical causation of inebriety, and to determinist philosophy, must, it seemed to him, flounder in the quicksands of responsibility and irresponsibility, and would "continue to search in vain for something out of a bottle or, maybe, a hypodermic injection, wherewith to redeem the sot and rehabilitate the will." In discussing the part legislation might play, and more particularly the spirit in which Governmental intervention should be undertaken, Sir William referred to the principles of the law of equal liberties as enunciated by Spencer and Mill. Their doctrines, he said, might sound somewhat out of date in the ears of the social reformers of to-day, and eugenists and sociologists now presented a new principle wherewith to inspire legislation—namely, that the social instincts were to be conceded preference over individual instincts, and that where there was conflict between social action and self-regarding action the law was to step in and forbid that which was inimical to the cohesion of society. This read like a resuscitation of Rousseau's *Contrat Social*, and with easy descent would lead to the odious dictum that minorities, and a *fortiori* individuals, had few or no rights at all. A safer path would be to follow the line indicated by Mill in the fifth chapter of his *Essay on Liberty*, in which he enumerated the principles that had been adopted as the basis of the pharmacy and poisons Acts, and justified the State in imposing restrictions on drink dealers, although, apart from the justification arising out of the interest of these dealers in promoting intemperance, such restrictions would be infringements of legitimate liberty. The kernel of the whole matter was in the restraint of liberty to secure a larger and truer liberty; the limitation of self-will in the interests of free-will and self-control; the repression of self in the cultivation of self-hood—principles which needed to be safeguarded alike against undue application and undue neglect. Finally, the lecturer passed in review recent legislative action, urged certain radical reforms in the pharmacy and poisons laws, and suggested also that it would be salutary if medical men would think, not once or twice, but many times, before prescribing potent drugs of addiction for internal exhibition if, as often happened, simpler and non-abusable remedies would meet the case. He referred to the prohibition of vodka in Russia and absinthe in France, and expressed himself convinced that little progress towards individual and national sobriety would ever be effected unless our statesmen took their courage in both hands, and either by heavy duties or penal restrictions, confined to medical and legitimate purposes all drugs of addiction, of which alcoholic beverages containing more than a moderate proportion of spirit were most widely resorted to and most pernicious in their total effects. A vote of thanks to Sir William Collins was warmly supported by Sir Arthur Downes, Dr. Armstrong-Jones, and Major McAdam Eccles.

CHILBLAINS.

A MEDICAL correspondent who describes himself as a healthy, active man—"a first-class life"—aged 45, in practice on the north-east coast, and hardened to exposure, has no trouble in keeping his body warm and glowing, yet has his fingers covered with chilblains during the winter, and asks what he can do. Sometimes he has one or two chilblains on the toes, but this is unusual. His hands, he says, are extremely sensitive to cold, and no treatment that he has tried—and this has included calcium chloride and calcium lactate in full doses—is of any avail. A question of this kind comes to us every year as surely as the swallows go. Increased importance is given to it this year, for undoubtedly some of the cases in the army in Flanders last year, perhaps the majority, were of the

nature of chilblains and were not frost-bite, though at first so called. Chilblains are rare in Canada, where in many districts snow commonly lies for months on the ground during the winter, though, of course, frost-bite easily occurs if proper precautions are not taken. We believe that in this country many sufferers find that chilblains do not develop during frosty weather, but begin to be troublesome so soon as a thaw sets in. In a changeable climate such as ours alternate frosts and thaws may keep up the affection throughout the winter. This suggests that it is damp rather than cold which is the determining cause, and the more susceptible victims begin to suffer as soon as the mists of early autumn set in. Again, a tendency to develop chilblains undoubtedly runs in families, and, although the textbooks of dermatology speak of it as occurring most commonly in children of the strumous diathesis, it is certain that it occurs also in others, especially, perhaps, in those who would formerly have been spoken of as of the nervous temperament. The books, in fact, give very little help, for the suggestion that erythema pernio (chilblains) is in some way related to lupus erythematosus does not help. Yet the disease is common, very distressing to the sufferer owing to the intense itching at night, and, when the chilblain "breaks," indolent ulceration may ensue, which is very difficult to cure until the season changes. Cod-liver oil is recommended, and may be of use in children, and tonics also are spoken of; but, as in the case of our correspondent, who says that he feels no need of a tonic since he is very healthy, they seldom seem called for by the general condition. He suggests that ionic medication might be of some avail, but, if so, what drug should be used?

THE ENTRIES AT THE MEDICAL SCHOOLS.

THE number of students entering at Edinburgh this term to begin the study of medicine is 95; there were between 40 and 50 entrants last May, so that the total number for the year is only a little below the average. The number of women students who have entered this year in Edinburgh is unusually high, as is also the case at the London School of Medicine for Women. In the other London medical schools there is a general decline as compared with 1915 in respect of the entry of full students. This, however, seems to vary very much in different schools, but averages probably about 20 per cent. Everywhere there appears to be a decrease in the number of men entering for special classes, such as those for the F.R.C.S. and D.P.H.

LOAN EXHIBITION OF JAPANESE WORKS OF ART.

A REMARKABLE loan exhibition of Japanese works of art and handicraft is being held at 127, New Bond Street, in aid of the funds of the British Red Cross Society and the Order of the Hospital of St. John. The collection—which includes exhibits lent by Her Majesty the Queen and His Excellency the Japanese Ambassador—has been selected by experts from seventy collections in this country. The exhibition will be open every week-day until November 13th, and affords a unique opportunity of seeing choice specimens of the beautiful art work of our Eastern ally.

THE University of Edinburgh has appointed Professor Harvey Littlejohn, Dean of the Faculty of Medicine, to be its representative on the General Medical Council, in the room of Sir Thomas Fraser, whose second term of office has expired.

THE names of Lieutenant-Colonel John Murray (ret.), Army Medical Staff, Ashburn Gardens, London; Dr. David Rorie, Culter; Dr. James Harvey Stewart, Hatton, Cruden; and Dr. James Davidson Wynnes, Aberdeen, have been added to the Commission of the Peace for Aberdeenshire.

Medical Notes in Parliament.

Housing of Munition Workers.

On the motion for the adjournment on October 14th, Mr. Yeo raised a short discussion on the raising of rents by landlords in certain areas; it had been postponed at the request of the Minister of Munitions. He said that the trouble already existed in a number of places, and this statement was confirmed by Mr. Rowlands and Mr. Barnes.

Mr. McKinnon Wood, Secretary for Scotland, in replying with reference to that country, said that he agreed that the matter should be considered carefully and treated as a temporary emergency. An emergency had been brought about because the men engaged upon munitions had been aggregated in certain districts; the district most affected in Scotland was Glasgow. The matter was one of some complexity as the charges on the landlord had increased, and if he was a person with a very small margin he was undoubtedly in a position of difficulty. Mr. Wood proposed to appoint a small impartial committee to inquire into the matter promptly and rapidly; it would, he hoped, deal first with the district of the Clyde. He hoped that meanwhile the factors and owners of Scotland would hold their hands.

Dr. Addison, Parliamentary Secretary to the Ministry of Munitions, who also replied, said that the Minister welcomed the appointment of the committee in Scotland, since whatever other cause of unrest there might be on the Clyde, this was a contributory cause which should be cleared away quickly. In England the Ministry recognized the difficulties of householders in munition areas, and a scheme was under consideration which would be quite undreamed of in times of peace to deal with cases of the most pressing kind in munition areas. The officers of the Ministry throughout munition districts had been instructed to collect complaints, and when the Ministry had obtained a clearer vision as to how extensive they were it would be better able to determine what was the right thing to do. Attention, however, had already been given to the matter. In the first place, new factories were, as far as possible, placed in districts where there was an existing population able to supply both the skilled and unskilled labour without requiring additional accommodation. It would be misleading at present to give figures, but, as a matter of fact, the scarcity of skilled labour was such that it could not be expected that it would be possible to bring from other places the mass of workers required; in such a place as Sheffield, for instance, workers must be obtained by spreading those already there. The total number of workers required in any particular factory would not necessarily indicate the total of those who would need to be housed. With the aid of the Local Government Board an inquiry had been made in every area where there was an extension of munition work. The areas fell into two classes: First, places in which, apart from the extension of munition works, there was congestion at the present time. In such a district it would be more justifiable to provide additional permanent houses than in a district where after the war there was not likely to be any increased pressure on the present available accommodation. In some places, therefore, a considerable increase in the permanent houses was required, in other places temporary accommodation would suffice, and the present emergency could be met to a considerable extent by making use of many existing buildings. Steps had been taken to requisition a considerable number of institutions and other places, and it was hoped that satisfactory accommodation would thus be provided within a very short time for a very large number of workers. Secondly, in places where there was at present a pressure upon the existing housing accommodation, the co-operation of the local authority had been invited, and schemes had already been arranged, entirely apart from the temporary accommodation, for the provision of a considerable number of houses by the local authorities. The Ministry of Munitions recognized that where additional housing was provided for munition workers, it was fair that the Ministry should make some contribution to the extra cost over and above the cost before the war, and such an arrangement had been made with the local authorities.

In reply to questions Dr. Addison said that he would prefer not to give figures, but the contribution towards the extra cost would be satisfactory. A great deal of temporary accommodation would also be required, and the Ministry was directly responsible for its provision. In Sheffield, in addition to the permanent scheme there would be a very large scheme for the provision of temporary houses of a satisfactory and even a picturesque kind, which at the same time would, considering the difficulties of this situation, be fairly cheap. A costs and accounts department had been formed whose sole business it would be to check costs. At Coventry there was a scheme for the provision of 600 permanent houses, because Coventry was already congested. The Coventry Garden Suburb Society was also providing an additional 120 houses. In Glasgow one scheme adopted in connexion with one of the large firms would provide 6,700 additional houses, and there was another scheme for the provision of another 150 houses at Moss End. Mr. Thorne asked how it was proposed to stop the raising of rents, and Dr. Addison replied that if additional houses were provided for 45,000 workers, it would at all events greatly relieve the pressure; he hoped the houses would be ready before Christmas. He recalled Mr. Lloyd George's statement on the previous day, that the Government would not hesitate if necessary to ask Parliament for any powers to deal with the situation.

Gallipoli Casualties.—Mr. Tennant stated on October 14th that the casualties in the Mediterranean Expeditionary Force up to October 9th were:

	Officers.	Other Ranks.
Killed or died of wounds	1,185	17,772
Wounded	2,832	66,520
Missing	383	8,707
	4,200	92,699
Total	96,899	

Of these the casualties in the Australian and New Zealand forces were as follows:

	Officers.	Other Ranks.
Killed or died of wounds	335	5,664
Wounded	814	20,180
Missing	52	2,076
	1,201	27,920
Total	29,121	

Disease at the Dardanelles.—Mr. Tennant, replying on October 20th to Mr. Joynson-Hicks, who asked about the number of cases of sickness removed from the Dardanelles and the proportion of sick to wounded, said he would endeavour to get figures. Statistics as to the number now in hospitals in the Mediterranean area, of those who had died from sickness in that area, and of those who had been in hospitals in that area and had recovered and returned to duty were not available, and to obtain them it would be necessary to telegraph. He regretted that he could not immediately give any additional information except to reassure the House that in the case of dysentery, which had been the chief disease, the figures showed a remarkable and gratifying decline since the beginning of this month.

Territorial Medical Officers.—Mr. King asked the Under Secretary for War on October 14th what steps, if any, had been taken to ameliorate the conditions of pay and service of Territorial Force medical officers as compared with those of medical men serving in the Royal Army Medical Corps of the new armies. Mr. Forster said that by Special Army Order of August 5th, 1915, lieutenants of the Royal Army Medical Corps (Territorial Force) were made eligible for promotion to the rank of captain on the completion of six months' embodied service.

Mentally Injured Soldiers.—In reply to Mr. Rendall, who on October 14th asked a question with reference to the certification of mentally injured soldiers, Mr. Tennant said that the three classes of patients it was proposed to certify could not properly be described as mentally

injured soldiers, if it was to be understood by that term that the mental injury was originated by the hardships of active service. The whole procedure of certification was prescribed by Act of Parliament, and he was not aware of any instance in which, after the ordinary military procedure had been carried out, any soldier had expressed a grievance owing to the fact that the opportunity to appeal had been to a general officer commanding in chief and not to a civil magistrate. As to another point raised by Mr. Randall—namely, whether it would not be proper to provide that the certificate should not be given by an officer of the R.A.M.C. holding office in an asylum—Mr. Tennant said that he regarded it as an advantage to have the opinion of a medical officer with special training and knowledge in these very difficult cases. In reply to a further question by Mr. Randall, Mr. Tennant said that he had received the report of the Fellows of the Royal College of Physicians appointed to inquire into the methods adopted by the War Office to deal with mentally injured soldiers, and would place copies in the Library.

Australian General Hospitals.—On October 19th Mr. Cathcart Wason asked whether the 10th Australian General Hospital arrived here fully equipped with twenty medical officers and seventy-one sisters, and whether so far it had been found impossible to utilize their services; who was responsible for such a state of affairs; and if, out of respect for Australian sentiment, this specially equipped unit would not be split up, but be employed as a unit. Mr. Tennant said he had communicated with the High Commissioner for Australia, and was informed that the medical officers and nurses referred to did not constitute the complete staff of a general hospital; that they arrived without equipment; and that they were sent to this country in view of contemplated extensions of accommodation for Australians in the 3rd General Hospital, and to provide the staff for that purpose. Arrangements were in progress for such extensions, and it was proposed that the services of this staff should be used in this connexion.

Medical Inspection in Factories.—In replying to Mr. King, on October 12th, who asked whether there was not overlapping and consequent unnecessary strain on medical men's work in respect of the medical examination under the Education and Factory Acts, Mr. Brace said that the factory examination served a different purpose from that of the school examination, and to provide for it through the system of school medical inspection would involve a considerable development of the work of the school medical officers, which could not be undertaken at present. Even if this were done he doubted whether any considerable saving would result, and in any case the saving would not accrue to public funds, as the charge for the factory examination at present was borne by the employer and not by the State.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE WEEK'S SUBSCRIPTIONS.

The following additional subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund have been received:

	£ s. d.		£ s. d.
Durban Medical Society (per Dr. E. J. Bray, Hon. Sec.)	25 0 0	"Surgeon-Major," Dublin	1 0 0
Lancaster and District Pharmacists' Association (per Mr. J. B. Shattock)	1 1 0	South Carmarvon and Merioneth Pharmacists' Association (per Mr. W. E. Morris)	0 17 6
Mr. F. A. Williamson	0 15 0	Mr. A. Chapman	0 11 3

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE APPEAL FOR SURGICAL INSTRUMENTS.

Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C. The Master acknowledges gifts from:

The Lady Georgina Home Drummond, per Dr. R. Dods Brown (2nd London), Perth.
Mr. W. A. S. Loyds, Sidcup.

Dr. Watson Williams, Clifton, Bristol.
Dr. N. S. Parakh, Rangoon.
Anonymous, Weymouth.

THE WAR.

MEDICAL ARRANGEMENTS OF THE BRITISH EXPEDITIONARY FORCE.

[From a Special Correspondent in Northern France.]

SEWAGE DISPOSAL.

THE principle underlying the septic tank method of dealing with sewage has been well recognized for many years. It is the liquefying action of anaerobes on solid organic matter, and enters more or less into all the biological methods which of late years have been so largely used at sewage farms and the like in place of chemical means of securing satisfactory effluents.

But application of the principle in the fashion originally suggested by Cameron is comparatively uncommon. Its efficacy is admitted, as also its convenience—more especially when the amount of sewage that has to be dealt with daily is relatively small—but engineering difficulties are sometimes encountered, and for these and other reasons the pure septic tank, as distinct from the septic sewer and the watertight cesspit, is not so very often seen.

It is interesting, therefore, to be able to note that the septic tank principle is being utilized to some extent by the British Expeditionary Force in France, and that tanks which meet Cameron's specifications almost completely have been erected at two Indian hospitals at Marseilles and at one of the hospital camps in the Boulogne area, where the tank is being worked in connexion with an equal novelty in field sanitation—namely, a complete water-carriage system.

The tank is sunk in the gravel clay and rock, some 50 ft. from the edge of a sea cliff; it is of such size as to be able to hold the whole of the camp output for not less than twenty-four hours, and the average storm water in addition. The pipes enter below the surface, and the gradient is low, so there is neither splashing nor agitation as the sewage flows in. The exit is also submerged, but only just below the mean average level of the surface. The effluent thus always represents sewage which has been submitted to anaerobic action for at least twenty-four hours.

Strictly speaking, according to the original plan, there should be added to the tank a definite means of securing further changes in the effluent by aerobes but, in this particular case, the whole remaining needs are adequately met by causing the effluent to project by gravitation through a long spout on to the tide-washed beach at the bottom of the adjoining cliff.

The outlay on this sewerage plant and the connected water-closets must, no doubt, have been considerable, but the results are very satisfactory and the added convenience, together with the immense saving in labour, are an ample offset against the primary cost of the undertaking. At Marseilles a tank has been added to the existing sanitary arrangements of a chateau used as a stationary hospital and the other is at a large tent hospital. The latrines at the latter are formed by cemented sloping troughs which are flushed by water at intervals.

At Boulogne it was, very possibly, the proximity of the cliff that suggested getting rid of the purified sewage effluent of this camp by turning it into the sea after preliminary treatment, but in any case the sanitary specialist in charge of the area would have had to exercise ingenuity in dealing with the problem.

The extent which the ordinary methods of standing camp sanitation can be expected to afford satisfactory results varies greatly with the precise character of the camp site in question. It may always be possible to arrange for the daily removal of latrine buckets by a contractor, or for the destruction of their contents at the camp itself by means of a Horsfall or other incinerator, as also for getting rid of rubbish in general—especially fly-attracting rubbish—in similar ways; but the problem of dealing with liquid refuse—urine, wash-house, kitchen, and other waste water—will still remain.

As a rule, but by no means always, it can easily be solved. If there is good natural drainage, so that the ground, though not especially absorbent, is never likely to become waterlogged, even in very wet weather, or if the subsoil itself is capable of dealing with almost unlimited

quantities of water, all the fluid waste of the camp can be run off into "soakage" pits—covered in pits of varying depth and size, filled in loosely with rubble—or the outlets of all waste water can be led into one or more of the anti-suffic wells known by the French as *puitsards*.

Such means are, for instance, adopted with great success at the many hospital camps of Rouen, which are close to each other when the site, though somewhat flat, is deep gravel; and also at Etaples, where the equally numerous hospital camps stand on a chalk formation overlain for the most part by a foot or two of sandy soil. But in the Boulogne area solid rock in many places outcrops close to the surface and at others the subsoil is heavy marl or clay. The redeeming feature is that the area, if not always hilly, everywhere presents plenty of slopes and contours. Advantage has been taken of this characteristic in dealing with the fluid waste of hospital and other camps. In some cases it has been possible to turn the waste, after filtration through brushwood or the like, into streams totally unconnected with any water supply; in others catch-pits have been connected with subsoil drainage pipes running just under the surface of a declivity. In one case where such plans were deemed unlikely to prove satisfactory, the needs have been met by linking up the camp waste water outlets with the surface drainage system of the town itself. This involved quite a considerable pipe-laying operation. In the case of the camp at which the septic tank mentioned has been installed a departure from more conventional methods was necessitated by the unabsorbent nature of the subsoil and the fact that the only slope suitable for soil filtration and drainage led in the direction of another hospital.

If the conservancy of hospital camps often presents considerable difficulties and invariably demands unrelaxing supervision the same is sometimes true of hospitals housed in hotels, schools, and other permanent buildings. Their sanitary arrangements may possibly be capable of passing muster when the buildings are in use for their original purpose, but the quantities of liquid refuse resulting from hospital work throw upon them a strain which they often fail to sustain.

Furthermore, there are occasions when the drainage preoccupations of a sanitary expert in France may have to extend over the houses of a large civilian population. One remembers in this connexion a town on a hill just behind the allied line. It had no water-carriage system, but practically all houses were provided with a cesspool, and these, owing to past neglect and the increase of the population through the influx of troops, soon began to show signs of being full to overflowing. It was, therefore, the task of the sanitary expert to secure the emptying of those on premises used as billets, or otherwise occupied by troops, and, in view of the lack of effective pump-carts, it was no light undertaking.

In the same town, too, at a later date, the sanitary expert had no little difficulty in dealing with surface drainage, which, together with waste water and much solid rubbish from the houses, was supposed to leave the town by some half-dozen natural drains or open ditches; a few weeks' dry weather reduced the flow in these to a minimum, and between the rapid growth of weeds and accumulations of solid rubbish, all became practically choked. With the amount of labour for the time being available all the sanitary officer could do was to remove from each drain the principal obstructions each day and defer real ditching work for a future occasion.

Primarily it was the duty of the civil authorities, not of the sanitary expert, to attend to these matters, but in all towns within the zone of the British army it is the sanitary expert who must step into the breach if the civilian sanitary department is either non-existent, or, for the moment, is inoperative. In most towns, indeed, not only conservancy but all sorts of public health work may have to be undertaken by him. He must, for instance, always keep the character of its water supply and its adequacy constantly in mind, secure the cleansing of billets as soon as vacated by any given body of men, and watch for outbreaks of infective diseases among the civil inmates of houses where individual soldiers lodge; he must also, if occasion demands, extend his intervention in the civil life of the town much further. As already seen, he may practically have to make himself responsible for its drainage, and he may also have to attend to general conservancy

work, such as the daily removal of all rubbish from back streets and the abolition or treatment of accumulations of stable manure in back yards. All this demands not only knowledge and resource but the exercise of much tact and patience; so, if any sanitary expert at all is to be envied, it is, on the whole, he whose area includes the smallest number of civilian inhabitants.

BIRMINGHAM MILITARY HOSPITALS.

THERE are now a large number of beds available in Birmingham for military patients. The military hospitals in Birmingham are the 1st Southern General Hospital, and the 1st and 2nd Birmingham War Hospitals. The 1st Southern General Hospital consists of the Edgbaston, Dudley Road, Stourbridge, Selly Park, and King's Heath Sections, and Auxiliary Hospitals.

The 1st Southern General Hospital originally commenced in the University Buildings at Edgbaston with 520 beds. This was gradually extended in the manner indicated, and was further increased by the addition of an open-air ward of 40 beds in the beginning of October, 1915. The Dudley Road Section was opened in May, and consists of the Infirmary, which has been adapted for military patients. The Stourbridge Section was opened at the beginning of September, and is also in the Infirmary there. The Selly Park Section and the King's Heath Section have been formed by the conversion of two elementary schools; they were opened in the beginning of this month. The Auxiliary Hospitals consist of beds in civil hospitals, private hospitals, and V.A.D. hospitals. The large civil hospitals have generously given up beds, and besides these the largest V.A.D. hospital is that at Highlury (100 beds), the house of the late Right Honourable Joseph Chamberlain. The administrator of the 1st Southern General Hospital is Lieutenant-Colonel F. Marsh; the assistant administrator at the Edgbaston Section is Major J. E. H. Sawyer; at the Dudley Road Section, Lieutenant-Colonel Ellis; and at the Stourbridge Section, Major Kirkpatrick. The other two smaller sections are attached to the Edgbaston Section, and have a medical officer in charge.

Two railway goods stations have been arranged for the detrainment of sick and wounded to the 1st Southern General Hospital, one at the Selly Oak goods station on the Midland Railway, and the other at the Soho and Winson Green goods station on the Great Western Railway.

The 1st Birmingham War Hospital was opened in July at Rubery, and has been formed by the conversion of the lunatic asylum there. It has made a splendid hospital, and is situated in beautiful grounds. The administrator is Lieutenant-Colonel Suffer. The 2nd Birmingham War Hospital has been formed by adapting the Holywood Asylum, which is about half a mile distant from Rubery Asylum. It also has auxiliary hospitals. The administrator is Lieutenant-Colonel Thompson, I.M.S. This hospital was also opened in July. The railway station at Rubery has been adapted so as to make it suitable for the detrainment of the sick and wounded arriving for the two war hospitals.

A great amount of transport is required, not only to take the patients from the ambulance trains, but also to remove them from the central hospitals to the auxiliary hospitals. In addition the patients require to be transported from the hospitals to the various railway stations when they are discharged from hospital, or when they are transferred to the convalescent hospitals in various parts of the country. Arrangements have been made by a transport committee, including representatives of the Midland Automobile Club, the Automobile Association, and Motor Union, and of which Mr. E. M. Tailby and the chief constable of Birmingham are members, and an adequate number of motor cars are at the disposal of all the hospitals. The owners of these cars have been most willing to lend their services at any time of the night or day. In addition there are fourteen trailer ambulances which can be drawn by cars which have a suitable cross-bar attached at the rear. These have been found extremely useful and very comfortable. They were designed by Mr. E. M. Tailby, who is an indefatigable worker for the hospital transport. Besides these ambulances, each large section of the 1st Southern General Hospital and the war hospitals has

ambulances of its own, so that there are plenty of ambulances to deal with all the stretcher cases which arrive in one conveyance.

An out-patient station has been formed in the Children's Hospital out-patient department in Steelhouse Lane in the centre of the city. This is found very useful for soldiers who fall ill while on leave or sick furlough, as none of the military hospitals are within two miles of the centre of the city. The out-patient station was opened in January last, and is attached to the 1st Southern General Hospital.

THE WORK OF THE 2ND EASTERN GENERAL HOSPITAL, BRIGHTON.

ALTHOUGH the chief work of the 2nd Eastern General Hospital, Brighton, like that of all other Territorial hospitals, has been the treatment of men sent back wounded or sick from the front, this by no means comprises all its activities. In addition to the convoys of wounded from the Expeditionary Force, numbers of men from the camps in the neighbourhood have been treated at the hospital for various illnesses, diseases, and accidents. The area from which the hospital receives its patients is considerable. It comprises the greater part of Sussex and Kent. There are, in addition to the 2nd Eastern General Hospital itself, twelve principal auxiliary hospitals (four in Brighton, four in Eastbourne, and four in Hastings), under the care of the administrator, Lieutenant-Colonel James Rookh, and many smaller voluntary aid hospitals and convalescent homes, distributed about the two counties.

Of the work carried out the following examples may be mentioned:

Infectious Diseases.

At first cases of measles and German measles admitted from the camps were treated in special wards at the hospital. All other cases of infectious diseases, except the few cases of typhoid fever which were met with, were sent to the borough sanatorium. These included scarlet fever and epidemic cerebro-spinal meningitis.

Mental Cases.

Many men suffering from excessive strain, either from training in camp or from the nerve-racking experiences of the front, have been admitted suffering from neurasthenia, psychasthenia, and, in some few instances, actual mental disease, with suicidal tendencies. These latter were, as soon as possible, transferred to Netley if from the Expeditionary Force, otherwise they were handed over to the guardians of their parishes.

Medical Cases.

Every variety of disease—typhoid, influenza, tonsillitis, gastric troubles, bronchitis, pneumonia, laryngitis, intestinal disorders, nephritis, rheumatic fever—has been treated just as in an ordinary general hospital. The number of deaths has been very small. The cases of gas poisoning admitted have mostly been of quite a mild type. An outbreak of food poisoning occurred in one of the camps, and some thirty men were admitted. All were mild cases, with diarrhoea and vomiting, slight pyrexia, and general malaise as the symptoms. Treatment consisted in a purge, milk diet, and rest in bed for a few days. Some of the men complained of considerable debility during convalescence. A few instances of quite unusual diseases have been admitted, such as one of mediastinal tumour, and one of suspected foot and mouth disease, but the great majority of the medical cases has consisted of the ordinary illnesses which one would expect to occur in an ordinary community.

Accidents.

Accidents of many varieties, fractures of limbs, simple and compound fractures of the skull, of the spine, of the collar-bone, burns, bruises, sprains, and concussion, have been admitted. In cases of compound fractures of the tibia and fibula, often due to the kick of a horse, the treatment adopted has been to disinfect the wound thoroughly with iodine or carbolic acid, etc., and fix the limb in splints. Generally this has been sufficient to prevent the wound becoming septic. A few cases have been **plated** or screwed or otherwise mechanically treated.

Operations of Expediency.

Operations have been done for hernia, varicocele, hæmorrhoids, varicose veins, and deformities of the feet, such as hammer-toe or hallux valgus. There have been in addition a good many cases of appendicitis and a few of other acute abdominal lesions, and of various minor diseases.

Hernia.—The herniæ were nearly all of the inguinal variety with just a few femoral. Most of the men came in for operation. Many of them merely complained of a swelling of the groin, which they had only recently noticed, after heavy work or marching. In a large proportion very little, if any, inconvenience was caused by the swelling, but they had been sent in by their medical officer for operation to render them fit to continue on active service, especially active service abroad. The majority of the surgeons performed either a Bassini operation (exposure of the sac, by splitting up the external oblique tendon, and excision of it after ligation of the neck as high as possible, with approximation of the conjoined tendon to Poupart's ligament) or some modification of this, such as replacing the cord superficial to the external oblique tendon. Several of the surgeons, believing that in young, vigorous, healthy adults with good muscles, it is better not to interfere more than possible with the structures forming the canal, simply slit the external oblique fibres, ligatured the sac at its neck high up, excised it, and then sewed the external oblique tendon up again, not touching the deeper parts of the canal. The results appear to be quite satisfactory.

Varicose Veins.—The operation for varicose veins mostly performed is excision, either of small portions through many small incisions, or of the whole affected vein in its continuity. This is combined in many cases with ligation of the internal saphena vein, either low down or as it enters the femoral. The accurate preliminary marking out of the veins was found to be of the utmost importance in facilitating the operation. It seems to be generally agreed that the most satisfactory method is to paint the distended vein carefully with carbol-fuchsin or red ink.

Hæmorrhoids.—The operations for hæmorrhoids carried out were many and included crushing, ligation, or excision. There seemed to be no special advantage in any one method.

Varicocele.—The operation performed by all the surgeons was exposure and excision of about two inches of the pampiniform plexus. Care was taken not to include more than about two-thirds of the veins, leaving the remaining third to carry on the blood supply. The upper and lower ligatures were then tied together to shorten the remaining structures. The necessity of absolutely checking all hæmorrhage—so readily does a large hæmatoma form in the scrotum—was found to be most important, as was also the strictest asepsis in a part so liable to infection.

Deformities of the Feet.—Men have been admitted with various deformities of the feet, such as hammer-toe, hallux valgus, bunions, corns, flat foot, ingrowing toenails, etc. Many of these were operated on. The usual procedure for hammer-toe was excision of the head of the first phalanx, and this on the whole proved satisfactory. In a few cases the toe was amputated. For ingrowing toenail the nail was removed, and proper boots ordered.

Appendicitis.—A good many men have been admitted for acute appendicitis. All the surgeons are in agreement as to the advisability of immediate operation—the sooner the better for the patient. The incision adopted has generally been the vertical one on the outer border of the rectus. Some surgeons have used a transverse incision, at the level of the umbilicus, with satisfaction. If the case was accompanied by suppurative the rule has been not to hunt for the appendix, only to remove it if it were easily found. There have been a few cases of acute suppurative peritonitis due to appendix trouble, and these have been treated by incision and drainage with large drainage tubes.

Special Departments.

There are several special departments in the hospital. In the ophthalmic clinic are treated the various diseases of the eye, and refraction cases. In the throat, nose, and ear department cases of large tonsils and adenoids, enlarged turbinate bones, deflected septum, mastoid disease, otitis media, etc., have been dealt with. In the dental department extractions and fillings only are carried out. If artificial teeth are required they must be obtained otherwise.

The neurological department deals with nerve cases, chiefly by various electrical therapeutic methods, such as ionization, high frequency currents, and sinusoidal currents. Dowsing radiant heat is also used.

The 2nd Eastern General Hospital has, since its mobilization a year ago, had many thousand patients pass through its gates, and a great number of operations of every description have been performed. The results of treatment, both among the men from the Expeditionary Force and from the camps, have been thoroughly satisfactory.

AUSTRIAN EXPERIENCES.

THE RAVAGES OF THE VOLUNTEER NURSE.

In *Der Militärarzt*, issued as a supplement to the *Wiener medizinische Wochenschrift* for July 3rd, Dr. Max Schaechter has made some caustic comments on the treatment of wounds by his countrymen. His most scathing criticism was directed against the amateur performances of patriotic but ignorant ladies, whose social position apparently qualified them to impose their services on the surgeon and professional nurse. However wonderful the achievements of Professor Döllinger may have been in stamping out of the earth thousands of volunteer nurses to attend the wounded, the results, according to Dr. Schaechter, were often anything but brilliant. Military discipline, he said, prevented outspoken criticism of his superior's orders; but having paid this perfunctory tribute to the spirit of discipline, Dr. Schaechter proceeded to give ludicrous accounts of the blunders committed by the "wohlthätigen, hochstehenden, vornehmen, freiwilligen, patriotischen Damen." It appears that some of these ladies expected, not only to nurse, but also to direct and superintend the treatment of the wounded. Having attended a three or four weeks' course of lectures, they donned the uniform of the Red Cross nurse, attended operations, and even removed bullets from wounds. Dr. Schaechter writes: "Should we medical men permit or encourage this?" He answers this question by giving concrete examples of mistakes perpetrated in one case by a volunteer nurse, and in another case by an orderly. In the first case the patient was wounded in the hand, the ring finger being dislocated by a bullet. The finger was set so that when the wound healed the finger-nail appeared on the palmar aspect of the hand. The treatment of this case had been exclusively in the hands of "wohlthätigen Damen," but Dr. Schaechter laid the blame for this fiasco on the medical authorities who permitted such dilettante work. In the second case one of the patient's ears was split by a sabre, which also inflicted a severe wound in the back of the neck. The wound was dressed by an orderly in such a way that the lower half of the ear became adherent to the wound in the back of the head, while the upper half of the ear stood up like a pathetic question mark, arousing the mirth of every onlooker. Fortunately, in this case, a secondary operation restored the lower flap of the ear to its original position. Dr. Schaechter also drew attention to the anomaly of a skilled surgeon operating with gloves on his hands, a mask on his face, and rubber shoes on his feet, and then leaving the further care of the wound to the tender mercies of an ignorant volunteer nurse. A third patient came from Prague, bristling with large drainage tubes which had been inserted by volunteer nurses into a small wound in the sole of the foot.

THE TREATMENT OF WOUNDS BY RULE OF THUMB.

Another abuse at which Dr. Schaechter had a vigorous tilt was the modern tendency to adopt one special system for the treatment of wounds to the exclusion of all others and of common sense. This tendency, he said, did much to play into the hands of the interfering amateur, who found it much easier to master a set of hard-and-fast rules of some special system than to familiarize himself with the elementary principles of physiology and surgery. Thus, with regard to treatment with tincture of iodine he had often seen the enthusiast apply it not only to the skin around the wound, but also to the wound itself, however clean it might be, in the belief that what was good for the surroundings of the wound could not be bad for the wound itself. Yet the clean wound did not require iodine, and the septic wound suffered less from many other available

remedies. Iodine used rationally was of the greatest value, but of late its use had been pushed to an extent reminiscent of "the most gloomy days of the early antiseptic era."

ASEPSIS VERSUS ANTISEPSIS.

Again, with regard to the conflicting claims of asepsis and antiseptics, Dr. Schaechter confessed that he had been an ardent advocate of the former in times of peace, but that the war had taught him no longer to despise antiseptics. It might, he said, be well enough for surgeons to adhere to their aseptic principles in the field by working with only a few instruments sterilized by steam, and with only one assistant; but the time was bound to come when they must miss the support of an antiseptic. Dr. Schaechter mentioned carbolic acid, only to compare it unfavourably with hydrogen peroxide, which he had found of great value in immediately arresting stinking necrosis of wounds. Potassium permanganate acted in the same manner, and was of great use, when given in baths, for suppurating wounds. Balsam of Peru was also applied with advantage to wounds covered with discharge. Iodoform gauze should not be used to plug wounds, but, when lightly inserted, it afforded a useful method of drainage. Iodoform was found to exert a satisfactory and prolonged antiseptic action in wounds of the mouth and nasal cavities, as well as in wounds of the intestines and anus. It was seldom necessary to apply silver nitrate ointment to granulations in young subjects with normal vitality, but this remedy was not to be despised. Dr. Schaechter had found no use for the modern antiseptic powders, such as xeroform, dermatol, noviform, etc.

THE DANGER OF PLUGGING WOUNDS.

Dr. Schaechter had learnt to avoid plugging wounds whenever possible; he plugged only to arrest haemorrhage, for early in his experience he had seen how mischievous the plugging of wounds might be. As a solemn warning he recorded the case of a soldier who was shot at close range, the bullet entering the thigh, plunging up the muscles of the leg, penetrating the astragalus, and finally passing out at the heel. When he was admitted to hospital four days later, the surgeon's first task was to pull out a large quantity of iodoform gauze which had been stuffed into the wound, and which was, in the opinion of Dr. Schaechter, responsible for the gangrenous condition of the limb, and the symptoms of general infection. The patient recovered slowly from the effects of this abuse of iodoform gauze. Whenever plugged wounds subsequently came under Dr. Schaechter's observation, he was sure to find the wound itself in a bad condition, and the patient suffering from general symptoms of early sepsis. Almost invariably the removal of the plugging substance was followed by improvement in the local and general condition.

THE USE OF DRAINAGE TUBES AND SUTURES.

Drainage tubes were seldom found to be necessary, for the wounds were either so small and dry that they quickly closed and healed of themselves, or they were so large and widely open that the discharge usually escaped of itself. Dr. Schaechter had often to remove rubber tubing thrust into wounds by his more zealous colleagues, and he often saw the removal of tubing followed almost instantaneously by cessation of suppuration and closure of the wound. Though not irreconcilably opposed to the use of drainage tubes, he had learnt to restrict their use considerably, and he severely censured their employment as a matter of routine. Again, he had seldom found the suture of wounds necessary. For bullet wounds it was superfluous, and for the much rarer incised wounds there were seldom either facilities or time for suturing. The few wounds which had been sutured before the patient was admitted to hospital were almost invariably septic, and the first step taken in hospital was to remove the sutures.

DRY VERSUS WET DRESSINGS.

Dr. Schaechter had little good to say of the wet dressing, which kept the wound warm and moist, and thus facilitated the growth of micro-organisms; whereas the dry dressing ensured the absorption of moisture and the maintenance of the wound in a condition unfavourable to suppuration. But he had not found this view generally shared by his colleagues, and he had even to submit to

being lectured on the merits of wet dressings by a titled lady of the "wet dressing school." In one hospital he had found the rule was to apply dry dressings to small wounds and wet dressings to large wounds, as if the size of a wound affected the fundamental processes of healing. Most irrational of all was, in his opinion, the treatment meted out to a patient whose wound was painted every other day with silver nitrate, and was then covered by a wet dressing.

THE SUPPLY OF DRESSINGS.

Early in the war it was noticed that young surgeons and hospital surgeons, accustomed to an unlimited supply of dressings, were using up material at an alarming rate. The use of charpie as a substitute for lint and other dressings was advocated by Professor Hocheneck, and surgeons were urged to practise the greatest economy in dressings. This campaign of economy led to the unexpected result that prices rose excessively, while the quality of the dressing supplied by the manufacturers was sometimes very bad, yet there was no real shortage of good material. At Dr. Schaechter's hospital a consignment of dressings was received, consisting chiefly of cotton waste and dust. Only the wrappings in which this rubbish was packed were made of proper material. When the scandal of the jobbing in dressings was exposed, an adequate supply of suitable material was at once forthcoming, and had since been maintained. When the paper factories were requested to make dressings from wood pulp, they seized this order as an excuse to put up the prices of all kinds of paper.

"LEUKOPLAST" AND "VULNOPLAST."

Admirable though leukoplast proved as a dressing, its value was diminished by its lack of permeability, which prevented the escape of discharge from the wound and helped to macerate the skin under the leukoplast in the neighbourhood of the wound. This fault was avoided in vulnoplast, which consisted of a plaster covered by some layers of gauze, constituting a simple but complete dressing. This contrivance did much to simplify the dressing of slight wounds; but, after it had been in use a fortnight in Dr. Schaechter's hospital, an order was issued that this dressing, unauthorized by the senior command, was to be applied only to officers' wounds. Being unable to stomach this invidious distinction, Dr. Schaechter fell back on other dressings for officers and men alike.

IMMOBILIZATION OF WOUNDED LIMBS.

Immobilization of wounded limbs by plaster-of-Paris splints, even when only the soft tissues were involved, greatly hastened recovery. In times of peace it seldom occurred to a surgeon to treat a slight wound of a limb by immobilizing it in plaster-of-Paris. But Dr. Schaechter said that his experience during the war had taught him to rely more and more on this procedure. Large and small wounds of the limbs showed striking improvement as soon as the limbs were immobilized. The discharge from freely suppurating wounds rapidly diminished, and as the processes of healing were thus shortened, there was scarcely time enough for the limb to become stiff.

CONSERVATIVE TREATMENT OF GAS PHELGOM.

In several cases amputation of a partially gangrenous limb was avoided by the use of potassium permanganate baths. A young soldier was admitted to hospital with his left forearm black and swollen. A bullet had ploughed up the soft tissues on its flexor aspect, and they were already gangrenous. The skin of the rest of the forearm and also of part of the upper arm was covered by purulent vesicles. The mucous membranes and the skin of the rest of the body were of an intense yellow colour. The cracking characteristic of gas phlegmon was demonstrable under the skin of the whole of the arm. There was no line of demarcation, and rapid extension of the gangrenous phlegmon seemed most probable. Though all his colleagues urged immediate amputation of the limb, Dr. Schaechter decided to try permanent baths, with which he had been very successful in similar desperate cases. He kept the arm for eight days and nights in a solution of potassium permanganate (strength not given), frequently changed. By the second day the fever had abated, the phlegmon had ceased to extend, and the gangrenous tissues had begun to slough off. On the eighth day the

wound was practically clean, and the bath was given for only a few hours at a time. The radius and ulna were completely exposed for a distance of 15 cm., and their total necrosis was prophesied by Dr. Schaechter's somewhat pessimistic colleagues, who again advised amputation. This he decided against; and his optimism was justified by the rapid growth of granulations over the bare areas of both bones. Ultimately the wound was covered by a fresh growth of skin, but as much muscle had been destroyed, the movements of the limb were considerably impaired. Still, the man's life was saved, and an operation was avoided which might well have been fatal. In another case gas phlegmon and gangrene of the thigh were so severe that, in spite of prolonged baths in a solution of potassium permanganate, given for two hours twice a day, necrotic masses of muscle, weighing as much as a kilo, sloughed off. Nevertheless the patient's life and limb were saved.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

LIEUTENANT THOMAS JONES LATHAM, R.A.M.C., was killed in France on October 3rd. He was the second surviving son of the late Dr. Charles W. Latham, of Hackney Road, London, and was educated at the London Hospital, where he gained an entrance scholarship, and matriculated at London University. After taking the M.R.C.S. and L.R.C.P.Lond. in 1906, he joined his brother, Dr. D. W. T. Latham, in practice at Barnsbury, Islington. He took a temporary commission as Lieutenant, R.A.M.C., from October 21st, 1914.

Captain George Leonard Grant, R.A.M.C., was killed in France, aged 25, on October 11th. He was the only son of Dr. Leonard Grant, of New Southgate, and was educated at Epsom College, at Queen's College, Cambridge, where he graduated B.A., and at the London Hospital. At Epsom he gained the Brand prize and the Stone scholarship, the former testifying to the esteem felt for his character and conduct. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1914, was a keen member of the Officers' Training Corps, and at the beginning of the war enlisted in the London Scottish. Soon after his arrival in France with his regiment he received his commission as temporary Lieutenant in the R.A.M.C. (September 30th, 1914), and was appointed to an ambulance train. Later on he was appointed to be medical officer to the London Scottish, with which regiment he was serving when killed by a shell in the trenches. He was promoted to Captain on completion of a year's service. His Commanding Officer writes that "he was a man whom we all admired and loved, always hard working and efficient, and particularly cool and courageous in action." During the fierce action of September 25th he devoted himself without regard to his own safety to the relief of the wounded on the field and was unscathed, but on October 11th, when he was in the act of doing his morning sick parade, a shell burst in the trench, hitting him and five others. He was wounded in the back of the head and died a quarter of an hour later without recovering consciousness.

The death of Captain Keith Maurice Levi, of the Australian Army Medical Corps, was reported in the BRITISH MEDICAL JOURNAL of August 28th. Further particulars about this officer are now available. He was 24 years old, and was the younger son of Mr. Joseph Levi, of St. Kilda, Victoria. He was educated at Melbourne University, where he graduated in 1914, subsequently filling the post of resident medical officer of the hospital at Perth, the capital of Western Australia. When the war began he received a commission as Captain in the Australian A.M.C., and accompanied the Australian Light Horse to Egypt. He then served successively in the 1st Australian General Hospital at Heliopolis, on a transport conveying wounded from the Dardanelles to Alexandria, and as medical officer of the 2nd Battalion Hampshire Regiment, with which he was serving when killed, in the attack on Suvla Bay, by a shell which fell on a dressing station.

Captain Eric Louis Giblin, R.A.M.C.(T.F.), is reported in the casualty list of October 19th as killed in France. He was educated at Sydney University, where he graduated M.B. and Ch.M. in 1913. He joined the 24th (Queen's)

Battalion of the London Regiment as Lieutenant and medical officer on August 6th, 1914, and was promoted to Captain on completion of a year's service.

Captain John Harry Meers, R.A.M.C., was killed in France on October 13th, aged 30. He was the elder son of Mr. J. B. Meers, of Lancaster Gate, London, and took the diplomas of M.R.C.S. and L.R.C.P. London, in 1910. After acting as assistant medical officer of the Islington Infirmary, he went into practice in Wandsworth Bridge Road, London. On war being declared, he took a temporary commission as Lieutenant in the R.A.M.C. from August 16th, 1914, and was promoted to Captain after a year's service. He was attached to the 1st Battalion Loyal North Lancashire Regiment, and, while bringing in wounded, was hit in the arm by a bullet, and soon after killed by shrapnel.

Died on Service.

Major William Aberdeine Malcolm, R.A.M.C. (T.F.), died recently at Malta of enteric fever contracted at the Dardanelles. He was the fourth son of the late George Malcolm, of Dundee, and was educated at Edinburgh, where he graduated M.B. and C.M. in 1893. After filling the appointments of house-surgeon and general superintendent of the Ayr County Hospital, he became surgeon to the North Islington and Holloway Dispensary, and successively anaesthetist, casualty officer, registrar, and clinical assistant in the skin department at the Great Northern Central Hospital. He was medical officer to the Post Office, and honorary medical officer to the Charity Organization Society; and was a Fellow of the London Medical Society, a member of the Harveian Society, and a past president of the North London Medico-Chirurgical Society. He joined the 11th (County of London) Battalion of the London Regiment (Finsbury Rifles), as Lieutenant and Medical Officer on October 21st, 1902, and attained the rank of Major on November 21st, 1914.

Wounded.

Lieutenant-Colonel J. F. Donegan, R.A.M.C., Persian Gulf.

Major R. M. West, R.A.M.C. (T.F.), France.

Surgeon-Captain P. J. Bodington, R.A.M.C., Royal Horse Guards, France.

Captain T. E. Roberts, R.A.M.C. (temporary), France.

Captain F. A. Bearn, R.A.M.C. (Special Reserve), France.

Captain J. Dennie, R.A.M.C. (T.F.), France.

Lieutenant P. J. O'Reilly, R.A.M.C. (temporary), France.

Lieutenant W. B. U. Patterson, R.A.M.C. (temporary), France.

Wounded and Missing.

Lieutenant A. S. Cohen, R.A.M.C. (temporary), France.

Missing.

Captain D. A. Laird, R.A.M.C. (temporary), reported missing, has since been reported as a prisoner of war, un wounded, at the officers' camp at Gutersloh, Germany.

DEATHS AMONG SONS OF MEDICAL MEN.

Greener, Noel Hindmarsh, Lieutenant 6th Battalion King's Own Scottish Borderers, only son of the late Dr. Greener, of Cardiff, killed in France on September 25th, aged 23. He was educated at Fairfield, at Malvern, and at Repton. When the war began he was in Canada, returned, and got a commission on September 25th, 1914. He was promoted to Lieutenant on October 21st, went to France in May as machine gun officer of 11th Battalion, and was returned as missing after the advance on September 25th to 27th. On October 12th he was reported to have been killed on September 25th.

Kennedy, William, Second Lieutenant 2nd Battalion Argyll and Sutherland Highlanders, son of Dr. Kennedy, of Dunbeath, killed in France at the end of September, aged 19. He was educated at Wick and at Glasgow, and at Aberdeen University, enlisted in the Gordon Highlanders at the beginning of the war, had been recommended for the Distinguished Conduct Medal, and was recently promoted and transferred to the A. and S.H.

Linton, Henry McEwan, Lieutenant 12th Battalion Highland Light Infantry, only son of the late Surgeon-Lieutenant-Colonel H. J. Linton, I.M.S., died in France of wounds received on September 16th, 1914. His first commission was dated September 16th, 1914; he was promoted on February 1st, 1915.

Monk, Gerald Patrick du Bailion, Captain 1st Battalion Welsh Regiment, son of Lieutenant-Colonel C. Monk, I.M.S. (retired), of Burlton Lodge, Darnes, Surrey, killed in France on October 3rd. He was educated at Fton, joined the army as Second Lieutenant in September, 1911, became Lieutenant on October 1st, 1912, and was recently promoted to Captain. He was the great grandson of Colonel the Count du Bailion, the last French Governor of Strasburg.

Wainwright, Geoffrey Lennox, Second Lieutenant 3rd Battalion Royal Sussex Regiment, elder son of Dr. Wainwright of Folkestone, killed in France on September 25th, aged 21. He was educated at Tonbridge School, and at Christ's College, Cambridge, and got a commission on August 15th, 1914.

Willis, Geoffrey, Second Lieutenant Northumberland Fusiliers, son of the late Dr. Wilkins, of Turnham Green, died in France of wounds in France on October 2nd, 1914. He was educated at Westminster, joined the Artists Rifles at the beginning of the war, and got a commission in May.

Wood, Oswald Ireland, Captain 1st Battalion Suffolk Regiment, elder son of the late Colonel Oswald Gillespie Wood, R.A.M.C., killed in France, October 1st-3rd, aged 25. He was educated at Sherborne, Rugby, Cambridge, and Wellington, and went to Sandhurst as a King's Cadet in September, 1911, and joined the army as Second Lieutenant in September, 1911, became Lieutenant on May 13th, 1914, and was recently promoted to Captain. When war was declared he was in Egypt with his regiment, came with it to France, was wounded in April, and returned to the front in July.

MEDICAL STUDENTS.

Macpherson, Ian C., Second Lieutenant 5th Battalion Gordon Highlanders, son of Mr. Macpherson, rector of Banff school, killed in the recent fighting in France. He was educated at Banff school and at Aberdeen University, where he had taken the M.A. and was studying medicine. He enlisted at the beginning of the war, and got his commission on January 5th. His father, Gordon Macpherson, youngest son of the late Mr. Milne, farmer, of Andrewsford, killed in the recent advance in France. He was a medical student at Aberdeen, and enlisted in the Gordons early in the war.

Oke, Robert William Leslie, Captain 2nd Battalion Royal Berkshire Regiment, killed lately in France. He was the only son of Mr. A. W. Oke, of Southampton and Hove, and was educated at Sherborne, Rugby, Cambridge, and the London Hospital, where he was a medical student. He was appointed to the 3rd (Reserve) Battalion of the Berkshires as Second Lieutenant on January 3rd, 1914, and became Lieutenant on December 9th.

Rolland, Frederick James Gordon, Lieutenant 6th Battalion King's Own Scottish Borderers, killed in France on September 25th, aged 22. He was the son of Bailie William Rolland of Paisley, was educated at Glasgow University, where he took the M.A. and was studying medicine, and got a commission on September 16th. He was at first reported missing.

Stenhouse, Andrew, Second Lieutenant 10th Battalion Scottish Rifles (Cameronians), died in France of wounds received on September 25-27th. He was the son of Mr. James Stenhouse of Riverslea, Dumbarton, and was a medical student at Glasgow University, where he was in the hospital. He got a commission on September 16th, 1914, became Lieutenant in June, and in July went to France, where he was serving as bomb officer of his battalion.

NURSES.

Died on Service.

Miss Mabel Elizabeth Chadwick, V.A.D. nurse, died in hospital at Alexandria on October 15th of enteric fever. She was the daughter of Mrs. E. M. Chadwick of Leicester.

SIR LAUDER BRUNTON has received a telegram in the following terms: "The King and Queen deeply regret the loss you and the army have sustained by the death of your son in the service of his country. Their Majesties truly sympathize with you in your sorrow." All the members of his profession will desire to express their sympathy to Sir Lauder Brunton in his bereavement. As was noted in the JOURNAL of October 16th, Mr. E. H. Pollock Brunton, who took the diplomas of M.R.C.S. and L.R.C.P. in 1913, joined the R.A.M.C. with a temporary commission on April 2nd, 1915, and had been attached to the 4th Battalion of the Grenadier Guards since July.

NOTES.

NEW MILITARY HOSPITAL, GLASGOW.

The Scottish Red Cross Hospital, erected in the Bellahouston Park, Glasgow, was opened on October 14th by the Duchess of Montrose. The cost has been provided by contributions not only from Glasgow, but from all over Scotland and distant parts of the empire. It is placed on a fine open site, surrounded with spacious grounds and woodland, and will serve not only as a hospital but as a convalescent home. Sir George Eatson, the president of the Scottish Branch of the Red Cross Society, who was in the chair, said that Glasgow had now provided 1,200 beds—500 at Springburn and Woodside and the remainder in the new hospital. Altogether Scotland had provided 4,985 beds, and the meeting was designed to celebrate the work done throughout the country. The Duchess of Montrose said that Ayrshire and Renfrewshire had each given one block, Dumfriesshire and Fifeshire one ward, and Stirling and Peeblesshire beds. Generous subscriptions from all parts of Scotland and from all classes of the community, and from such distant places as

Honolulu and South Africa, had rendered it possible to establish the hospital without encroaching upon the general funds of the society. When, after the war, the last convalescent had left, the buildings might be utilized as a sanatorium for consumption or some other excellent purpose. General Boucke accepted the gift, and expressed the thanks of the War Office and the Army Medical Service to the Scottish Branch of the Red Cross Society and the people of Scotland. A few hours before the opening ceremony a hospital train had arrived in Glasgow, and 80 wounded soldiers from France, including 40 stretcher cases, had been admitted to Bellahouston. On the previous day 100 wounded men from the Dardanelles had been admitted to the Stobhill Hospital.

THE LORD DERBY WAR HOSPITAL, WARRINGTON.

In the brief account of this hospital published last week we were able to give only the names of the administrator and deputy administrator. We are now able to add that Major Nash, R.A.M.C., is the chief resident physician, and Captains C. E. Murphy, F.R.C.S., and G. Sichel, F.R.C.S., R.A.M.C., are the chief operating surgeons.

COAL OWNERS' AND MINERS' AMBULANCES.

The coal owners and miners of Nottinghamshire and Derbyshire have provided at a cost of £70,000 one hundred fresh motor ambulances for the British Red Cross Society. The cost has been met jointly, the owners raising a levy on the basis of their coal output in 1914, and the miners making a voluntary weekly levy on their wages. The convoy was inspected by the King and Queen on October 14th, and the cars are now being dispatched to France. Altogether it is stated that the British Red Cross and Order of St. John have provided a thousand motor vehicles—ambulances, cars, lorries, cycles, repair wagons, and motor soup-kitchens, as well as six motor launches, a steam picket boat, and a lighter, sent to the Dardanelles and the Persian Gulf, in addition to the hospital trains running in France and Belgium, of which we recently gave an account.

MEDICAL OFFICERS WANTED.

1st Home Counties Casualty Clearing Station, R.A.M.C.(T.).

Medical officers (surgeons preferred) are required to fill vacancies in this unit. Must sign imperial service obligation and go on foreign service with the unit when ordered. Pay and allowances as in regular army, with promotion to rank of captain in six months. Applications to Lieutenant-Colonel J. S. Warrack, Officer Commanding 1st H.C. Casualty Clearing Station, R.A.M.C.(T.), West Camp, Halton Park, Tring, Herts.

Ireland.

RESIGNATION OF PROFESSOR WHITE.

THE announcement that, owing to reasons of health, Professor A. H. White has considered it necessary to resign the chair of pathology in the school of the Royal College of Surgeons in Ireland, which he has held for the last seventeen years, has been received with great regret. Every one has admired the courage with which he has continued his work in the school and for the profession at large, in spite of serious indisposition, for many years. He was a distinguished student of the school, and was at one time assistant in the pathological department of University College, London. In addition to his chair in the college he has been surgical pathologist to the Meath Hospital, Dublin, and bacteriologist to the Cork Street Fever Hospital, and his contributions to scientific literature have related chiefly to bacteriology. In the profession generally he was perhaps best known for the political work he has done for it. He was honorary secretary of the Irish Committee of the British Medical Association. He was also for some years a member of the Council of the Association. When the insurance controversy arose he became honorary secretary to the first Conjoint Committee to deal with the questions then raised. For two years he worked hard, and the substantial union in the profession in Ireland during 1911 and 1912 was in large measure due to his unstinting exertions and organizing power. All that he did was done not only thoroughly but so modestly that the value of his services

is perhaps hardly yet appreciated. We hope that after a period of rest Professor White will be able to resume his useful work for science and for the profession.

POOR LAW MEDICAL OFFICERS ON MILITARY SERVICE.

ON the whole, boards of guardians in Ireland have facilitated the desire of their medical officers to join the R.A.M.C. by appointing the substitutes nominated by them to discharge their official duties as Poor Law medical officers and to take charge of their private practice during their absence. In most cases, too, the guardians pay either a portion or the whole of the official salaries of their medical officers who join the R.A.M.C., as well as the salaries of their substitutes. The Local Government Board in Ireland approves of boards of guardians paying a portion of or the whole official salary—which is invariably small and, in many cases, insufficient to cover the working expenses of the district—and it also urges that the substitute nominated by the medical officer absent on military service to take charge of his district during his absence should be appointed by the guardians provided the convenience and interests of the sick poor are safeguarded. The Kenmare (Kerry) Board of Guardians refused, by a substantial majority, to pay any portion of the salary of their medical officer who had joined the R.A.M.C., and further refused to appoint the doctor he nominated to take charge of his district and to look after his private practice during his absence. The guardians instead appointed a doctor who holds the position of part-time medical certifier, under the Insurance Act, for such an extensive area in the county of Kerry that the Local Government Board refused to sanction his temporary appointment, stating that it would be impossible for one doctor to discharge efficiently the duties of a Poor Law medical officer of a large dispensary district while discharging, as medical certifier under the Insurance Act, duties which would necessitate his absence for long intervals from his district. The Kenmare guardians refuse to accept the ruling of the Local Government Board, and by way of a reply, at their last meeting adopted a very long resolution, urging that the Local Government Board exceeded its power, which, the guardians contend, should be confined to the question of remuneration. The Kenmare guardians' contention is obviously absurd, both from the legal and common-sense points of view; otherwise it would mean that if a board of guardians appointed a doctor to discharge the duties of an entire union instead of a dispensary district, the only question the Local Government Board could deal with would be the question of remuneration, while the more important matter of safeguarding the interests of the sick poor would be altogether outside its jurisdiction.

It is an ethical rule, approved of by the Local Government Board, in the Poor Law medical service in Ireland that a doctor shall not seek to be appointed as locum tenens without the invitation of the doctor seeking leave of absence, and it is owing to the general observance of this rule that proceedings such as have taken place in the Kenmare Union are of very rare occurrence.

ROYAL VICTORIA HOSPITAL, BELFAST.

THE opening address of this session was delivered by Sir John Byers, chairman of the medical staff. After welcoming old and new students, he drew attention to the awful paradox in the war, where the highest science was at one and the same time devoted to the destruction and to the saving of human lives. The credit balance was apparent in their splendid Royal Army Medical Corps, by which both soldier and sailor were cared for and preserved in a way never attained before. He illustrated the excellence of the transport and sanitation services, the scientific care displayed in ferreting out infection. They in that school had done their share. The board of management of the hospital had offered 100 beds to the War Office. In addition to the care of the wounded, they had rendered fit for service some 150 recruits; four of their active staff had left them for military or naval service; another of their colleagues was surgical specialist for the Belfast Military District; eleven of their staff were attached to the Ulster Volunteer Force Hospital, with 180 beds. Seventy former students held commissions in the R.A.M.C., besides many older members whose exact locale it was impossible to trace.

In the Royal Navy they had traced eleven old students holding medical commissions and two surgeon probationers. There were also four of their sisters and thirty-seven of their nurses in foreign and home army service. Among those old students who had already been mentioned in dispatches and decorated were Colonel J. Meek, R.A.M.C., who was attached to the Headquarters Staff, and who had received the C.B.; Captain F. S. Irvine, R.A.M.C., who had received the D.S.O.; while Captain W. Brook Purdon, Lieutenants W. Tyrrell, W. M. Chesney, and W. M. K. H. Cullagh (all of the R.A.M.C.) were awarded the Military Cross, and Lieutenant J. L. Jackson (R.A.M.C.) was mentioned in dispatches. They had most regretfully to record the death of Captain T. M. C. Phillips, Lieutenant F. J. Wisely, and Lieutenant Walter McCurry (mentioned in dispatches), all of the R.A.M.C. and all their old hospital students. These heroes died a noble death while actually in the thick of battle ministering to the wounded; and they now tendered to their sorrowing friends their most sincere sympathy for their irreparable loss. They were all medical men who, humanly speaking, had the prospect of a bright career. As regards the future, sufficient medical men had come forward to equip the previous armies, but new armies had to be equipped, and they would be in a deplorable state unless the younger members of the medical profession continued to come forward. Sir John Byers concluded by saying that the tradition of a school was an imperishable asset; all those he had mentioned had more than maintained, they had extended that tradition; devotion to duty, self-sacrifice, and patriotism still called; it was their duty and their glad effort that this tradition should not be tarnished, but still further brightened and widened.

A vote of thanks was heartily accorded to Sir John Byers for his address, on the proposition of Professor Sinclair, seconded by Professor Lindsay.

England and Wales.

HEALTH OF LONDON CHILDREN.

THE policy of the London County Council with regard to the general medical treatment of school children has been to contract with outside bodies and institutions which assume responsibility for the medical side of the work, subject to the supervision of the school medical officer. At the first weekly meeting after the recess it was agreed that any scheme for school accommodation for tuberculous children who required treatment in non-residential institutions should entrust the treatment to the authorities of such institutions—dispensaries or hospitals—as the Public Health Committee might determine.

The rules issued by the Council for the guidance of teachers in connexion with scarlet fever and diphtheria have been altered to allow of the period of exclusion from school, in the case of children suffering from sore throat, being reduced from four weeks to two weeks. An addition has been made to the rules in respect of measles, to the effect that when measles is known to have occurred in the neighbourhood, every effort should be made to obtain information with regard to all absentees at the earliest possible moment.

Canada.

EFFECTS OF THE WAR ON HOSPITALS.

THE war seems to have resulted in an increase in the number of patients in the large hospitals. This does not necessarily mean an increased amount of illness; the explanation probably lies in the fact that many people now apply for admission to the public wards of hospitals who in normal times would be prepared to pay for medical attendance. This applies also to the outdoor department. In spite of the fact that the building was recently enlarged, the Montreal General Hospital has been obliged to refuse admission to many applicants during the present year. A large number of the members of the staff of the institution are on active service, but their places have been taken by

younger men who have been associated with the hospital, and the work of the institution has been continued along established lines without interruption. A department for massage and remedial gymnastics has been established in the hospital in connexion with the School of Physical Education at McGill University.

THE MEDICAL COUNCIL OF CANADA.

In his address at the annual session of the Medical Council of Canada, the President, Dr. Thornton, of Deloraine, Manitoba, in discussing the question of reciprocity between Great Britain and Canada, said that he was informed that all of the nine provinces had signified their desire to enter into reciprocal relations with Great Britain, or had already entered into such agreement. A number of applications had been received by the Registrar, Dr. R. W. Powell, of Ottawa, from men on active service, asking to be given the L.M.C.C. without examination, in consideration of the fact that they were unable to come up for examination. The matter was carefully considered by the Council, and it was decided that it would be unwise to grant the request, as it might possibly compromise the Council in the eyes of the provincial medical councils. A report from the Special Committee on Standards of Education, on co-ordination of the curriculum in the different medical colleges in Canada, was presented, and the committee was made permanent. The Committee on Reciprocity with Great Britain presented its report through the late Dr. A. W. H. Lindsay, of Halifax. The next meeting of the Council will take place on the first Tuesday in June, 1916, under the presidency of Dr. R. J. Gibson.

The College of Physicians and Surgeons of the province of Saskatchewan has decided to discontinue the provincial medical examinations after next December in favour of those of the Dominion Medical Council. Saskatchewan is the first of the provinces to take this step. The other provinces recognize the examinations of the Medical Council of Canada, and a student who has passed the latter examinations can practise in any province in the Dominion, but the provincial examinations are still held for those who wish to practise only in one province.

The Ontario Medical Council has adopted regulations defining the conditions of reciprocity of registration between the United Kingdom and the Province of Ontario.

MEDICAL EDUCATION IN ONTARIO.

THE Provincial Government has now appointed the Hon. Frank Hodgins, Justice of the Ontario Supreme Court, to inquire and report upon the constitution, powers, duties, and regulations of any body, corporate or unincorporated, and of any faculty or department thereof having any relation to medicine; the exercise of the same and the revenue and expenditures thereof; the situation, legal or otherwise, of such bodies in regard to each other or to the province; the establishment, creation, control, and regulation of any new body intended to have relation to medicine; the existing or possible methods of examining, licensing, or otherwise authorizing the carrying on by individuals of the practice of any methods having any relation to medicine and the standards prescribed and followed or proper to be established and followed; the present position, status, and practice of osteopaths, dentists, nurses, opticians, optometrists, chiropractors, Christian Scientists, or others practising or professing medicine; and the existing laws of Ontario in relation to any of the foregoing and their practical operation.

CANADIAN PUBLIC HEALTH ASSOCIATION.

At the fourth annual conference of the Canadian Public Health Association, held at Toronto in September, five general sessions were held. The President, Dr. M. M. Seymour, Commissioner of Health for the province of Saskatchewan, delivered an address in which he spoke of the various phases of public health work and the progress made in the field of preventive medicine. The following papers were read: Modern methods of sewage disposal, by George W. Fuller, Consulting Sanitary Engineer, New York City; Control of municipal and industrial wastes, by Mr. I. S. Osborne; The work of the International Waterways Commission, by Professor George Phelps, formerly of Harvard University, now on the commission appointed to investigate the extent of pollution of the international waterways between Canada and the United States; Practical methods of obtaining pure milk,

by Dr. Charles E. North, consulting sanitary expert of New York City. A conference was held on the diagnosis and care of the feeble-minded, and among the papers read was one by Dr. J. D. Pagé of Quebec on the immigration of the feeble-minded. An interesting discussion was held on the housing problem, and houses built by the Toronto Housing Company were inspected. The conference closed with a discussion on medical social service, which included papers by Dr. Evans on control of venereal diseases in municipalities and military camps, and by Dr. J. A. Hutchinson of Montreal on notification of venereal diseases. Dr. Charles J. Hastings, Medical Officer of Health, Toronto, was elected president for the year 1915-16.

India.

PUNJAB LUNATIC ASYLUM.

THE report of the Punjab Lunatic Asylum for the triennium ending 1914 shows that the population of the asylum has increased annually, the daily average strength in the three years under report being 682.58, 709.22, and 735.92, whilst the total population of the last year under report amounted to 991. A noteworthy feature is the continued and steady increase in the number of females admitted, which has risen now to 216. The Lieutenant-Governor agrees that this progressive increase of population is a clear indication of the growing popularity of the institution, and a proof of the care and sympathy bestowed upon its inmates.

Many improvements have been made during the last three years. The buildings have been enlarged and the interiors have been suitably tiled and floored. The asylum has now a maximum capacity of 830 patients, allowing 50 cubic feet for each, but the introduction of the cubicle system has reduced the number that can be accommodated; this, however, is fully counterbalanced by the superior arrangements for the care and comfort of the patients which the system affords. The recent provision of a new quarantine ward has supplied a long-felt want. The institution is fortunate in possessing shady gardens and ample grounds for recreation and exercise. The provision of a staff of attendants who will carry out their duties with efficiency and sympathy for the unfortunate patients has been difficult, but the appointment of two non-commissioned officers of the Indian army as superior warders has done much to raise the standard of efficiency of the attendants generally. The pay of the lower grades of attendants has also been revised and materially improved. A European warder has also been appointed primarily to look after European patients and to assist in general supervision and maintenance of discipline among the staff. As to the types of cases admitted, there is an increasing prevalence of idiopathic mania and melancholia, a type of insanity occurring mostly among the educated classes. The percentage of cures to the daily average strength rose slightly during the triennium, being 22.71, 17.48, and 18.07 for the three years respectively, as compared with 15.17, 15.03, and 16.69 for the years 1909-11.

The health of the inmates has been satisfactory. The asylum was visited by cholera in 1912 and 1913, but all precautions were taken and its spread prevented. Four deaths were due to the disease on the first occasion and two on the second. Five escapes occurred during the three years, due in all cases to carelessness of attendants. Five deaths occurred as the result of assaults by fellow patients, but in no case was any of the attendants held to be blame. The total annual cost of the asylum averaged in round figures Rs. 164,000 yearly during the triennium, as against an average of Rs. 115,000 in the previous triennium. The main item of increase is under building charges. Lieut.-Colonel Evens, who had held charge of the asylum since its foundation some fifteen years ago, died on September 9th, 1914. The Lieutenant-Governor heartily endorses the remarks made in the report and by the Inspector-General of Civil Hospitals on his work as Superintendent. The institution owes its progress in efficiency and popularity almost entirely to his untiring effort and sympathetic care of the inmates.

Correspondence.

URIC ACID STONES UNDER THE X RAYS.

SIR,—In a paper by Dr. Newman on ureteral calculus, in the *JOURNAL* of October 16th, p. 557, there is the following statement: "It (radiography) is now so perfect that even a small uric acid stone in the lower segment of the ureter can easily be discovered." This statement, in my opinion, requires some proof.

My experience of the last ten years is that I have never yet been able to show with x rays the shadow of a pure uric acid calculus anywhere in the urinary tract. The description "uric acid calculus" from the x-ray point of view must necessarily mean "pure" uric acid, as the point is whether the uric acid, and not other constituents of the stone, casts the shadow.

Some years ago Mr. Thelwall Thomas had a number of stones examined both qualitatively and quantitatively; a number of these to the eye suggested uric acid stones. Not one of these was found to consist of uric acid, and many had no uric acid in them at all. On the other hand, in several cases of large bladder stones not shown on good x-ray negatives, the examination showed them to consist entirely of uric acid and moisture, without a trace of any other constituent.

It is impossible to conceive of large uric acid bladder stones not showing, and small lower ureter stones being "easily" discovered.

I have never yet seen a stone shown by radiography, removed by operation, and properly examined, which consisted of pure uric acid. I have not during the last ten years seen a stone removed from a kidney or ureter which had not thrown a distinct shadow on an x-ray plate.

The pure uric acid stone of what may be described as "of surgical size" must be of very rare occurrence in a kidney or ureter, and I feel sure that if all supposed uric acid stones were carefully and thoroughly examined before being described we should hear less of the demonstration by x rays of "uric acid calculi."—I am, etc.,

Liverpool, Oct. 18th.

C. THURSTAN HOLLAND.

BROMIDES IN EPILEPSY.

SIR,—In the *BRITISH MEDICAL JOURNAL* of October 9th a correspondent asks what is the best substitute for bromides in epilepsy, saying that he has seventeen epileptics who must have their full dose of bromide. But why must they? The routine administration of bromides in epilepsy is about as intelligent as the routine administration of "alteratives" in "rheumatism" or the routine administration of "antipyretics" in "fever," or the routine administration of any other drug in any other group of diseases. For the recurring convulsion that we call epilepsy is not a disease—it is a group of diseases; it is certainly more than one disease. There are certain cases of epilepsy—that is to say, there is one of these diseases—in which immense benefit follows the administration of bromides, and these are the cases which make the reputation of bromides in epilepsy and of certain quack remedies containing bromides that are advertised as a cure for epilepsy; but these cases form but a very small percentage of the whole. In most cases of epilepsy bromides are not of the slightest value, and in many are actively pernicious. There are at the present time hundreds of epileptic patients who are taking bromides and who would be very much better without them. Let your correspondent cease to give bromides to his seventeen epileptics, and he will find that most of them, if not all, will become more lively, more intelligent, and will get rid of their bromide rash. If one of them—it is very unlikely that there will be more than one out of seventeen—should show a decided increase in the number and severity of his fits, it will be easy to let that one resume his bromides, but the rest will be far better without them.—I am, etc.,

Parkstone, Dorset, Oct. 18th.

CHAS. A. MERCIER.

INFANT FEEDING.

SIR,—The evil of attempting argument by correspondence is the necessity for restatement. I wrote in my lecture that since the public was now interesting itself in

the subject of infant mortality and its control it would seem necessary to devise, and adhere to, a standard diet which it should be the part of these lay helpers to supervise. With the carbohydrate patent foods, I said, they must have nothing to do, because these diets were therapeutic diets, in many cases copied from successful prescriptions by well-known medical men for ailing infants in the past, and I quoted examples.

So far we are all in agreement, but I said in my paper that, to my way of thinking, it did not matter very much whether we chose whole-citrated milk as the standard diet, or diluted the milk a little and added a little sugar. Dr. Vining and Dr. Langmead would have us confine the standard diet to whole-citrated milk. That, I think, represents the difference between us—not a great one. None of us contend, as I have seen it contended, that whole-milk is a panacea for all the manifold types of infantile indigestion.

Dr. Langmead's well-known work has proved once and for all that citrated whole milk is well tolerated by the majority of healthy infants without alimentary disturbance. I would go further than this and say that it is doubly curative of the commonest of all forms of infantile dyspepsia—that due to overfeeding with starch and sugar, which is characterized by the familiar acid, green, watery stool, and that, because this condition is so common among the poor, the routine use of citrated whole milk is bound to achieve a large measure of success. The mothers of the poor look upon sugar not as a valuable food, but as a sweetening agent. With this object, as much as two ounces of cane sugar a day is quite commonly added to the milk of a tiny child. Sweetened condensed milk in great concentration and patent foods containing starch add their quota. In all cases of overfeeding with starch and sugar, the use of whole milk is promptly curative; but this prescription occasionally gives rise to troubles of its own. Whole cow's milk, in a minority of all cases, and in a considerable percentage of very young infants, tends to produce fat dyspepsia; and the symptoms of fat dyspepsia—constipation, or the passage of bulky, formed, pale alkaline stools, with a strong putrefactive odour which contrasts with the sour-smelling green evacuation of sugar dyspepsia—are, as might be expected, the very converse of those which a diet too rich in sugar or starch produces. They in turn are promptly relieved by adding sugar, preferably malt sugar, to the diet, and the frequency of their occurrence explains the occasional undoubted success of the proprietary malted foods. Such was the substance of my lectures.

Dr. Vining's experience does not include cases of fat dyspepsia such as I describe, or the malnutrition which results from their continued neglect. I have no way of proving their existence to him, but I cannot follow him in attributing symptoms such as these to an excess of sugar in the diet. It seems to me clear that sugar is too valuable a part of the diet, both for the maintenance of the body heat and for improving the tone and nutrition of the muscles, to be maintained always and in all cases at the low level found in cow's milk, on the ground that its use is often violently abused by ignorant mothers who are unable to measure and control the diet. For these reasons, in choosing a diet there is something to be said in favour of moving in a direction a little away from the safety from diarrhoeal disorders which whole citrated milk confers—of diluting the milk a little and adding a little sugar. In selecting a standard diet I would avoid all extremes. Let us choose something sensible, and, if necessary, modify it in individual cases in the light of the symptoms which result. Dilute milk with added malt sugar might be the routine for the first three months, whole milk thereafter. To add cream as a routine measure is to defeat the object of the dilution—the reduction of the high fat percentage in cow's milk.

In conclusion, may I say that all this discussion is foreign to the purpose of my paper? I urged in a single sentence that in infant mortality work a standard diet should be erected; I did not presume to choose one. I am driven to this reiteration by the very disquieting suggestion—first made by Dr. Vining and repeated by Dr. Langmead—that because I am willing to accept a standard diet for young infants composed of milk with a moderate addition of water and sugar, I am proposing a diet which

is itself the common cause of all the distress and mortality which I had imagined I was addressing myself to relieve.—I am, etc.,

London, W., Oct. 18th.

H. CHARLES CAMERON.

THE WAR EMERGENCY.

THE NEED FOR SELECTION.

SIR,—Before I reply to Dr. Court's letter I should like to clear up one personal matter. Some one writes suggesting that for the work I am doing for the War Office I am receiving remuneration from the State. He is mistaken. I do not even receive my out-of-pocket expenses.

Dr. Court states that I made some ungenerous remarks about the recruiting returns of the panel doctors. I made no remarks; I simply gave the figures—that amongst us officials 90 per cent. had gone, amongst panel doctors 12 per cent. I do not claim that we officials are any more patriotic than the doctors on the panel, but that the difference in the figures showed the necessity for proper organization under which men could go, feeling that their interests would not suffer.

Dr. Court is wrong in saying that our Tuberculosis Committee were willing to close the sanatorium for the duration of the war. Before opening the sanatorium the county council offered it to the War Office, together with the staff to administer a hospital of 300 beds. The War Office refused the offer. The sanatorium was then opened and the Insurance Committee handed over to the county council between six and seven thousand pounds a year for the administration of sanatorium benefit within the county. Having put our hands to the plough we cannot turn back. It would be unfair to the Insurance Committee and to the insured persons. From Dr. Court's letter I find that it is the Chesterfield Division which has taken this matter up, while the sanatorium is for the whole county, with a population of 580,000. The Chesterfield Division of the British Medical Association has been asked to find six men. It strikes me as lacking in sense of proportion for a local Division to ask the one man responsible for this important work to desert the post where his special knowledge is of the greatest use to the community, and I protest against this being done without any communication being sent either to the Local Government Board or the county council. The officer in question wishes to go, but has subordinated his own inclination to his obvious public duty.

Dr. Court's objection to my scheme for the State taking over the medical profession, as they have taken over munition works, is that it would put an end to "free choice of doctor." Surely the profession can let the public raise this point. We have no free choice of judges, clergy, or magistrates, nor of any civil servants. There is no free choice of doctor for the men who are fighting our battles abroad. If the Government require a large number of medical men, and the War Emergency Committee wish to hear how a State service for the period of the war can be organized, I shall be glad to go into details with that Committee.—I am, etc.,

County Offices, Derby, Oct. 19th.

SIDNEY BARWISE.

Public Health

AND

POOR LAW MEDICAL SERVICES.

DUTIES OF DISTRICT MEDICAL OFFICERS.

NESTOR.—There is nothing in the Poor Law Orders requiring a district medical officer to obtain the leave of his board of guardians before taking a holiday. It is customary to notify the clerk when about to take a holiday, and to send him the name of the deputy who is to carry out the duties in the absence of the medical officer. The only complete manual of the rules of the Local Government Board is *Glenn's Poor Law Orders*, published by Knight and Co. The *Poor Law Medical Officers' Association* published some years ago a small handbook (price 2s. 6d.) entitled *The Law Relating to the Poor Law Medical Officer and Vaccination*. This contains most of the information "Nestor" requires. The honorary secretary (Dr. Major Greenwood, 34, Cophall Avenue, London Wall, E.C.), still has a few copies of the last edition for disposal.

Universities and Colleges.

UNIVERSITY OF LONDON.

MATRICULATION.

At the September matriculation examination 270 candidates were successful, 65 being placed in the first, and 207 in the second, division. In September, 1914, the number of successful candidates was 162, and in September, 1913, it was 289.

UNIVERSITY OF EDINBURGH.

GRADUATION CEREMONY.

At the graduation ceremony on October 15th fifty-three degrees were conferred, the candidates absent being already on service, and of those who attended some were in uniform. The Principal, Sir William Turner, who presided, said that the graduation in October was always small compared with the summer. The new graduates who had already joined the military services were following the example of those who had graduated in the course of the summer, and that set by all the universities in the United Kingdom. The academic youth of Great Britain and Ireland had shown themselves worthy of the great universities; they had not forgotten that they had a voice in the affairs of their country and had shown themselves equal to looking on their lives and themselves as belonging to a great country with a great history which had brought it into the very highest place among the nations and which they in their turn must help to preserve.

The following medical degrees were conferred:

M.P., Ch.F.—M. H. Alkhan, T. C. Bowie, A. F. Campbell, E. J. Clark, P. B. Corbett, J. Dick (with second-class honours), R. B. Eadie, P. W. Edwards, G. Elsworth, Heier M. Gall, W. Goldie, E. S. Hawken, A. N. Homewood, T. J. Lloyd, M. McGarrity, C. F. MacLachlan, A. J. R. Taylor, W. E. Thompson (in absentia), A. A. Watson.

UNIVERSITY OF ST. ANDREWS.

GRADUATION CEREMONIAL.

At a graduation ceremonial held in St. Mary's College Library Hall the following degrees were conferred by Principal Herkless:

M.B., Ch.B.—T. Easterman, T. L. Henderson, W. P. Starforth.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

THE HARVEIAN CELEBRATION.

THE HARVEIAN oration was delivered on St. Luke's Day, October 18th, by Dr. Sidney Coupland, but the usual dinner at which the College is in the habit of entertaining some distinguished guests was not held.

The following medals were awarded:

The Moxon gold medal, founded in memory of the late Dr. Walter Moxon, physician to Guy's Hospital, and awarded every third year, on the recommendation of the Council, to the person who should be deemed to have most distinguished himself by observation and research in clinical medicine, was awarded to Professor Jules Dejerine, Clinical Professor of Diseases of the Nervous System in Paris, and Physician to the Salpêtrière. Professor Dejerine being unable to be present to receive the medal, it was handed by the President to one of the secretaries of the French Embassy for transmission to the professor.

The Baly Gold Medal, instituted in 1866 by the late Dr. F. D. Dyster in *memoriam Gulielmi Baly*, and awarded every alternate year to the person who shall be deemed to have most distinguished himself in the science of physiology, especially during the two years immediately preceding the award, was presented to Frederick Gowland Hopkins, M.B. Lond., F.R.S.

The Weber Parkes medal of 150 guineas and a silver medal, founded in 1895 by Sir Hermann Weber in memory of the late Dr. E. A. Parkes and awarded every third year to the author of the best essay upon some subject connected with the etiology, prevention, pathology, or treatment of tuberculosis, especially in reference to pulmonary consumption in man, was awarded to Dr. Noel Dean Barlowell, Medical Superintendent to King Edward VII Sanatorium, Midhurst, Sussex.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY Council was held on October 15th, when Sir Frederic Eve, Vice-President, was in the chair.

War Service.

The Secretary reported that the President had left England for the Dardanelles as Surgeon-General in the Royal Navy. Mr. Waterhouse reported that he had undertaken to proceed to Russia in charge of the Anglo-Russian Hospital, and was given leave of absence during the period of his services abroad. Mr. R. H. Burne was given further leave of absence of three months that he might be able to continue his services in France under the French Red Cross.

Vacancy on the Conjoint Examining Board.

Dr. Cameron having accepted the Chair of Anatomy at the University of Halifax, Nova Scotia, the vacancy on the Conjoint Examining Board occasioned by his resignation will be filled up in June, 1916.

Annual Report.

The annual report to be presented to the Fellows and Members at the annual meeting on Thursday, November 18th, was adopted.

War Emergency Committee.

Sir Rickman Godlee was appointed to represent the College on a special War Emergency Committee meeting at the offices of the British Medical Association.

CONJOINT BOARD IN ENGLAND.

The following candidates have been approved at the examinations indicated:

FIRST EXAMINATION.—Part I, *Chemistry*: Part II, *Physics*: *F. Barker, Anna B. Broman, H. S. Chadwick, J. F. de Silva, H. L. Dibrstein, G. P. Evans, Kate Glyn-Jones, D. P. Gullfoyle, A. Hamid, E. Hardy, S. G. Harrison, J. A. Hawkrige, W. E. Howell, M. A. R. Khalifa, G. B. Kirkland, Emilia B. M. Krause, *F. Lindsey, *T. D. Llewellyn, D. Maxinos, J. L. O'Flynn, W. V. Parry, A. R. Paul, H. L. J. Reason, G. K. Reeves, H. H. Roe, A. G. Sykes, G. M. Trist, J. S. White, G. B. Withers. Part III, *Elementary Biology*: S. Ackroyd, A. B. Aldred, C. B. Dix, J. E. H. Duckworth, A. E. Ferguson, R. D. French, S. Godsell, Emilia B. M. Krause, R. O. Lahammi, Kathleen M. B. McArthur, D. Mackay, V. A. Newton, H. C. Randall-Stevens, F. A. Smoritt.

* Passed in Part Only.

† Passed in Part II Only.

The Services.

EXCHANGES DESIRED.

TERRITORIAL FORCE.

CAPTAIN A. R. PATTERSON, R.A.M.C.(T.), attached 14th Dorset Regiment, Ambla, India, wishes to find substitute so as to enable him to transfer to a unit at home or in France. Communications should be addressed to Dr. Le Fleming, Wimborne, Dorset, who will give all details.

Captain serving with a home service field ambulance is anxious to exchange with an officer of similar rank now serving in a casualty clearing station or hospital. Imperial service will be undertaken. Exchange into a home unit stationed in South of England would be considered. Please reply to H., Box No. 5200, c/o BRITISH MEDICAL JOURNAL, 429, Strand, W.C.

Obituary.

CARLOS FINLAY, M.D.

CHIEF SANITARY OFFICER OF CUBA.

DR. CARLOS J. FINLAY of Havana, whose name is well known to all interested in tropical diseases in connexion with the discovery of the causation of yellow fever, died on August 20th. He was born at Camagüey, in Cuba, on December 3rd, 1833. His father was a native of Scotland and his mother, Isabel de Barrés, a Frenchwoman. In 1844 he was sent to a school in Havre, but had to return home in 1846 on account of ill health. In 1848 he attempted to go back to France to complete his education, but the revolution of that year compelled him to stay for a time in London. When the political atmosphere was clear he entered the Lycée at Rouen, where he remained till 1851, when his studies were again interrupted by an attack of typhoid fever. On his recovery he went home and sought for admission to the medical faculty of the University of Havana on the strength of his course of study in France. His application being rejected, he went to Philadelphia, where he graduated M.D. at the Jefferson Medical College in 1855. There he came under the influence of John Kearsly Mitchell, one of the earliest advocates of the microbial theory of disease. With the son of that professor, S. Weir Mitchell, young Finlay formed a friendship which continued till the end. He was the first pupil of Weir Mitchell, who continued to direct his studies during three years.

On his return to Cuba, Finlay settled as a general practitioner in Havana. In 1881 he represented the Cuban Government at the International Sanitary Conference held at Washington, and it was on that occasion that he first brought formally before the medical profession his theory that yellow fever was transmitted by the bite of a mosquito then known by the name of *Culex fasciata*, now called *Stegomyia calopus*. For a long time, owing to

the lack of experimental proof his voice was as that of one crying in the wilderness. He was looked upon as a visionary till the work of Reed and his colleagues of the American Commission in 1900 and 1901 supplied the basis of fact necessary to make his hypothesis a scientific truth. The general acceptance of his doctrine was celebrated by a banquet given him by the profession of Cuba, which was presided over by General Leonard Wood.

In 1902 Dr. Finlay was appointed chief sanitary officer of Cuba and president of the Superior Board of Health. He resigned these appointments in 1908. The value of Finlay's work was attested by the numerous honours of which he was the recipient. On the proposal of Dr. Weir Mitchell the Philadelphia College of Physicians elected him an honorary fellow. In 1907 the Liverpool School of Tropical Medicine awarded him the Mary Kingsley Medal. In 1908 the French Government sent him the decoration of Officer of the Legion of Honour. In 1911 the Paris Academy of Medicine elected him a corresponding member. On the proposal of the first Cuban Medical Congress, the Government gave him a pension and undertook the publication of a complete edition of his works. By decree of the President of the Republic of Cuba, he was given a State funeral at the public expense.

WE have to record with much regret the death of Mr. W. J. CANT of Lincoln, which occurred on October 7th at the age of 59. Mr. Cant received his medical education at Birmingham, and took the diplomas M.R.C.S. and L.S.A. in 1877 and that of L.R.C.P. in 1879. Soon after the foundation of the University of Birmingham he received (in 1902) as a distinguished alumnus of the Birmingham Medical School the degree of M.B., B.Ch. In 1877 he became assistant house-surgeon to the Nottingham General Infirmary and two years later house-surgeon to the Lincoln County Hospital. In 1882 he entered into partnership with Mr. Charles Brook and Mr. Wilkinson, and was later associated with Mr. Charles Brook and Dr. W. H. B. Brook, with whom he worked until 1900, when he suffered a breakdown in health. He recovered sufficiently to resume practice, specializing in ophthalmic surgery. He had been appointed surgeon to the Lincoln County Hospital in 1887 and to the Lincoln General Dispensary in 1892. In 1901 he became consulting surgeon to the Lincoln County Hospital, and had been medical referee under the Workmen's Compensation Act since 1898. In 1904 his health again failed and he retired from practice; since then he had been an invalid, and for a month had been perceptibly failing in health. His illness was attended with much suffering, and on October 5th there came a sudden collapse from which he never rallied. He will be remembered by many for the considerable work he did as joint secretary with Canon W. W. Fowler for the Lincolnshire Loan Exhibition in 1887, and for the ever-ready help and interest he took in elementary and continuation schools, in science classes, and in the Lincoln Free Library. He married in 1891 the daughter of Mr. John Turner of Pendlebury, and leaves one daughter. He contributed to this JOURNAL papers on the treatment of conical cornea and on cataract extraction without iridectomy, described a tarso-choleoplastic operation for trichiasis in the *Lancet*, and reported a case of right congenital ptosis treated by Mules's operation to the Ophthalmological Society (*Transactions*, 1897); he also wrote in the *Sheffield Medical Journal* (1893) on the after-treatment of abdominal section, and reported one of the few recorded cases of idiopathic hæmatoporphyria.

BRIGADE-SURGEON ANDREW BARRY, Bombay Medical Service (retired), died at St. Andrews on October 3rd, aged 72. He was educated at Glasgow University, where he graduated M.D. in 1864. He also took the diplomas of L.R.C.S.Ed. in 1864, and of F.R.C.S.Ed. in 1873. He entered the Army Medical Department as an assistant surgeon in February, 1865. In the spring of that year the Indian Medical Service, which had been closed for four and a half years, was again thrown open to competition, and several of the assistant surgeons on probation for the Army Medical Department went in for the examination for the Indian Medical Service, among them Surgeon-Generals James Cleghorn and Robert

Harvey and Barry. He was gazetted assistant surgeon, I.M.S., from April 1st, 1865, became surgeon on April 1st, 1873, surgeon-major on April 1st, 1897, and brigade-surgeon on February 26th, 1888, retiring on August 31st, 1895. He had seen a good deal of war service—the expedition against Wagher tribes in 1865-6, and the operations of the Kathiawar Field Force in the Burda Hills; Abyssinia, 1867-8, medal; and Afghanistan, 1879-80, in the force which relieved Kandahar, medal.

CAPTAIN ERNEST GEORGE FORD, R.A.M.C., retired, died at Wolston, near Coventry, at the age of 40, after a short illness, on October 7th. He was the son of Mr. George Ford, of Beverley, and was educated at Edinburgh, where he took the degrees of M.B. and Ch.B. in 1899. He entered the army as lieutenant on April 25th, 1900, became captain on April 25th, 1903, and retired on April 8th, 1911. He served in the South African war from September, 1900, to its close in May, 1902, taking part in operations in the Transvaal and Orange River Colony, and received the Queen's medal with three clasps, and the King's medal with two clasps.

Medical News.

DR. JAMES CROMBIE (Sideup) has been appointed to the Commission of the Peace for the county of Kent.

FIVE cases of plague and four deaths from the disease were reported in Mauritius in the two weeks ending October 14th.

DR. H. E. H. OAKELEY of Kimberley, S.A., was entertained at dinner by the local profession immediately before his departure for military service in Europe.

MESSRS. Taylor's Typewriter Co., Ltd., of 74, Chancery Lane, W.C., wish to notify their customers that their Chancery Lane branch business is being carried on as usual.

DR. J. JOHNSTON of Bolton, long lecturer to the St. John Ambulance Corps, has been appointed to the Queen Mary's Military Hospital established in the new asylum of the Lancashire Board at Whalley.

AT the first scientific meeting of the Zoological Society of London, at 5.30 p.m. on Tuesday next, Lieutenant-Colonel R. T. Leiper, D.Sc., F.Z.S., will give a demonstration on the migration of *Bitharsia cercaricæ* through the skin.

AT a meeting of the Aberdeen County Committee on Secondary Education on October 15th it was resolved to suspend the scheme of medical inspection of school children for the county owing to the scarcity of medical men for war service.

MR. JOHN D. ROCKEFELLER, JUN., Chairman of the New York Bureau of Social Hygiene, has given £5,600 to be used in the construction and furnishing of a hospital for victims of the drug habit. With this amount added to the sum of £2,000 contributed a short time ago for the same purpose by Mrs. W. K. Vanderbilt, it will be possible to begin the erection of the hospital as soon as the plans are completed. It is to be situated on Riker's Island, and will provide accommodation for 132 patients.

AN order was recently granted by the King's Bench Division, Dublin, to presume the death of Dr. Joseph Garry, assistant surgeon to the *Lustania*, who was drowned on May 7th, after that vessel had been torpedoed by a German submarine. According to the affidavit of the steward who acted as his servant, Dr. Garry, on being handed a lifebelt, immediately gave it to a lady, and he was last seen about the wreckage. Prior to becoming connected with the Cunard line, Dr. Garry had practised at Manchester, Bolton, and other places.

THE lectures before the Royal College of Physicians of London this autumn will be given as follows: The Bradshaw Lecture, by Dr. Michell Clarke, on November 2nd, the subject being nervous affections of the sixth and seventh decades of life; the FitzPatrick Lectures on November 4th and 9th, by Dr. W. H. R. Rivers, on medicine, magic, and religion; and the Goulstonian Lectures, by Dr. Gordon Holmes, on November 16th, 18th, and 23rd, on acute spinal lesions, with special reference to those of warfare. The lectures will be given at the College on each day at 5 p.m.

Letters, Notes, and Answers.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Antelope, Westminster, London*; telephone, 2531, GERRARD. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Antelope, Westminster, London*; telephone, 2530, GERRARD. (3) MEDICAL SECRETARY, *Mediæstra, Westminster, London*; telephone, 2531, GERRARD. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

X. Y. Z. asks whether malt is contraindicated in diabetes. Cod-liver oil by itself is not well tolerated, but maltine or any preparation of malt and cod-liver oil is. If malt is contraindicated, in what form can cod-liver oil be given?

INCOME TAX.

Assessment on Total Income £1,000 to £1,500.

NESTOR has been assessed at Is. 9d. in the £ for 1915-16, the surveyor informing him that "where the total income exceeds £1,000 the rate of tax is Is. 9d. plus 20 per cent. for the current year." He inquires whether this is correct.

Yes. If our correspondent's total income is between £1,000 and £1,500, the rate applying to his assessment is Is. 9d. (Finance Act, 1915, Sec. 10, and Finance Act, 1914, Sec. 3). The "Finance (No. 3) Bill" now before Parliament provides for the increase of the pre-existing rates by 40 per cent. "for the last six months of the current income tax year," being in effect an increase of 20 per cent. for the whole year. The additional tax—that is, in this case the extra 20 per cent.—will become payable next July.

Assessment of Medical Officers on Service.

CAPTAIN M. is on foreign service and in the meantime has placed a locumtenent in charge of his practice. It is now being carried on at a loss, the deficiency having to be made good from his military pay. Income tax to the amount of £35 17s. 6d. has been assessed. What course should he adopt?

Under Section 13 (1) of the Finance Act, 1914 (Session 2), our correspondent is entitled to have the assessment reduced to the actual profits of the year—that is, to nil. We suggest that he should write to the local surveyor of taxes intimating that he claims relief under this section, and forwarding, if he has not already done so, a statement of the receipts and expenses of the practice for the year in question. If the surveyor cannot deal with the matter without an interview with our correspondent, he will, no doubt, be able to arrange for the question to remain in abeyance. In the circumstances we do not think that there is any likelihood of payment of the tax being required until the appeal is settled, but if there should be any such insistence the Board of Inland Revenue might be approached direct with a request for postponement of further proceedings.

ANSWERS.

LOCAL ANAESTHESIA FOR REMOVAL OF PILES.

DR. C. E. WINCKWORTH (Shefford, Beds) writes to recommend as a local anaesthetic for the removal of piles a watery solution of morphine hydrochloride gr. ½, eucaine and cocaine aa gr. 1. The solution is to be injected into the skin at four equidistant parts around the anus. It has been used by a practitioner for himself.

THE CIGARETTE HABIT.

H. F. W. writes, in reply to "Monk" (September 18th, p. 459), that *Caladium sepium* (synonym *Arum sepium*) has a reputation with some medical men for destroying the craving for tobacco. It can be given in the form of the tincture, 2 or 3 minims twice or thrice daily. It is especially indicated when, in addition to the tobacco habit, there is loss of sexual vigour.

DR. ROWLAND THURHAM (Nordrach-upon-Mendip, Bristol) recommends the use of tobacco which has been treated by a process which removes most of the nicotine.

DR. C. F. BIRD (Upton-on-Severn) desires to know the strength of silver nitrate solution recommended as a mouth application.

LETTERS, NOTES, ETC.

WEIR'S VACCINATION INSTRUMENT.

MR. BARRY HOPKINS, who has been connected with the surgical instrument trade for over fifty years, informs us that Cooper Rose's vaccinator, when it first came out between 1860 and

1870, was a metal tube containing loose needles, something after the style of a miniature pepper box, having a cap with holes to keep the needles steady, the idea being that the old needles could be replaced as required. In the next pattern the needles were fixed firmly into the base, and the cap was joined to cover the needle was furnished with a bayonet joint. The outer end of the case was made so as to hold capillary tubes. In the final pattern, as used by Dr. Tebb, the centre needle was made a little longer than the four other points which surrounded it. It was pressed upon the arm and revolved between the fingers and thumb, forming a pivot while the outer needles made an abrasion. These needles were covered with a cap, as in the second pattern. A spatula was fitted to the other end of the instrument to rub in the lymph which was blown on to the abraded surface. This is the pattern of Cooper Rose's vaccinator now kept in stock by dealers. Weir's pattern, when it first came out about 1875, bore four or five needles at one end. At the other end was a flat knife, the point curved down and sharpened so as to lift up the cuticle, while its sides were flat, to serve as a spatula; the needles at the other; it was made wholly of metal. The third and modern pattern of Weir's instrument was also forged out of one piece of metal. The needles and the spatula were somewhat longer. The Government ordered some to be made with the edges of the spatula bevelled, so that the needles were used so as to pass just under the cuticle, which could be then lifted up, but now they are made so as to scratch the skin, something like a gridiron. In 1902 Dr. L. C. S. Broughton brought out a vaccinator after Weir's pattern with a neck or shank at each end; a description and a drawing of the vaccinator will be found in the BRITISH MEDICAL JOURNAL, 1902, vol. ii, p. 711.

THE GRIEVANCES OF SHIPS' SURGEONS.

DR. RICHARD JAY writes: I venture to give an unqualified contradiction to the statements of "Nautical" in the BRITISH MEDICAL JOURNAL of October 16th. The surgeon's status is not that of the second steward or ship's barber, but that of one of the senior officers of the ship. Sailors are the best fellows in the world and the easiest to get on with, provided always that the surgeon does not put on side or magnify his office; after all, he is not so important a member of the ship's crew as the captain or chief engineer. He ranks with, but slightly below, the chief officer; in the absence of these, the chief executive officer for the time being is his superior. The surgeon's cabin is often unfavourably placed, especially when it is also the surgery. It would not do to have sick members of the crew crowding on to the promenade deck. I have served on seven ships in four steamship companies. Three times I had a cabin on deck, once I did not like the position of my cabin, and then I was allowed to use the passenger's cabin. Once my cabin was also the surgery; it was otherwise an excellent one. I advise surgeons to insist on their cabin being separate from the surgery, as it usually is; it is not pleasant to see larvae in one's bedroom. I have spent three years at sea during the last seventeen years, and have always been treated with courtesy and respect. Personally I should be sorry to hold my rank aloof from my brother officers and messmates by not wearing their uniform. My refer jacket is still in use ashore, robbed of its brass buttons and braid. The frock coat is seldom required for an odd voyage; I have served in the Royal Mail without it. A mess jacket can now be worn in the waistcoat (brass buttons) of the trousers of an ordinary dress suit. By artificial light the difference in shade is not very obvious. I have dressed in that manner in the Royal Mail and two other first-class steamship companies.

ICED AIR.

DR. M. A. DUTCH, F.R.C.S., writes: The following "tip" may be useful. Take a coffee, tea, mustard, or any other tin of suitable size with a lid. Punch in half a dozen holes at the top and bottom when the tin is held with its greatest measurement horizontal. One larger hole for the insertion of a penny tin funnel is to be punched in the lid (the funnel can be dispensed with if not at hand). A piece of thin jaconet waterproof and a piece of old flannel are now placed in the bottom of the tin; on the top of this is put, and the whole is complete. I have found this most useful in cases of obstinate hæmoptysis and in oedematous conditions of the throat, etc. The condensation of the atmosphere also relieves the dyspnoea.

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A Lecture

ON

WOUND INFECTIONS AND THEIR TREATMENT.

DELIVERED (WITH DEMONSTRATIONS) AT THE OPENING OF AN EXHIBITION OF SURGICAL APPLIANCES FOR THE TREATMENT OF THE WOUNDED HELD AT THE ROYAL SOCIETY OF MEDICINE FROM OCTOBER 8TH TO 14TH.

By COLONEL SIR ALMROTH E. WRIGHT, M.D.,
F.R.S., C.B.,

A CONSULTANT PHYSICIAN TO THE EXPEDITIONARY FORCE IN FRANCE.
(From the Research Laboratory attached to No. 13 General Hospital, Boulogne-sur-Mer.)

PART I.

IN undertaking to deliver an introductory lecture on such an occasion as this I feel myself under a very heavy disability. While I am impressed—very profoundly impressed—with the ingenuity and value of the mechanical devices and appliances which have been brought together within these walls, I am, as you know, quite lacking in that expert knowledge required for the proper appraisal of such things. There is, however, one—and it is, I would urge, by far the most important—aspect of wounds which does fall within my particular department of study. It is this that emboldens me to address you on this occasion.

I would, at the very outset, put it to you that the distinction between the *sick* and *wounded* is, from the point of view of science, an entirely improper one. Those who are classed as wounded are as universally as, perhaps even more universally than, those classed as sick, suffering from bacterial infection.

Ever since the days when Lister demonstrated that sepsis in surgical wounds was avoidable, very little study has been devoted to the bacterial infections which here come into consideration. For the surgeon has set before himself as his goal, not the successful treatment of septic infections of wounds, but their avoidance. And who will say that he is wrong? Less excusable, as it seems to me, was it for him to think that he had in reserve—if occasion should ever require it—an effective ready-made method of treatment for septic infections of wounds. After a year of war there are on that point very few illusions left.

There has in the meanwhile, I hope, been growing up a conviction that we shall not arrive at an effective treatment of wounds without strenuous study of the infecting microbes, the conditions in the wound, and the therapeutic agents which we employ, and the defensive operations of the organism.

Let me, drawing upon the research work which my fellow workers and I have been doing in France, try to put before you, as briefly as may be, in connexion with these questions, such points as seem to me most deserving of attention.

The wounded man seen just after he has received his wound is a man seen in the *incubation period* of his infection just after the microbes have been implanted—these being, as you know, carried into the wound, upon particles of infected skin and clothing.

The problem presented by the patient when first seen accordingly shapes itself thus. What is here the chance that the defensive mechanism of the body will prove adequate for the destruction of the microbes; and may we reasonably look to see the infection aborted? And in the event of the infection not being extinguished, what kind of course will it shape?

The extinction or non-extinction of the infection will depend upon the amplitude of the microbial implantation, and the favourable or unfavourable physiological conditions in the wound.

Rifle Wounds Traversing only Soft Parts.

The first type of wound which we have to consider is the perforating rifle wound where the bullet traverses the soft parts without touching bone. Here, nearly always, the bullet will cut into the wall of blood vessels. As a result there will be haemorrhage from the wound, and when the blood coagulates the track will become plugged

with clot. Later, when the patient is moved and the wound thereby disturbed, oozing may take place from the track.

Here we have a very light microbial implantation—only small numbers of microbes having been left behind by the missile on its passage through the soft tissues. Further, the walls of the track will have been scoured by the out-flowing blood. And finally, such microbes as are here left are enveloped in clot—in other words, we have here brought to bear upon the residual microbes the full bactericidal power of the volume of blood which occupies the wound. We have, in fact, exactly the same conditions as we have in experiments conducted in capillary tubes with a very small number of microbes implanted into a unit volume of blood.

As a sequele, as indicated above, we may have oozing. It is not, as might be supposed, blood which then escapes from the mouth of the wound. It is a thinner incoagulable fluid, containing only a small proportion of red corpuscles. It is, to come to the point, serum expelled from the clot by the *vis a tergo* of blood pouring into the upper reaches of the wound. There attaches, as I think, to this oozing a therapeutic significance. It is, in point of fact, equivalent to a reinforcement of the clot in protective elements.

You have already seized the point that when oozing occurs the serum of the clot—and serum is a fluid which when implanted with microbes tends to lose its antibacterial power—is replaced by blood fluids fresh from the vessels. And you appreciate that the outflowing stream of serum will tend to wash microbes out from the clot and convey them out of the wound. But it might, perhaps, be overlooked that when oozing takes place the clot is reinforced by red, and, this is important, by white corpuscles.

What, I take it, is occurring in the oozing wound can be brought quite easily before the eye in the capillary tube. And let me describe the experiment in detail, for I want you here at the outset to have before you a perfectly clear idea of the method of working in capillary tubes with washes and mural implantations.

Description of a Reinforcing Experiment.

We take a capillary tube pipette fitted with a test, place upon the stem a fluid mark, fill in with a 15 per cent. solution of citrate of soda, blow this out—leaving thus what we may call a *wash*—fill up with a unit volume of blood, and then mix by moving the blood with its wash of citrate up and down in the stem of the tube.

We now, leaving in the distal end of the stem an air space somewhat greater than that occupied by our unit volume, draw up into our pipette a suspension of microbes and blow it out again, leaving a wash of microbes on the wall. We follow on now with a unit volume of blood and incorporate into this the microbes left on the wall (this is what I mean by a *mural implantation*). Finally, we carry our volume of incoagulable, and our volume of implanted coagulable, blood up some little distance away from the mouth of the pipette, and then seal up our tube. The implanted blood now clots, giving us an ordinary *reinforced* clot. Such a clot is shown diagrammatically and on an enlarged scale in Fig. 1, B.

It consists of a meshwork with spaces shown as half filled in with corpuscles and half with serum—we have in the blood, it will be remembered, almost equal volumes of corpuscles and serum.

To imitate the conditions in the oozing wound we have now to feed the incoagulable blood in the upper part of our tube

1 A series of weighings made with the form of balance used by Bang in weighing drops of blood, on filter paper for sugar estimations have brought out the fact that a "wash" of watery fluid in a capillary tube corresponds to between a twentieth and a thirtieth of a unit volume.

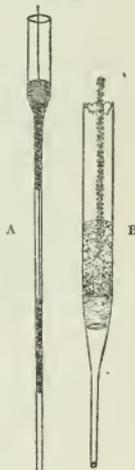


FIG. 1.—A. In the neck of the capillary pipette we have the reinforcing incoagulated blood, and in the distal end of the stem the blood clot which has been implanted with microbes, and connexion has been made between the two by the introduction of a very fine glass-needle.
B. We have here a more magnified image of the clot showing the creeping down of reinforcing blood along the stylect, and, below the clot, the expelled serum that previously filled its meshes.

into the coagulum in the lower part of our tube. We do this by taking a fine filament of glass (made by drawing out a capillary tube in the by-pass flame of a Bunsen burner) and passing it down through the unclotted into the clotted blood (Fig. 1, A). Contact having in this manner been established, both the fluid and the formed elements of the uncoagulated blood creep slowly down along the capillary filament into the clot (Fig. 1, B). Arrived there, they expel the serum from the clot (Fig. 1, B)—driving it out of the tube if we have broken off the tip of the pipette—and occupy all the unfiled spaces.

In this way we not only carry out from the clot blood fluids which may be exhausted of their antibacterial elements, but we fill up the clot with red and white corpuscles, bringing to the leucocytes of the clot, which, of course, are the elements which count, a reinforcement of 100 per cent.

Going back now to our rifle-bullet wound, we have to consider what will happen if the implanted microbes are not killed off. In this case we shall presently find an infected purulent fluid coming down along the walls of the track; and very soon the blood clot will disintegrate and come away, and we shall have a surface infection all along the track. We now pass to consider other types of wounds.

Rifle Wounds where the Bullet has Comminuted Bone.

Where a projectile comes up against a bone it will shatter it and make a large exit wound by blowing out the fragments and splinters, at the same time scattering the charge of microbes, which would otherwise have been sown only on the walls of the track, far and wide through the tissues.

We have here obviously very unfavourable physiological conditions. For not only is the circulation in the wound completely disorganized, but the wound will contain bone and soft tissues cut off from their blood supply and bound to necrose and slough; and deep in the tissues we have an implantation of microbes which no outflowing blood will wash away. And even more important, the outflow of lymph from the wounded surface—an outflow which meant the continuous replacement of invalidated by potent lymph—is going to be arrested by desiccation of the external wound surfaces. The wound, in other words, will, if left to itself, become lymph-bound. And, finally, the wound is, by virtue of its large exposed surface, going to lie open to all manner of after-infection from without.

These same unfavourable physiological conditions are associated also with shrapnel, shell, and bomb wounds. We shall consider them further in connexion with these.

Severe Shrapnel, Shell, and Bomb Wounds.

The essential feature about this class of wound is that we have here blunt or flat missiles, and that by consequence, as compared with bullet wounds, we have less penetration and perforation, and proportionately more bruising; and at the same time larger portions of infected skin and clothing are carried in by the missile. In other words, we have in the wound much worse physiological conditions; and along with this a heavier microbial implantation.

It will be a convenient arrangement to consider, in connexion with the severer types of wound, the effects of the bruising and the cutting off of the blood supply and the implantation of microbes into devitalized tissues; and then, in connexion with the lighter types of wound, to deal with the effects of the bacterial implantation into tissues not devitalized.

The disorganization and the shutting off of blood supply which is the feature of all severe wounds is followed, of course, by mortification; and thereafter the necrotic tissues fall a prey to every type of microbe: serophytic and sero-saprophytic, aerobic and anaerobic, non-sporing and sporing. And all these influences, working in combination, will cause the tissues to turn black and putrefy and disintegrate; giving, where the wound is allowed to desiccate, a condition of *Ary gangrene*. Under the black gangrenous coating there will, if the infection fails to spread to the underlying tissues, and if things are not composed otherwise by the growing out of the tetanus bacillus in the necrotic tissues, gradually be formed a line of demarcation. And finally, the gangrenous layer will be exfoliated, leaving underneath a granulating membrane and a surface infection. Essentially the same sequence of events will supervene if the wound is kept moist. Only here we shall have *met gangrene*, and the necrotic tissues will be converted into sloughs, and there will be earlier and more profuse suppuration.

Slighter Punched-in Wounds Produced by Shrapnel and Shell.

We come now to the lighter wounds which are inflicted by blunt missiles, to the wounds which we may call *punched-in wounds*. They are comparatively superficial wounds with steep sides going down to a floor sunk below the level of the surrounding skin. Here the microbes have been carried in over an area corresponding to the superficies of the wound, and they are implanted into the walls and the floor. What is important in connexion with this implantation is, that it is made not into an open track from the walls of which the microbes might be washed off by outflowing blood, nor yet into effused blood, which is up to a point a very ungenial culture medium for microbes; but into lymph standing in lymph spaces. Now the lymph in such spaces is only under very low pressure—a pressure as low as, or lower than, that of the capillaries—and by consequence when lymph spaces are broken into we have nothing in any way analogous to the outflow of blood from a wounded vein or artery. There will at most be a little weeping of lymph, and the conditions will be comparable to those produced if, after dealing a heavy blow with a hammer upon the bark of a tree, there followed a little exudation which afterwards dried, forming an impermeable coating. It is clear that we should then have, instead of a washing away, an embedding of microbes in the outflowing fluid, and an incorporation of these into the subjacent tissue. The conditions in the punched-in wound are, as you will now see, very unfavourable. They will be unfavourable, first, because the antibacterial power of the lymph with which the microbes are brought in contact is bound to be quickly exhausted; and, further, because with the arrest of the lymph flow there will no longer be any renewal of the lymph. Again, the conditions are unfavourable also in the respect that the leucocytes coming, as they do in such a case, only tardily into a zone which is already poisoned by microbes, cannot press home their attack. The emigrating leucocytes will therefore do nothing but choke up the tissues for a considerable area round each focus of bacterial infection.

In this way we get in the course of a very few days all round our punched-in wound a hard infiltrated edge, margined towards the healthy skin by a zone of pale pink; and in the indurated walls of the wound we have an *imprisoned infection*. That infection will now extend, and, if it finds its way onwards to the surface too solidly obstructed, will spread inwards; giving rise, according to circumstances and the character of the microbe infection, to *cellulitis* or *gas gangrene*. In the ordinary course, however, the infection will manage to break through to the surface, and then again we have an ordinary suppurating surface with an *infection of flowing discharges*.

It is important to appreciate that the processes that have just been described take place not only in the punched-in wound, but everywhere where microbes are implanted into lymph spaces, and where we have afterwards an effusion of lymph which desiccates and seals up the wound.

And precisely the same sequence of events as follows upon the original implantation of microbes will, just so long as the microbes still maintain themselves in the walls of the tissues, recur if at any moment the wound is allowed to desiccate and become lymph-bound. A setback of this kind will, for instance, almost inevitably follow when, by the transporting of the patient from hospital to hospital, the washing out of the infected walls of the wound is interrupted.

Nature of the Microbe Infection met with in Wounds.

We now pass to consider very briefly the nature of the microbes which are carried into wounds from the soiled skin and clothing of the soldier. These microbes may, as I pointed out in a previous lecture, be classified—and the classification is important for treatment as well as for the understanding of the mode of infection and of the evolution of the wound—into two main classes, a class of *serophytes* which (presumably because they find ready-made pabulum in the blood fluids) can live and multiply in serum; and a class of *sero-saprophytes* which, so far as we know, can develop in the blood fluids only after these have lost their antityptic property—the property in question being that which inhibits those digestive processes which would be capable of converting the native

albumin of the serum into pabulum for microbes. Intermediate in character between the serophytes and serosaprophytes is a class of microbes which cannot grow in the serum when we make only a small implantation, but which, no doubt owing to the fact that they bring into operation powerful digestive ferments,² succeed in establishing themselves when we make a heavy implantation. We may call these *imperfect* or *secondary serophytes*.

To the category of *serophytes* belong the streptococcus and the staphylococcus—the latter being far inferior to the former with respect to its power of multiplying in unaltered serum. To the category of *imperfect serophytes* belong the *Bacillus arrogans capsulatus* of Welch (*Bacillus perforans*), the *Bacillus proteus*; its close congener, the *Bacillus pyocyaneus*; and the wisp-shaped diptheroid bacillus commonly found in foul suppurating wounds.

To the class of *sero-saprophytes* belong the larger number of microbes found in such wounds.

It will suffice here to bring out a few of the more important points in connexion with the serophytes and imperfect serophytes which are found in wounds.

The microbe most universally present is a streptococcus. It differs in very many respects from the classical *Streptococcus pyogenes*, which is met with, though much more rarely, in wounds. In film preparations of pus the streptococcus here in question shows up nearly always as a diplococcus. As obtained from agar and broth cultures, the elements of the diplococcus are lancet-shaped, and they are bent into an angle. To follow the French description, they resemble a circumflex accent or take the form of saddle bags (*formes en besace*). In broth cultures we have interspersed with these a few short chains. The colonies as they grow upon agar are more opaque, less sharply margined, and somewhat larger than those of the *Streptococcus pyogenes*. Instead of being as colourless as glass and severely discrete, they show up as very faintly grey-green, and, when planted closely, tend to run together. As compared with the ordinary *Streptococcus pyogenes*, growth is also much more rapid—luxuriant cultures being obtained at 37° C. on broth and agar in four or five hours. Moreover, growth is obtained, not only at 37° C., but also at the temperature of the laboratory bench.

The most remarkable characteristic of this streptococcus is, however, the freedom with which it grows out in normal serum, and also upon agar when transplanted in blood. When we implant into blood in emigration tubes, putting the tubes directly into the centrifuge, and from this into the incubator, we obtain after three to five hours with a moderate implantation a growth in the form of diplococci and short chains permeating the whole white clot; or, with very light implantation, a growth in the form of colonies clearly visible to the naked eye and consisting of typical convoluted chains made up of indefinitely numerous elements. In the case where we implant into blood and then implant the blood culture on agar, we have very opaque white convex colonies which may be as much as half, or even one, centimetre in diameter; and which, except for the fact that they are rather moister, closely resemble staphylococcus colonies. These are made up of lancet-shaped diplococci, which might easily be taken for pneumococci. The surrounding blood is not haemolyzed.

There will be no doubt in the mind of any one who has studied descriptions and illustrations of the *enterococcus* and its mode of growth on ordinary media as given in French bacteriological textbooks that the streptococcus here in question is the *enterococcus* of the French authors. Moreover, it may be taken as assured—for we have compared our cultures of streptococci from wounds with a series of cultures of streptococci obtained by Professor Freyer and his colleagues from the stools of patients who were being searched in the ordinary way for typhoid and paratyphoid bacilli—that the streptococcus we are here considering is the ordinary streptococcus of the faeces. And assurance is made still more complete by the fact that when searching normal faeces by the *Jacco-sero-*

*culture method*³ my fellow worker, Lieutenant A. C. Inman invariably obtained from the faeces in his after-washes a pure culture of a streptococcus which was, in all the above-mentioned morphological and biological characters, indistinguishable from that which is practically invariably present in the wounds. We may therefore take it as unquestionable that the streptococcus which is commonest in wounds is of faecal derivation, and both our *Jacco-* and *pyo-sero-cultures* show that if the smallest possible implantation of this microbe is made, in no matter what bacterial admixture, into serum, it will immediately grow out there.

With regard to the presence of staphylococci in wounds, it may be pointed out that, by reason of its wide distribution in the skin and its serophytic properties, it is bound to be present in practically all wounds. We shall, however, presently, in discussing the results of our *pyo-sero-cultures*, appreciate that its growth in the wound is very quickly restricted by changes in the blood fluids (and with these there may possibly be associated also changes in the leucocytes) which are produced by the immunizing responses of the patient.

Like the staphylococcus and the *Streptococcus faecalis*, which we have just been discussing, the *Bacillus of Welch*—which is also, of course, a constant inhabitant of the faeces—is implanted, one may take it, into every wound. This microbe, be it noted, is only an imperfect serophyte. In point of fact, as my fellow worker, Captain d'Esto Emery, has succeeded in showing, the serum exerts upon the bacillus of Welch a very considerable bactericidal power; and it is therefore in serum cultures only the surviving microbes which grow and multiply, and in blood cultures only those which both resist the action of the serum and also elude destruction by phagocytes. All this means—and clinical experience amply bears this out—that if we can bring the blood fluids and leucocytes to bear on Welch's bacillus we have very little indeed to fear from it.

What little requires to be said about the *Bacillus pyocyaneus* and *proteus* and other members of the class of imperfect serophytes may for the moment be reserved.

Before passing on something may appropriately be said about methods of cultivation, and I may limit myself to the description of methods of obtaining cultures in serum. For it is only by implantation into serum that we learn what microbes threaten danger, and how far the body is protecting itself against these. And again it is only by the method of serum culture that we can, when dealing with a complicated mixture of microbes, choose out from among these those which we ought to employ as vaccines.

What we want for these purposes is a cultivation method which will enable us to make first a moderate implantation and then a series of smaller and smaller implantations.

The *wet wash method*, or as we may also call it when implanting microbes the *method of mural implantation*, gives us what we here want, and there are two different procedures by which we can obtain the progressively diminishing implantations we require. We may call these respectively the *wash and after-wash* and the *wave-wash* methods.

Wash and After-wash Method.—Here taking a capillary pipette fitted with a teat and furnished with a fiducial mark, we fill it up to that mark with such a mixed bacterial culture as is furnished by pus, sputum, or faeces, and then expel this volume, leaving behind a *unit wash* on the walls of our capillary stem. We then aspirate a unit volume of serum, then aspirate a unit volume of serum, then aspirate a unit volume of serum separated by air-bubbles. In this way we obtain in successive volumes of serum a series of smaller and smaller implantations. If we want, as we may often do, a series of implantations in which the number of microbes falls off more steeply,⁴ we can, after filling in the first unit volume of serum and expelling it some little distance up the stem, resect this part in the ordinary way the filling in of the pipette. Or we can, leaving the stem unresected, arrive at the same result by making each unit volume, as we fill it in, pass several times up and down over the implanted portion of the tube, thus washing off the microbes more effectively.

² This method is modelled in all respects upon the *pyo-sero-culture method* presently to be described.

³ It may be well to bring out at this point that, though one could hardly, when dealing with a solution of a chemical agent, ask for a series of smaller and smaller dilutions than that furnished by the wash and after-wash method—for we do so down here by sixes of 25, 625, 15,625, 400,000, and 10,000,000 quite a different standard comes into application when diluting a microbial culture. For in the first case we are dealing with dissolved chemical agents, and inponderable quantities do not come into the account; and in the second case we are dealing with particulate matter, and quite inponderable quantities come very strongly into reckoning. And, in point of fact, experiment shows that a series of smaller and smaller dilutions can be obtained in pipettes implanted with a unit wash of pus and then filled up by the wash and after-wash method with unit volumes of serum we implant in many cases—as far as the fifteenth and in some cases as far as the twentieth after-wash.

⁴ The suggestion here made wins support from the fact that the streptococcus, which we may take as the type of a true serophyte, does not, when growing in clear serum, exact any reduction in its anti-toxic power, whereas both the *Bacillus proteus* and the bacillus of Welch do this. And it will be remembered in this connexion that the streptococcus does not liquefy gas in, while the *Bacillus proteus* and the bacillus of Welch rapidly digest albuminous substances (even coagulated white of egg and gelatin, and, as the case may be, urea, and other substances).

Wash Method.—Here we place two fiducial marks on the stem of our pipette, and then, at the proximal mark for the serum and the distal for the air bubble, fill in with unit volumes of serum separated off from each other by measured instead of, as in the ordinary way, with unmeasured volumes of air. Then at the end of the series we fill in up to the proximal mark with the diluted bacterial suspension which is to serve as our implanting fluid. Retaining this accurately in place, we now offen further fiducial marks on our capillary stem, marking off in this way the distal end of the last and penultimate of our volumes of serum. We now, relaxing the pressure of our fingers upon the test, carry the whole system of volumes and intervening bubbles upwards in our capillary stem, arresting the movement as soon as the distal end of the pipette reaches the common level with the first, or, if we prefer it, the second of the fiducial marks we have just inscribed. We may call this implanting movement a *seara wash*, and may speak of a *one-unit* or *two-unit* wash according as the implanting fluid is carried up into the segment of tube belonging to the next or the next but one volume of serum. We make a series of these washes (generally a series of six or twelve), making with these not only an implantation of microbes from the implanting fluid into the neighbouring volume or volumes of serum, but also at the same time implantations from the implanted into the previously unimplanted volumes of serum.

Method of making Anaerobic Cultures in Capillary Tubes.—When we want to cultivate under anaerobic conditions we proceed as follows, omitting, according as we want to cultivate only one volume of serum, or a series of volumes of serum, the first or the second of the procedures now to be described.

Method of making a Single as distinguished from a Multiple Anaerobic Culture in a Capillary Tube.—Taking a capillary pipette fitted with a test we first draw the test deep down into a rubber tube delivering hydrogen or ordinary coal gas, and now alternately compressing and relaxing pressure upon the test we expel the air, and fill test and pipette with unmixcd gas. We now withdraw the end of the pipette from the delivery tube, keeping as we do so the orifice of the pipette directed downwards, and then, after expelling a little of the gas, draw up from a drop of implanted serum placed ready to hand a convenient quantity into the stem of the pipette. Keeping the serum close down to the orifice of the pipette so as to prevent any entrance of air, we now once more thrust the capillary stem deep into the gas delivery tube, and draw in sufficient gas to give us comfortable space at the end for sealing up the anaerobic barrel. We now seal up the barrel ready to hand our operations by boring through the tube capillary stem just below the barrel of the pipette.

Method of making Anaerobic Cultures of a Series of Volumes of Serum Implanted by the "Wash and After-wash" or the "Wash-wash" Methods.—We begin by fitting to our gas delivery tube the barrel of a capillary pipette which has been truncated by resecting the stem just below the neck.

We sterilize this by flaming, and let our hydrogen or coal gas run through it sufficiently long to expel all admixture of air. Then, directing the orifice downwards, we turn off the gas and compress the rubber tube between the forefinger and thumb of the left hand so as to expel a little of the contained gas. Then we dip the orifice of the glass end-piece into a large drop of serum placed ready at hand and draw this up, and then, by regulating the pressure with our fingers, keep the serum closely applied to the open orifice (Fig. 2). We now take into our right hand a capillary pipette furnished with a test and a fiducial mark, and implanted, if we are using the wash and after-wash method, with a wash or microbial suspension. The tip of the pipette is now introduced into the serum in the mouth of the glass end-piece, and we now draw up into it first, as in Fig. 2, A, a unit volume of serum, and then pushing, as in Fig. 2, B, the point out into the gas, a bubble of gas; and so on

which is trapped by the test, so on in series until we have filled up the stem of our capillary pipette.

Response of the Wounded Man to his Wound Infection and Blood Changes Induced in him by Auto-inoculation.

In wound infections, as everywhere when bacterial toxins are elaborated and absorbed into the blood, the machinery of immunization is after a time called into operation, and as a result the blood is put into a better condition for defence. And then begins a serious conflict between the invaded organism and the invading microbes. It is in connexion with septicæmic invasions, such, for

instance, as typhoid fever, gradually becoming to be understood that it is by the event of this conflict that the issue is decided; and that the physician in attendance is not following, much less directing, events. But it is as yet a quite unfamiliar thesis that the wounded, like the typhoid, patient is reacting to his infection with a systemic immunizing response; and that the changes so induced in the blood exert a quite decisive influence on the course of the infection, while the surgeon who is dressing the wound and making local applications, is only in a subordinate way helping or, as the case may be, hindering the curative procedures of Nature.

It will be well before considering the surgeon's task to take cognisance of what the immunizing responses of the patient are doing in the matter of fortifying his blood.

We have, of course, in connexion with this only very imperfect knowledge, and we shall therefore have to keep very close to our experimental data. It will be convenient to marshal our facts under headings supplied by our methods of blood testing.

Data Furnished by Measurements of the Antitryptic Power of the Patient's Serum.

Reference has already been made to the antitryptic power of the blood fluids. In point of fact, the antitryptic power of the serum acts as a check upon all microbial growth.⁵ In the case of *sero-saprophytic bacteria* it completely balks their efforts to establish themselves in the serum. In the case of *imperfect serophytes* it places a very formidable obstacle in the way of growth. And in the case of *serophytes proper* it also, as a comparison between serums of low and high antitryptic index, and between serums which have, and serums which have not, received an addition of trypsin shows, determines whether the culture in serum⁶ shall be scanty or luxuriant.

It will be obvious from the above that an increase of the antitryptic power of the blood fluids would operate in restraint of any blood invasion, and that it would also, so far as the blood fluids came into application unaltered, restrain the growth of all forms of microbes, both in tissues and in the wound. In other words, an increase of antitryptic power would operate as a non-specific factor in immunization. Now we have, as I already indicated in my last lecture,⁷ in every or practically every wounded man a notable increase in the antitryptic power of his serum. Already within thirty six hours or less after the infliction of the wound the antitryptic index has risen far above the level of the normal; and reckoning the antitryptic power of the normal serum as unity, antitryptic indices of four and five are very common in the patients under treatment at the base.

More than that, we have found a quite similar but smaller increase in the antitryptic power of the blood after inoculating ourselves—one of us with typhoid vaccine, another of us with streptococcus vaccine, and a third with staphylococcus vaccine.

And let me here recall to you that attention has, in connexion with inoculations against plague, typhoid fever, and pneumonia, been time and again called to the probability that these vaccines give some protection against diseases other than the particular disease which the inoculation is designed to ward off. Particularly convincing in this respect are the results in the form of *diminished incidence of "other diseases"* which were obtained in South Africa by the inoculation of pneumococcus vaccine upon the Premier Mine.⁸ And I think all those who have had much experience of vaccines will have seen cases where therapeutic effects lying quite outside the range of the particular vaccine employed, and therefore as we thought not quite creditable to science, have been obtained by vaccine therapy.

⁵ The antitryptic power of the blood fluids represents, be it noted, much more than merely a power of inhibiting microbial growth. With the loss of antitryptic power go lost also the complementing, opsonic, bactericidal and coagulating powers of the blood.

⁶ Where instead of implanting streptococci into serum free from leucocytes we implant into blood containing leucocytes these are broken down, with the result that the antitryptic power is diminished and we have then, as already described in connexion with emigration tube cultures, always after a sufficient interval, luxuriant growth.

⁷ Vide Section I, Subsection of Section 3, last paragraph.

⁸ Vide Appendix II in my *Treatise on Preventive Inoculation against Pneumonia in the African Native*. Constable, London, 1914.

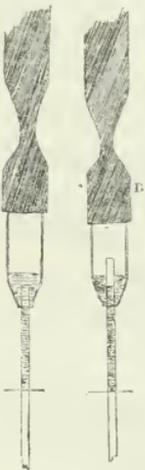


Fig. 2.

Data Furnished by Pyo-sero-culture.

The method of pyo-sero-culture was described in my last lecture (Section 1, Subsection 1).⁹ We may, however, substitute for the lengthier procedure there set out the wash and after-wash method (*vide supra*).

Having by this method introduced into pipettes similarly implanted with the patient's pus—into the one a series of unit volumes of the patient's blood, and into the other a series of unit volumes of a normal serum—and having incubated these for from six to twelve hours, we now follow the procedure portrayed in Fig. 3, *A, infra*. Beginning with the volume nearest the distal end of the stem which has received the smallest implantation, we blow out our successive serum cultures in separate drops on to the surface of a sterile slide; and then, with a platinum needle or glass filament, stroke out these in succession upon an agar plate, making in this way a series of linear implantations. On incubating our plates we then obtain, with the serum of a wounded man who is unimpaired by his infection, exactly the same results as with the normal serum. In the case of

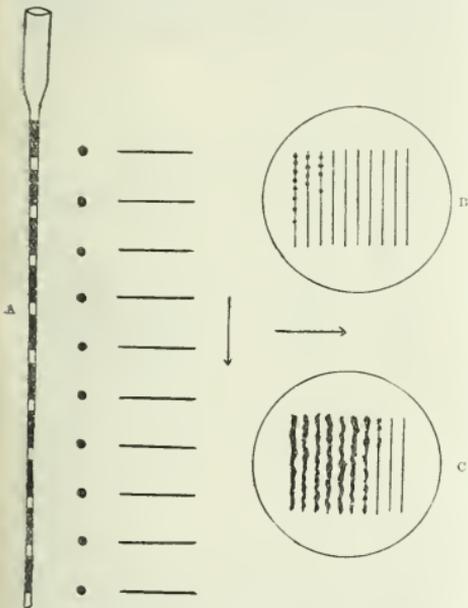


FIG. 3.—Method of Pyo-sero-culture.

A, Pipette which has been implanted by the wet-wall method and has then been filled in by the wash and after-wash procedure with unit volumes of serum. By the side of the pipette to the right are ranged a series of discs representing the series of unit volumes of serum blown out in order from the pipette, and, finally, to the right of the discs are a series of lines representing linear implantations made upon agar.

B, Results of the series of linear implantations made with the unit volumes of the patient's serum.
C, Results of the series of linear implantations made with the unit volumes of the normal serum which was used as a control.

a wounded man in the negative phase of his infection, we obtain cultures containing a variety of microbes (all of them members of the class of imperfect saprophytes) unrepresented in the cultures made with the normal serum; and, moreover, as compared with these, the cultures made with the patient's serum are more luxuriant and extend also into higher dilutions. In cultures made with the serum of a wounded man who is making satisfactory immunizing response—and the illustration reproduces the results actually obtained, by implanting the pus of such a patient into his own serum, and into that of a normal man—we have in both series of pyo-sero-cultures only saprophytes, staphylococci and streptococci, but while the cultures made with the patient's serum (Fig. 3, B) furnish only a few discrete colonies, and these only the first wash and two after-washes, we have with the normal

serum (Fig. 3, C) massed colonies in the first seven plantings, and the first eight plantings furnish cultures.

The significance of such data will, perhaps, best be appraised if we compare the method of sero-pyo-culture—considered as a procedure for the appraisement of the clinical condition and prospects of the wounded man—with the method of pyo-culture which Delbet has quite recently proposed to use for these same purposes.

The real value of the method of sero-pyo-culture lies in this, that it tells us up to what point the blood fluids of the patient would, without aid received from the leucocytes, be capable of protecting themselves against an implantation of microbes, and specifically against an implantation of microbes from the wound. Now merely to tell us this, is not to tell us how the microbes are going to fare in the wound. For we are not entitled to assume of the blood fluids that they will in the wound obtain unrestricted access to the microbes; nor of the leucocytes that they will not die in the wound, converting thereby the effused lymph into a favourable culture medium for microbes. Still, evidence of satisfactory immunizing response obtained by the method of pyo-sero-culture is, so far as it goes, evidence of favourable import, always with the proviso that the wound be treated in a rational manner.

The method of pyo-culture aims at arriving by an idyllically simple procedure going straight to its goal, at a trustworthy forecast of the future of the wound. It is suggested that by merely incubating the pus and then examining microscopically to see whether the number of microbes has increased or remained stationary we shall be able to foretell the future, and to decide, where the clinical appearances seem to prescribe amputation or other radical surgical procedure, whether operation can be avoided. In connexion with this proposed method of investigation, the first point to note is that the pictures which are furnished by it are generally the very reverse of clear, and that we are not in any way helped by controlling, as we are invited to do, our culture in pus by cultures made by implanting pus into bouillon. In point of fact, this particular method of controlling our results could only mislead, for the common pyogenic micro-organisms, and in particular the coliform organisms, would, no matter how sparingly they might be present in pus, always grow out luxuriantly in the bouillon culture. But let us suppose for a moment the case that we have been able to satisfy ourselves that the micro-organisms in our pyo-culture have increased, or to satisfy ourselves that they have not increased; and let us then ask ourselves what prognostic value would attach to the one or the other finding. There cannot be any doubt as to the answers to these questions. A multiplication of the microbes in the pyo-culture would, of course, indicate an unsatisfactory condition in the wound; but we should not know whether to interpret this as a consequence of a defective immunizing response on the part of the patient, or as a consequence of the surgeon having suffered the wound discharges to accumulate and become corrupt in the wound. On the other hand, if the microbes definitely failed to grow out in the patient's pus, this would clearly suggest that the patient was making good immunizing response; and that, in correspondence with this, the wound would, given requisite attention, be likely to progress favourably.

Data Furnished by Measurements of the Opsonic Power of the Patient's Serum.

The changes in the serum which gradually render it a more and more un congenial culture medium for microbial growth have their counterpart in changes in the serum which render the microbes an easier prey for phagocytes. These changes in the opsonic power of the serum are exactly similar to those which manifest themselves in all other forms of localized infection; and we find, when we look for them, in connexion with wounds, all the phenomena of autoinoculation with which we are familiar in other bacterial infections. And every day it becomes clearer that every displacement or movement of a fractured and infected limb—such displacements, for instance, as are associated with the transport of the wounded man, or the sagging of his limb when it is dressed, and also all those unguarded passive movements which the surgeon or orderly may inflict when the patient is under an anaesthetic—operate as autoinoculations, and are followed by that sequence of negative and positive phases which we are accustomed to witness after the stirring up of a focus

⁹ BRITISH MEDICAL JOURNAL, April 10th, 1915, p. 625.

of infection by active exercise, massage, or the application of Bier's bandages.¹⁰

Data Furnished by a Study of the Emigration Response of the Patient's Leucocytes.

As was already brought out in my last lecture, comparative experiments made with the method of testing emigration there described show that we have in patients who have made immunizing response to their wound infections or to the inoculation of streptococcus vaccines, an emigration response to streptococcus implantation which is strikingly greater than that of the normal man. I do not, until the method of estimation shall have been further improved, desire to be more detailed on this question. I prefer to pass on to consider the bactericidal power of the whole blood, for we have in this the resultant of all those factors in immunity which we have been separately considering.

Data Furnished by a Study of the Bactericidal Power of the Whole Blood.

The experiments on the bactericidal power of the whole blood which I undertook in connexion with work on pneumonia in South Africa¹¹ constituted a first attempt to make a complete evaluation of the bactericidal power of the blood fluids and leucocytes working in conjunction and reinforcing each other.

Let me lead up to what I have to say upon this matter by reminding you in connexion with these experiments with the pneumococcus that the blood fluids exert no bactericidal effect upon that microbe. And let me also very briefly go back over the procedure which I employed.

That procedure was to make by the wet-wall method implantations of the pneumococcus into blood drawn direct from the finger, or, as the case might be, into washed corpuscles suspended in serum, decalcified blood, blood kept liquid upon ice, and into what I will, to distinguish it from *exovascular* blood, venture barbarously to call *exocoagular* blood.

I mean by that—the red and white corpuscles and serum which come out from the blood clot when it contracts. The experiments conducted with all these different varieties of blood gave, as perhaps some of you will remember, very remarkable but undeniably paradoxical results. With blood drawn directly from the finger a very striking bactericidal effect—an effect which was upon occasion equivalent to a killing off of 600,000, to as much as 1,000,000 pneumococci per cubic centimetre of blood—was achieved. But it was not in every instance achieved.

With one of the other varieties of blood was any bactericidal effect achieved; or if there was any effect it was very insignificant and very inconstant. The reason for these diverging results did not at that time appear. I made some guesses which fell wide of the mark. This was the position of the question when I again, in connexion with the streptococcus, addressed myself to the study of the bactericidal power of the whole blood. And the situation to be dealt with was here essentially the same as in

the case of the pneumococcus, saving only in the respect that the serum is a much better culture medium for the streptococcus than for the pneumococcus.

During many months of work only very disappointing results were obtained. The blood of normal men, the blood of wounded men who were progressing favourably, and my own blood and that of two of my colleagues after we had been inoculated with streptococcus vaccine, alike gave, when implanted in a graduated manner, as good as no evidence of any bactericidal power. Or at any rate only very inconstant results were obtained.

This was even a more violent paradox than that encountered with the pneumococcus, for the blood that failed to kill streptococcus was not blood which had in any way been tampered with, but blood drawn directly from the finger; and it is, in view of the favourable event of most streptococcus infections, and the striking therapeutic effects obtained by streptococcus vaccine, impossible to doubt that streptococci are killed in the blood.

At the end, a possible explanation of the contradiction between the results obtained *in vivo* and *in vitro* suggested itself. I suddenly woke up to the fact that there was a flaw in the technique I was employing.

The nature of this flaw will be understood on referring to the accompanying diagrams. In my experiments the implantation of microbes into the blood was made by what I have called the method of mural implantation. And the particular form of mural implantation employed was the *complete mural implantation* (Fig. 4, B).

Now what follows in the case where we implant into a blood which afterwards clots is brought before the eye in Fig. 5. When the clot contracts the space which was at the outset filled with unclotted blood and then with coagulum (Fig. 5, A) divides itself up into two regions (Fig. 5, B), a region occupied by clear serum and a region occupied in part by the clot and in part by the corpuscles which have fallen out from the clot and have ranged themselves round its base. The first of these regions is one in which streptococci—supposing they had once managed to find their way there—would be quite safe from phagocytic attack and would find conditions favourable to their growth. In the second region, inasmuch as the phagocytes would be crawling about and fossicking for microbes in the clot and escaped red corpuscles, there would at any rate be a chance of the leucocytes extinguishing the infection. *Mutatis mutandis*, this would apply also in experiments conducted with the different varieties of incoagulable blood. In each case the corpuscles would settle to the bottom, and there would be left above them a band of clear serum where microbes would be quite safe from phagocytic attack.

It will be obvious that these quite elementary considerations provide a very simple explanation of all the blank results obtained in our bactericidal experiments. They do more than that. They point the way to a better technique. For clearly, if instead of making a *complete mural implantation*, we now limit ourselves to what I may call a *wainscot implantation* (Fig. 4, A) we shall be planting all our microbes into a region of the blood where they will have to run the gauntlet of the white corpuscles; and there will no longer be for them, as there was with the complete mural implantation, any direct way of escape into a region of safety provided by the serum.

It will suffice to say in connexion with this improved technique that it has answered even beyond expectation, and that when we limit ourselves to a wainscot implantation, and make implantations with graduated dilutions of streptococcus, we obtain not only with exovascular blood but also with exocoagular and citrated blood conclusive evidence of bactericidal power.

Let me, however, make the following point plain. Even with this improved technique, the demon of chance has

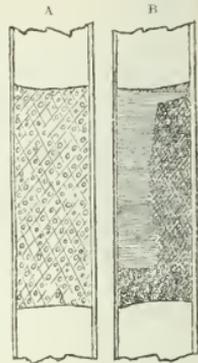


FIG. 5.

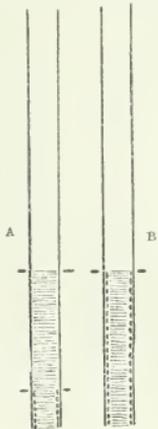


Fig. 4.—The figure shows two forms of mural implantation into blood—in A a "wainscot," in B a "complete mural" implantation. In A the distal end of the capillary stem has, as a first operation, been fitted on as far as the upper fiducial mark with blood. An air bubble was then drawn in; after this the tip of the tube was dipped into a microbial suspension, and then was allowed to run in as far as the distal fiducial mark. After this the microbial suspension was expelled and the blood was then, to receive its "wainscot implantation," driven down to the orifice of the tube. In B, where the blood receives a "complete mural implantation," an essentially similar procedure was followed.

bactericidal power of the whole blood. And the situation to be dealt with was here essentially the same as in

¹⁰ *Vide* in this connexion the autoinoculation curves set out in the author's *Studies on Immunization*. Constable, London.

¹¹ *Lancet*, January 3rd, 1914, p. 1.

not been exercised from our experiments. And since chance will always, in our experiments, play a part in the ordering and disposition of leucocytes, it will be impossible in the case where the bactericidal power of the blood is centred upon these, and so operates only where gravity permits, to get regular quantitatively accurate results, such as are attainable when the bactericidal power is centred in the serum, and so operates uniformly through the medium.

I would ask you to note this point. It is necessary to emphasize it here where we are considering the blood changes produced by immunizing response to autoinoculation, and it will be necessary to emphasize it again when I come to speak of vaccines and their employment in connexion with wound infections.

But we have not, in the matter of the leucocytes and the factors which determine the bactericidal effect they exert, got quite to the end of our story. You will find the following experiment very full of instruction, and it has, as we shall presently see, very important applications in connexion with the treatment of wounds.

We take a couple of looped pipettes, such as are shown in Fig. 7, and we proceed as follows. In a first operation

the pipettes in hand one after the other, make into each a minimal implantation of streptococcus. We do this by just dipping the tip of the tube into a streptococcus suspension and then very cautiously bringing the corpuscles, or, as the case may be, the plasma, into contact with the infected inner surface of the tip of the tube. We now incubate the pipettes for three or more hours—the one in the upright, the other in the inverted position. And, finally, using the procedure as described in my textbook of technique,¹² we carry up the implanted blood into the nutrient fluid provided in the incubation chamber.

We obtain in experiments of this sort always one invariable result. In the case of the pipette which is kept upright—that is, in the case where the implanted streptococci have to run the gauntlet of the white corpuscles—the microbes are all killed off, and in consequence our nutrient medium undergoes no change. In the case where the pipette is inverted and we implant directly into the plasma the streptococci survive, and our nutrient fluid changes from blue to red.

And we can vary our experiment in all sorts of ways, and still each time get the same result. For instance, we can, by very simple devices, cut the red corpuscles out of our experiment and work, as in the wound, only with leucocytes and plasma. Or we can at the outset invert our pipettes, and then, after implanting into the plasma, dispose them upright, thus raining down our leucocytes upon the microbes and aborting the infection.

All this shows, as I think, that we have arrived at a generalization which must be important for practice. Let me formulate it for you thus.

Where the leucocytes are in the front rank and the blood fluids behind, the elements of the blood are marshalled in that order which is most favourable for combating streptococcal infections. I will venture to call that arrangement the *agathotropic arrangement*; but I should have no quarrel with any lover of superlatives who might feel moved to call it the *aristotropic arrangement*; nor yet with any grammatical purist who might prefer to call it the *eutropic arrangement*; I would only insist that where we set out to extinguish a streptococcal infection we ought to place the leucocytes in the forefront of the battle.

When we have realized what is the favourable arrangement of the elements of the blood for the combating of streptococcus infections, there will have come home to us also that there is an unfavourable arrangement. And we have seen that the unfavourable arrangement is that in which the blood fluids are ranged up in front and the leucocytes are behind. I would ask you to let me call that the *kakotropic*, but there is no reason why you should not call it the *kakistropic* or the *dystropic arrangement*.

With this I bring to a conclusion the preliminary portion of our subject matter, and let me say that of the lessons that can be drawn from it many will only appear later.

(To be continued.)

¹² *Technique of the Test and Capillary Glass Tube*. Constable, London.

A COMMISSION has been appointed by the Governor of Indiana to investigate the causes and means of prevention of mental deficiency in that State. We learn from the *New York Medical Record* that a report recently published by the American Eugenic Society recommends the sterilization of an increasing number of defectives each year until the number reaches about half a million. It is estimated that if this recommendation were carried out the propagation of the mentally unfit in the United States would be practically at an end.

IN the September number of the *Cronica Medico-Quirurgica* of Havana some particulars are given of the Java School of Medicine, founded in the city of Batavia in 1865. It has 116 students, and degrees are conferred on some ten or twelve candidates every year. As the population of the Dutch Indies is 52 millions, these figures show that the medical profession is not overcrowded there. The course of study extends over nine years, of which three are spent in an arts school and six in the School of Medicine. The lectures are given in Dutch. Forty bodies are dissected each year, and the clinical and bacteriological teaching is said to be sound. Admission to the classes is free; the students are lodged and boarded without charge and receive an allowance of 5 to 10 dollars a month from the Government. A new school, with accommodation for 400 students, is now being built at the cost of the State.

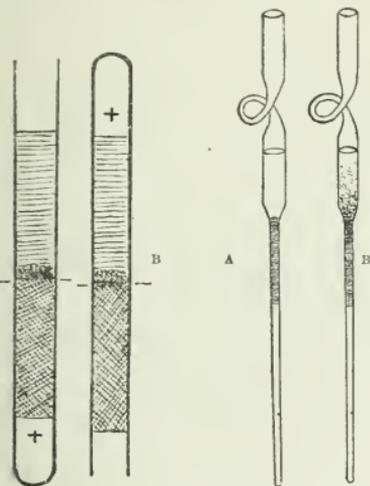


Fig. 6.

Fig. 7.

Fig. 6.—The figure shows a magnified view of the distal ends of the capillary pipette represented in Fig. 7, filled in with citrated blood, which is disposed, with respect to microbes positioned at +, in A in the *agathotropic*, and in B in the *kakotropic* arrangement. In A the pipette has been placed upright, in B in the inverted position, and in each case the blood has settled down in three layers, the red corpuscles below, a layer of white corpuscles above them, and at the top clear plasma.

Fig. 7.—In A and B the elements of the blood had before implantation been allowed to settle down respectively into the "agathotropic" and "kakotropic" arrangements, and we have represented here the final result, the nutrient medium remaining in the former case sterile, while it shows in the latter a microbial growth.

we fill into the cultivation chamber in the barrel of the pipette a nutrient medium which will reveal by a colour change any growth of streptococcus (we have such a medium in cane-sugar litmus-broth). We then fill up to a fiducial mark on the stem with a 15 per cent. solution of citrate of soda, blow this out again, and then fill in with a unit volume of blood from the sterile finger. We now, after carrying the blood several times up and down the capillary stem so as to mix thoroughly with the citrate, seal up the end of the tube. This done we place our pipettes in a test-tube rack—the one in the upright position, the other with the tip turned upwards—and we let the blood sediment. The red corpuscles will now, in the upright pipette, be brought to the distal, and in the inverted pipette to the proximal, end of the volume of decalcified blood. (Fig. 6, A and B.) And in each case there will be on the top of the red a layer of white corpuscles, and above this a layer of clear plasma. We now, taking, of course,

NOTE ON

FUNCTIONAL MURMURS AND IRREGULARITIES
OF THE HEART.

BY SIR JAMES F. GOODHART, Bt., M.D.,
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THAT the War Office should have issued a memorandum on "The significance of abnormal signs in the recruit's heart," from the pen of Sir James Mackenzie, is a very wise and useful move, that may be expected to be of great assistance to all those engaged in the examination of recruits, and not alone to them—it will be a help to many at work in general practice. It must often have been a matter of knowledge to many, quite unconnected with the present war, that many a young, healthy man, eager for service, and apparently well fitted for it, was too often refused for a quite unimportant murmur.

In the course of years I have several times had a quasi-impersonal tussle with a medical board for rejecting a candidate for an imperfect heart who had nothing of that sort the matter with him, and I doubt if the candidate has ever been successful. Once or twice I have even encouraged an appeal, only to hear that it has ended in costing the appellant a fee of several guineas for the special board, the original verdict being sustained. I do not altogether dissent from this attitude of army boards, for they need to look at an individual from many points of view, and on them is the responsibility if one, who ultimately proves unequal to the strain, be accepted. Nor is it, indeed, confined to examinations for the army: a very similar thing happens, and happens frequently, in the business of life insurance, and many a life has been loaded that had no cause for any such impost, and no doubt a great injustice is sometimes done thereby to young men just entering life.

The question to be decided is one needing experience and judgement, and though we may all give the best we have, we cannot dispense with what we have not got. I have often wished that it were possible in all cases of doubt to introduce the element of civil experience upon the boards; it would surely add to the weight of the opinion and tend to a real adjustment of any inequalities of judgement.

Nothing could be better than Sir James Mackenzie's memorandum, whether it deals with murmurs or irregularities or the effects of excitement, as temporarily disturbing the action of the heart. I would have some of his dicta scored in red and handed not only to a special section of us, but to every one. To remember that "physiological murmurs are always systolic in time and may be situated at apex or base or between," would alone save many a mistake when considered in conjunction with such other points as are here wisely brought to our notice. In the matter of irregularities of the heart, however, we except the quite young, there are indeed sometimes real difficulties that may well cause even the seasoned one to be at fault, and which there might just now, when men are so wanted, be a tendency even unduly to belittle.

This is where my own doubts have crept in, and perhaps it may help some one else if I say so: the heart is in this or that case, as I think, physiologically sound—that is its valves and muscle. Except in the case of the young recruit, to whom chiefly, and sufficiently, the memorandum refers, would it be safe to pass such irregularities of action even though such are admittedly often quite innocent?

Let me mention two cases in point:

A man over 50 had never been ill in his life till taken out at the front, with appendicitis, and after that with something else, two separate operations being necessitated. He recovered from these quite well, and remained so for two or three months, when his heart "began to jump," as he expresses it, and now it is sometimes very irregular, the systole frequently failing to give a radial pulse. The heart in its better moods is apparently quite sound, there being neither murmur nor dilatation nor short-windedness, and in civil life I should send him away and make little of it. There are many such cases where the heart's action is disturbed; it may be persistently rapid, apart from any tickatable malady; or slow, as after severe shock or other depressing influence; or there may be irregularity from digestive disturbances. In all these the heart may appear to be sound, and the fault some failure in the

cerebral nerve drive—not much, one might think, to keep a man back. Yet is such a one safe if allowed to return? I think one must say No. He is not as yet able to stand the impact of emergencies, and he is unfit, not by reason of actual disease of valves or muscle, but from a general want of stamina, from which the heart suffers in common with all our other members. A further possibility also would seem to attach to this form of irregularity, that as middle age approaches the heart's action may never again recover its proper stability, although capable of many years of useful if not of excessive work.

The second case is very similar, but in a younger man, only just over 40. He was evidently a very nervous man, so that I was rather prepossessed in favour of making little of his complaints; yet, on careful consideration, there seemed good ground for believing that the irregularity of the heart's action was due to faulty cerebral control, for he had been working twenty-four hours round, and needed rest for the taking in fresh supplies of energy.

There must be many who have come into touch with cases like this—cases where the outlook is encouraging, yet where it cannot be said to be devoid of possibilities, and where decision may be difficult.

THE RECRUIT'S HEART.

BY

ALEXANDER MORISON, M.D., F.R.C.P.,
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HAVING, during the progress of the present war, had to consider, both in hospital and private practice, the suitability of officers and men for military service, on account of some cardiac condition or anomaly, I have read with care Sir James Mackenzie's memorandum on the recruit's heart, which appeared in the BRITISH MEDICAL JOURNAL for October 15th. As it is issued at the desire of the Army Medical Service, evidently with a view of preventing the rejection of as many recruits as may be considered safely possible, whose cardiac state does not satisfy examiners, I should hesitate to comment upon it. But the matter is important, and the paragraphs of which the memorandum consists require, in my opinion, both amplification and qualification to be safely used as guides by examiners, who must of necessity vary considerably in their experience of the conditions dealt with in them.

The first suggestion of the memorandum is, that before examining the heart by the usual methods, its efficiency should be gauged by ascertaining the history of past exertion and the behaviour of the patient under strenuous effort. A judgement, favourable or unfavourable, might be based upon the data thus gathered, but a favourable judgement might have to be qualified by the discovery of local error in the mechanism of the heart, and an unfavourable judgement on this point should not necessarily lead to the rejection of a recruit who was found on examination to have a mechanically perfect heart which, in training, might, like his whole muscular system, somatic and visceral, gain power by exercise.

The next paragraph of the memorandum, however, which deals with murmurs, and which, like all of them, has the merit of a brevity which might with advantage and without prolixity have been expanded, offers a certain amount of argument in its closing lines. "It is manifest," it reads, "that, if the cause which produces the murmur hampers or embarrasses the heart in its work, the size of the embarrassed chamber will increase, and its functional efficiency be impaired."

The "size," however, of a heart with even an organic valvular lesion, as determinable by the methods employed at a recruiting office, may not be found to be increased, and the past history of behaviour on the part of an organically affected heart may be good. The prognosis of future behaviour under the conditions of military life would, however, not safely be thus calculable. The nature of the mechanical defect would therefore require careful diagnosis before the future stability of the heart could be estimated.

It may be stated in general terms that the heart which manifests an endocardial bruit after the exertion of coming to the recruiting office and after having been given exercise there to determine its persistence, is either

organically affected, or, if "functionally," shows such a degree of lack of tone in the cardiac muscle that the recruit should only be accepted on probation. I can scarcely expect the writer of the memorandum to agree with me on this point, for I think I do him no injustice when I state that, judging from his public utterances on the subject on various occasions, he would not hesitate to accept one who showed organic valvular lesion provided the muscular action of the heart satisfied him. I presume, however, that experience has satisfied the Army Medical Service that, notwithstanding exceptions to the rule (usually accidentally discovered), there is wisdom in absolutely rejecting the recruit with organic valvular disease of the heart.

The "cardio-pulmonary bruit" the writer of the annotation on the recruit's heart in the same number of the *JOURNAL* appears to regard as synonymous with the "functional murmur." It is, however, exocardial and negligible, except in so far as it may occasionally denote some enlargement of the organ by the pulmonary rub against the heart, chiefly towards the end of inspiration.

The negligible functional bruit at the apex of the heart should disappear on assuming the erect position and on exercise. Basic systolic bruits may persist and be less important under the same circumstances.

As regards the frequency of these functional bruits in adolescents, the younger the man the more likely is such a murmur to be met with, but even in youth they cannot be said to be common, as is often asserted. Among a hundred healthy boys at a public school how many manifest them? Very few; and what is true of schoolboys of the so-called better classes is also true of the poorer, as practice among them teaches. Their very transiency, moreover, denotes a temporary abnormality; their persistence renders them not negligible for prognostic purposes.

What is true of the heart affected with functional endocardial murmurs is true also of the extra-systolic heart. The extra-systole, which is not abolished by the augmented and accelerated heart of exercise, is one not often met with in the young. When it persists, as it often does in the older, it is usually associated with other signs denoting cardiac fault.

"Auricular fibrillation" at the recruiting age will usually be found associated with mitral valvular disease, of which the fibrillation is the more or less direct consequence, and a recruit presenting himself with it should be rejected on account of the mechanical defect.

The "heart-block" determinable by the methods usually pursued by the examiner of recruits and at the recruiting age is so rare that its occurrence would almost be a medical curiosity, and the country will lose the services of few on this account.

The rhythmical variation of pulsation associated with respiration, so long known and common in the young, in whom it is often coupled with an occasional reduplication of the second sound, being purely physiological, is, of course, no cause for rejection. At all ages it may be induced by forced respiration and its detection by an examiner ought to be regarded as evidence of his care and accuracy in investigation.

Finally, the accelerated and augmented action of the emotional heart ought also to lead to few rejections. Even the inexperienced, who themselves possess hearts and have known emotion, are unlikely to err on this point.

I trust that these remarks will not be regarded as unduly critical on my part. For my experience of cardiac failure among soldiers during the present war has been considerable and has convinced me that the estimation of the recruit's heart is so important a point in judging of his fitness for active service that I feel it a duty to raise a warning note against that minimization of mechanical error in cardiac action which in civil life may be merely unwise, but in military life, under the conditions of modern war, may prove disastrous, not only to the individual, but be a source of expense and invalidism inconvenient to the service.

THE late Dr. Bruce Goff, of Bothwell, Renfrewshire, left personal estate in the United Kingdom valued at £34,218.

THE Government of the Republic of Panama proposes to establish a university in Colon. The United States Government has under consideration a proposal to found one at San José de Puerto Rico.

THE EFFECT OF EXERTION ON THE CIRCULATION.*

By J. M. MACPHAIL, M.D., EDIN.,
EDINBURGH.

CONSIDERABLE attention has recently been directed to the effect of exertion on the circulation, and many attempts have been made to gauge the efficiency of the diseased heart by its reaction to exertion. The study of the subject has yielded conflicting results, but the weight of evidence points to a rise in systolic pulse pressure after moderate exertion, and a fall in blood pressure where the heart is failing or the exertion excessive.

Of the tests employed sphygmometric observations have held a prominent place, but doubt has been thrown on their value as an index to the work performed by the heart or a guide to its functional ability; and a method is surely defective which merely registers the maximal pressure but fails to indicate the pressure maintained between the arterial beats. Thus, with a high systolic pressure of sudden and fugitive nature we may have associated an extremely low diastolic pressure, a combination which probably represents greater cardiac inefficiency than a blood pressure of lower but better sustained character. The pulse of aortic incompetence, with its high systolic pulse pressure and sudden fall to a very low diastolic pressure, is an example of this type of inefficiency.

In recording my results, I have used the sphygmograph of the Mackenzie clinical polygraph, with its long tracing paper, and the method adopted was as follows.

A tracing of the pulse was taken in the sitting and in the erect posture, and, with the sphygmograph and paper still in position, the patient was asked to ascend twenty steps. Immediately on arrival the clockwork was again set in motion, and the result was a study of the pulse within the first second or so of the completion of the exertion. The pulse changes in character so rapidly from moment to moment that time is all-important in recording the delicate changes.

The sphygmograph has lost caste recently, and is considered quite unreliable as a guide to blood pressure; but it affords a means of estimating the power of the heart, as compared with the resistance it has to overcome (Lauder Brunton²), and gives some idea of the condition of the circulation during a complete cardiac cycle. The tracings exhibit a fall in pulse tension, as shown by a lowering of the aortic notch, a flattening of the diastolic portion of the tracing, and a falling away or absence of the predicrotic wave. There is also very frequently a great variation of systolic and diastolic pressure with each pulse wave, and a marked respiratory irregularity. Though I have no doubt the systolic pulse pressure is increased, the actual result is the production of a collapsing pulse with a great lowering of diastolic pressure. Schott,³ Mahomed,⁴ and Sansom,⁵ have called attention to this characteristic feature of the pulse after exertion. A reduction in arterial tension occurred in every instance; but this was more evident where the patients examined suffered from cardiac disease with failing compensation; and the more serious the cardiac disease, the more pronounced was this reduction in tension.

A glance at the tracings reveals the extreme changes induced by exertion, even to a close mimicry of the pulse found associated with such diseased conditions as aortic incompetence and the terminal stages of pneumonia.

In testing cardiac efficiency it has been claimed that the most reliable indications are the subjective symptoms of breathlessness and palpitation, but it is of interest to have a permanent record of the changes.

Subjoined are the tracings with their explanations.

CASE I.

A male patient, aged 63, suffering from cardiac dilatation, with oedema of the ankles, a mitral systolic murmur and breathlessness on exertion. The systolic pulse pressure was 140 mm. in the sitting posture. Exertion causes a very evident and distinct fall of arterial tension, the artery being apparently as empty at the end of cardiac systole as at the end of diastole.

* Extract from thesis for M.D., Edinburgh University, 1911.

The predicrotic wave is all but lost, whilst respiratory irregularity and hyperdicrotism appear. Such a fall of tension in a

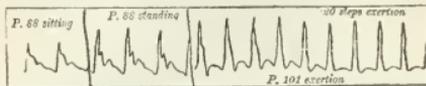


Fig. 1.

old patient with moderately high arterial pressure indicates serious cardiac inadequacy.

CASE II.

A woman, aged 63, suffering from heart failure, with oedema of the ankles, a mitral systolic murmur and a grossly irregular pulse. On exertion the irregularity becomes extreme, but the pressure varies with each arterial beat; the pulse is markedly

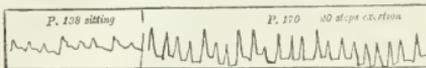


Fig. 2.

affected by respiration, and is apparently very empty during diastole. There is a complete absence of the predicrotic wave, and some of the pulsations are almost monocrotic.

In these two cases the almost complete disappearance of the predicrotic wave is presumptive evidence of a diminished systolic pulse pressure.

CASE III.

The man of 72 years whose pulse tracing this represents was not a patient, but was so breathless on exertion that some degree of cardiac inefficiency seemed certain. The tracing shows the condition of the circulation where urgent dyspnoea is a prominent symptom. The systolic pulse pressure was



Fig. 3.

150 mm. in the sitting posture, but apart from some hypertrophy of the heart there were no other evident signs of cardiac disease. The respiratory irregularity, the sudden and abrupt nature of the systole, and the empty condition of the artery during diastole, deserve attention. Note the gradual return to a higher tension one minute afterwards.

CASE IV.

A male patient of 56 years, suffering from cardiac dilatation, with a mitral systolic murmur, oedema of the ankles, engorgement of the liver, and well-marked dyspnoea. On exertion feeble contractions, with a flat plateau at the summit, such as

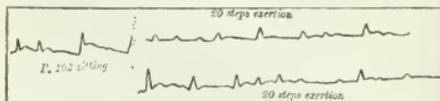


Fig. 4.

we associate with heart failure, develop. There are also intervals during which the pulse fails to affect the tracing. The evidence here points to a much diminished systolic pulse pressure.

CASE V.

A female patient of 67 years, suffering from chronic bronchitis, with cardiac dilatation, and a mitral systolic murmur. While at rest, the pulse of this patient was irregular in rate and rhythm, with about five "intermissions" during the minute, not shown in the tracing; but after exertion there

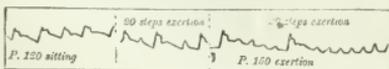


Fig. 5.

is great irregularity of the pulse. At first one "extra-systole" occurs after each full contraction, but towards the end of the tracing these increase in number till they finally leave the descending line, and appear as small, rounded, independent contractions along the base line.

CASE VI.

This continuous tracing shows the effect the running of half a mile at a quick pace had on the pulse of a healthy

boy of 18 years. Before the start the sphygmograph was applied to the wrist, but some adjustment was called for at the end of the first quarter mile. The attention necessary at the end of the half-mile was very slight, and after inserting the smoked paper an additional 100 yards were run to keep up the action. The result was chronicled almost immediately. The prominent features are the very

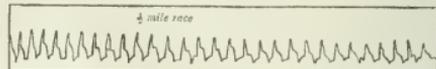


Fig. 6.

low diastolic pressure, the marked respiratory irregularity, the hyperdicrotism, and the variations in force and fullness of the artery with each pulse wave. The effect is not unlike that produced by the inhalation of amyl nitrite, and certainly suggests a pulse of low tension, though the systolic pulse pressure is undoubtedly powerful. After a few seconds the arterial tension begins to improve.

Cleghorn⁶ took pulse tracings of runners two minutes after a Marathon race, and he and Williams⁷ found that there was a great reduction in blood pressure after such severe exertion.

CONCLUSIONS.

1. Exertion causes a rise in systolic pulse pressure, though a general vaso-dilatation may nullify this effect.

2. There is always a lowering of diastolic pressure.

3. In heart disease with failing compensation the fall in diastolic pressure is most pronounced; and there is often an almost complete absence of the predicrotic wave, pointing to a diminished systolic pulse pressure.

REFERENCES.

- ¹Janeway: *Clinical Study of Blood Pressure*. ²Lauder Brunton: *Lancet*, May, 1912. ³Schott: *New York Med. Journ.*, April, 1902. ⁴Mahomed: *Med. Times and Gazette*, 1872. ⁵Sansom: *The Diagnosis of Diseases of the Heart*, 1920. ⁶Blake, Lavrason, and Cleghorn: *Boston Med. Journ.*, September, 1902, vol. cxi. ⁷Williams, *Boston Med. Journ.*, vol. cxi.

RAPIDITY OF THE PULSE DEPENDENT UPON PERSISTENT DISTURBANCE OF THE VASOMOTOR MECHANISM.

By KNOWLES BONEY, M.D. LOND.,
CAPTAIN R.A.M.C.

The following remarks are based upon observation of a series of twenty cases of rapid pulse in my charge. The subjects were all Indians drawn from units of the Indian Expeditionary Force in Flanders, who, after undergoing treatment at a casualty clearing station and base hospital for various injuries and ailments, had eventually been transferred to a convalescent camp. In this camp it was noticed that a certain number of the men did not improve as they should; they always appeared languid, tired, and generally unfit. On being questioned no particular complaint would be made, the man probably saying that he felt weak and unable to do anything; his general aspect coincided with this view of things.

The brief physical examination possible under the circumstances revealed nothing much except the rapidity of the pulse, and the patient was placed among the group requiring prolonged convalescence. Improvement was either very slow or did not take place at all, and it soon became apparent that there was a permanent residue of "unfits" in the camp—a residue which was slowly but surely increasing.

I was privileged to investigate and report upon a certain number of these "unfits," and the following remarks are based upon observation of a series of twenty during a period of six weeks.

The experience gained by medical officers during the South African war on the subject of cordite and its effect on the heart is probably well known, and in order, as far as possible, to eliminate errors of this nature, the patients were placed in a special ward, and were not allowed to leave it for any purpose, a guard being mounted to enforce this.

Every article of clothing and kit was taken away from them except water bottles. Food and water were brought

to them, and special latrine arrangements made. No smoking was allowed, and no drug of any kind administered. The patients were kept in bed until after I had made the morning visit; subsequently they were allowed to get up and walk about the ward.

Among the twenty cases there was no common factor which could be taken directly as having a causative influence. They were of all races and castes—Mohammedans who smoke and do not smoke; Hindus and Gurkhas who usually do both. Most of them had been in France nine or ten months, and for the greater part of that time had, according to their own statement, been occupied in digging trenches. Two had been gassed and four had been sent down with mumps. None had recently suffered from any acute debilitating disease, and none had undergone a period of prolonged rest in bed. Only three had been wounded; a good many of them had never taken part in an engagement.

When first seen by me they all presented the same general characters—a tired, listless expression, fatigue on walking a few yards or after a few simple exercises, and in one or two cases undue shortness of breath after any such slight exertion. In no case was any complaint made of pain, palpitation, or other subjective symptom.

Physical examination of the patients while lying in bed gave the following results:

One patient had marked dullness to the right of the sternum. An x-ray photograph showed a normal shadow, and at a subsequent examination two days later the dullness was no longer present. One other patient had dullness to the extent of a fingerbreadth to the right of the sternum, but there was no upward increase, and the position of the apex beat was normal. In this same patient was also observed slight pulsation in the jugular veins. The heart sounds were normal and there was no oedema.

With this possible exception there was no evidence of dilatation of the heart in any of them. None presented signs of hypertrophy. In every patient the position of the apex beat was within the nipple line. The cardiac impulse was not forcible or heaving, in fact, in some cases it was so weak as to be difficult of localization. The heart sounds were normal in character and correctly spaced. Accentuation of the pulmonary second sound was absent, and no reduplication was observed. No form of irregularity was present.

With regard to the character of the pulse, in every patient except one the rate was normal while lying down. The volume was good, and no irregularity in rate or force could be detected by the finger. The tone of the vessel wall appeared good, but as a certain number of them showed thickening of the vessel wall (in five of them it was marked, although no cardiac hypertrophy was present) it is difficult to generalize about this. Blood pressure in the radial measured by a Riva-Rocci manometer varied from 120 mm. to 140 mm. Hg. In no case was there any diastolic.

On slowly assuming the erect position, in six patients only did the pulse keep within what was considered normal limits. In the remaining fourteen the rate was enormously increased, in some cases going up to 130 or even 140—in one case to 155. In this latter case the increase amounted to nearly double the rate, and in nearly all it represented an increase of at least 30 beats a minute over the rate while recumbent. On walking the ward twice slowly, the rate might be further increased by six to eight beats a minute, but in some cases it hardly suffered any increase at all. Thus in every one of these 14 cases the great increase in rate took place merely as a result of standing up, done in every case slowly and without effort. The character of the pulse underwent a corresponding change. The volume became poor and the radial vessel appeared only half filled.

Blood pressure readings taken again showed in most cases a drop of 5 to 10 mm. Hg. In a few cases the drop was greater than this, reaching 15 to 20 mm. Hg. In one case the reading fell from 135 mm. to 110 mm. Hg. There were no missed beats and no diastolic could be observed.

After the patient had been standing a couple of minutes the rate would probably fall by 6 to 8 beats per minute, after which there would be no further alteration. On lying down again the pulse would continue to beat at its

altered rate for 4, 6, or 8 beats, and then drop suddenly to normal. In a few cases this reduction would take place gradually, and the normal rate would not be gained for 30 seconds.

I next tried the effect of raising the patient passively from the bed into a sitting posture. The increase in this case was usually not as marked as on standing up, but was nevertheless very striking. I append figures illustrative of this, as below:

Lying.	Raised to Sitting Position.	Standing.	After Standing Three Minutes.	Lying Down Again.
Pulse ... 80	112	120	120	Sudden drop to 96 after 6 beats.
B.P. ... 128		122		
Pulse ... 80	104	120		Sudden drop to 80 after 4 beats.
B.P. ... 150		126		
Pulse ... 84	116	120		Sudden drop to 94 after 7 beats.
B.P. ... 140		120		
Pulse ... 64	84	100	100	Gradual drop to 80 at end of 30 secs.
B.P. ... 134		116		

These figures will serve to show what took place in a typical case. The extreme cases I have purposely omitted.

Referring to the six cases to which exception was made in the first place, the fluctuations were not so marked. In these six, on standing up the rate was increased by 15 to 25 beats a minute, and after walking the ward twice slowly the rate did not exceed 100; but if an increase in rate of about 10 beats a minute on resuming the erect position be considered normal, even these six would show abnormality.

Assuming that these facts could best be explained on the hypothesis of some vasomotor disturbance, the urine of every patient was examined for intermittent albuminuria, controls being done at the same time on a dozen healthy Indian soldiers who had never been to the firing line.

Immediately on waking, samples of urine were taken, and after the patients had been walking about the ward samples were again taken four hours later. On one occasion six, and on another occasion seven, of the patients showed faint traces of albumin in the second specimen.

The first urine passed was free from albumin on both the above occasions, with one exception—a patient subsequently invalided with nephritis. Of the twelve controls made on healthy men, there was a trace of albumin in one specimen only.

Other evidence of vasomotor instability was to be found in various circulatory disturbances exhibited in some cases. Cold hands and feet, even when warmly wrapped up in bed, were commonly noted, and in two cases flushing of the face was so marked as to be spontaneously remarked upon by an independent observer. A "tache" could be obtained in two cases.

Such, then, briefly stated, were the facts brought to light during this period of observation, and it but remains to appraise them at their true value.

I think it will be admitted that everything points to a central lesion of the controlling nervous mechanism. The patients neither showed signs of hypertrophy nor of dilatation supervening on hypertrophy. There was nothing in the condition analogous to the staleness of the over-trained athlete, neither was there evidence of complete breakdown due to cardiac overstress from hard work. Blood examination made on two unselected cases showed red count and colour index within the normal limits.

Toxic action, whether that of a toxin of endogenous or of exogenous nature, must also be excluded as a possible cause, since any such toxin must be supposed to act independently of bodily position.

That somewhat vague expression, "irritable heart," has been applied, according to Albutt, to two states which are radically different—the one a functional condition, a "sort of restless distress on muscular exertion," occurring chiefly in growing boys, and eminently curable; the other comprising the group also known as "soldier's heart," a condition involving more or less permanent myocardial damage, and too often incurable. But in the cases of my series there is no evidence of any such damage, and in this Sir

John Rose Bradford, who also saw the cases, agreed; consequently they cannot fall into this category.

With regard to the former ailment—the irritable heart of adolescents—the case is different. Under this heading Da Costa and others described cases in which the heart action was feeble for long periods, and attempts to sit up were followed by fainting attacks and vanishing pulse (Albatt). A psychological element was often prominent, although not a necessary concomitant.

As to the mechanism of central nervous control, we know that reflex acceleration of the heart may be brought about by (1) accumulation of blood in the great venous reservoirs; (2) diminution of the total volume of the blood as after a haemorrhage, and (3) peripheral expansion; the principle involved being the same in each case—namely, stimulation of the cardiac centre brought about either by inferiority in the quality or in the quantity of the blood supplying it.

The third of these factors corresponds to a loss of vaso-motor control, and is represented by a general diminution of tone all over the body.

It is also known that loss of tone occurs as a result of

general exhaustion, although, judging by recorded cases, it would not appear to be of long duration. Instances are mentioned by Albatt of rapidity of the pulse supervening on muscular exertion in which the vasomotor system was obviously at fault, but they recovered in a week or so, or at any rate showed marked improvement, whereas, of the cases mentioned in this report, all of which were of at least two months' duration when first seen by me, the majority at the end of six weeks showed no improvement at all. Further, in my cases there is no history of great muscular effort. The history is rather one of laborious work of more or less vexatious nature, spread over a considerable time in a strange climate, and frequently under conditions of great personal danger—conditions which with more reason might have been expected to produce the signs of strain as exhibited in "soldier's heart."

The causation is probably to be found in a great complexity of factors, into which the psychology of the Indian, the exposure, shock, and fatigue of the campaign in a climate to which he is unaccustomed, all enter.

ESCAPE OF THE VENTRICLE, IN ASSOCIATION WITH CEREBRO-SPINAL FEVER.

BY
J. DAVENPORT WINDLE, M.D.,

SOUTHALL.

By escape of the ventricle is understood interruption of the normal mechanism of the heart by the occasional manifestation of the idio-ventricular rhythm. It is an unusual mechanism, and I do not know whether it has been noted before in course of acute disease. In the present case illustrating this arrhythmia (Figs. 1 and 2), the diagnosis of

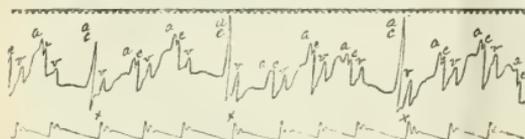


Fig. 1.

cerebro-spinal fever was established by bacteriological examination of the spinal puncture fluid.

The patient, a factory worker, aged 15 years, left work on April 16th, 1915, because of headache and biliousness. He came to my surgery on April 20th, looking pale and tired, and complaining of sickness. He said he had been subject to sick headache on and off for some months past. I could find nothing definitely wrong, and told him to let me know how he was getting on in a day or two. I did not see him again until the evening of April 30th; he said that since his last visit the headache had been very bad, he had been sick occasionally, and had had diarrhoea. However, he had kept about, and felt so much better on April 20th that he went to work for half the day. The temperature was 99° F., the pulse quite regular at 86 to 90 per minute. He looked very poorly, and I sent him home to bed. I visited him at his home next morning (May 1st). He complained of headache, was drowsy, and had been sick. The temperature was 100° F., pulse regular at about 80 per minute, no physical signs in chest or abdomen, the pupils were equal and reacted normally. Kernig's sign was present; his mental condition was clear.

On May 2nd the general condition was much the same, except that he was more drowsy and the pulse was irregular at about 60 per minute; tracings of the pulses and breathing showed sinus irregularity, the shortest diastoles falling with inspiration.

On the morning of May 3rd the general condition was much the same; on examining the heart, however, occasional beats were noted to be unusually forcible, and with these beats the sounds of the heart were modified, and there was a large single pulse in the veins of the neck. These events suggested that the auricles and ventricles

were contracting at the same time, as commonly happens in extra-systole of the ventricle and with some of the beats in heart-block.

Evidence of simultaneous chamber contraction is furnished by the records (Figs. 1 and 2) taken on this day; but analysis indicates that the mechanism by which it is brought about is due to "escape of the ventricle," the stimulus probably originating at the α - r node. In Fig. 1 the normal mechanism of the heart is disturbed in three places, by simultaneous contraction of auricles and ventricles, as evidenced by the large waves "a", corresponding to the radial pulses marked r . These beats are due to idio-ventricular contractions, the inherent rhythm of the ventricle becoming operative, because the auricular rate is slowed to, or a trifle below the idio-ventricular rate. The inter-auricular intervals next after the escaped beats are nearly but not quite so long, measuring $\frac{2}{3}$ against $\frac{2}{3}$ sec. This slight difference, however, allows time for the sinus impulse to reach and provoke the ventricle before the idio-ventricular stimulus can become operative.

Fig. 2 was recorded some hours later on the same day as Fig. 1; here ventricular escape is shown after inter-auricular intervals of $\frac{2}{3}$ sec., whereas the normal mechanism is maintained in Fig. 2 with an interval of $\frac{2}{3}$ sec. The relationship of the escape of the ventricle to the respiratory movements is notable; it occurs at the lowest part of the venous curve, that is to say, at the end of expiration. Expiratory inhibition of the auricle is a common phenomenon in meningitis, but it rarely shows the heart below a rate of 45 to 50. The extreme susceptibility of

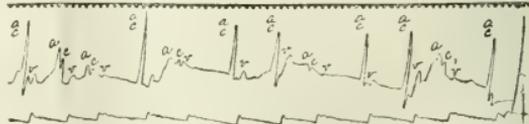


Fig. 2.

the inhibitory mechanism to respiratory influence in the present case suggests that the vagus centres were involved in the lesion.

The patient died suddenly in the night (May 4th), about twelve hours after Fig. 2 was recorded. When I left him his general condition seemed satisfactory; there was no symptom other than the heart rhythm to arouse immediate anxiety; presumably death was occasioned by vagus inhibition.

At the annual meeting of the American Gynecological Society in Washington next May a discussion will take place on the relations of syphilis to obstetrics and gynecology. Dr. George Gellhorn, of 713, Metropolitan Buildings, St. Louis, Missouri, who has been delegated to arrange details, asks for the assistance of those who are doing scientific work on the subject.

SUCCESSFUL EARLY OPERATION IN WOUND OF SMALL INTESTINE.

By CAPTAIN JOHN H. STEPHEN, R.A.M.C.,
82TH FIELD AMBULANCE (1ST HIGHLAND).

On August 13th Private S. was admitted to our dressing station, situated in a gully, a small branch of the famous ravine running from the Gallipolan coast up to Achi Bahr. Half an hour before a shell had blown in the trench in which he was; it killed two men at his side, and he himself sustained a penetrating wound of the abdomen.

From the wound, which was only about an inch long and just above McBurney's point, was protruding a small lobule of bowel; this I intended to wash well with saline and replace in the abdomen, then inserting a small drain. Something prompted me to insert my finger in the wound after replacing the bowel, and I found a small particle of shell, about half an inch long, firmly embedded in the omentum. I hooked it out along with the omentum, which I then tied off preparatory to replacing it. Lieutenant Thompson was assisting me, he having previously put the man under chloroform, when suddenly, owing to the light anaesthesia, the patient attempted to vomit; the effort brought forth from the wound a coil of ileum, at least six inches of which was entirely riddled by shell and really hardly existed as bowel. Two things only could be done—either to put it back or resect. I resolved on the latter, and there and then, although with very limited means and much unsuitable material to work with, I did an end-to-end anastomosis with the quickest possible speed, replacing the bowel through the slightly enlarged wound after washing well with saline, putting in a gauze drain and closing the aperture as necessary.

The patient, who was suffering considerably from shock upon admission, was placed under a tarpaulin on a stretcher in Fowler's position, a large saline was administered by the rectum, and an immediate improvement became visible in spite of the flies and dust. Throughout the day he was given sips of water with occasionally a few drops of brandy; throughout the night when not sleeping he had a teaspoonful of milk and water every hour. A small hypodermic injection of morphine was given to relieve restlessness. Next morning the pulse had improved very much; it never rose above 80, but as it was still soft a continuous saline apparatus was erected, and during the day many pints were given and retained.

One small mouthful of green bilious fluid was brought up, but generally speaking the patient was improving and feeling well and wanting nourishment. At night beef-tea and milk and water, one dessertspoonful of each alternately, was ordered; all was retained. In addition one-third of a grain of calomel was given every two hours, the order being that it was to be continued until the bowel moved. On the afternoon of the third day flatus was passed, and the patient felt very much better. He looked almost normal; all signs of shock had disappeared, and he slept well all night. Next morning (August 16th) I removed the gauze drain, which was perfectly dry and sweet, and put in a smaller one.

At 11 a.m. we had orders to evacuate immediately, and I banded the patient over to another field ambulance in another gully 100 yards away. I heard no more of him until August 23rd, when at Suvla Bay I was attending to Lieutenant C. of a field ambulance, who had been shot in the knee at the battle of Chocolate Hill, and there he told me that the case had done splendidly, the bowels had moved well, and the man was feeling very fit and eating well. The patient had been evacuated by the ambulance to which we had sent him shortly after we had gone, and he had a long journey down the gully to a casualty clearing station; yet no harm had been done.

I consider this case worth noting, first, for the fact of the rough and ready material at our hands for an operation of this kind; secondly, for the fact that the case was tackled within an hour of the injury, instead of undergoing operation after a long and exhausting journey down country to the beach, with an added burden in the way of a long sea trip on a lighter or a trawler before reaching a hospital ship, with perhaps the delay of many hours in a casualty clearing station. It is a proof that many cases of abdominal injury might be saved if dealt with on the spot by the field ambulances,

provided always that the right case is chosen for operation. It is interesting to read in the JOURNAL of July 31st that the German military surgeons now incline to the idea of operating early and on nearly all abdominal cases coming into field hospitals, and that their statistics show that the mortality in these cases is in direct proportion to the length of time elapsing between the wounding and the operation and to the length of journey that the patient has to undergo before treatment.

SOME CASES OF HEAD WOUNDS.

By
CAPTAIN H. H. TAYLOR, R.A.M.C.(T.),
2ND EASTERN GENERAL HOSPITAL, BRIGHTON.

The following cases of head injury show some features of interest.

CASE I.

Private T. H., aged 26 years, was struck on May 11th by a shrapnel bullet on the head. He was unconscious for a few minutes, and then walked back to the dressing station. On admission to hospital there was a small septic wound just to the right of the middle line above the ear; the bone was exposed; there were no signs of intracranial mischief; x rays showed small pieces of metal in the outer table and depression of the inner table. The metal was removed, the wound in the outer table enlarged, and about one square inch of depressed and broken-up inner table removed. The dura mater was intact. He made an uninterrupted recovery.

CASE II.

Private A. L., aged 21 years, was hit on May 9th by a bullet. He was unconscious for a short time, and then walked back to the dressing station. He had no symptoms of intracranial mischief.

On admission on May 15th there was a healed wound of the scalp just to the right of the middle line, and in a line with the posterior edge of the ear; x rays showed depression of the inner table. On cutting down to the bone a round opening about 4 mm. in diameter was found. This was enlarged, and several small fragments of the inner table were removed. The dura mater was uninjured. He made a rapid recovery.

In both these cases the optic discs were very much injected, but there was no swelling.

CASE III.

Private T. S., aged 19 years, received a bullet wound when attacking on May 9th. He was knocked down, but not rendered unconscious, and walked back to the dressing station. He suffered from continuous headache and frequent vomiting.

When admitted, on May 17th, there was a transverse wound about three inches long just below the upper border of the occipital bone; it was septic, and exposed bone could be felt with the probe. After admission he complained of considerable headache, and at first he vomited on several days. He was in a very dull condition. The retinal veins were enlarged in both eyes, with very considerable swelling of the discs. The vomiting and headache soon ceased, and his mental condition improved. The x rays showed no injury to the skull. In spite of this, as the signs of pressure were so marked, it was decided to cut down on to the bone. After careful examination, as no fissure could be found, nothing further was done. He made a good recovery, and went to a convalescent home. The discs when he left the hospital, although improved, were still swollen.

The first two cases illustrate well what is now well recognized—that when the outer table is injured, however slightly, there is nearly sure to be some injury to the inner table, and hence thorough exploration is necessary.

The third case is difficult to understand. There was no apparent intracranial injury, and yet the symptoms and signs of such were well marked. It would be interesting to know whether similar cases have been met with.

CASE IV.

Private H. B., aged 27 years, when attacking on August 9th, 1915, was struck on the head by shrapnel bullet. He did not become unconscious and walked back to the dressing station. He forgets whether he had any headache, but he did not vomit. Just over the motor area on the left side was a ragged septic wound nearly healed. There was very marked hesitancy in speech, and slow cerebration, but no headache or sickness. The pupils were equal and active, and the discs were normal. There was no definite alteration in face muscles. The grasp was perhaps weaker on the right side; the knee jerks active and equal on both sides. X rays showed no injury to bone. He remained in this condition for two or three days and then gradually improved. In about a week his mental condition cleared up and his speech became normal. He was sent to a convalescent hospital apparently quite well.

As the x rays showed no signs of injury to the bone, and there were no definite signs of pressure, it was concluded

that the mental condition was due to shock; and this view appears to have been correct. I saw him three months after he left the hospital, and he appeared then quite well.

THE MANUFACTURE OF ASEPTIC HOSPITAL FURNITURE.

By J. LIONEL STRETTON,

SENIOR SURGEON TO THE MIDDLESEX INFIRMARY AND CHILDREN'S HOSPITAL.

ALTHOUGH hospital furniture has been improved during the last twenty years, it is still far from perfect from an aseptic point of view. A considerable proportion of it has been made in Germany, and now that this source of supply



Fig. 1.—An operating-room table.

The angles A, A are all rounded and scalloped out. The socket carrying the castor is continuous with the table leg, so that no joint is visible, B. The rabbit holding the upper glass shelf C is scalloped out, though this is not seen in the photograph. The rounded and scalloped inside of the angles is seen at D.

is cut off, there is some difficulty in meeting the present increased demand.

At such a juncture I feel that it may be an advantage if I describe some of the articles which I have invented.

On examining some specimens of hospital furniture it will be seen that the manufacturers have left angles and depressions which act as receptacles for dirt and germs. It is difficult, and in some instances impossible, to clean them. I have endeavoured to guide some of the makers from their erroneous ways into the right direction. Hitherto my efforts have been without result; even when I have submitted models these have sometimes been incorrectly copied.

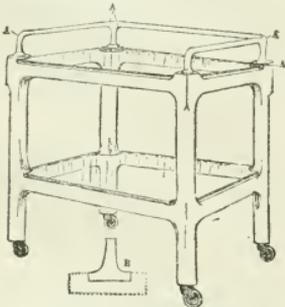


Fig. 2.—A ward wagon.

This is somewhat similar to the table, Fig. 1, but is of larger size and is provided with a metal rail, which has rounded angles at A, A. The feet are so constructed that they fit into the wagon, leaving a scooped-out edge, as shown in Fig. B.

Manufacturers appear to have adopted a stereotyped method of employing cornices, panels and ornamentation, and to be unable to avoid such adornment. Furthermore, they are not surgeons; they do not fully understand what we require, and they are consequently incapable of attending to the necessary details. It is equally true that surgeons are not furniture makers. If a perfect article is to be produced, combined effort is essential.

I have been fortunate in finding a local cabinet-maker able and willing to work with me and carry out my views. The drawings illustrate furniture he has recently con-

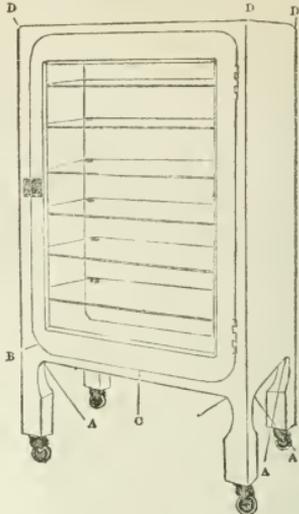


Fig. 3.—An instrument cabinet.

There is an entire absence of ornamentation. The angles are all rounded at A, A, A, and the same applies to all the inside angles. The bottom, C, is made to open flush, without any ledge to catch the dust and dirt, and the corners are all rounded as at D. The catch and striking plates are let in flush, and there is a spring stop in the striking plate to prevent a hole, which would contain dirt. The door is rounded at the corners to avoid angles, as at A, and it is bevelled down to the glass inside and outside. The edge is rounded, and fits into a scalloped rabbit. The glass shelves are supported by rounded metal pins, which can easily be removed and reinserted.

structured under my supervision. These show my methods of construction, which it is difficult to explain clearly in an article.

Briefly, my object is to avoid any depression or angle—to make the furniture in such a way that the most

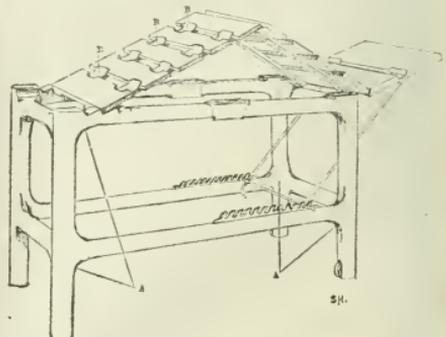


Fig. 4.—An operating-table.

The angles A, A, A are all rounded and scalloped. Where the cross pieces join, B, B, B, it is also scalloped. There are wheels on the feet of the table at the head, so that it is easy to move it about if the foot end is raised. The rack allows the head to be raised or lowered.

perfunctory dusting cannot fail to clean every portion of it.

To attain this end it is necessary to apply the above principles to the parts hidden at the back and underneath, as well as to those which are in full view. So far as I can judge, it is possible to obtain perfection in this respect—that is, to construct a piece of furniture without any receptacle for dirt.

All this furniture is constructed of wood and is enamelled white.

Some surgeons maintain that all hospital furniture must be constructed of iron. I understand that the argument in favour of this is that iron is non-absorbent. Do the advocates of metal realize that it is covered with a coat of enamel, and that it consequently becomes a question of this material? The enamel burnt on to metal is, perhaps, harder than the enamel on wood, but it possesses the great disadvantage of chipping. These chipped places provide spaces which form as commodious dwelling-places for germs as the caves in the rocks did for our ancestors. I have never seen a piece of enamelled metal furniture which has not chipped in a few weeks, and most of it is bespeckled before a year has passed. Enamel on wooden furniture never chips. There may be some separation of joints or a crack in the wood, but these can easily be filled with hard stopping. The furniture can be rubbed down and re-enamelled at intervals, after which treatment it comes out like new.

Wooden furniture is far lighter for moving about; it is strong enough for its purpose, and the cost is less than half that of the metal. I prefer wood. Those who retain an affection for metal could, no doubt, obtain furniture made after my designs.

The cabinet-maker who has assisted me is unable to manufacture any large quantity. Messrs. Salt, of Birmingham, assure me that they are in a position to do so.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

IONIZATION OF ADHESIONS AFTER WOUNDS.

DR. GIUSEPPI, in his interesting note in the *BRITISH MEDICAL JOURNAL* for October 16th, mentions the inconvenience and disability caused by the adhesion of scars to muscles and tendons. In such cases he would find that Leduc's method of ionization with chlorine ions gives good results, and obviates the necessity for operative treatment. In the case of stiff joints due to adhesions this method also answers well, and, I think, should always be given a fair trial before such a drastic proceeding as forcibly breaking down the adhesions is resorted to. If, as so often happens, there is a more or less constant aching pain in the wounded limb, ionization with a 1 per cent. or 2 per cent. solution of sodium salicylate is very effectual in relieving this symptom. After three or four applications the pain disappears and the patient is able to sleep better, and the adhesions can then be dealt with by ionization with sodium chloride solution. Should a bullet or any pieces of shell be left in the wound I think ionization is not desirable, as in one of my cases much pain and irritation was caused in the neighbourhood of a piece of shell embedded in the arm by an interrupted galvanic current with which I was treating some paralysed muscles. The sinusoidal current has no such disastrous effect.

LONDON.

MAY RATHBONE.

REDUCTION BY MANIPULATION OF OLD-STANDING BILATERAL DISLOCATION OF JAW.

THOMSON and MILES state that dislocation of the jaw of over three months' standing is rarely reducible by manipulation, but that it has been accomplished as long as ten months after the accident.

A. M. was sent to the Livingstonia Mission Hospital, Bandawe, by a Government medical officer, on January 23rd. He was found to be suffering from bilateral dislocation of the jaw, and stated that it had occurred the previous October in the course of conversation. The patient was thin, owing to inability to take food properly, and he had suffered from a large ulcer over the left anterior pillar of the fauces due to the pressure of the condyle, but this had healed. Native medicine had been applied externally without effect.

It was found that the condyles had slipped up beyond the zygomatic processes on both sides, and were lying in the temporal fossae; there they were firmly fixed, little movement being possible.

On January 25th and 27th unsuccessful attempts were made to reduce by manipulation, both with fingers in the mouth and with corks between the teeth, the most vigorous traction only resulting in slight loosening of the adhesions. Preparations were accordingly made for the open method, but when the patient was under chloroform a third attempt to reduce without cutting was made, and succeeded by the following manoeuvre: Instead of trying to reduce both condyles simultaneously, the right condyle was used as a fulcrum to lever the left condyle out of the temporal fossa; the patient lying on his back, traction was made by the fingers of the right hand on the left lower molars, while both thumbs pressed on the chin, and the jaw being thus grasped between both hands the left condyle was levered downwards around the right condyle as fulcrum in the temporal fossa, and so delivered below the left malar arch. The right condyle was then easily delivered from the right malar arch, and the dislocation reduced.

The condyles, however, did not slip into the glenoid cavities, as these were filled up with organized extravasation, and the process of grinding them into place was not thoroughly enough done, as the patient on recovering from the anaesthetic re-dislocated his jaw in spite of a tight bandage. A few days later chloroform was administered for a fourth time, the dislocation was easily reduced by the method above described, the condyles were ground thoroughly home, and a tight bandage applied. This time the result was permanent, as the patient went home quite pleased after a day or two, and has since been seen at his village.

1. In the only two skulls to which I have access the space between the condyles is wider than that between the malar arches, so it is obvious that the condyles could only slip up one at a time, and must also be reduced one at a time.

2. By reducing one side at a time much greater leverage can be obtained; the whole length of the jaw acts as lever instead of half. The physics of this might be difficult to demonstrate because of the shape of the bone, but in practice there is no doubt of the fact.

Nyasaland. WM. Y. TURNER, M.A., M.B., Ch.B., D.T.M.

Reports of Societies.

DISCUSSION ON GUNSHOT WOUNDS OF PERIPHERAL NERVES.

At a meeting of the Medical Society of London on October 25th, the President, Dr. W. PASTEUR, being in the chair, Dr. WILFRED HARRIS in opening, from the medical aspect, a discussion on gunshot wounds of the peripheral nerves, considered the subject under two main headings—the one, diagnosis and accurate localization; the other, the degree and kind of injury, its prognosis, and the decision as to whether operation were advisable. Hysterical phenomena of anaesthesia and motor paralysis were common complications of nerve injuries, and the true symptoms must be carefully sifted from the false. Again, multiple nerve injuries might occur, and the resulting paralysis must be correctly apportioned. Careful charts of the sensory loss were usually a better guide to an estimation of the severity of a nerve lesion than the degree of muscular paralysis, even with reaction of degeneration. Charts were shown illustrating commencing recovery of sensation in sutured nerves as early as seven and thirteen days after operation. Recovery in nerves compressed by scar tissue was even more rapid after successful operation. He illustrated by means of the epidiascope the defects in sensation which he had met with in various gunshot injuries of nerves, and the improvement which followed operative procedure.

Mr. WILFRED TROTTER (temporary Captain R.A.M.C.) opened the discussion from the surgical aspect. He said that the problem of the restoration to the normal of an injured nerve presented certain peculiarities which distinguished it from all other similar tasks of plastic surgery, for (1) the interruption of a nerve left a permanent defect in the physiological equipment of the body, which could not be overcome or compensated for by any other mechanism; (2) the restoration of a nerve to its normal anatomical continuity, although an essential preliminary

to recovery was by no means a guarantee of it: (3) incomplete lesion or incomplete recovery of a nerve might be more disabling than a total loss of function. These peculiarities rendered the task of the surgeon exceptionally difficult: they made it urgent, they made it precarious, and they exposed him to some risk of increasing rather than diminishing the disability of his patient. The following rough, tentative and purely clinical classification was suggested as a basis for discussion:

1. Intracardial nerve injuries, almost entirely lesions of the cauda equina.
2. Peripheral nerve injuries:
 - (a) Typical complete lesions of one or more nerve trunks.
 - (b) Mixed lesions with complete division of some and incomplete division of other closely adjacent trunks—chiefly seen in the brachial and sacral plexuses.
 - (c) Incomplete lesions without pain, usually due to combined bruising, laceration, scarring and pressure.
 - (d) Incomplete lesions with pain.
 - (e) Pure pressure lesions as from a prominence of bone or a foreign body. Painful complete lesions were curiously uncommon.

Typical Complete Lesions.—In their diagnosis there were three essential points—the situation of the injury was consistent with a lesion of the nerve; the symptoms involved the whole distribution of the nerve, and were absolutely stationary, in spite of adequate treatment, by which he meant massage, electricity, and muscular relaxation, the last being the most important.

Mixed lesions were chiefly seen in the brachial plexus. A common picture was that of a complete paralysis of the plexus following on the injury, then a gradual improvement which ultimately came to a standstill, leaving an irreducible residue of symptoms. It was of the utmost importance that proper relaxation treatment should be carried out before operation was decided upon, otherwise the operator might find his difficult task made much harder by perplexity in deciding what should be resected and what left.

Incomplete lesions without pain produced paralysis and defect of sensation which improved but left a persistent residue. The experience of a neurologist was often necessary to decide whether an operation should be advised or not.

Incomplete lesions with pain were most important and often distressing cases. The motor loss of function was often profound, but the sensory loss was incomplete and accompanied by intense hypersensitiveness in the affected area, often with slight trophic changes in the skin. The hypersensitiveness was not a true hyperaesthesia, and light touches were often less tolerable than firm pressure. In some cases symptoms often subsided within a few weeks by rest and protection of the limb, but if such treatment failed there should be no delay in advising operation. The pain was particularly intolerable and apt to undermine the mental stability in a remarkable way.

Pure pressure lesions were apt not to present themselves as true lesions at all. While the patient was in hospital the symptoms were often slight, and consisted of an occasional twinge during movement or under accidental pressure. It was to be feared that resumption of active life would lead to persistent irritative symptoms, and an operation for the removal of the cause should, if feasible, be undertaken.

After enunciating certain principles which underlie operative treatment, he dealt with practical considerations. In lesions of the cauda equina regeneration could not occur, but as it was impossible to determine how far the symptoms of such an injury were due to pressure and how far to actual nerve division, this was an argument for early operation in every case where there was the least suspicion of an element of pressure. The only reason for delay would be the fear of sepsis. In peripheral operations time would be saved by making an incision free enough to give access to the nerve above and below the injured part. When the nerve had been exposed and dissected out, the extent to which its continuity was interrupted would have to be determined. When it was not obviously completely divided, three points would have to be taken into consideration: (1) The presence or absence of a bulbous end above the scar; (2) the presence or absence of a distinct longitudinal fibrillation of the scar; (3) the effect of strong faradic stimulation above the scar. The bulbous end should be freely excised. For large defects in nerve trunks there were two alternatives—

implanting both ends of the nerve into an adjacent trunk or filling the gap with one or more lengths of some large cutaneous nerve like the internal saphenous. Such care should be given to securing the exactest possible coaptation of the sutured ends by means of the finest catgut. When the suture was complete, the junction should be wrapped in a layer of subcutaneous fat about $\frac{1}{2}$ in. extending for 2 in. on each side of the junction. The most rigid asepsis was essential. In incomplete lesions, if resection was unnecessary, the nerve should be freed from the scar and carefully wrapped in fat, and at the same time any bony prominence tending to press upon it removed, and any muscles, tendons, or other scarred structure resisting free movement divided, if such were permissible. The most important points in the technique of nerve resection were free excision, exact coaptation, careful insulation, and perfect asepsis. Muscular relaxation before and after the operation was, perhaps, equally important.

The discussion will be reopened by Sir Frederic Evo on November 1st, and will be continued by Dr. F. W. Mott, Dr. Farquhar Buzzard, Mr. Jocelyn Swan, Mr. Paul B. Roth, and Dr. S. A. K. Wilson.

ASSOCIATION OF REGISTERED MEDICAL WOMEN.

At the annual meeting on October 12th the newly-elected President, Dr. HELEN BOYLE, delivered an address on her recent visit to Serbia. She had gone out in April with two women orderlies, two motor cars, a large Thresh disinfectant and a destructor, to join Mr. and Mrs. James Berry's unit at Vrujatehka Banja. At Salonika a large number of parasites were met with, even in a good hotel. Serbia, owing to a wise move on the part of England in sending out a strong contingent of the Royal Army Medical Corps, had been greatly aided in cleaning and disinfecting, and even the railway traffic had been held up for a time to allow of disinfection of the rolling stock. The Berry unit had charge of six hospitals, two of which when Dr. Boyle left were almost full of wounded soldiers, many very severe cases, although not freshly wounded. One, the typhus barrack, erected in a fortnight, according to Mr. Berry's instructions, and very satisfactory, was used chiefly for the civil population, and two had convalescent soldiers. The civil population needed medical care badly, most of the civilian doctors having been either commandeered for military duty or having died of typhus. Fevers were common—typhoid, typhus, small pox, scarlet fever, measles, diphtheria, malaria, and relapsing fever. There was also a good deal of gynaecological work to be done. The Serbian people were described as simple, grateful, and intelligent. There was a scarcity of sugar, milk, and, at times, potatoes, and there was no butter; the chief articles of diet for the people were fruit, vegetables, and Indian corn. Dr. ETTIE SAYER showed Bergonié's electro-vibreur localizer, as used in many French military hospitals. It consisted of an iron cone connected with an alternating electric current; the cone was held within a few inches of the body. When the hand was passed over the body vibrations could be felt immediately over any metal, however small.

THE French Minister of War has, by a recent decree, established a permanent mission of prophylaxis. It is to be under the direction of the Under Secretary of State for the army health service and to remain in being till the end of the war. The members are Medical Inspector-General Vaillard; Dr. E. Roux, director of the Pasteur Institute; Dr. A. Laveran, of the Institute of France; M. Brissac, head of the Public Health Department of the Ministry of the Interior; Professor Simonin, of the Val-de-Grâce; and Dr. Pottevin, Member of the Superior Council of Public Hygiene of France.

WE learn from the *Medical Record* of September 25th that the New York Commissioner of Licences recently forbade the Motherhood Education Society to give public moving picture exhibitions of the twilight sleep technique. The official prohibition was endorsed by the opinion of a number of medical practitioners that the exhibition had no educational value. At a meeting of the American Association of Obstetricians and Gynecologists recently held in Pittsburgh a number of the members declared themselves strongly opposed to the routine employment of this method in cases of childbirth.

Rebivus.

PRACTICAL PHYSIOLOGICAL CHEMISTRY.

The second edition of Mr. R. H. A. PLIMMER'S *Practical Physiological Chemistry* has involved the amplification and recasting of the entire work, which now appears as a manual of *Practical Organic and Bio-Chemistry*.¹ The basis of the book is organic chemistry, and many new sections on that subject and on the organic substances found in plants have been added. The term "bio-chemistry" is substituted for "physiological chemistry" in the title because the latter term is so often applied to animal chemistry alone, excluding vegetable chemistry. The book is intended mainly for medical students, but it contains the essentials for all students of biology. It begins with a general account of the various simpler groups of organic compounds, written from the point of view of their detection and quantitative estimation and their occurrence in animated nature. From the simpler organic compounds the pages pass on to the more complex, and serviceable accounts of such things as the alkaloids, enzyme action, colloids and colloidal solutions, and practical urinary analysis are given in the course of the text. The book is comprehensive, well arranged, and clearly written; the various analytical methods recommended are clearly described, and references to the original articles in which they are given in fuller detail have been included in footnotes for purposes of reference. The text is well up to date and contains but few misprints, although there are two such errors in the definition of the micromillimetre on p. 376. The book is meant mainly for use in the laboratory; it may be warmly recommended to pathologists, physiologists, and advanced medical students who wish for precise knowledge of the organic compounds with which the study of medicine—using the phrase in its widest sense—is concerned.

TEXTBOOKS OF OBSTETRICS.

A PERUSAL of Professor DONALD'S *Introduction to Midwifery*² makes it easy to understand why it has passed through no fewer than six large editions in the course of little more than twenty years. No book of its particular kind that we know is more full of instruction, more lucidly written, or more practical in its design. The author's large experience, both as a practical obstetrician and as a teacher, is to be felt running through the whole text; nor can it have been an easy task to write a book which is designed both for medical students and midwives. The former are apt to despise what is written ostensibly for midwives, while the latter would find the ordinary students' textbook considerably over their heads. Professor Donald, however, has succeeded in meeting the requirements of both; and while his volume is a most admirable textbook for nurses, it is at the same time an ideal book for students who are taking out their practical midwifery either in a maternity hospital or in outdoor practice. That being so it seems a pity that the printing, and more particularly the old-fashioned illustrations, are so reminiscent of the books of twenty years ago. The publishers would, we think, be well advised to bring the appearance of the book up to date in these respects, and so make it worthy of the writing and teaching which it contains. Some of the illustrations are actually misleading—as, for example, No. 41, in which the accoucheur is shown making a vaginal examination without having troubled to roll up either his coat sleeve or a very septic-looking cuff; and No. 42, which represents the hand taking a side to side grasp of the uterus in expressing the placenta. There is little that is superfluous in the book, but it hardly seems necessary to take up any space with the description of the rarer forms of contracted pelvis, and to figure, for example, the spondylolisthetic pelvis. The space so occupied might with advantage have been devoted to the subject of the artificial feeding of infants, which is the one subject in the book that appears to be inadequately treated.

¹ *Practical Organic and Bio-Chemistry*. By R. H. A. Plimmer, Reader in Physiological Chemistry, University of London, University College, London. Longmans, Green, and Co. 1915. (Roy. 8vo, pp. 697; 86 figures, 1 plate. 12s. 6d. net.)

² *An Introduction to Midwifery: A Handbook for Medical Students and Midwives*. By A. Donald, M.A., M.D., C.M. Edin., M.R.C.P. Lond. Seventh edition, revised. London: G. Griffin. 1915. (Post 8vo, pp. 114; 71 figures, 5s.)

Professor POLAK³ has succeeded in producing something new in obstetrics by the format which he has selected for this student's manual. Though nearing five hundred pages, it is less than $\frac{3}{4}$ in. thick, and its dress of dark flexible leather, with red edges, is reminiscent of quite another style of textbook. This seductive exterior is, however, no needed compensation for lack of internal merit, for it is a good manual, with a text as clear as its type and its matter as modern as its form. From the small compass the style is necessarily succinct and dogmatic, but the positions are, on the whole, judicious, and space has been found for a relatively full description of human embryology, which ends with a useful table of the forms of developmental abnormalities.

DIET AND DISEASE IN INFANCY.

In his handbook for medical men, *Diet and Disease in Infancy*,⁴ Dr. CAMERON has dealt with the common nutritional disorders of infants during the first year of life from a clinical standpoint. He holds strongly that the diet of infants should be controlled wholly by medical men; the subject is so complex as to be beyond the scope of the best trained nurse. Two early chapters by Dr. Janet Laue-Clayton give an account of what may, for want of a better term, be called "high-grade" milk, and the care required for its commercial production. Such a milk contains 3.25 per cent. of fat, 8.5 per cent. of solids not fat, and not more than 10,000 microbes (of non-pathogenic varieties) per cubic centimetre. It is added that Berlin milk "of excellent quality" contains 30,000 to 40,000 bacteria per cubic centimetre. Dr. Cameron's twenty-six chapters discuss the diet of infants in health and sickness, breast feeding and its difficulties, dyspepsia and diarrhoea in infants, marasmus, constipation, rickets, spasmodic, the exudative diathesis, scurvy, convulsions, and other such important topics. He writes clearly and with precision; it is obvious, as indeed his preface suggests, that not a little of his inspiration comes from German and Austrian sources. This raises the interesting question how far one disease or diathesis is the same in different countries with their different peoples and habits; by the time it has been transferred to England, Czerny's "exudative diathesis" may be used to account for almost all the acute and chronic disorders of infancy and childhood, if Dr. Cameron's exposition (pp. 170-178) of its features may be believed. Wide views are excellent, but is it not possible to take too wide views? To many physicians the "exudative diathesis" will appear to be a purely speculative explanation on the lines of *ignotum per ignotum*; at any rate, it throws no light on pathology or treatment. Dr. Cameron's book appears at a timely moment, when much thought is being given to the care and future of infants. It is didactic, a little uneven, but full of useful information and valuable advice, and may be cordially recommended to senior medical students, house officers, and practitioners of medicine, who have to direct the feeding of infants in health or sickness.

NOTES ON BOOKS.

In his *Practical Manual of Tuberculosis for Nurses* Dr. BURRA⁵ gives a brief but clear account of the various forms of the disease that should be of practical value to nurses who have care of cases of tuberculosis, and might be read with advantage by a considerably wider circle of persons. It is divided into four sections. The first deals with general considerations about the disease; the second and longest is devoted to pulmonary tuberculosis in all its aspects; the third describes the most important forms of non-pulmonary tuberculosis; and the fourth gives an account of the use of the powerful drug tuberculin in the diagnosis and treatment of tuberculosis. The book may be warmly recommended to the attention of nurses, home visitors, lay workers, and the like, who have to deal with cases of tuberculosis in town and country.

³ *Manual of Obstetrics*. By J. O. Polak, M.Sc., M.D. New York and London: D. Appleton and Co. 1915. (Demy 8vo, pp. 487; 3 plates, 119 figures. 12s. 6d. net.)

⁴ *Diet and Disease in Infancy*. By H. C. Cameron, M.D., F.R.C.P. London: J. and A. Churchill. 1915. (Med. 8vo, pp. 216; 13 figures. 8s. 6d. net.)

⁵ *A Practical Manual of Tuberculosis for Nurses*. By L. T. Burra, M.D. Oxon. London: J. Bale, Sons, and Danielsson, Limited. 1915. (Cr. 8vo, pp. 145. 2s. net.)

MEDICINAL AND DIETETIC PREPARATIONS.

"Synthetic Milk."

A DEMONSTRATION of a process of synthetic milk making was given recently at the Meico Laboratories (56, Great Peter Street, Westminster). The casein and albumin of the new product are supplied by the ground-nut, called in America the pea-nut (*Arachis hypogaea*), which is extensively cultivated in many tropical and subtropical countries. This nut, which is admittedly rich in proteins and fat, and has been used as a diabetic food, is skinned and minced into a porridge-like meal, to which alkaline water is added, as well as the sugar principle in the form of malted dextrose, and the salts associated with cow's milk. The mash is stirred in double-jacketed pans at a temperature well below boiling point, and the product then passes through certain strainings, and is treated with fatty acids, the whole process lasting two hours. A culture is added in the form of a special growth of lactic bacteria which has been acclimatized to the new milk. The cost price of the milk, including labour, is said to work out at 3d. a gallon, as against 8d. a gallon for cow's milk on the farm; the residual meal after the extraction of the milk-white fluid can also be used as a foodstuff. The fluid certainly has all the appearance of cow's milk, but the flavour of the nut, which to many tastes would not be agreeable, is somewhat pronounced. If the milk is allowed to stand for a short time, all the solids sink towards the bottom, but recombination is quickly obtained by a slight shake of the vessel. The total solid content of the milk is 13 per cent., as compared with the Government standard of 11.50 per cent. in the case of cow's milk. The process is ingenious and interesting.

INCOME TAX.

MEDICAL PRACTITIONERS ON ACTIVE SERVICE.

We have recently received a large number of communications from medical men serving with the forces with regard to the income tax assessments made in respect of their civil practices. The matter is rather complicated, and is the more difficult to deal with inasmuch as many of the practitioners concerned are abroad in France, the Dardanelles, or elsewhere, and of those who remain in this country many may not have found time to give the question very prolonged consideration. In the meantime the authorities appear to be assessing the practices and issuing notices of the amounts so assessed to the officers or their representatives. These amounts being presumably based on the average of the three previous years, exceed the maximum income which the practices can be expected to yield to the officer in existing circumstances. In view of the high rates of taxation now in operation such an excess involves payment of a substantial sum, and we propose to examine the subject in greater detail than has been possible in answering individual correspondents.

In the first place, let us dispose of the suggestion sometimes made that the system of basing assessments on an average of the three previous years will in the long run give to the person assessed every allowance to which he is fairly entitled. In ordinary circumstances this may be so, though even then the system would be open to the charge that it was unfair to demand a full tax in a year when profits were at their lowest, but it is clear that the proposition does not hold good to-day. According to the Finance (No. 3) Bill now before Parliament the minimum "earned" rate of tax will be 1s. 9d. for the current year, as compared with 9d. in pre-war days. Probably few taxpayers are optimistic enough to expect an early return to the 9d. rate, but it is perhaps not too much to hope that in four years' time we shall have lower rates of tax than those now in force. Consequently the medical practitioner serving with the forces would—unless given some statutory claim to relief—now be liable to pay income tax at a high rate on an income which in fact he is not receiving, and would not be adequately compensated by the probability that in two or three years' time he would be paying tax at a lower rate on an average less than his actual income. This view of the matter seems to have commended itself to the Exchequer and a provision now exists—Section 13 of the Finance Act, 1914 (Session 2)—

which if properly carried out should give adequate relief. Unfortunately the parliamentary draughtsman, with a natural preference for using language which has already been tested and construed in the courts, carried out the intention by the re-enactment of an old provision—Section 133 of the Income Tax Act of 1842—which had been repealed in 1907; we say unfortunately because, however clear its effect may be to the legal mind, Section 13 of the Act of 1914 is hardly intelligible to the majority of the taxpayers whom it is intended to relieve. Briefly stated, the effect of the provision is to enable any person serving in the army or navy, or working abroad under the British Red Cross or St. John Ambulance Associations, to claim an adjustment of the Schedule D assessment on his profession, etc., reducing it to the amount of his profits for the actual year.

It should be remembered that this provision grants relief; it does not invalidate the "average" assessment. The distinction is of importance in two ways: In the first place, the assessment holds good until it is discharged or amended on application, the initiation and proof of the claim resting with the person assessed; and, in the second place, the limitation to twenty-one days of the period during which the presentation of a "notice of appeal" against an assessment can be made does not apply. In point of fact, Section 133 of the Act of 1842, on which the provision under discussion is based, contemplates repayment of portion of the duty as being the usual mode of adjustment. This appears natural enough when it is remembered that in normal circumstances any person assessed would not know whether he had any right of claim until the year had expired, but the circumstances of a practice carried on for the benefit of an absentee must be so well understood that it is hardly likely that payment of the full duty charged will be called for where it is known that a claim under the operative section will be made. We therefore suggest that every officer concerned should, as soon as practicable, send an intimation of his intention to claim the benefit of Section 13 of the Finance Act, 1914 (Session 2) to the surveyor of taxes for the district in which the practice is situated. In some cases applicants appear to be asked to make some payment on account, leaving the balance over for future settlement, and there can be no objection to such payment so long as it is reasonable in amount; the mere fact of payment would not affect the right of claim.

Having indicated the legal position with regard to the application, there remains the practical question as to the preparation of the necessary account to show the reduced liability. As already mentioned, the onus of proof lies on the applicant, and it may safely be assumed that the evidence required to discharge that burden will be similar to that required for the "appeals," with which taxpayers as a whole are more familiar. That is to say, it will be an account showing on the one side the gross receipts of the practice for the year, and on the other side a classified and totalled list of the expenses incurred in earning those receipts.

The first point to be decided is as to the precise year to be taken; where such an account has been regularly prepared in previous years it will probably be found most convenient to select the corresponding date—for example, December 31st. At the same time, such an account may not give the full measure of relief. The financial year ends on April 5th, and the ideal account for the purpose would end approximately at that date. Let us, for example, take the case of a medical practitioner accepting a commission and holding a military appointment as from April, 1915. If he makes up an account to March 31st, 1916, it is wholly covered by his period of military service. On the other hand, if he files an account made up to December 31st, 1915, he is including therein three months during which the position of the practice was normal and excluding three months when it was abnormal. One case has come to our notice in which an assessment for the year 1914-15 has been adjusted on an account to December 31st, 1914, and the local surveyor of taxes has undertaken to make a further adjustment on the same assessment when the account for 1915 is available, tax being finally payable on an amount made up by taking three-quarters of the 1914 profit and one-quarter of the 1915 profit. Whilst theoretically open to criticism this method is certainly convenient, and the final result would

no doubt be sufficiently accurate for all practical purposes. We cannot say whether this method is being generally adopted, but there were apparently no special circumstances in the case referred to which call for exceptional treatment.

The determination of the amount of the "receipts" would seem simple enough, but is not without difficulty if full advantage is to be taken of the relief under consideration, the point being whether it will be correct or reasonable to take the usual cash basis—that is, to compute the receipts at the actual amount received in cash irrespective of when they were earned. This basis is fair only on the assumption that the real value of the fees earned in any particular year are approximately equivalent to the cash received. While this assumption generally holds good in any long-standing practice, it will not apply where the practitioner has been an absentee for the whole or part of the year, for the cash received, being in respect of periods during which he was able to give the practice his undivided attention, will in all probability be greater than the fees, etc., earned by his substitutes. This consideration accordingly suggests the advisability of preparing the account on the basis not of "cash receipts" but of the gross bookings less a reasonable amount for bad debts. If this course be impracticable, it will perhaps be worth while remembering that the "cash basis" will, in the peculiar circumstances of the case, probably place the revenue in a favourable position, and might justify rather generous treatment in any debatable questions arising in connexion with the expenses.

The above observations are of general application, but with regard to the allowable expenses which have to be set out in the adjustment statement we must refer specifically to the manner in which the practice is being carried on in the absence of the officer whose assessment requires adjusting.

The simplest case is that in which a locumtenent is appointed to take complete charge of a "sole" practice. In this case the expenses will be arrived at in the same way as in previous years, the principal difference being the addition of the fees paid to the locumtenent and the increase in the cost of drugs, etc. It may perhaps be pointed out that for such period as the house is not used by the officer or any member of his family the whole of the rent, rates, servants' wages, etc., would appear to be allowable deductions, and not only the two-thirds allowed when the practitioner is in residence.

In the case of a practice carried on by the absentee's partner the complete statement of claim will consist of the usual account exhibiting the firm's receipts and expenses for the year, and the absentee will be entitled to have his assessment reduced to his share of that year's profits. It should be borne in mind that the relief applies to the individual member of the firm serving with the forces, and that in consequence the same adjustment cannot be claimed by his partner. On the other hand, it may well be that the partnership agreement has been modified for the period of the war, and that the member of the firm who remains to carry on the practice may be liable to a greater amount of income tax than if no such modification had been made. An example of this may serve to explain the general position, as well as to make this particular point clearer. A. and B. are partners dividing the profits of the practice equally; the firm is assessed for the year 1915-16 on £1,600, being the average of the following amounts for the three years to December 31st, 1914—namely, to £1,400, £1,600, and £1,800. A. accepts a military commission, and the partners agree that B. shall carry on the practice and receive £400 of the profits before the division is made; the profits for 1915 are £1,400; A's military pay is, of course, taxed by the army agents, and is kept quite distinct from the firm's accounts. In this case, A. is entitled to have his liability reduced from half of £1,600 (£800) to half of (£1,400 - £400) = £500; but on the other hand B. is liable to payment of tax on £400 plus half of (£1,600 - £400) = £1,000. A., therefore, is relieved of tax on £300, but B. pays on £200 more than he would have done had no rearrangement of the terms of partnership been made.

We have now to consider cases arising under the special schemes which have been adopted in various parts of the country for safeguarding the practices of medical men serving with the forces. These schemes have a common origin in that put forward by the Scottish Medical Service

Emergency Committee and subsequently adopted by the Committee for England and Wales,¹ but are otherwise distinct. They have been drawn up to meet special local conditions and under the influence of different ideas, and the resulting divergencies—so far as the method of dealing with the collection of the receipts and the payment of the expenses of the absentee's practice—are so substantial as to prohibit any attempt to lay down useful generalizations as to the assessment of the absentee's profits. We therefore propose to examine one or two dissimilar schemes, hoping that comment on the schemes selected may be of use not only to the officers directly affected, but also to others whose practices are being carried on under other schemes.

The Brighton scheme supplies a good instance of an arrangement under which the absentee retains the maximum of control over the practice; he selects the substitutes as far as possible, he leaves a power of attorney with a local agent, the service is considered to be rendered on his behalf, he or his agent sends out the accounts, and he pays one-half of the out-of-pocket expenses of his substitutes. In these circumstances it seems clear that the practice is being carried on by the absentee through his local agent, and that the substitute fulfils the functions of a locumtenent. The appropriate account for a practice carried on under such a scheme would accordingly consist of (1) a statement of the gross receipts of the practice, and (2) a list of expenses, including under this head all payments to substitutes—that is, not only the proportion of the out-of-pocket expenses, but also those moiety of the fees and payments by the Insurance Committee which are handed over in accordance with the scheme.

An essentially different scheme is that adopted in the Kingston-on-Thames Division. It provides, where necessary, for the practices of absentees to be put into the hands of trustees, who are empowered to collect fees and defray expenses. In this case the absentee has practically divested himself of the control of his practice for the time being, and the "income" would appear to be simply the sum payable to him by the trustees, less any dispensary or other expenses which he may have to pay thereout.

Again, officers whose practices fall within the Oldham scheme will not be able to make a definite statement of their adjusted liability until they have returned to their practices, inasmuch as in the meantime the Central Committee cannot say what they will be called upon to contribute for the services rendered to their practices by the various local practitioners acting as substitutes. We have no doubt as to the suitability of the scheme or its convenience and general equity, but it would seem that the absentee practitioners will find considerable difficulty in dealing with the yearly statements necessary for a proper adjustment of their liabilities. Possibly the revenue authorities may agree to wait until such time as the contributions have been fixed, and then to regard the profits of the absentees as spread equally over the period of their absence.

We have already remarked that the existing rates of income tax are high; a further consideration arises from the fact that they vary, according to the amount of total income, within narrower limits than was the case until recently. This point is worth bearing in mind, because a reduction of liability reduces *pro tanto* the amount of total income by which the rate of tax is determined, and may ultimately give a larger measure of relief than might otherwise have been anticipated.

In conclusion we would call attention to the fact that an adjustment of liability under the provision discussed does not affect the assessment for the next year. Thus, if C., whose profits for the past three years have been £600, £700, and £800, accepts a commission, appoints a locumtenent, and finds his 1915 net profits reduced to £300, he is entitled to pay for 1915-16 on £300 instead of £700, and the £300 will still come into the average for future years; the 1916-17 assessment will therefore be £600, again reducible to the actual profits for 1916, and so on, as long as C. remains in the forces. In other words, Section 13 gives a clear right to set the average aside in favour of the amount of the year's profits, and does not prohibit the inclusion of that lower sum in the average for future assessments.

¹ SUPPLEMENT, JANUARY 16th, 1915, p. 17; AUGUST 21st, p. 98.

MEDICAL STUDENTS AND THE WAR.

The Central Medical War Committee has received, in reply to an inquiry, a letter from the Assistant Director-General Army Medical Service, stating that "the Director-General considers that all medical students in the fourth and fifth year of their curriculum should continue with their studies and obtain a registrable qualification as soon as possible. In the case of the junior students, however, their course of action during the present national emergency is entirely a matter for their own personal consideration."

This is in accordance with the letter addressed to Professor Halliburton by direction of Lord Kitchener on August 11th. This letter stated that

it is advisable for medical students in their fourth and fifth years to continue their studies, with a view to qualifying as soon as possible. The War Office would be unwilling to suggest that junior students should be discouraged from taking combatant commissions.

AN OPEN LETTER TO STUDENTS.

Dr. R. A. Duff, Director of Studies in Glasgow University, in an open letter to students who have asked for guidance as to their own decision as to their duty in the present crisis, notes, in the first place, that

The University has urged all its students to consider carefully the claims of the nation upon them for military service and (for those who cannot give this) for munition service. At the same time it is opening most of its classes as usual and leaving it to each individual to decide whether he should continue or interrupt his studies. In thus acting it is simply following the present policy of the national Government, that in this matter each man should act as his own conscience dictates.

Dr. Duff then continues as follows:

Whilst this is the official position, I feel that I should be false to my country and to myself if I did not voice my personal opinion frankly, and use any influence or power of persuasion I might have to help a great cause. . . .

Practically all our men students are of (or very nearly of) military age, and many who are not are capable of doing efficiently vital munition work. Some hundreds of them have already enlisted or obtained commissions, some hundreds more have been doing and intend to continue doing valuable munition work. What of the others? Is their duty less urgent, or are their circumstances harder? After hearing many hundreds of cases my opinion is that (with rare exceptions) there is no real difference, except in sensitiveness to public duty and in vividness of imagination, between those who are ready to make all sacrifices and those who are ready to make none. In many cases what checks the natural generosity of youth is a narrow or a frigid home atmosphere, in others it is loyalty to home obligations and blindness to other and greater ones, while in others it is, I fear, a selfish wish to make hay while the sun shines. The common plea that studies and careers long prepared for will be interrupted and endangered excuses all or excuses none. And with the exception of the fourth and fifth years medical students no adequate reason seems to me to exist for the rest of our students pursuing their normal life while their comrades who sit on the same benches with them are giving up not only their careers, but health and limb and life, to make this possible.

Are our students (as well as other classes) doing their best to help? Many of them are. But I am not a believer in the new popular creed that if a considerable proportion of students, or miners, or doctors, or shopmen, or clerks, are doing public service, therefore the whole class may take to itself the credit, and say "Haven't we done well?" It is the other way about. If so many in any calling have offered, are the others playing the game in not offering? The fact that in many callings large numbers must remain at home has no bearing on the matter. For those who have remained do so by their own choice. No reflected glory falls upon them from their comrades' toils in the field and in the factory, but only a deeper shadow, because they stand so near the light of their own mates and neutralize it as far as they can.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

At a meeting of the Committee in London on October 21st reports were received of the proceedings of the weekly meetings in Brussels from August 19th to September 16th inclusive, and it was resolved to send a further sum of money for the relief of the immediate needs of doctors and pharmacists in Belgium. The report of the Committee meeting in Brussels showed that it had established a separate fund to assist doctors and pharmacists to repair and refurbish houses which were capable of restoration at

small expense. The question whether the British Committee should make a contribution to this fund was considered, but no decision was reached.

Mr. Meredith Townsend reported that out of the instruments sent to the Master of the Apothecaries' Society, Blackfriars, London, E.C., he had sent through Mr. Hoover three further cases, and the Secretary said that the previous consignments of instruments had been gratefully acknowledged.

THE WEEK'S SUBSCRIPTIONS.

The following additional subscriptions have been received:

	£ s. d.		£ s. d.
Dr. Watson Williams	1 0 0	mond, Dr. Spiers,	
Dr. Dudley C. Trot	5 0 0	Dr. John Galloway,	
North of England Branch		Dr. Thompson, Dr.	
of Fund (per Dr.		Durant, Dr. L. A. H.	
Don.) Gateshead		Bulkeley, Dr. Adam-	
Doctors' Recruiting		son, Dr. Leech, Dr.	
Dees (collected by		Scott	28 13 6
Dr. Durant)		Grimsby Pharmacists'	
Dr. Stanley Robson,		Association (per Mr. C.	
Dr. James Patton,		Dewling)	8 17 0
Dr. Charles Hou-			

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee, held on October 12th, twenty-eight cases were considered, and £227 7s. was granted to twenty-seven of the applicants. The following is a summary of the cases relieved:

M.R.C.S.Eng., aged 59, who practised at Stone, Staffordshire. Had total paralysis in the right side three years ago, and unable to do anything. With his wife has been living on the proceeds of the sale of the practice, now practically exhausted. Help wanted towards the purchase of a self-propelling chair. With the help of the Fund's visitor at Bristol a secondhand chair was procured at the cost of £2 5s., and becomes the property of the Fund. The applicant has since died.

Widow, aged 61, of M.R.C.P. and S. Edin., who practised at Lincoln and died in 1892. Was left with two children now aged 18 and 19 years, and has supported herself by nursing since husband's death. Her son, aged 18, has just left Epsom College, and has joined the army. A little help required for purchase of army equipment. Voted £2 2s.

Widow, aged 72, of M.B., C.M. Edin., who practised at Wakefield and New Zealand, and died in 1886. Applicant was left entirely unprovided for and earned a living for a number of years by nursing; but ill health and old age—in fact she is now bedridden—prevents her from doing anything. Shares a home with a sister. Help wanted for invalid comforts. Voted £5, and referred to the Guild.

Widow, aged 57, of M.R.C.S.Eng., who practised at Swansea and died in 1896. Left the applicant totally unprovided for. Health too precarious to work, and only a little from friends. Voted £15.

Widow, aged 57, of M.D. Glasg., who practised at Downe, N.B., and died in 1907. Was left unprovided for at husband's death, with two sons both now married and unable to help. Tries to make a little by taking in boarders, but has none at present. Voted a temporary grant of £2, and referred to the Glasgow branch of the Guild.

Daughter, aged 46, of M.R.C.S.Eng., who practised at Stilton and died in 1881. Applicant has kept a boarding house at Cambridge for undergraduates and managed to pay her way until the war commenced, but cannot get any boarders now. Voted £10 in two instalments.

(To be continued.)

The claims of the fund are steadily increasing, largely in consequence of the war; and though the ordinary subscriptions remain at much the same level, there is a constantly increasing adverse balance. Thus in July the deficit was £535, increasing in August to £575, and in the present month it reached the total of £646. To meet this the Committee has had to draw heavily upon its limited reserves, and unless increased support be rapidly forthcoming the work of the Fund will have to be very seriously curtailed. Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, 11, Chandos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild appeals for gifts of secondhand clothing, boots, and shoes in good condition, also household linen. The gifts should be sent to the Secretary, Royal Medical Benevolent Fund Guild, 43, Bolsover Street, W.

British Medical Journal.

SATURDAY, OCTOBER 30th, 1915.

THE WAR AND THE FALLING BIRTH-RATE.

WE are all apt to be depressed by the quickly-following lists of casualties and by the hope deferred that soon these melancholy indications of the war will cease with the establishment of a hardly earned but honourable and lasting peace, and that instead of the fathers there will be the children. But will there be the children to fill the places of the fathers? The question cannot be answered with the confidence that one would like to feel.

During the past fifteen or twenty years, and indeed for much further back, there have been other casualty lists appearing and little regarded. The infantile mortality in every town and village in the United Kingdom has been a casualty list, and, until the present generation, little or no attention was paid to it; there were plenty of babies—too many, some were even heard to say—and a few dropped by the way mattered nothing, would perhaps relieve threatened over-stocking.

The falling birth-rate has been a casualty list; it has been passed by with indecisive comments, with unimpassioned questionings as to its possible causes, with colourless prognostications as to its conceivable effects some fifty or a hundred years hence, and generally with a striking absence of excitement. Yet the rate has kept on falling; one could not help noting that. The headlines in the daily papers have been taking on a stereotyped appearance, and might indeed have been set up once and for all with "decreasing birth-rate," "smallest birth-rate since registration," and the like as their burden.

Latterly, however, there has been some awakening of interest. A commission has even been appointed¹ to inquire into the decreasing birth-rate, has been sitting for some time, and will no doubt duly make some report; but it has been a private venture, not a Royal Commission. The Notification of Births Act has been made compulsory, and before long it will be possible to estimate with fair accuracy the casualty list of the premature infants as well as of the full-term babies; but still the country will be without a knowledge of the much more serious casualty list of the miscarriages, the antenatal lives lost before the twenty-eighth week. It has been estimated—and Dr. Arthur Newsholme, C.B., has accepted the estimate—that in the forty weeks of antenatal life 150 infants die out of every 1,000, and that in this way England and Wales during 1914 lost 138,249 lives; but this is an estimate not from exact knowledge, and as such, whilst it may, let us hope, be an overestimate, it may also, we fear, turn out to be under the correct figure. Something more is needed than notification of births to reveal the full tale of these antenatal deaths. Nevertheless the extended Act will do good in many directions and will introduce greater accuracy into the statistics which are obtainable. Then, again, a meeting was held in the Guildhall on Tuesday last (October 26th) to organize

"a national campaign to promote the welfare of motherhood and infancy," and from this beginning much benefit may accrue.

For one thing in particular all those interested in antenatal hygiene will be truly grateful to the Notification of Births (Extension) Act of 1915; it contains one clause which if properly worked cannot fail to do much good. It is this: "Any local authority within the meaning of the Principal Act (that is, the Notification of Births Act of 1907), whether a sanitary authority or not, may, for the purpose of the care of expectant mothers and nursing mothers, and young children, exercise any powers which a sanitary authority has under the Public Health Acts, 1875 to 1907, or the Public Health (London) Act, 1891, as the case requires." Without essential modification this clause has been made applicable to Scotland and Ireland as well. It would seem, therefore, that if money be forthcoming (a somewhat important proviso), a great deal may be done not only to reduce the infant mortality after birth, but also to diminish the many deaths which in the form of premature labours and miscarriages take place at or before it. The clause, however, must not be allowed to become a dead letter, and local authorities must be induced to establish antenatal clinics, prematernity homes, wards, and resting houses, prenatal nurses, and popular instruction (printed and oral) on all such matters throughout the length and breadth of the land. A Midwives Act for Scotland must also be secured, for that will do something to check the loss of infantile life at the time of birth in the northern part of Great Britain.

All these matters have become suddenly urgent on account of the war, and of the times which must follow it. It would have been well if these things had been regarded some twenty years ago; it would, to put it solely on a purely material basis, have given the country two or three more army corps, even without talk of compulsion. For the birth-rate of a nation, of any nation, is a vital question in every sense of the word.

In an address on the nature of pregnancy, which was printed in the JOURNAL on February 14th, 1914, nearly six months before the war, Dr. Ballantyne said: "Finally, the birth-rate of a country enters into the sphere of high politics. . . . Napoleon said that the great need of his exhausted country was more mothers, and the same may be said of France now; but it may be said in another sense and for another object. France now requires more mothers and more pregnancies and a higher birth-rate, not that she may have more soldiers to wage wars of conquest or aggrandisement, but that she may not fall in numerical strength below the level of her rivals. Unless the birth-rate of France rises or that of her neighbour falls more quickly than it is doing, the French people will feel the loss of national strength so acutely that fear will enter in, and where fear enters there too often and too soon follows war. The nation with a high birth and survival rate and a limited territory must find room by colonization; where two races are living side by side in a country, the one with the higher birth-rate (the survival rates being equal and migration inconsiderable) will inevitably rule, although the event may be delayed; the people who will not propagate must die. No wonder a far-seeing statesman said lately, in answer to his own question, What is the greatest thing in the world? 'A baby!' In the ultimate issue of things babies are of greater import than battalions, and they are the true dreadnoughts of a nation; if they are well nourished before they are

¹ BRITISH MEDICAL JOURNAL, November 1st, 1915, p. 1167.

born, if they are brought into the world with care, and if they are handled afterwards with tenderness, and educated with knowledge and foresight but without fads, they will not only stand to arms if need be for the defence of their land in their manhood, and be apt for the replenishing of her millions in their womanhood, but will also help to maintain her high rank among the nations in science, in literature, in commerce, and in all else that is worthy."

As read now after fourteen months of war, there is seen to have been something of the prophetic in the sentences which have been quoted, and especially do the mutterings from beyond the Rhine regarding a fall in the birth-rate in Germanic countries come to us as a significant commentary upon some of the principles laid down in these closing sentences of the address. But, apart from these considerations, the main lesson for the nation to learn is: "in the midst of war to prepare for peace," and how can that be done better than to take a long look forward, and try by every means in its power to see to it that the mothers of the unborn infants of the future are brought happily and healthily through their pregnancies, that the children themselves are carried safe and strong to the birth, and that they are kept sound in wind and limb thereafter to play their part worthily for their country, and for her high destiny in the years which are to follow?

THE NEW APPEALS.

THE members of the medical profession who in such large numbers have put aside every consideration of personal interest and domestic ties to enter the military service of the country have been actuated by a sense of duty and love of country and not by any desire to stand in the limelight. Still when praise comes it would be churlish not to acknowledge it, and affectation to pretend that it was not agreeable. We must therefore take note of the generous tribute paid in the *Times* Red Cross Supplement last week by Sir Frederick Treves, whose work for the British Red Cross Society has taken him into so many parts of the war area, and given him in other ways unusual opportunities for forming a just estimate of the services of the profession and the spirit in which they have been rendered.

"Very conspicuous," he says, "has been the sacrifice made by the members of the medical profession. The doctor is not a man of wealth, nor is his living made by other than hard and exacting toil, and yet he has volunteered for the war as if he were a man of leisure who had need to take no thought of the morrow. That every young medical man in the country should hurry to enlist for service at the call of arms can be no matter of surprise. They have, indeed, come forward in a body, utterly regardless of their future or of the position which they may have already made for themselves. . . . What is remarkable is that older men, with large and lucrative practices, with heavy responsibilities and with families dependent upon them, have simply left their work, have abandoned their appointments, and have gone to the wars." Such a man, Sir Frederick Treves continues, "is making a sacrifice that may impose upon him a burden very hard to bear, but without a murmur, without a sign of regret, and without a thought of the cost of the venture, he sweeps away the work of years and then comes to say that he is ready. This generous devotion is by no means limited to Great Britain. Doctors from Canada, from Australia, and from New Zealand have made the same sacrifice, and

have hurried to England to offer their services, without any regard to pay, appointments, or prospect of reward. In actual money the war will cost these good men heavily, but the memory of what they have done for England will be to them as the gold of Havilah, of which it is truly said, 'and the gold of that land is good.'"

The needs of the army are not yet satisfied, and the Medical Committees, both in England and Wales and in Scotland, are appealing for more medical men, physically fit and of military age, to join the army. Local committees have been set up in nearly all areas, and in order to co-ordinate and facilitate their work they have been informed of the number of men that, from a general consideration of the position, each should yield. The quota to be furnished by each district can finally be determined only when local conditions are fully understood and have been given their due weight. In some sparsely populated districts further depletion of the medical profession is probably impossible without running serious risk of depriving the civil population of medical assistance; and in other areas recent increases of population, due to the establishment or the enlargement of munition works, may well render it impossible for any more medical men to go. But looking to the country as a whole, there seems to be no escape from the conclusion that the demands must be met, and at present the medical profession has it in its own hands to meet the emergency by schemes which it shall itself establish and work. Already we hear of cases in which Lord Derby's local committees, with their lists of all kinds and conditions of men eligible for military service, have applied to medical men, but we would hope that when the action already taken by the medical profession itself is understood, such applications will not be repeated. But this can only be on condition that the effort made by the medical profession through its own organizations is successful.

The King in his appeal spoke of the pride he felt in the voluntary response from British subjects all over the world "who have sacrificed home, fortune, and life itself, in order that another may not inherit the free empire which their ancestors and mine have built. I ask you to make good these sacrifices. The end is not in sight. More men and yet more are wanted to keep my armies in the field, and through them to secure victory and enduring peace." Lord Derby, in launching the scheme of voluntary recruiting, for which as Director-General of Recruiting he is responsible, told every man that he must ask himself "whether, in a country fighting as ours is for its very existence, you are doing all you can for its safety, and whether the reason you have hitherto held valid as one for not enlisting holds good at the present crisis."

The medical service is an essential part of a successful army, and its value has been abundantly proved in this war by the high standard of health maintained among the troops, by the almost complete absence of epidemic disease, and by the efficient transport and treatment of the wounded. If, then, we believe that we shall win the war an adequate medical service must be supplied and its wastage made good; if we do not win the war in France and in the Mediterranean, we shall have to fight it in this country, and General Joffre, who seems to be a man given to weighing his words, said recently: "The policy of terrorism was as coldly and calmly determined upon as the decision to violate the neutrality and break the national word of honour in the invasion

¹In an interview published in *Collier's Weekly* and quoted in the *Times*.

of Belgium. It is the German military theory of invasion, decided upon by the German military leaders, that the way to break down the resistance of the country you are invading is to devastate it, burn its villages, shoot civilians on trumped-up pretexts, or drive them before your own troops to stop the fire of the enemy, as they did in numerous cases with us, in the belief that human beings can be terrorized to the extent that they will prefer to surrender rather than risk the horrible results of resisting the invader."

If we allow a stalemate with a consequent patched-up peace, we shall not only have to bear losses in men and money, which we must in any case bear, but we shall have to bear them knowing that they have been incurred in vain, for, again to quote General Joffre, "Peace to-day would be a crime toward posterity. It would only be an armistice in which every nation would continue feverishly to prepare for war. The French nation is too intelligent to deceive itself or to be deceived. We are not fighting a nation with the same ideas as our own, but a nation drunk with the idea of imperial domination, a nation which believes that in the progress of the world there is no place for little nations. The decision as to whether Europe will continue as free and individual will be made in this war alone. Either we win the right now to continue democratic and peaceful, or we surrender Europe to the imposition of an imperial idea. You will find, wherever you go, that the French people know this. You will find them absolutely of one opinion. They are prepared for anything, and they know what the issue is. We do not need to lie to our soldiers. No matter how long the war lasts, it will be fought out until we have conquered the right to leave a heritage of peace to our children."

LORD DERBY'S COMMITTEES AND THE MEDICAL PROFESSION.

We hear that in a certain district the local representatives of the Director-General of Recruiting have approached some of the medical men of military age whose names have not been "stared." This news should awaken the profession to the fate which is in store for it if the call to service made in England and Wales by the Central Medical War Committee is disregarded. It is hardly likely that Lord Derby's local committees contain the adequate medical representation upon which so much stress used to be laid in another connexion. In the case of the particular doctors to whom communications have so far been addressed, we believe that the difficulties to be surmounted in setting them free to take service are very great indeed, but those difficulties will not appeal to laymen with the same force as to members of the medical profession. As a forerunner of what will happen if conscription should come into being, the new recruiting methods seem worthy of notice, and we hope that our readers will ask themselves whether the scheme of enrolment for selection by such a committee as the Central Medical War Committee is not better suited to the conditions which must be fulfilled in order to satisfy the medical needs both of the army and of the civilian population. The question seems to invite the attention also of the Director-General of Recruiting and of the medical authorities at the War Office. To Lord Derby we would suggest that the special services required from the medical profession demand special treatment analogous to that recognized to be necessary in the case of munition workers, railwaymen, and others engaged in work necessary to the conduct of the war and the minimum requirements of the civil population. Medical men are urgently required in this country as well as with the armies at the front; and the adjustment of

service in the two capacities is a delicate matter requiring expert knowledge. The Army Medical Department, we are sure, will give every assistance to the attempt to supply its needs without resort to conscription, and will avail itself of the sympathetic and whole-hearted support offered by the Central Medical War Committee. Until this support seems likely to fail, we may hope that the department will not favour the newer methods.

MISS CAVELL'S FATE.

MISS EDITH CAVELL, whose execution, after a summary trial, and in such haste that the protests of the American and Spanish ambassadors were not heard, has excited the indignation of the civilized world, was matron of *l'École Belge des Infirmières diplômées* at Brussels. That institution at the outbreak of war had about eighty nurses and pupils engaged in working and training at public hospitals and a clinic, and as school nurses. She remained in Brussels after the German occupation, carried on her work, and nursed persons of all nationalities. The Germans seem already to have discovered that the abominable act perpetrated in the Belgian capital was a blunder, worse than a crime. How bad a blunder it was is shown by the futile excuses that have been made. The latest, put forward this time by the German Under Secretary of Foreign Affairs, is that Miss Cavell was one of the leading members of a conspiracy to assist British, Belgian, and French soldiers to escape from Belgium. Therefore, says Herr Zimmermann of his nation, "Headless of the world's verdict, we must travel the hard road of duty"; or, in other words, "we must continue our system of frightfulness." There are a great many judicial murders in history which have been justified by lawyers, and this is one of them. The prerogative of mercy resides in the Crown, and the German Emperor in this case did not exercise it, although, according to the telegraph agencies, he was at the time in Belgium, and could, in any case, have been reached in an hour or two, wherever he was. He is reported to have said recently, when reading a diplomatic document relating to Great Britain, "I will never forget." Nor will we, "but put in every honest hand a whip to lash the rascals naked through the world." A fund is being raised in memory of Miss Cavell, and it is proposed to devote it to the extension and improvement of the nurses' home at the London Hospital, where she was trained. Without wishing to discourage a laudable impulse, we are inclined to think that Lady Frances Balfour has said the truest word: "Let her name be graven on the fleshy tablets of the heart of her countrymen. Let the men remember Edith Cavell as they enlist in the armies of her King and country. Let gifts flow into those hospitals and nursing institutions which are being served by women as ready to do, to dare, and to die as was this type of England's race. There are other lessons to be learnt by Great Britain from the life and story of this citizen of our land. The times are not yet when her deeds can be enshrined in the immemorial walls of past history. Her blood calls from the earth for the greatest of all reprisals, that of showing that what she represented and stood for is the ideal goal of uncounted thousands of her country and her race."

LIFE INSURANCE IN INDIA.

In a paper read some little time ago before the members of the Life Assurance Medical Officers' Association,¹ Dr. Caddy reached a number of conclusions that should be of considerable interest to Europeans born or working in India. He holds that the European does not acclimatize in the tropics, but requires a change to a temperate climate at least every four or five years. Prolonged residence in the tropics debilitates him; and his children, if reared in India,

¹ *Transactions of the Life Assurance Medical Officers' Association, London.* Comprising the Report of the Proceedings for 1912 and 1913. London, 1914. (Demy 8vo, pp. xii + 266.)

have not, Dr. Caddy thinks, the same ability or capacity for work when they grow up as children sent home to England at the customary age of 4 or 5 years for education. Even after years of residence in hot climates the European acquires no power to withstand the tropical sun without any head covering, but rather the reverse. Dr. Caddy also finds that to have passed the first few years of life in India leads to physical debilitation, such children tending to be poorer specimens of humanity than their parents. So far as the natives of India are concerned, he remarks that the differences from the point of view of insurance between the various native races in India seem to be much more trivial than those met with in Europe; his own experience has been mainly with Bengalis. He concludes that the native of India is a shorter man than the European, but, height for height, of equal weight; he is very subject to glycosuria because of his carbohydrate diet, and to hydrocele for some reason that is not known. The opium habit, and the habit of smoking Indian hemp as "ganga" or "charas," or drinking it as "bhang," uncommon in Indians seeking to insure themselves, are probably more harmful to the individual than is commonly believed. As for Eurasians, or persons of mixed European and Asiatic descent, Dr. Caddy believes that the admixture of one-sixteenth of Asiatic blood is just noticeable; in accordance with a recent census return, all Eurasians are now called "Anglo-Indians," an unfortunate occurrence in view of the fact that "country bred" Europeans reared in India (as distinguished from those "home bred" by upbringing in Europe) still call themselves "Anglo-Indians." The imported European, we are told, earns in Calcutta a salary twice as great as the country-bred European, and four times as great as the Eurasian. The relative incapacity thus shown by the country-bred European, and still more by the Eurasian, is attributed by Dr. Caddy chiefly to the debilitating effects of the Indian climate. He concludes that Europeans born in India should leave the country as soon as may be, and should not return to work there. We give Dr. Caddy's views without in any way endorsing them. Many exceptions to his final generalization will occur to every one.

OPTOQUIN AND ANTIPNEUMOCOCCAL SERUM.

Dr. H. F. MOORE has quite recently made a further addition to our knowledge of the treatment of pneumococcal infections by the quinine derivative, ethylhydrocupreine, otherwise known as optoquin, or, in German, as optochin. A reference to his previous work will be found in the BRITISH MEDICAL JOURNAL of October 9th last (p. 542). In his latest paper¹ Dr. Moore describes the excellent therapeutic results obtained by combining optoquin with antipneumococcal serum in the treatment of virulent pneumococcal peritonitis in mice. The bacterial culture and antiserum were injected together into the peritoneal cavity; the optoquin was administered in the form of a 2 per cent. solution in olive oil injected under the skin of the back. The pneumococcal strain employed was so virulent that one-millionth of a cubic centimetre of a twenty-four-hour broth culture was fatal to mice in forty-eight hours. Preliminary experiments showed that the antipneumococcal serum in a dose of 0.2 c.c.m. protected the mice against something between one-hundredth and one-thousandth of a cubic centimetre of the culture; while the injection of optoquin was inadequate to protect the mice against even so little as 0.0001 c.c.m. of the culture. Yet in combination, the antiserum and optoquin protected the mice against as much as 0.5 c.c.m. of the culture in seven cases out of eight, one mouse succumbing to pneumococcal septicaemia on the fourth day. Thus it appears that the single small dose of optoquin was capable of increasing the threshold value of the type homologous serum, to use Dr. Moore's words, at least fifty times; there is no simple summation here of the

protective effects of the serum and optoquin. No such effect was obtained when the antiserum used was one produced from a different strain of pneumococcus, and not from the strain employed for the infection of the experimental animals. The treatment of pneumonia in man by antipneumococcal serum has often been attempted, but has proved generally disappointing. It would be interesting to know if the combined treatment here by the specific antiserum and optoquin will be found efficacious. At first sight one would doubt whether in this instance mice and men are on an equal footing.

SERUM THERAPY IN POLIOMYELITIS.

SINCE the summer of 1909 sporadic cases and small epidemics of acute anterior poliomyelitis, or infantile paralysis, have not been uncommon in France. This fact has enabled Dr. Netter to develop¹ a method of treatment that promises to have a certain value in the acute stages of the disease, and has, indeed, already been employed in thirty-two cases during the last five years. The treatment consists in the intrathecal injection of the serum of a patient who has recovered from the disease. It is not lacking in an experimental basis. Thus Flexner and Lewis have shown that, in the case of apes, such serum possesses a distinct curative power if administered early in the course of the poliomyelitis, whether the serum is of human origin or simian. Attempts to obtain an active antipoliomyelitic serum from the horse have hitherto failed. Netter points out that poliomyelitis is generally a far more serious disease in apes than it is in man. In apes it incubates for about a week, and then causes a general muscular paralysis within a day or two, death habitually following from one to six days after the onset. The prodromal symptoms before paralysis appears last only half a day or a day in apes; whereas in man the prodromal period lasts from two to four days, a point of capital importance in view of the fact that Dr. Netter's treatment is designed to render the attack of poliomyelitis abortive, and should be applied if possible before or soon after the paralysis has declared itself. The mortality of poliomyelitis is less in human beings than it is in apes, having varied between 5 and 17 per cent. in the different European and American epidemics of the last decade. The type of disease was severe in Dr. Netter's 32 cases; 8 of them died, 7 with signs of bulbar paralysis. The treatment consists in the daily intrathecal injection, usually for eight consecutive days, of from 5 to 13 c.c.m. of the sterile ("tyndallized") human serum, derived from a patient who has had poliomyelitis. Dr. Netter remarks that the serum of a person who has had infantile paralysis appears to preserve its efficacy for as much as thirty years; he prefers, however, to employ the serum of people whose poliomyelitis dates back only five years or less. He has noticed that this human serum is less irritating to the patient's system than horse serum, but may give rise to a typical outburst of urticaria; it also occasions an inflammatory reaction in the spinal meninges, the "purulent aseptic effusion" described by Widal, highly albuminous and containing mainly polymorphonuclear leucocytes. This "serous meningitis" may cause alarming symptoms, but is not really to be feared. It appears that Dr. Netter would increase the amount of serum injected in his treatment if it were not so hard to come by. What are the results hitherto obtained? As has been mentioned already, most of the 32 cases were severe in type, and only came under treatment after the paralytic stage had lasted several days. Six of the patients made rapid and complete recoveries, 3 made nearly complete recoveries, 7 were greatly improved; in 5 cases the improvement was considerable, but could not be certainly attributed to the treatment, 3 patients were unimproved, and 8 died. Dr. Netter finds these figures full of encouragement, and urges the further employment of his

¹ *Journ. Exper. Med.*, New York, 1915, xxii, 383.

¹ *Bull. de l'Acad. de Méd.*, Paris, 1915, lxxiv, 405.

treatment. The earlier it is begun—say within from one to four days of the onset of the paralysis—the better the outlook.

WAR ORTHOPAEDICS.

WE ventured to say, in an article on war orthopaedics published a fortnight ago, that we had some reason to think that sufficient use was not being made of the military orthopaedic centre at Alder Hey, near Liverpool. This belief has been confirmed by information subsequently received, and it may therefore be useful again to mention the matter. Alder Hey was started as a centre where orthopaedic cases among wounded men might receive special attention. It was intended in particular that cases of stiff or deformed joints, contracted muscles, malunited or ununited fractures, and other cases of similar nature, should be sent there from the various military hospitals in the country. It is provided with special equipment for dealing with such cases, and has the advantage of the services of Major Robert Jones, Lecturer on Orthopaedic Surgery in the University of Liverpool. In the Eastern Command a hospital was opened at Croydon last July for the treatment of men suffering from the results of gunshot injuries of peripheral nerves, stiff joints, etc. The equipment was organized under the direction of Sir Frederic Eve, a consulting surgeon to the command, and Dr. R. S. Woods. There is an operating-room where operations on nerves are performed, suitable appliances for electrical and radiant heat treatment, and for passive and active movements by the latest type of mechanical apparatus. A portion of the hospital is set aside for the treatment by massage and passive movement of slighter disabilities arising from stiff joints, under Lieutenant-Colonel Romer, R.A.M.C. A staff of masseuses has been supplied by the Almeric Paget Massage Institution.

HYPOCHLOROUS ACID AS AN ANTISEPTIC.

SURGEON H. E. R. STEPHENS, R.N., contributes to the October issue of the *Journal of the Royal Naval Medical Service* a paper on the use of hypochlorous acid as an antiseptic. His observations were made with eupad and esul, the preparations devised by Professor Lorrain Smith and his colleagues in Edinburgh and described in the *BRITISH MEDICAL JOURNAL* of July 24th. Surgeon Stephens says that the solution has been used as a general antiseptic in H.M.S. *Lion* since June 11th, 1915. If fresh wounds were washed freely with esul, no pus was seen subsequently, and the experience, though limited, was that the progress of wounds of all kinds bore out fully the results of experimental investigation. Boils, after incision, were syringed out with the solution, and a wick of gauze impregnated with eupad inserted; they cleaned rapidly; whitlows were treated in a similar manner. Cases of follicular tonsillitis and sore throat were treated successfully with esul, and in pyorrhoea alveolaris fetor disappeared, the gums took on a healthier appearance, and the discharge of pus was considerably diminished. The chief disadvantages were that the solution readily attacked metallic instruments and fabrics of all kinds, and that both powder and solution must be kept in stoppered bottles in a cool place out of light. If used in close compartments ventilation should be attended to. Its advantages were that it was an extremely powerful antiseptic, that its effect was purely local, that it was extremely cheap (at least 150 times less expensive than iodine), and that it was simple to prepare and did not irritate the wound. If a slight tingling sensation was experienced it passed off as a rule in a few minutes. Some oedema of the skin surrounding the wound might be observed if a esul compress were applied for a long

period, but this could be prevented by a vaseline smear. He also considers that the antiseptic, being gaseous, penetrates deeper than solutions.

ENTRIES AT THE MEDICAL SCHOOLS.

THE number of medical students who have entered at Cambridge this year is 41. The number who entered at the corresponding period last year was 64; in 1913 there were 116. In London there seems to have been, as was stated last week, a general falling off of students entering for the full course. At St. Thomas's Hospital the entry is about 45 per cent. of the average, and it is believed that many of the students so entering will in present conditions enlist within the next few weeks. At St. Mary's Hospital the decline, as compared with the average for the three years prior to 1914, is about 23 per cent.; at King's College Hospital Medical School it is about 11 per cent.; at Guy's it is about 10 per cent.; at St. Bartholomew's only 2 per cent. At University College Hospital Medical School the entry is a little below the normal, while at the London Hospital Medical School the entry is only 5 per cent. below the normal, and is actually larger than in 1913. These statements are subject, more or less, to the same qualification as is noted in regard to St. Thomas's—namely, that many men who now enter may presently abandon medical studies in order to enter the army. At all the schools the entry for special post-graduate classes has declined materially, and probably the experience of other schools is similar to that of St. Mary's Hospital, where the returns for 1914 showed a fall of 48 per cent. and those for 1915 of 62 per cent., as compared with the average figures for the entries for post-graduate courses for the three years before the war. At the London School of Medicine for Women the number of students who have entered is 110, as compared with 69 last year, and an average of 44 for the three years preceding the war.

NOSTRUMS IN THE UNITED STATES.

THE American Public Health Association, at its recent meeting in Rochester, New York, adopted a resolution condemning the sale of "patent medicines" and nostrums whose constituents are unknown to the health authorities, and heartily endorsing the ordinance of the New York City Department of Health, which requires the manufacturers of proprietary remedies sold without a physician's prescription to file with the department a statement of their active constituents and the therapeutic claims made for them. The *Medical Record* states that the Health Department reports that the new registration ordinance is meeting with encouraging response; a considerable number of manufacturers have already applied for registration, and several of the larger retail druggists in New York have notified the manufacturers of patent medicines that after January 1st they will refuse to handle all patent medicines which fail to comply with the ordinance.

THE next session of the General Medical Council will begin on Tuesday, November 2nd, when the President, Sir Donald MacAlister, K.C.B., M.D., will take the chair at 2 p.m.

THE *Times* announces that, with the full concurrence of the Governor-General in Council, His Majesty's Government has decided to postpone indefinitely the publication of the report of the Royal Commission on the Indian Public Services, which was signed last August. The decision is in accordance with the desire expressed last January by the Viceroy, and loyally carried out by the non-official members of the Council, that controversial issues should be set aside during the continuance of the war.

Medical Notes in Parliament.

Naval and Military War Pensions Bill.—When the Lords' amendments were brought up on October 14th the Chancellor of the Exchequer obtained an adjournment of the discussion. On October 21st Mr. Hayes Fisher, Parliamentary Secretary to the Local Government Board, in moving that the Lords' amendments should be considered, said that the Government was convinced that the subject required much more drastic and thorough treatment than could be given to it at the present time owing to the pressure of other business. He hoped that a larger measure would eventually co-ordinate the work so as to bring all matters connected with pensions, grants, and allowances to sailors and soldiers under one pensions board and into one pensions buildings with which he hoped auxiliary voluntary bodies would be in close communication. While accepting some of the Lords' amendments, the Government desired to restore the provision with regard to the Royal Patriotic Fund Corporation, thus making the statutory committee more or less a voluntary body relying more or less upon voluntary funds. The Government desired that the bill should be taken much in the shape in which it left the House of Commons, as an experiment to be worked as well as possible for the next six months. During that time much would be learnt about the scope and permanence of the problem. The House agreed to the course proposed by the Government, the most important point in which it disagreed with the Lords being the proposal to set up a "War Allowance Board." The amendment providing for the appointment on the statutory committee of two representatives of the Soldiers' and Sailors' Families Association was agreed to.

Midwives Bill (Scotland).—Mr. Lloyd George informed Mr. Hogge, on October 26th, that he was not without hope that arrangements would be made for introducing a Midwives Bill for Scotland at an early date.

Bovine Tuberculosis Order (Ireland).—On October 20th Mr. Clancy asked a question as to a resolution passed by the County of Dublin Insurance Committee relative to what was described as the grave danger to the purity of the milk supply and the consequent results to the health of the community, especially of the young, caused by the withdrawal of the Iovine Tuberculosis Order. Mr. Birrell said that all provisions of the Order save one had been suspended in Ireland as in Great Britain, and for the same reason, namely, retrenchment of expenditure. The local authorities were not consulted before the suspension, but a circular fully explanatory of the position was sent to each local authority by the department.

Experiments on Living Animals.—On October 20th Mr. Greenwood asked why the names of those licensed experimenters on living animals who had committed a breach of the law in the course of such experiments were suppressed in the returns relating to such experiments. Sir John Simon said that if the offences were serious and a prosecution followed the name would, of course, become public; but it had never been the practice to publish the names of persons guilty of technical offences or the omission of formalities which could be adequately dealt with by reprimand. He did not think any useful purpose would be served by altering the rule. The Royal Commission discussed the point in their report, but made no recommendation in favour of publication. Sir John Simon, in replying to a further question by Mr. Greenwood on October 21st, said that it was decided this year on grounds of economy, in the return of experiments on living animals during 1914 and other Home Office returns, to exclude any matter not really essential. Information regarding the various certificates granted under which experiments were allowed could be obtained by reference to the return for any preceding year.

Drugs from Germany.—Mr. Rawlinson on October 21st asked whether facilities had been and were being given by

the Foreign Office for the free passage from Germany to neutral countries of drugs and other articles manufactured in Germany, and, if so, whether he could state the approximate value of such goods ordered and delivered since March 1st, 1915; and further, under what Order in Council or document such facilities had been granted. Sir E. Grey said that to describe the action of His Majesty's Government in these cases as a grant of facilities was to use a form of words which might give rise to misapprehension. There was no question of any action taken under an Order in Council or in virtue of any legislative enactment. What His Majesty's Government did was to give directions to His Majesty's ships that particular consignments were not to be captured and brought in for adjudication in a Prize Court. As regards goods ordered and delivered since March 1st, 1915, such action had only been taken—

(1) In the case of a few consignments of certain drugs unobtainable except from enemy territory or having no chemical equivalents procurable outside enemy territory, such as salvarsan and novocain; (2) in the case of certain natural products—for example, sugar beet seed—urgently required by important industries in other countries and unobtainable except from enemy territory; and (3) in the case of machine knitting needles, beet sugar slicing knives, scientific or technical publications required by universities or educational establishments in a neutral country, and a few articles, such as a stained glass window, required by religious establishments to complete orders placed a long time ago with an enemy firm.

It was difficult to form an estimate of the value of these articles, but he believed it would be certainly less than £300,000 altogether. It should be added that these consignments had been allowed to pass either in response to urgent representations by certain neutral Governments, based sometimes on undeniable humanitarian grounds, or to meet certain home demands.

Gallipoli Casualties.—Dr. Macnamara stated, in reply to Mr. King on October 21st, that exclusive of the Royal Naval Division, the casualties for which were included in the figures given by the Under Secretary of State for War on October 14th, the figures up to October 20th were as follows:

	Officers.	Men.
Killed	54	859
Wounded	56	524
Missing	9	80

Gifts from India.—In the course of a reply to Sir John Jardine on October 20th, with reference to the contributions received from the ruling chiefs and others in India in connexion with the war, Mr. Chamberlain, Secretary of State for India, stated that three hospital ships had left India—the *Loyalty*, given jointly by the ruling chiefs; the *Madras*, given by the Madras War Fund; and the *Bengali*, given by the people of Bengal. The last had unfortunately been wrecked on its way to the Persian Gulf; the first two had been continuously employed this year in carrying sick and wounded between India and the theatres of war. Among the gifts of the Maharaja Sindhia of Gwalior was a motor ambulance fleet, while the Maharajas of Kashmir and Patiala and the Jam of Nawanganar, besides other services, were jointly maintaining a hospital for officers in a house at Staines which His Highness the Jam had given for the purpose.

Mentally Injured Soldiers.—In reply to Mr. Touche, Mr. Tennant stated, on October 26th, that the administration of asylums or parts of asylums in which soldiers were treated was under the full control of the War Office. The arrangements now in force adequately safeguarded the interests of uncerifiable soldiers. The cases of mentally injured soldiers admitted to such institutions were treated as nerve shock cases in which recovery was possible or probable. The number of certifiable cases relatively to the size of the army was very small.

Doctors' Chauffeurs and Badges.—In reply to Mr. Tyson Wilson, who on October 26th asked whether chauffeurs of medical men who were attending military hospitals two or three days a week would be allowed to wear war badges, Mr. Lloyd George said that it was not considered that in these cases the conditions governing the use of war service badges had been satisfied.

THE WAR.

DUCHESS OF CONNAUGHT CANADIAN RED CROSS HOSPITAL.

THE Duchess of Connaught Red Cross Hospital at Cliveden, Taplow, has been considerably enlarged. The original hospital was created by Major Waldorf Astor, M.P., out of covered tennis, fives, and racquets courts, and consisted of four wards of 130 beds, with an operating and x-ray room. A dining-room, kitchen, and annexes were built on. The equipment was done by Colonel Hodgkiss, Commissioner of the Canadian Red Cross, and the hospital was placed under Lieutenant-Colonel Ford, and subsequently, when he went to France, under Lieutenant-Colonel C. W. F. Gorrill, who is now in command. The Registrar is Captain Neff of Edmonton, and the pathologist and bacteriologist Captain Morell, city pathologist, Regina. All the other members of the medical and surgical staff belong to the Canadian Army Medical Corps, but as the personnel varies from time to time we are not in a position to give a list of the staff. All the nurses and orderlies are furnished by the Canadian Army Medical Corps. The medical officer and nurses are commissioned, the latter with the relative rank of lieutenant in the Canadian Army Medical Corps. The hospital is one of the central hospitals of the Southern Command, and accepts direct from overseas all patients sent by the D.D.M.S., Southampton. That is to say, its patients are not confined to the men of the Canadian contingent, and recently the majority of inmates were not Canadian.

In response to the request for further accommodation, a large hut hospital has been erected by the Canadian Red Cross Society, by contributions from Canada, on a site facing south and east, adjoining the original structure.

The new buildings, which were taken into use on July 12th, consist of five pairs of wards facing southward at a very open angle (butterfly pattern), strung together by two central corridors. Each of the principal wards has a verandah where patients can sit out, and where many of them sleep. The southern windows are not glazed, but fitted with fine woven wire netting. Between the two central corridors are the lavatories for each pair of wards, and on either side of the approach to each ward proper a ward scullery, a room for washing pans, two single bed wards, and a small kitchen for making tea and so on, are provided. The southern end is a building differently arranged, providing three wards, and towards the north is another separate building for "walking cases." Isolation beds are provided in a separate building. The medical and nursing staff are accommodated in a house and half a dozen cottages which have been provided and fitted up for them by Major Astor on the estate.

The wards are one-story buildings; the framework is constructed of wood, with double asbestos walls. The new operating theatre has just been completed. It consists of a large and well lighted theatre, with anaesthetic, sterilizing, x-ray, and dark rooms, and lavatories for the surgeons. In another block are rooms for the special departments, eye and ear, dental, and pathology. The original dining room and kitchen are being enlarged. The food is taken from the latter in heated food-carrier trolleys to a central serving-room provided with hot plates. The portions are here served and taken in smaller heated food trolleys, each of which has space to serve one ward. The hospital is lighted throughout by electricity made on the spot, and has its own water supply also provided from Cliveden. Sewage is disposed of on the septic tank principle, and garbage and dressings are incinerated.

The feature of the hospital which seemed to us on a recent visit particularly worthy of commendation is the reception block. It is a long building containing five apartments. The motor ambulances which bring the men from Taplow station, about two miles away, draw up at the southern end of this building. The wounded man is immediately brought into the reception office, where his name and other particulars are entered and compared with the nominal roll from the ambulance train. He then passes into a waiting-room provided with chairs, where he stays until he can be admitted into the dressing-room. There he leaves all his clothes except his cap and boots,

and passes into the bathroom, where there are ten fitted baths provided with hot water. From there he goes into the next room, is given clean clothes, and directed by the orderly officer to the appropriate ward. The time occupied from the moment the man leaves the station in the motor ambulance to the moment when he is in bed in his ward is under an hour, and it has been found possible to pass as many as sixty men an hour through the reception block.

Canadian convalescents are drafted from the Cliveden Hospital to the Canadian Convalescent Hospital at Hillingdon House, Uxbridge, and men must often leave with regret, for Cliveden is beautifully situated, and the grounds are a fine example of landscape gardening on the large scale.

MEDICAL ARRANGEMENTS OF THE BRITISH EXPEDITIONARY FORCE.

[From a Special Correspondent in Northern France.]

THE WORK OF FIELD AMBULANCES.

IN a note published in the BRITISH MEDICAL JOURNAL last winter it was indicated that while no adequate reason had yet presented itself for departing from accepted methods of conducting the training of field ambulance units, it was clear that the work of those then in process of formation or awaiting orders for the front might not be quite what they expected.

At the time this statement was made there were already circumstances which justified it, and the accuracy of the forecast has been borne in all particulars by the events of the past six months. That period has seen the arrival in France of troops who were then only in training, and it was contact with certain field ambulances connected with these reinforcements that reminded the writer of what he had read in the JOURNAL as to the diversity of offices that field ambulances as a whole might find themselves expected to fulfil.

The first of these units, which may be entitled A, was engaged in work in no wise resembling that which the term "field ambulance" suggests. Instead of being more or less constantly on the move, and occupied in the collection of the wounded from the regimental aid posts, in doing emergency operations, and in passing on its cases to a casualty clearing station, it was an entirely stationary unit, fulfilling a triple function of a much less exciting kind. Its vehicles had been parked for the time being, and its staff and personnel were divided up to run a clearing station for infectious cases, a bathing establishment, and an institution somewhat misleadingly termed a "convalescent hospital."

Its occupation, it is to be noted, was not in the least due to the fact that it was a newly arrived unit. The primary cause was that a need for the work in question had been created by the circumstances of the war, and that the need was not directly anticipated by the *ante bellum* textbooks or assisted by army regulations to any unit created for the purpose. The secondary cause was that A was free to undertake it. It was free to undertake it because, thanks to the siege-like character of the military operations then and now in progress, to the abundance of motor ambulance convoys, and to the proximity of the casualty clearing stations, two of the three field ambulances belonging to the division served by unit A fully sufficed for all the field work required.

The occupation of other field ambulances—which may be called B, C and D—also illustrated the same point, though not perhaps quite so completely.

B, like A, was a territorial unit, but serving a different division, and also like A had at least three jobs in hand. It was running simultaneously a rest station, a laundry, an advanced dressing station, and a respirator factory. At the latter native labour was employed, but the whole work was in charge of an officer of unit B, with a file or two to assist him in its supervision.

The head quarters of units A and B were in a town of some size but unit C was more or less under canvas. It was running a rest camp and small bathing station, and was bivouacked around the farm buildings taken over for the purpose. C was a unit of long standing; it had, in fact, arrived in France with the first detachment of the Expeditionary Force, but, just as in the case of units A and B, its services in its usual capacity were not

required for the moment by the division to which it belonged.

As for D, this letter relates not to a single unit but to all three field ambulances of one particular division. On paper they preserved their independence, but otherwise they had practically combined. Their general head quarters were in a village of some size, and between them they were running a large rest camp, which included a bathing station, a "convalescent hospital"—established in a permanent building of some size—and two dressing stations, one in an advanced, the other in an intermediate position.

Their various officers were taking turns of duty at regular intervals in connexion with all the different enterprises conjointly carried on, and in this way all shared fairly whatever was to be had in the way of dull work or exciting work, risky posts or safe posts, soft jobs or hard jobs.

The same idea of sharing all forms of work also underlay, I understood, the arrangements of the divisions to which units A, B, and C belonged; at intervals the different field ambulances of each of the divisions concerned were to exchange position and occupation. Whether the plan was ever put into effect I do not know, for the next time I was in the same area I found that units A, B, and C, together with the divisions to which they belonged, had all moved to a distant part of the line, and the work they had been doing was now in other hands.

The occupations described do not as a whole sound particularly interesting or likely to appeal to men so mentally and physically constituted as to be led—as far as concerns the officers of units A and B—when joining the Territorial Force, to select a field ambulance unit.

Nevertheless, there did not seem to be any disposition to grumble at their existing employment. They did not expect to be thus engaged for any very long period, and meantime they were anything but mere machines. The work demanded not only industry and energy, but also plenty of organizing power. In addition, its utility was obvious.

It will have been observed that in the case of only one of the units did the duties described include no field work whatever. They were, in short, not exceptionally situated units, but engaged in a fashion which made them as a whole a very fair sample of their class. The needs of all divisions are much the same in the matter of baths, cleansing operations, rest camps, and their like, and unless they are met by some arrangement available to a large number of divisions it is to its A.D.M.S. and the field ambulance under his command that a division looks for assistance in the matter. Obviously rest camp and convalescent work is medical, and baths and clean underclothes are such powerful adjuncts to directly medical measures for keeping the men in good health that all A.D.M.S., I believe, regard it as part of their ordinary duty to see that they are made available. But, of course, they always bear in mind the possibility of a general advance or a heavy local offensive or defensive operation suddenly and greatly increasing the need for field work, and take care that it should be possible instantly to release the personnel of the field ambulance units for this purpose. Given the occasion, rest camps and convalescent hospitals must be temporarily evacuated, baths and washhouses closed, unless the D.D.M.S. of the army corps involved prefers to fill the vacated posts by drawing M.O.'s temporarily from some other division or by asking the D.M.S. of the army to which his corps belongs to get up additional medical officers from the base. But in this matter there can rarely be any great difficulty. Divisions which are heavily engaged have no time for baths, and heavy fighting seems in itself to be a sovereign remedy for most of the ills that help to fill the rest camps and convalescent hospitals. A glance at the sickness and casualty chart of almost any division will show this.

The infectious case clearing station mentioned at the beginning of this note was not specially intended for the benefit of the division to which the field ambulance in charge of it belonged. Like an ordinary casualty clearing station it was an army head quarters unit and part of the general machinery—some prearranged, some improvised, to meet new needs—for keeping down the wastage due to zymotic disorders. All cases of illness diagnosed at a regimental aid post or an advanced dressing station or elsewhere in the area as probably of an infectious order were sent there

for final diagnosis and disposal, instead of to the nearest casualty clearing station. The necessary accommodation was provided by some modern farm buildings and a number of marqueses, and it allowed of six different classes of cases being separately isolated. The patients remained, as a rule, only a very few days. The diagnosis assured—with the help of a mobile laboratory, if need be—the patient was sent on to a base, either in the isolation coach of a hospital train or by a special ambulance, usually the latter.

The scope and status of the other enterprises varied a little. The rest camps and convalescent hospitals confined their work to men of their own respective divisions, but one of the bathing establishments seemed to have been prepared for work on a still larger scale.

The means at the disposal of these bathing establishments were in some cases primitive, but their scheme of work was identical and they all attained their primary aim. This was to provide each man admitted with a bath of hot water and plenty of soap, and to substitute for the underclothing that he was then wearing a set which was both clean and in good repair. At the larger establishment that has been mentioned they went a good deal farther than this—they turned a man out not only completely re-equipped in the matter of under garments, but attended to his external clothing as well.

As it had been dealing on these lines with an average of just under 1,000 men a day for many successive weeks, it is natural to surmise that its arrangements were elaborate and its premises especially suited to the end in view, and this was the case. The work was done in a very large building which, being in peace times a linen weaving and dyeing factory, possessed fittings readily adaptable to the requirements of a combined bathing, clothes washing, and repairing establishment on a very extensive scale—boilers, hot-water pipes, drying racks, and huge vats in each of which half a dozen men could bathe simultaneously.

The men as they arrived—commonly in companies—made their outer clothes, all except their boots, into bundles, which were then taken to a sterilizer, and the men moved in sections into the vat room. There they stripped to the buff, throwing each separate garment into a separate receptacle—one for vests, one for pants, one for socks; they then took their baths and dried themselves, the whole process being timed and lasting a given number of minutes. The redressing arrangements, which included the issue of fresh underclothing in good condition, were conducted in a separate hall. Meantime and all day long laundry and repairing work went on in different halls, all the various appliances required in the way of washing, wringing, and sewing machines being provided, and about 100 women being employed to work them.

The term "convalescent hospital," which has been used in speaking of the work of two of the units mentioned in the previous note, is not strictly official. The institutions to which it is applied were two large, well-fitted buildings, which might be regarded as the tent sections of the ambulances concerned. Their accommodation was more elaborate, but their work was identical with that of the rest stations or camps. The patients were for the most part men suffering from slight ailments or injuries—tired men, footsore men, men with slight bronchial attacks, stomach troubles, passing skin complaints, men undergoing antipneumococcal inoculation, and men suffering from pyrexia not deemed to be premonitory of serious disorder. If any patient failed to fulfil expectations by not getting quite well within a few days, or if he developed symptoms suggesting the probability of prolonged illness, he could always be sent to a base via a casualty clearing station, and meantime he was receiving all the attention he required. These rest stations, in short, fulfilled a double purpose. They supplied a means (1) of bringing a possibly serious case under treatment when in an incipient stage, (2) of conforming to an accepted axiom, namely, that cases likely to be fit to return to duty within a limited time should not be removed for treatment to a greater distance from their units than was unavoidable.

Finally, it should be mentioned that it is not always under the title of rest station or convalescent that work of this kind is carried on. A good deal depends on local circumstances, including the proximity of the field ambulances to one another and to a casualty clearing station; the character of the accommodation that a field ambulance

can secure; and the nature of the ground just behind the actual fighting line; and the distance between the opposing trenches.

In some cases ambulances may be so situated that they can carry on both rest stations and ordinary tent section work, simultaneously and in the same building. In other words, they can provide both for the seriously wounded and sick men who, after receiving a certain amount of attention, will be sent on to a casualty clearing station, and for the light cases whose treatment would begin and end at the ambulance itself.

As for the field work of ambulances its description or discussion was not one of the objects of this note. Since, however, so much stress has been laid herein on what may be described as the civil side of field ambulance life, it may be well to accentuate the fact that it is for youngish or at all events hardy men that ambulance duty is best fitted. Taken as a whole it involves a roughish life and a considerable spice of danger.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

Honorary Lieutenant and Quartermaster J. T. Fry, R.A.M.C., was reported in the casualty list published on October 25th as having died on service in France. He was promoted to a commission so recently as last July.

Wounded.

Captain R. O'Kelly, R.A.M.C., France.
 Captain E. Scott, R.A.M.C. (temporary), France.
 Lieutenant A. K. Roche, R.A.M.C. (temporary), France.
 Lieutenant J. P. Shaw, R.A.M.C. (temporary), France.
 Lieutenant J. Macgregor, R.A.M.C. (temporary), France.
 Lieutenant C. K. Dudgeon, R.A.M.C. (temporary), France.
 Lieutenant W. T. C. Frew, R.A.M.C. (temporary), France.
 Dr. K. K. Grieve, West African Medical Staff, Cameroons.
 Captain H. C. Mulholland, R.A.M.C. (temporary), France.
 Captain W. K. Campbell, R.A.M.C. (Special Reserve), France.
 Lieutenant L. L. Fyfe, R.A.M.C. (temporary), France.
 Lieutenant C. M. Dickinson, R.A.M.C. (temporary), France.

Wounded and Suffering from Gas Poisoning.

Lieutenant J. R. Turner, R.A.M.C. (temporary), France.

Suffering from Gas Poisoning.

Lieutenant N. S. Whitton, R.A.M.C. (temporary), France.

Missing.

Captain J. Morham, of the 4th Queen's Edinburgh Battalion of the Royal Scots, reported as missing in the Dardanelles, though serving as a combatant officer, was a medical man. He was the son of the late Robert Morham, City Architect, Edinburgh, and was educated at the Edinburgh Institution, where he was for some years in the Rugby fifteen. He took the L.D.S. of the Edinburgh Royal College of Surgeons in 1906, and the Scottish triple qualification in 1908, and was in practice as a dentist in Edinburgh. He joined the 4th Queen's Edinburgh in 1900, became Second Lieutenant in 1910, Lieutenant on July 10th, 1912, and was recently promoted to Captain.

DEATHS AMONG SONS OF MEDICAL MEN.

Bunce, Ronald Macdonald, Second Lieutenant 3rd Lowland Brigade Royal Field Artillery (T.F.), only son of Dr. Alexander Bunce, of Pontefract, died at Craigleith Military Hospital, Edinburgh, on October 16th, from the effect of a fall from his horse. He was a medical student at Edinburgh University, where he was in the Officers' Training Corps, and had got his commission less than a month before, on September 22nd.

Fox, Andrew Stewart, Second Lieutenant 6th Battalion North Staffordshire Regiment, elder surviving son of Dr. Porteus Fox, of 36, Devonshire Place, London, W., killed in France, October 11th-13th, aged 21. His commission was dated March 20th, 1915.

Handford, Everard Francis Sale, Second Lieutenant 8th Battalion Sherwood Foresters, younger son of Henry Handford, M.D., F.R.C.P., of Elmfield, Southwell, Notts, killed in France, October 14th, aged 20. He was educated at Rugby, where he was in the fifteen, and had entered at Trinity College, Cambridge, but never joined, taking a commission from October 3rd, 1914.

Handford, Henry Basil Strutt, Captain 8th Battalion Sherwood Foresters, elder son of Henry Handford, M.D., F.R.C.P., killed in France on the same day as his brother, October 14th, aged 21. He also was educated at Rugby, where he was in the Officers' Training Corps; entered Trinity College, Cambridge, in 1912, and had taken a second class in the first part of the Law Tripos. He joined his battalion as Second Lieutenant in 1912, became Lieutenant on September 2nd, 1914, and had recently been promoted to Captain.

Nicholson, H. W., Captain 5th Battalion Lincolnshire Regiment, only son of Dr. J. W. Nicholson, late of Red Hall, Gainsborough, killed in France, October 11th-14th, aged 25. He was educated at Cheltenham and at Uppingham, and was by profession a civil engineer in the firm of Marshall, Sons and Co., Gainsborough. He joined the 5th Lincolns in 1908, and became Captain on September 7th, 1914.

Paton, James Ley, Second Lieutenant 1st Battalion Black Watch, eldest son of Major E. L. Paton, R.A.M.C.(T.F.), of Perth, killed in France on October 13th, aged 22. He was a final-year medical student of St. Andrews University, where he was captain of the university eleven and a member of the Rugby fifteen and of the golf team, enlisted at the beginning of the war, got a commission in the 8th Battalion of the Black Watch from November 4th, 1914, was transferred to the 1st Battalion, and went to the front during the summer.

Williams, Hubert C., Lieutenant 2nd Battalion Queen's Regiment, was killed in France on October 18th, while in command of a company of the 1st Battalion. He was 25 years of age, and the only son of the late Dr. Arthur Williams of St. Leonards, and Mrs. Arthur Williams, recently of Felixstowe. He was educated at Rugby, entered Sandhurst in February, 1911, and received his commission in the Queen's (Royal West Surrey) Regiment in February, 1912. He was wounded in Flanders during the operations after the fall of Antwerp, and for his gallant conduct at that time received the Military Cross. After recovering from the wound he was appointed signalling officer at Harwich, and had only returned to France at the beginning of October. He was a nephew of the Editor of this JOURNAL.

NOTES.

HONOURS.

The *London Gazette* of October 15th published a list of officers of the British and Dominion forces awarded decorations "for distinguished conduct in the field" in connexion with the operations in the Dardanelles. Among these officers is Colonel Michael Thomas Yarr, F.R.C.S.I., who receives the honour of C.B.

SANATORIUM FOR TUBERCULOUS SOLDIERS.

A sanatorium for tuberculous soldiers, sailors, and munition workers has been opened at Beechwood House, Newport, Monmouthshire. The building has been lent by the corporation to the Welsh Memorial Association, and will be available for men from Welsh and Monmouthshire units. Sir Garrad Thomas, M.D., who presided at the opening meeting, said that the corporation had very readily responded to the request of the deputation, of which he had been a member, and read a letter from Colonel David Davies, M.P., the president of the association, thanking the corporation for the use of the house and grounds.

MILITARY HOSPITAL AT BRADFORD.

The work of converting St. Luke's Hospital, lent by the Bradford Poor Law Union, into a military hospital is nearly completed. The St. John Ambulance Brigade or the V.A.D. will supply men for removing the wounded. It is estimated that fifteen ambulances will be required and from fifteen to twenty cars for the conveyance of wounded and other purposes of the hospital. It is understood that the hospital will be able to utilize Field House and Woodlands Convalescent Home for convalescents.

MEDICAL OFFICERS WANTED.

3/2nd South Midland Mounted Brigade Field Ambulance T.F.

Medical officers are required for the above unit, at present stationed at Great Missenden, Bucks, and shortly proceeding to Oxford for winter quarters. When trained and efficient, they must be prepared to be posted to the 2nd and 1st lines to replace casualties. Apply to Officer Commanding, 3/2nd South Midland Mounted Brigade Field Ambulance, T.F., Great Missenden, Bucks.

2/2nd Highland Field Ambulance.

Two medical officers are required for this ambulance. Applications to Major Cameron, officer commanding R.A.M.C. Headquarters, Comrie, Perthshire.

England and Wales.

CIVIL SANITATION AND THE WAR.

At the first meeting of the seventy-seventh session of the Liverpool Medical Institution, which took place on October 21st, 1915, the President, Dr. E. W. Hope, M.O.H. Liverpool, delivered an address on civil sanitation and the war. On the outbreak of war, he said, the civil and military authorities combined and rapidly organized camps, billets, took steps to prevent infection, to supervise contacts, to cleanse clothing and bedding, to provide baths, and to supervise food supplies and food contracts. Fazakerley Fever Hospital was handed over to the military. At first some difficulties arose owing to the dislocation of the sick and injured from hospital treatment which was the normal state in a large city. Fortunately no epidemic occurred, and the health of the city population had been remarkably good during the past twelve months. The city authorities had, however, made ample provision for any cases of imported infectious disease to which a seaport like Liverpool was especially liable. The number of medical practitioners had been considerably depleted, and extra work had devolved upon those who had been unable to respond to the call of their country. Nineteen out of the medical staff of twenty-five belonging to the health department had joined the colours. Dr. Stewart, who was an Associate of the institution, fell at the Dardanelles. His was the first death among the local medical men who so promptly responded at the outbreak of the war. One practical step was taken to ensure prompt medical aid for midwives in emergency cases. If the husband was at the front arrangements were made whereby the police could transmit urgent messages to medical practitioners from the various police stations. The scavenging department suffered from the depletion of its ranks. No fewer than 1,100 out of 3,500 promptly enlisted at the first call to arms, and their places had to be filled by persons less physically able and less skilled. In August the copious rainfall proved a blessing in disguise, for at this period, which was critical from a public health point of view, the city was cleansed far more effectively than usual. One remarkable effect of the war has been the great diminution of poverty owing to the unprecedented increased use of the Port of Liverpool. Thanks to the liberal separation allowances, a large proportion of families were in receipt of better and more regular incomes than before the war. The limitation of the hours during which public houses were permitted to be open and the abolition of treating had been wholly beneficial, and added considerably to the well-being and welfare of the working classes. During the first six months of the war, owing to the great congestion of shipping diverted to Liverpool and the inability of the dock labourers to cope with it, a considerable quantity of foodstuffs was unavoidably damaged, and some 3,500 tons were condemned as unfit for food. During the first six months of this year only 2,000 tons were destroyed. Food inspection had been systematically carried out, and the refrigerated meat destined for France or Italy had been transhipped to these countries or placed in cold storage until required. Many horses and mules reached Liverpool from ports scheduled under the orders of the Board of Agriculture, and dead animals and the destruction of fodder and litter had to be attended to lest any contagious disease should obtain a hold among the cattle of this country.

Dr. Hope's address was much appreciated, and every member felt that the organization of the work devolving on the civic authorities and the military authorities was being carried out effectively, and that the Port of Liverpool has well earned the prosperity it is now enjoying. Dr. T. R. Glynn, Professor of Medicine at the University, proposed in felicitous terms a hearty vote of thanks to the President, whose address was full of illuminating facts. Mr. Rushton Parker, Professor of Surgery, seconded, and the proposition was carried with acclamation. Afterwards a *conversazione* took place, and by the hospitality of the President refreshments were provided.

THE SALFORD ROYAL HOSPITAL.

In spite of the great demands made by the military authorities on the Salford Royal Hospital, the ordinary work of the hospital has been carried on without any serious break. Up to the present the medical board has

been able to retain the services of most of the resident staff, who were, in fact, practically indispensable if the ordinary patients were not to be neglected. At the annual meeting of the board last week it was stated that during the past year over 25,000 patients had been treated, of whom about 3,000 were in-patients and about 13,000 accident cases. The effect of the war on the ordinary funds of the hospital has not, perhaps, been as serious as might have been expected, for though the expenditure of the year was £15,844 and the income only £15,024, the deficiency is no greater than has occurred on several previous occasions before the war. Special arrangements have been made for the reception and treatment of wounded soldiers, and down to the end of June 755 soldiers had been treated. A number of the sisters and nurses have been accepted for military service, and to take their places certified members of the British Red Cross Society have been accepted for training in the hospital. In view of the great demand now being made for medical men below the age of 40 for service with the forces, the board expressed some concern lest it might lose the services of some of its resident staff, and might find difficulty in supplying their places for the necessary work of the hospital.

THE 2ND WESTERN GENERAL HOSPITAL.

At a recent visit of inspection of the 2nd Western Military Hospital at Whitworth Street, Manchester, Surgeon-General Sir Alfred Keogh and General Sir W. H. Mackinnon expressed their complete satisfaction with all the arrangements made for the reception and treatment of wounded soldiers. It is understood that the Manchester Base Hospital is the largest of its kind in the country, and has received more casualties than any one of the other base hospitals. During one period of ten days since the last British advance a large number of casualties were received for treatment, and through the excellent system of transport organized by the Red Cross Society the cases were distributed among the various attached hospitals with the least possible delay.

WELFARE OF MOTHERHOOD AND INFANCY.

The public meeting promoted by the Central Committee for National Patriotic Organizations and the National Association for the Prevention of Infant Mortality, to consider means for the promotion of the welfare of motherhood and infancy, was held at the Guildhall, London, on October 26th, under the presidency of Sir T. Vezey Strong, who took the place of the Lord Mayor, who was indisposed. The President of the Local Government Board said that the depletion in the numbers of the fathers of the future rendered it more urgent to care for the lives of the women, and to see that the children were protected in their youngest days. Statistics, he said, were against the assumption that poverty was the main cause of infantile mortality: ignorance, dirt, and neglect were far more important. He appealed to all those interested in the subject, and especially to women, to agree to work in one group. The Duchess of Marlborough said that the establishment of infant welfare centres had been followed by good results in reducing infant mortality. There was need for the appointment of a greater number of women as sanitary inspectors and health visitors, and no effort should be spared, especially by the women of the country, to initiate and administer the scheme which the action of the Local Government Board had made possible in every district. The Postmaster-General, who followed, said that it had to be realized that the security of our civilization depended not only on the quality and efficiency of our people, but also on their numbers, and it was a fact which gave food for thought that while the population of the United Kingdom increased in ten years by $\frac{3}{4}$ millions, that of Germany had increased by 8½ millions. Much of the mortality among infants was not inevitable, and, in addition, antenatal mortality must be considered. The saving of these lives was one of the few matters in which the Government and the legislature were ahead of the nation. The majority of local authorities showed little activity, and public opinion should awaken them from their lethargy. Sir James Crichton-Browne said that much of the mortality among infants could be prevented; doctors' babies died at the rate of only 40 per 1,000 in the first year because doctors knew how to

look after them, whereas those of miners who did not know how to look after them died at the rate of 160. Further investigation into antenatal pathology should be made, and for this purpose stillbirths should be registered and centres of scientific research established. It had been hoped that a grant of £25,000 would be made by Parliament for this purpose, and he understood that in certain circumstances the money might yet be asked for in a supplementary estimate. It was announced at the meeting that messages of sympathy had been received from the Queen, Queen Alexandra, the Prime Minister, the First Lord of the Admiralty, the Archbishops of Canterbury and York, the Chief Rabbi, and Dr. Leslie Mackenzie, medical member of the Local Government Board for Scotland.

A telegram from New York to the *Times*, under date October 24th, states that a newly-formed Gesellschaft für Bevölkerungspolitik recently held a meeting in Berlin, which was attended by men of science and sociologists and representatives of the Imperial Government. Among measures recommended for the renewal of Germany's male population were abolition of the legal age for marriage, the removal of all bureaucratic obstacles to marriage, assistance for those who feel they are unable to marry, and State premiums for large families on the one hand; and, on the other, heavy taxation of bachelors, old maid, childless couples, and those who adhere to the one or two children scale. A propaganda of an educational character was decided upon with the object of impressing upon men and women in Germany that it is their patriotic duty to increase and multiply. In this work the churches and schools are to be enlisted.

Major Leonard Darwin, president of the Eugenics Education Society, asks us to state that he desires to repudiate on behalf of the society all connexion with those who hold many of the views contained in a pamphlet called "Eugenic Peace," which has been distributed among the members of the society. "We know," he says, "that terrible damage must result from the wholesale slaughter of our fittest men, we foresee that many practical steps ought to be taken both now and at the conclusion of the war in order to rebuild the nation, but we hold that nothing must stand in the way of every man and woman devoting their whole available energies to the task of bringing this war to a successful conclusion."

Scotland.

LEITH HOSPITAL IN WAR TIME.

LEITH HOSPITAL has always had to deal with many wounded, for Leith is a seaport with large docks and many works, and accidents have hardly ever been wanting; but since November last (1914), when the first wounded soldiers from the front were received, its beneficent activities in this direction have been greatly increased. In something like four ways the hospital has been playing its part in the war.

In the first place, the institution has given freely of its consulting and acting staff. One of its consulting surgeons, Mr. Miles, has been rendering valuable service in the R.A.M.C.; both the physicians (Drs. Edwin Matthew and Murray Wood) are also in the R.A.M.C. Mr. Scot-Skirving, one of the surgeons, has been doing duty at Craigleigh, his work in the hospital having been carried on by Mr. W. W. Carlow (who has continued to act as registrar). Mr. J. W. Strothers has now returned to his post from France, where for some months he was doing war work; during his absence his duties were performed for a time by Mr. James M. Graham, and for another period by Mr. W. Q. Wood. The pathologist, Dr. A. Pirie Watson, is at the Dardanelles, and his place has been filled by Dr. Ninian Bruce. Of the assistant physicians Dr. H. L. Watson-Wemyss has been doing medical work at Dalmeny; whilst both the assistant surgeons (Mr. Henry Wade and Mr. D. P. D. Wilkie) have been engaged elsewhere, Mr. Wade having been with the Scottish Horse Field Ambulance and Mr. Wilkie at Portsmouth. Finally, the anaesthetist, Dr. H. Torrance Thomson, is in France. The nursing staff has been supplemented by Voluntary Aid Detachments from the Red Cross. As with so many other hospitals in these days, Leith has readily lent or given freely of its medical and surgical officers in the nation's need.

In the second place provision has been made for the reception, treatment, and nursing of wounded soldiers.

The first party arrived in November, 1914, and since then further numbers have come from time to time. Beds were provided for them in the medical and surgical wards of the hospital, and by utilizing other rooms in the building space has been found for all the requirements. A large proportion of the men have had surgical injuries, but there have been medical cases also, several "trench feet," and a few "gassed" patients.

The hospital has also been helping the navy, and a considerable number of sailors have been taken in since the beginning of the war, most of whom have come from nine sweepers and the like, and have been suffering principally from rheumatism, pneumonia, and from fractures. Further, an arrangement has been made to earmark a number of beds for use at any time to meet increased naval requirements. In the fourth place the wards of the hospital have been open for the reception of sick soldiers from among the various units undergoing training in the neighbourhood, and a number of these, mostly medical cases, have been dealt with.

Under peace conditions the hospital provided 114 beds—60 surgical (three wards), 46 medical (4 wards), and 8 gynaecological—but since the war began extra beds have been added.

Ireland.

ROYAL COLLEGE OF SURGEONS AND THE WAR.

AT the annual distribution of prizes the President, Mr. Conway Dwyer, in the course of his address, said that the great number of troops now in the fighting line and the consequent large percentage of casualties had thrown a great strain upon the Army Medical Corps. Thanks to the efficient organization of the corps effected long before the war broke out, largely due to the efforts of Sir Alfred Keogh, the needs of the situation were sufficiently met. The machinery for the immediate treatment and transport of the wounded to a base hospital notably diminished suffering and helped convalescence. The usual scourges of armies in the field, such as typhoid, dysentery, etc., had claimed in this campaign very few victims, thanks to the methods of sanitation and isolation systematically employed. It was a source of justifiable pride to the college to know that it had not been behind in aiding in this beneficent work. In proportion to its numbers, it had sent in one capacity or the other a very large number of men, many of whom had signally distinguished themselves. A roll of honour had been established in the college as a permanent record of the services rendered by students in the war, and that roll was ever lengthening. The students had collected a sum of money for the equipment of a ward in the Castle hospital. The President concluded by reading extracts from dispatches in which two of the licentiates of the college found most honourable mention, namely, Captain Ernest Cotter Deane and Surgeon-General O'Donnell. In the case of Surgeon-General O'Donnell, Sir John French said, in the course of his dispatch: "These results are due to the skill and energy which characterized in a marked degree the work of the Royal Army Medical Corps throughout the campaign, under the able supervision of Surgeon-General O'Donnell, D.S.O., Deputy Director-General Medical Services."

DR. WALTHER STRAUB, Professor of Pharmacology in the University of Freiburg in Breslau, has addressed a letter to the *Journal of the American Medical Association* stating that certain figures with regard to the consumption of alcohol in different armies published in the BRITISH MEDICAL JOURNAL are incorrect. He supports this assertion by a calculation of the number of railway cars which would be required to carry beer daily for 3,000,000 soldiers, and arrives at the conclusion that 887 such cars would be necessary, which he implies is a *reductio ad absurdum*. The purpose of the articles in this JOURNAL was to compare the war rations of the various armies and Zuntz's figures for the German army were taken. The real interest in Professor Straub's letter is the statement that there is no regular alcohol allowance to German soldiers in the field. This is not in accordance with the information published in the *Frankfurter Zeitung*, but we are not in a position to state which of these German authorities is correct.

Correspondence.

WAR ORTHOPAEDICS.

SIR,—My attention has been arrested by the paragraph quoted in the leading article on war orthopaedics in the *JOURNAL* of October 16th, p. 575, from Mr. Robert Jones's book on *Injuries of Joints*, and as the best expression of my sympathy with the purport of that article and of the quotation in particular, let me give two examples of a revolution in my practice due to the observation of Mr. Robert Jones's methods, for I believe, after a wide and long experience, that nearly every doctor to-day is as ignorant as I was on the subject of stumps and paralysed limbs. How many of those looking after our gallant and maimed soldiers in the hundreds of our hospitals in this country know the potentials of a good stump and the best way to obtain such a one? How many of the hundreds of the medical practitioners now at work have been in the habit of studying, in relation to the art of fashioning a useful artificial limb, the value of each joint and of muscles passing from the trunk to the scar at the end or side of the stump? From my own experience I can only answer that they are few—very few.

The first example I wish to relate occurred some fourteen years ago when on a visit to hospitals in Paris, where a case of ischaemic paralysis was shown, and the opinion of British surgeons present was asked. I knew the orthodox method and remarked upon its relative uselessness. Mr. Robert Jones, while agreeing generally, stated that he had had some success by doing very much less than was usually done, and indicated the lines of treatment. The surgeon under whose care the patient was tried it, with the result to the patient of a very useful instead of a withered hand; in these cases I find that wrong splinting, massage, forcible movements, electricity, and so on, still constitute the ordinary treatment.

The second example with unsatisfactory results has to do with a conical stump. In this case the bone was covered chiefly by skin for about 2 in., and consequently it appeared to be too long. It was, however, pointed out to me that some muscles had been allowed to retract after amputation, and that they might be liberated from their anchorings, mobilized, and fixed to or over the end of the bone so as to cover it. The application of this principle—new to me at the time—was of great value to the patient in controlling his artificial limb.

The point I wish to make is, that as knowledge of the recent advance in surgery of the stump and of the semi-paralysed or parietic limb is not yet widely disseminated, it is necessary that special means should be devised to put every one of our maimed patriots on the road to the best treatment that our country can give them. I do not think that even to circulate the officers commanding hospitals and to make the facts known in the medical press would meet the situation. I believe that the object would be attained if the War Office would appoint a surgeon of experience in this matter to visit the various military hospitals in this country to inspect stumps and paralysed limbs, with instructions to arrange that all suitable patients should be sent to special orthopaedic hospitals, such as the orthopaedic centre established at Alder Hey, near Liverpool.—I am, etc.,

October 18th.

F.R.C.S.

INFANT FEEDING.

SIR,—I wish to add my testimony in favour of the feeding of infants with undiluted milk.

The history of the artificial feeding of infants is not one which reflects great credit upon our profession. In no other department, probably, has theory governed practice so much. Each ingredient of cow's milk has in its turn been blamed for the frequent gastro-intestinal disturbances that so often haunt artificially-fed children, with the result that milk *minus* the fat (butter-milk), milk *minus* most of its caseinogen, milk *minus* most of its sugar, and milk *minus*, or at least lessened, in all its ingredients (dilutions with water) have all had their advocates. Percentage milk mixtures were introduced some years ago by Dr. Rotch, chiefly with the object of avoiding the then believed indigestible casein, and have had many supporters, especially on the other side of the Atlantic. The

chief difficulty was in getting the mixtures accurately made, and hence the introduction of milk laboratories, where they were dispensed from prescriptions of the practitioners. Dr. Rotch was most particular in all his writings that whatever mixture was used the child must always get sufficient nourishment, that is, sufficient calories for one of its age and weight. This seemed a most evident point, and yet some of the followers of this percentage plan of feeding have missed it, and who has not seen a poor, limp, anaemic, sweating child sucking wearily at a large bottle containing chiefly water, and then turning away from it, tired with the exertion but still hungry, and yet distended with water and little else? In such cases there is (from some oedema)—they are starved and waterlogged. This has been a fault in no way attributable to Dr. Rotch, who specially warned against it. Next, by a swing of the pendulum, and probably merely as a reversion to an older practice, advocates arose for the giving of the milk undiluted. Such a one, and a very urgent one, was the late Professor Budin of Paris. His method was to prepare the milk by heating it in a double boiler for forty minutes, the milk thus being kept to the boiling point of water for that period, and being thoroughly sterilized and otherwise changed, but not having been actually boiled. (The boiling point of milk is, of course, higher than that of water.) Some years ago I cautiously commenced to try this apparently drastic method of feeding in the out-patient department of our children's hospital in Toronto. This hospital is fitted with an excellent milk laboratory, and for years has been a centre of percentage milk mixture feeding. To my surprise and pleasure the results were infinitely superior to anything that we had seen with any form of artificial feeding. Children who were dragging along and looking thin and miserable on diluted mixtures, often with potbellies and more or less diarrhoea, with mucus in the stools, quickly changed and rapidly put on weight. They usually greedily took the undiluted milk, and it seldom disturbed the stomach.

We always use 2 grains of the sodium citrate to the ounce of milk, a precaution which Dr. Budin did not employ. The method of heating the milk is one which the most ignorant mother seems to carry out easily, the milk for the twenty-four hours being all heated at one time.

Roughly speaking, the child should get 1 oz. of the milk at each feeding for each month of its age. Occasionally a little sugar may be added to increase the caloric value of the food, but this does not seem, as a rule, to be necessary.

I was interested some years ago to learn that this method of feeding had been tried in the out-patient department of the Children's Hospital in Edinburgh, and that it was found to give better results than any other artificial way of feeding infants. I cannot give this exact reference at present, being "somewhere in France," and far from libraries.

Now, it is not for a moment advocated here that this modified Budin method of feeding infants is a panacea, or that it should be used in the case of really sick infants. These require special feeding, and often it may be necessary to cut off all milk, and even to stop all food for a time; but, as a routine system for the feeding of infants who unfortunately cannot be nourished at the breast, it is, in my opinion, the best that has yet been advocated, and it is to be hoped that more practitioners may be persuaded to try it.—I am, etc.,

R. D. RUDOLF, M.D. Edin., F.R.C.P. Lond.,
Lieutenant-Colonel C.A.M.C.

British Expeditionary Force, France, Oct. 20th.

SIR,—My first letter was written in criticism of Dr. Cameron's statement that the results of feeding with whole and diluted milk are very much the same. I entirely agreed with Dr. Cameron's address, and from what he has written since I gather that, in his opinion, cow's milk should be diluted to overcome the high fat percentage, and that a carbohydrate should be added, preferably in the form of malt sugar. This he would be glad to call a standard substitute diet. He is, apparently, not opposed to whole citrated milk, for he is willing to allow it at the third month. We are, therefore, not very far apart in our ideas as to what constitutes a suitable

diet. Dr. Cameron speaks of "diluting milk a little," and does not say whether he uses citrate with milk so diluted. It is difficult to understand how an infant can take milk diluted a little unless it is citrated. I am entirely in agreement with Dr. Cameron in thinking that the caseinogen difficulty has been greatly overstated. There is evidence that the excess of protein is in itself harmless, the difficulty rather being a mechanical one, the infant finding the tough firm clot of cow's milk the stumbling-block to easy digestion. With the advent of sodium citrate and the prevention of the clot the necessity for dilution passed away. Although the fat percentage of human is the same as that of cow's milk, Dr. Cameron would still have us go on diluting in order to reduce the fat which, in "the minority of all cases and a considerable percentage of very young infants," gives rise to a condition of affairs termed by Dr. Cameron "fat dyspepsia." In my experience, fat dyspepsia amongst the babies of the poor, who make a universal practice of milk dilution, is practically unknown, and in the babies I have watched being fed on whole milk I have been particularly struck by the absence of those signs and symptoms which Dr. Cameron has described. Constipation, I agree, is common, but it is not more severe or frequent than constipation in breast-fed babies, and one would be sorry to label them cases of fat dyspepsia. Dr. Langmuir's pioneer work with whole citrated milk has in the past done, and will in the future do, more to place the artificial feeding of infants on a practical and sensible basis than all the hundred and one theories and milk modifications that have from time to time been put forward, and my opposition is entirely directed against the principle of milk dilution, which, in the great majority of cases, I believe to be unwise and unnecessary.—I am, etc.,

Leeds, Oct. 25th.

C. W. VINING.

THE WAR EMERGENCY.

THE NEED OF SELECTION.

SIR.—May I ask Dr. Barwise where he gets his figures when he states that only 12 per cent. of panel practitioners are on active service? Sixty-six per cent. have gone from this town and 43 per cent. from the district. Those left at home are having a busy time, but they are doing the work of absentees free of charge. If these conditions are exceptions they may be dependent on each other; certainly they should be satisfactory to the State. Dr. Barwise compares choice of doctor with choice of judge and clergy. Choice of doctor is for the common good; choice of judge would be a power for evil. We have the choice of clergy and church. At home, as well as on the battlefield, in cases of serious injury the nearest medical man is called and the nearest hospital made use of. The system of each Division of the British Medical Association providing its fair share is undoubtedly the best, since it is economical and is most satisfactory to patient and doctor. Perhaps if the men remaining at home were more generous in their offers to prospective volunteers there would be a greater number of the latter. It is their duty to do the best they can for them.—I am, etc.,

Birstall, Oct. 25th.

W. AIRLIE OGILVY.

Obituary.

JAMES B. COLEMAN, C.M.G., M.D., F.R.C.P.L.,

PHYSICIAN TO THE RICHMOND HOSPITAL, DUBLIN.

By the death of Dr. Coleman, which took place on October 21st, Dublin has lost a very prominent figure, and one who ever upheld the best traditions of Irish medicine. James Byrne Coleman was born in 1865; he was educated at Clongowes Wood College, where he was a brilliant student. His medical career began with his entrance into the Catholic University, from which he passed to the Royal College of Surgeons. He obtained the degree of M.D. in 1888 from the Royal University of Ireland, and was awarded a gold medal. In the course of a few years he was appointed physician to Jervis Street Hospital, and in 1896 he was elected physician to the Richmond Hospital, where his clinical acumen, his scientific method, and his innate teaching ability brought him to the front rank of Dublin physicians. Students flocked to his class, for he had the

happy knack of establishing a clear connexion between pathological processes and their clinical manifestations, and of presenting the phenomena of disease in a lucid manner. From its establishment in 1896 down to 1913 he was one of the two visiting physicians of the National Hospital for Consumption at Newcastle (Wicklow), where he performed a vast amount of work on tuberculin and on "opsonins." Dr. Coleman must be regarded as a pioneer in vaccine therapy; his methods were never empirical, but always based on sound clinical and bacteriological evidence. He was a man with a strong sense of duty, which he ever put before pecuniary gain.

In 1900 he relinquished his practice, which was then increasing to a remarkable extent, in order to act as principal physician to Lord Iveagh's Irish Field Hospital. In this capacity he did extremely useful work in medicine generally and in the treatment of typhoid fever in particular. For his services there he was mentioned in despatches, was made a C.M.G., and received a medal with three clasps. Some months ago he accepted an invitation to take charge of the medical side of a base hospital at the front, although he felt that the work would be a considerable tax on his strength. The same devotion to duty resulted in his contracting small pox during an epidemic of that disease in Dublin many years ago.

Dr. Coleman took a prominent part in the medical life of the city, being a Fellow of the Royal Academy of Medicine in Ireland and a member of several medical clubs of a social character. As a Fellow of the Royal College of Physicians he devoted himself to the welfare of that body, and identified himself with everything that could further its interests. As a physician he was eminently sound in theory and practice, and always kept himself versed in new methods not only in medicine but in the kindred sciences. Personally Dr. Coleman, though of a retiring and quiet disposition, was a man who knew his own mind and who was never afraid of adopting his own line in medicine or in life.

WILLIAM GILBERT GRACE, L.R.C.P. EDIN.,
M.R.C.S. ENG.

W. G. GRACE, admittedly the greatest cricketer who ever played our national game, died suddenly on October 23rd at his residence, Mottingham, Eltham, Kent. The fourth son of Mr. Henry Mills Grace, of Downend, Gloucestershire, William Gilbert Grace was born there on July 18th, 1848. He was educated by tutors at home, and did not enter the Bristol School of Medicine until long after he had, at the age of 17, begun his career as a cricketer; later, he studied at St. Bartholomew's and the Westminster Medical Schools. For a time his tall form and his face, already well bearded even in early youth, were familiar to all who frequented the square of St. Bartholomew's Hospital. He showed little hurry about qualification, yet he intended to give up public cricket and start in practice in Bristol when in 1878 the Australian cricketers visited this country for the first time. The skillful Antipodeans scored wonderfully, and W. G. Grace, with commendable patriotism, remained in the field as Britain's recognized champion. He did not, however, abandon his determination to practise. He qualified in London and Edinburgh in 1879, and set up in practice in Stapleton Road, Bristol, at the end of the same year. There he remained until his retirement from practice in 1899, though latterly he had also a house at Ashley Down. During this period he held a number of appointments. He was medical officer to the Barton Regis Union, public vaccinator to a district in the same union, and surgeon to the Pennywell Collieries. His brother, Dr. Edward Mills Grace, was coroner for a district in the West of England, and played first-class cricket, as did a third brother, Mr. G. H. Grace. In 1899, W. G. Grace, on his retirement, took a house in Sydenham, where he resided for ten years; lastly he moved to Mottingham in 1909.

"W. G." was a man tall in stature and of splendid physique, possessing at the same time great manual skill. He was not only a great bat, his bowling was a superb sight—all the more so, perhaps, because it was by no means graceful, but the power which he exerted and the skill with which he overcame the batsman were alike sufficient to win the admiration of the expert and of the ignorant spectator. "W. G." was not given to severe training; on the other hand, it is interesting to hear in

mind that he never smoked. It appears that early in life he suffered from pulmonary disease, although he grew to be so robust. W. G. Grace, when he gave up the practice of our profession, did not abandon cricket, for he played only nine years ago for Gentlemen against Players at Kennington Oval, and took part in club cricket until 1913. He wrote three books on cricket, of which the most important was *Cricketing Reminiscences and Personal Recollections*, by "W. G." He loved sport and followed the beagles. Latterly he took much interest in the boy scout movement.

W. G. Grace was married and left two sons—Captain H. E. Grace, R.N., and Captain C. B. Grace, Kent Fortress Royal Engineers. His funeral took place on October 26th, at Elmers End Cemetery, Deckenham.

Dr. JOHN HOLMS, the oldest practitioner in Paisley, whose death is announced, began life as a clerk. By industry and perseverance, he obtained the degrees of M.B., C.M. (Glasg. in 1871), and graduated M.D. in 1873. After acting as an assistant in the North of England he settled in Paisley over forty years ago, and acquired an important practice. He made a fine collection of pictures, many of which he lent to various loan collections. He died on October 18th from pneumonia, leaving a widow, two sons, and two daughters.

LAST summer a medical mission was sent by the St. Louis University to British Honduras for purposes of research. Dr. Edward Nelson Tobey, lecturer on tropical diseases in the University, was a member of the party. He was a passenger on board the fruit steamer *Marovijane* which was wrecked in a hurricane in the Caribbean Sea on August 13th, and is believed to have gone down with the ship. He was 44 years of age.

The Services.

EMOLUMENTS OF TERRITORIAL MEDICAL OFFICERS.

WE have received a number of inquiries with regard to the emoluments to which medical officers of the Territorial Force are entitled, and some of our correspondents have compared them unfavourably with the receipts of medical officers holding temporary commissions. The matter appears to be governed by the following paragraphs of the Royal Pay Warrant:

496. (a) Retired officers compulsorily recalled to service under Article 518, and (b) other officers specially taken into employment by reason of a national emergency, shall receive, while so employed, the same rates of pay and allowances as officers of corresponding army rank in the same arm or branch of the service; or, if holding a command or employed on the staff, the rates of consolidated pay laid down for their appointments. In the case of retired officers these rates shall be additional to any retired pay of which they may be in receipt, or, irrespective of any gratuity they may have received on retirement. Under (b) the following may be included: Re-employed retired officers other than those coming under (a); officers of the Special Reserve of Officers or Militia when embodied; officers of the Special Reserve of Officers and Territorial Force, employed with our regular army; ex-officers or civilians appointed to military positions in Imperial Forces, or officers of Colonial Forces to whom this article may be held by our Army Council to apply.

497. Officers employed under the conditions of Article 496 shall, provided that they served for the full period of their engagement, or of the emergency in respect of which they were employed (unless a shorter period is specially approved by our Army Council), be entitled, on the cessation of such employment, to a gratuity at the following rates:

(a) In the case of an officer who retired with retired pay or gratuity, thirty-one days' pay for every year of service or any part of a year.

(b) In the case of any other officer, one hundred and twenty-four days' pay for the first year of service, or any part of a year, and sixty-two days' pay for each subsequent year of service or part of a year.

For the purpose of such gratuity pay shall mean regimental, departmental, or staff, pay only, and shall not include additional pay of any kind, or (except in the case of officers drawing consolidated rates) allowances.

The following table affords, we believe, a correct comparison of the emoluments of officers of the R.A.M.C. (T.F.) and temporary lieutenants R.A.M.C.:

A. Pay and Allowances (Daily Rates).			
	R.A.M.C.(T.F.)		Temporary Lieutenant, R.A.M.C.
	At Home.	With E.F.	At Home or with E.F.
<i>Lieutenant.</i>			
Pay	s. d. 14 0	s. d. 14 0	
Field allowance	5 0	5 3	
Lodging allowance	—	5 3	
Fuel and light allowance (average)	—	0 9	
Total	17 0	20 0	
<i>Captain.</i>			
Pay	15 6	15 6	
Field allowance	3 6	3 6	
Lodging allowance	—	3 0	
Fuel and light allowance (average)	—	1 0	
Total	19 0	23 0	Consolidated rate. 24 0

In addition each receives free rations or the allowance in lieu.

B. Gratuity on Demobilisation.

Captain R.A.M.C.(T.F.)	Temporary Lieutenant R.A.M.C.
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For the first year, £96 2s. (about 5s. 3d. a day), £60 (about 3s. 3d. a day).

For the second year, £48 1s. (about £60 (about 5s. 3d. a day, 2s. 7½d. a day)

It appears, therefore, that for the first year a captain R.A.M.C.(T.F.) with the Expeditionary Force receives, when the gratuity is taken into account, about 28s. 3d. a day, and a temporary lieutenant R.A.M.C. about 27s. 3d.; for the second year a captain R.A.M.C.(T.F.) with the Expeditionary Force receives about 25s. 7½d. a day, and a temporary lieutenant about 27s. 3d., as before. The advantage which the captain R.A.M.C.(T.F.) appears to have during the first year is about 1s. a day, but during the second year he is at a disadvantage, compared with the temporary lieutenant R.A.M.C. of 1s. 7½d. a day. If employed at home a captain R.A.M.C.(T.F.) is not entitled to lodging and fuel and light allowance, so that his emoluments in the first year (including gratuity) amount to 24s. 3d. a day, or 3s. less than the temporary lieutenant R.A.M.C. In the second year the discrepancy would be greater (about 5s. 7½d.). One other point occurs to us which may be to the advantage of the captain R.A.M.C.(T.F.), although, knowing the slipperiness of the ground covered by income tax legislation, we mention it with all reservations. It is that he will pay income tax on his pay (15s. 6d. a day), whereas the temporary lieutenant will pay on his consolidated pay (24s. a day).

ROYAL NAVY.

THE NAVAL MEDICAL COMPASSIONATE FUND.

THE Order in Council sanctioning the revision rules for the Naval Medical Compassionate Fund has been approved. The interest on the sum of £10,600 at present standing to the credit of the fund, together with the amount accruing from subscriptions, will be available for distribution among the widows and orphans of subscribers. The yearly subscription in future will be 21s., and an editorial note in the *Journal of the Royal Naval Medical Service* says, "Seldom does such an opportunity occur of making at a small cost some provision for wife and family in case of need." Subscribers will be admitted under the new conditions as from January 1st, 1916, and officers are now invited to notify the Honorary Secretary, Naval Medical Compassionate Fund, Medical Department, Admiralty, of their intention to join.

INDIAN MEDICAL SERVICE.

IT was recently announced in the press that after the open competitive examination held last July for admission to the Indian Medical Service no similar examination would be held during the continuance of the war, but that such appointments as might be required to meet the absolutely indispensable needs of the service would be made by nomination by the Secretary of State. To assist him in making these appointments, which, as already announced, will be limited in number to the absolutely indispensable needs of the service, Mr. Chamberlain has appointed a Selection Committee who will summon and interview such applicants as may appear to be *prima facie* suitable, and make recommendations for appointment.

Applications for appointment should be addressed to the Secretary of the Military Department, India Office, Whitehall, S.W., and should contain concise particulars of the applicant's medical degrees and career. Applicants must be over 21 and

under 32 years of age at the time of application. Particulars regarding pay, promotion, etc., in the service can be obtained from the Secretary, Military Department.

EXCHANGES DESIRED.

TERRITORIAL FORCE.

CAPTAIN A. R. PATERSON, R.A.M.C.(T), attached 14th Dorset Regiment, Amhala, India, wishes to find substitute so as to enable him to transfer to a unit at home or in France. Communications should be addressed to Dr. Le Fleming, Wimborne, Dorset, who will refer all details.

Captain C. E. Silvester, R.A.M.C.T., 21st South Eastern Mounted Brigade Field Ambulance, now stationed at Cricket Ground, Canterbury, wishes to exchange with another M.O., preferably Field Ambulance or Casualty Clearing Station, abroad or about to proceed abroad.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

UNIVERSITY COURT.

At a meeting of the Court on October 18th leave of absence was granted to Professor Alexis Thomson and Professor Gulland, who have been appointed to important posts in the Army Medical Service, and to Mr. A. D. Darbishire, lecturer on genetics, and to other teachers who have also joined His Majesty's forces. Professor Dayley Balfour reported that the Australian Hebraicum bequeathed to the university by the late Dr. Alexander Morrison proved on examination to be the finest that had reached Europe from Australia since the early days of last century, when the Banksian plants collected by Robert Brown were placed in the British Museum.

UNIVERSITY OF GLASGOW.

THE session was opened on October 18th. The enrolment period extends until November 2nd, but it is stated that already the indications are that the number of first-year medical students will be over the average, and since those at an advanced stage have been advised to complete their course, the classes in medicine will probably be less affected by the war than those in other departments. The diminution is expected to be large in the arts classes, where between 300 and 400 of the students are engaged in munitions work; in the science faculty, in which the majority of the students study engineering, a number are engaged on war work of different kinds.

Principal Sir Donald MacAlister has written an introduction to the new issue of the *Students' Handbook*, in which he addresses in particular first-year students. He states that by the end of the first twelve months of the war 2,210 students of the university had enrolled themselves in the forces of the Crown, and of these 1,750 had received commissions as officers in the navy or army. During the summer the Officers' Training Corps passed through its special course about one hundred commissioned officers a month. Some fifty members of the teaching staff were employed in military or civil service connected with the war, and of the women students a large proportion are giving service to hospitals, ambulances, and relief organizations.

The Business Committee has reported to the General Council that it has a new issue of the roll of service in preparation. It would contain the names of 84 killed and 101 wounded. With a view to immediate future needs the scheme of part-time training for military hospital service arranged in April with the Western Infirmary, and subsequently with the Royal Infirmary, which last year six women graduates and sixty-eight students had taken advantage, will be continued throughout the winter at the former institution. The head quarters of the Officers' Training Corps in University Avenue were now recognized by the War Office as a regular school of military instruction for young officers. The staff, with the exception of one regular officer, was composed of graduates. Work has been continued during the vacation.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

Fellowship.

The following gentlemen have been admitted Fellows: H. Chaffer, J. A. Cowie, A. M. Stuart, P. C. Woollatt.

CONJOINT BOARD IN IRELAND.

The following candidates have been approved at the examinations indicated:

PRELIMINARY EXAMINATION.—I. W. Arnovitch, Lucretia H. H. Byrne, B. R. Clery, W. E. Colahan, R. M. Corbet, J. J. Clune, T. E. Dobovana, A. B. Doyle, T. C. Doyle, A. C. Emond, M. W. Frazer, Robert E. Fisher, H. E. Graham, S. A. Gilmore, T. M. G. Golden, T. Hoffmann, J. Hewitt, Margaret Holliday, P. Rileen, J. J. A. Lord-Flood, T. J. McCormack, A. McLean, T. D. Macaulay, A. Martinson, P. Moyle, R. J. O'Connell, P. J. A. O'Connor, T. L. Quinn, J. Reibenstein, G. E. Strahan, J. Sneed, B. T. Taylor, Mary E. Toppet, J. W. Tisdie, H. E. W. Waters.

SEPTENNIAL FINAL EXAMINATION.—J. Cohen, J. Dwyer, T. Farrell, O. J. M. Kerrigan, J. F. S. Magner, T. R. Ryan, J. J. Walsh, P. W. Walsh.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

At the annual meeting of the Royal College of Physicians of Ireland, held on St. Luke's Day (October 18th), the following officers were elected for the ensuing year: *President*, Dr. MacDowel Cosgrave; *Vice-President*, Dr. Joseph O'Carroll; *Censors*: Drs. Joseph O'Carroll, H. C. Drury, S. T. Gordon, and Gibbon FitzGibbon.

CONJOINT BOARD IN SCOTLAND.

The following candidates have been approved at the examinations indicated:

FIRST EXAMINATION.—E. J. Pearson (with distinction), T. F. Thomson, F. Minford, M. J. Woodberg, T. R. O'Keefe, W. Ruchmond, and G. S. Woodhead.

SECOND EXAMINATION.—S. S. Barton, L. P. Samarasthina, D. A. Walpole, G. C. Gosser, P. L. Edwards, A. P. McLeod, D. C. Howard, J. T. W. Gale, and D. L. Henderson.

THIRD EXAMINATION.—Mary G. Jones, D. A. Jaysingha, G. L. Stauley, D. S. Taylor, J. Byrne, S. W. Joyland, Janie J. McBride, J. L. Wolf, M. Campbell, H. G. Fitzmaurice, A. Black, G. L. Fillans, J. S. Dunward, R. J. T. Malcolm-Gasper, H. C. A. Haynes, E. Butler, and E. M. L. Morsan.

FINAL EXAMINATION.—J. J. Armistead, E. A. Blok, A. Mathewson, W. H. A. D. Sutton, O. W. Bateman, J. P. Farley, E. A. Nishon, M. Seery, J. W. Robertson, J. E. Lezama, W. P. Walker, J. S. Dickson, D. C. M. Page, W. Turcar, A. Evans, J. S. David, O. H. Jones, A. G. McKee, G. E. Mendis, and T. W. Drummond.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have been approved in the subjects indicated:

SECRETARY.—H. H. Fairfax, *J. B. Fairclough, I. C. P. C. Sargent, *T. J. Thomas, *A. G. E. Wilcock, *F. H. Young.

MEDICINE.—G. T. Baker, H. H. Fairfax, *J. L. Hamilton, *I. H. Lloyd, I. C. P. C. Sargent, *T. J. Thomas.

FORENSIC MEDICINE.—J. B. Fairclough, P. Hughes, C. C. Russell.

MIDWIFERY.—E. V. Beaumont, J. E. Cheesman, J. Fox-Russell, P. Hughes, G. S. Mitchell, C. A. Mordock Brown, T. C. Russell, J. G. T. Thomas, A. J. A. Wilson, *F. H. Young.

Section I.

The diploma of the Society has been granted to Messrs. J. E. Cheesman, J. B. Fairclough, H. H. Fairfax, J. L. Hamilton, C. P. C. Sargent, and T. J. Thomas.

Medical News.

DISCUSSIONS on the treatment of the soldier's heart and on the treatment of war nephritis are being arranged by the Section of Therapeutics of the Royal Society of Medicine.

THE ladies of the St. John Ambulance classes in Exeter have presented Dr. J. A. W. Pereira with a handsome clock as a token of their esteem and gratitude.

THE Russian Red Cross has published a list which shows that up to the beginning of September forty-six Sisters of Charity were killed by shells thrown on the Red Cross Hospital by the Austro-German armies.

THE Child Study Society will hold its first meeting of the session on Thursday next, at 6 p.m., at 90, Buckingham Palace Road, under the chairmanship of Dr. James Kerr, when Miss C. E. Grant will read a paper on "The American child at school."

THE Romanes Lecture before the University of Oxford will be delivered this year by Professor E. B. Poulton, Hope Professor of Zoology in the University, on December 7th, at 3.30 p.m. The subject will be "Science and the Great War."

THE general meeting of the Röntgen Society will be held on Tuesday next, at 8.15 p.m., at the Institution of Electrical Engineers, when the President, Mr. J. H. Gardiner, will deliver an address and new apparatus will be exhibited.

THE Ingleby Lectures before the University of Birmingham will be given by Professor Douglas Stauley, M.D., M.R.C.P., physician to the Queen's and Children's Hospitals, on Wednesdays, November 3rd and 10th, at 5 p.m. The subject of the lectures is "Pneumonia and its sequelae in children."

STARTING with the frank acknowledgement that "the welfare of infants depends in very large measure on that of their mothers," Dr. Arthur Newsholme, C.B., presents a Report on Maternal Mortality in Connection with Child-bearing and its Relation to Infant Mortality (Cd. 8085, price 7½d.), which is interesting and suggestive from beginning to end. The national aspect of the subject is first discussed, and then the remarkable local differences of mortality in childbearing are displayed. In a third part of the report some of the evils associated with this excessive mortality are set out, and the presumption is shown to be justified that better arrangements for antenatal care and for midwifery attendance would go far to reduce the mortality from childbearing. The fourth part

of the report gives in detail some of the work which has already been undertaken to make these arrangements and the results obtained. We hope ere long to discuss some of the aspects of the subjects brought so prominently forward; meantime, it is an earnest of better things still in store that, in the midst of a great war, the Government should be so alive to the value of maternal and infantile life and health.

ACCORDING to the *New York Medical Journal*, the supply of certain drugs of botanic origin is falling short in the United States as in this country. Many of them were formerly collected by European peasants as a by-trade. The cultivation in America would be costly, and it is feared that return to normal prices after peace would ruin the cultivator unless the Government instituted a system of protection.

MRS. F. E. SMEDLEY, M.B., B.S., Lond., has been appointed, with the approval of the Local Government Board, acting county medical officer of health and school medical officer for West Sussex, in the place of her husband, Dr. Ralph Smedley, who has been commissioned as a temporary Lieutenant R.A.M.C., and has been on military duty since the end of August. Mrs. Smedley has also been appointed medical adviser to the West Sussex Insurance Committee during the temporary absence of the tuberculosis officer (Dr. M. J. Johnston), who is also engaged on military duty, and is at present in France.

THE King Edward Nurses is the name of an institution founded as a South African memorial to commemorate the life and aims of King Edward VII. The report for 1914-15, the second year of its existence, has been issued by the Superintendent General, Miss J. E. Pritchard. The organization is intended to comprise two divisions: (a) European, (b) coloured and native. The funds and organization of the two divisions are to be kept apart. At the request of the committee in South Africa the Colonial Nursing Association in England undertook to select nurses to fill up vacancies, and at the beginning of 1915 there was a full staff, which has been continually at work. The money subscribed by natives towards the King Edward VII Memorial was set aside to be devoted entirely to work among the natives, and in this connexion a start has been made at De Aar, where a native nurse has been placed to work as district nurse.

IN his report to the Bureau of Health for the Philippine Islands for the fourth quarter of 1914, V. Heiser, Assistant Director of Health, states that no cases of plague was reported in the city of Manila, and only four rats were found in which there was a suspicion of infection, although this was not clearly demonstrated bacteriologically. A total of 21,772 rats were caught by traps and poison in the city of Manila. In the city of Manila 35 deaths from typhoid fever were reported and 276 from the provinces. Cholera, which began on July 4th, 1914, still continued, though with greatly decreased virulence. During a leper-collecting trip made between December 5th and 20th by a medical inspector of the Bureau, with other physicians and a bacteriologist, 265 persons were examined in the twelve provinces visited. The total number of lepers sent to Cullion on clinical or microscopical evidence was 235. Four of these had escaped from the colony, and were re-admitted. Thirty suspects who did not show sufficient clinical symptoms of the disease, and were found microscopically negative, were sent back to their homes.

DR. RICHARD P. STRONG, Chief of the American Sanitary Commission to Serbia, and most of the members of his staff have returned to the United States. Dr. Strong, in a summary of the work of the Commission, stated that the methods so successful in the Philippines, Panama, and elsewhere had been enforced. One of the most efficacious measures was the disinfection of the population by means of a special train carrying baths, an immense disinfecter for clothing, and cars fitted up as dressing-rooms and for shaving and hair-cutting. By this train system the clothing disinfected and washed of hundreds of persons could be done in a few minutes; the houses in each place visited were disinfected at the same time. All persons found affected with typhus were taken to hospitals. The entire Serbian army and numbers of the people were vaccinated against cholera and typhus, the vaccines being manufactured for the most part in the American Red Cross laboratory. The spread of typhus in Montenegro also had been prevented by adopting energetic sanitary measures. Shortly before he left Serbia Dr. Strong was decorated with the Order of San Sava, and forty-three American doctors and sanitary engineers, representatives of the Rockefeller Foundation and the American Red Cross, also received decorations in recognition of their services.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Atkinson, Westward, London*; telephone, 2531, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Atkinson, Westward, London*; telephone, 2531, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westward, London*; telephone, 2534, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

TREY JMA inquires as to results in cases of recurrent winter catarrh of treatment by compound catarrhal vaccine, the frequency of the dose, and amount of constitutional disturbance after each dose.

INCOME TAX.

DEVONIENSIS has, owing to the illness of the incumbent, been appointed deputy medical officer of health for six months, and took up the work on July 1st. He has been assessed as deputy medical officer as from October 1st, and asks whether this is correct.

The appointment is one which comes under Schedule E, to which the average does not apply, and the procedure adopted seems correct in law. Presumably the medical officer of health for whom "Devoniensis" is acting as deputy did not arrange for his "Schedule E" liability to be dealt with in one sum with his general practice receipts. If our correspondent pays the tax he is entitled to exclude the amount received from his Schedule D return next year. On the other hand, if he assures the local surveyor of taxes that the receipts will be returned under Schedule D, the latter may discharge the assessment. The ultimate result will in either case be much the same.

ANSWERS.

SUGGESTED ISOLATION OF CANCER PATIENTS.

STEP.—There is no evidence from experience of human or animal cancer of transmission of the disease from the affected to healthy individuals by contact. There is, therefore, no justification for the strict isolation of cancer patients. Where ulceration and foul discharges are present it may be necessary in the interests of other patients, but in most cases careful nursing and antiseptic dressings should minimize this objection to cancer patients being housed alongside other patients. From the standpoint of humanity it seems inadvisable to segregate persons suffering from a disease of long duration. They have then no intercourse except with sufferers like themselves, which can only aggravate their condition—particularly in workhouses where the nursing staff is so fully occupied. This consideration should be held to justify intercourse with other patients in the interests of the sufferers from cancer themselves.

LETTERS, NOTES, ETC.

UTERUS DIDELPHYS.

IN the EPITOME for September 26th, 1915, paragraph 92 bore a heading, "Parasitus Entozoa in Utero Dydelpho," "Dydelpho" is of course wrong, for which we must plead guilty to the extent of having carelessly followed the German author. "Didelphus" is a word unknown to Hippocrates, Aristotle, or Galen. It was given by Linnaeus to the American opossum, and made use of as an adjective by teratologists to signify a completely double uterus. Linnaeus, in his *Systema Naturae* (edition of 1767), spells the word "Didelphis," and the modern Greek dictionary of Kyriakides recognizes only the adjective Didelphos as a modern word used solely in science. Hence, on the whole, it would seem better to decline "Didelphus," and to write "of a uterus didelphyia," and "in a uterus didelphyia."

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive postal remittance letters addressed either in initials or numbers.

The Bradshau Lecture

ON

NERVOUS AFFECTIONS OF THE SIXTH AND SEVENTH DECADES OF LIFE.*

By J. MICHELL CLARKE, M.A., M.D. CANTAB.,
LL.D. BRISTOL, F.R.C.P.

PROFESSOR OF MEDICINE, UNIVERSITY OF BRISTOL; LIEUTENANT-COLONEL R.A.M.C. (V).

The sixth and seventh decades of life constitute a period which has certain marked characteristics. The age of 45, which Dante fixed as the end of the period of youth, might have been taken as the lower limit, but that would involve in most women the inclusion of the climacteric, which I thought it better to avoid.

Many nervous diseases run a very long course, and we should therefore expect to find that the nervous affections of this period will be made up of some which began at an earlier age, and of others, fewer in number, whose incidence is entirely contained within it. I do not propose to include mental affections.

SPINAL CORD.

The diseases of the spinal cord between 50 and 70 years of age are both numerous and important. Tumours of the cord present no especial features at this age; secondary metastases in the cord itself to cancer elsewhere are very rare. I have seen two examples of secondary growths in the cauda equina; the primary growths were in the breast and prostate respectively.

Myelitis is not a common disease after 50. In 156 cases reported as myelitis, acute or subacute, excluding pressure myelitis, 18 per cent. occurred after this age. The age given in hospital reports probably represents very nearly that of onset, as chronic cases with secondary degenerations would come under other designations, for example, spastic paraplegia. This relative infrequency after 50 might be expected, as the common causes of myelitis are chiefly some acute infection or intoxication, in which the myelitis may be either primary or secondary, and syphilis. Taylor and Buzzard¹ state that syphilis is responsible for the great majority of cases, probably 80 per cent. of cases of myelitis. The term "myelomalacia" is more accurate than "myelitis" for many cases. One night, perhaps, have anticipated an influx of cases of myelitis, or rather myelomalacia, in later life, due to vascular occlusion from arterial degeneration, but large patches of softening in the cord seem rarely to result from this cause: the contrast with the frequency of areas of softening in the brain is remarkable. Arterio-sclerosis in the cord seems to affect the smaller vessels and to produce small sclerotic foci or diffuse areas of degeneration.

The diseases of the spinal cord which are especially characteristic of this age are diffuse lesions of the posterior or lateral columns, mostly degenerative—cases formerly grouped together as the "combined scleroses." In some, symptoms due to disease of the lateral columns predominate, and the clinical picture is that of spastic paraplegia, a very definite clinical syndrome, but due to various pathological states. In other cases the posterior columns are chiefly affected, and many are of pathological rather than of clinical interest, as the changes in the cord either give rise to no symptoms, or else these are overshadowed by more urgent ones due to the general disease in the course of which they occur. Such are the degenerations of the posterior columns found in cachectic states, in carcinoma, in glycosuria or diabetes, the slighter forms of the cord degenerations of pernicious anaemia, and also those found in some cases of chronic cystitis and enlarged prostate. In all the lower part of the cord is solely or chiefly affected, and the predominant symptom is paraplegia, or paraplegic weakness with ataxy, with or without some, generally not profound, sensory affection.

Cases of paraplegia of this kind are found recorded under the names of spastic, ataxic, or senile paraplegia, combined sclerosis, or subacute combined degeneration.

* In preparing this lecture for publication here it has been necessary, owing to considerations of space, to omit some passages.

Unfortunately these terms are not always used in the same sense; whilst cases of one group shade by degrees into those of another, and, except in the case of subacute combined degeneration, convey no very clear idea of the pathological changes. For instance, under such a name as "ataxic paraplegia" will be found included quite distinct diseases, whilst "spastic paraplegia" merely indicates the predominant clinical feature irrespective of its pathological cause. An important step forward in differentiation was the separation of subacute combined degeneration, both clinically and pathologically, from among these various conditions by the work of Russell, Batten, and Collier.²

With the proviso that the above designations as given in reports of cases are not mutually exclusive, and only afford a rough idea of the age incidence, I find that of 114 cases of spastic and ataxic paraplegia, combined sclerosis and subacute combined degeneration, 38 per cent. occurred between 50 and 70 years of age. If spastic paraplegia is excluded for the reason that it will comprise many old-standing cases of lateral sclerosis secondary to myelitis and other causes, the proportion between these ages is higher—49 per cent.—and reaches its highest point in subacute combined degeneration.

Dr. Collier,³ in his excellent account of this disease, states as to the age of onset that the extremes are between 30 and 65 years, and that the highest incidence is reached between 55 and 60. Of 11 cases under my observation, in most of which the diagnosis was confirmed *post mortem*, the age in 9 was between 53 and 64. There was no definite cause for the disease in any; in 2 cases it appeared after severe diarrhoea and vomiting, and 1 patient had had syphilis; 3 of the patients suffered from pernicious anaemia, 3 from anaemia distinctly of the secondary type, and 4 were not anaemic.

None of these varieties of combined sclerosis of the cord can be regarded as true system degenerations, which appear earlier in life and are often hereditary or familial.

Haematomyelia of spontaneous and non traumatic origin is rare at any age. Of v. Pfungen's⁴ 10 cases 4 were between 50 and 65.

Weakness in the legs or paraparesis is occasionally a symptom of chronic uraemia in elderly persons. This may be the first sign of kidney disease for which the patient seeks relief. In three cases under my care the symptoms, of gradual onset, consisted of weakness in the legs, with a feeble, tottering, or uncertain gait. There was no affection of sensation; the deep reflexes were exaggerated, the superficial normal; there was constipation and difficulty of micturition. The affection lasted from three to six months before severe general symptoms of uraemia appeared.

Senile paraplegia is a name used for paraplegic weakness due to diverse pathological changes. For the most part the sufferers are beyond the age we are considering. A variety has, however, been described by Oppenheim⁵ which he attributes to arterio-sclerosis of the cord, and to perivascular sclerotic changes, especially in the white matter. According to Purves Stewart⁶ the cases so affected can hardly be called senile. The ages of Hirschel's cases varied from 44 to 65. The symptoms are those of a slowly progressing spastic paraparesis, ultimately leading to contraction of the limbs, with increase of deep reflexes. Sir William Gowers also described under the name of "simple senile paraplegia" a condition occurring especially in persons over 50 characterized by simple weakness of the legs with slowness of movements, but without wasting, sensory disorder, or alteration of reflexes, and resembling paralysis agitans without tremor.

Spastic paraparesis or even paraplegia may in later life be due to cerebral affections, for instance, small patches of softening on each side of the pons, or bilateral lesions of the cortical leg centres, causing degeneration of the pyramidal tracts.

Pressure Paraplegia.

Caries of the spine, hypertrophic cervical pachymeningitis and internal pachymeningitis involving a great extent of the cord, and probably of syphilitic origin,⁷ are very seldom met with after 50. The most important cause of compression paraplegia in later life is cancer of the vertebrae: the cases are almost all over 50, and the growth is nearly always secondary. The primary tumour is most frequently in the breast, but may be in the prostate, stomach, uterus, or other organ.

On account of the agonizing pain which often attends it this is one of the most terrible of diseases. The typical feature of the pain is that it is brought out or increased by movement, is in abeyance during rest, and is localized. Sometimes early, but more often later, in the course of the disease, pains from pressure on posterior nerve roots may occur, these are not so much affected by movement, are lancinating, and pass down the course of the nerves.

The diagnosis in the early stages is often difficult. The symptoms may be vague, but x-ray examination may clear up the diagnosis in a doubtful case. Late in the disease, when the patient is cachectic, wasted, has deformity of the spine, or the characteristic shortening of the trunk due to involvement of several vertebrae, and pressure paraplegia, the diagnosis is obvious. The onset of paraplegia may be almost sudden from the development of a patch of softening in the cord at the site of compression. In one case of a small scirrhous tumour of the breast the primary tumour was not noticed before paraplegia occurred. A history of a long interval between the discovery and the removal of the growth is important. Many years may pass between operation for the primary growth and the development of metastases in bone.

There may be no wasting, and patients may even become fat from enforced inactivity; tenderness or pain to percussion over the spines may be absent, even when the patient complains of intense pain on movement; and deformity of the spinal column may not occur until late in the illness. The early pains may be set down to rheumatism or hysteria. In some cases both the pains and the difficulty of carrying out certain movements may entirely disappear for a time.

A rare cause of pressure paraplegia in later life is limited osteo-arthritis of the vertebrae. I refer only to those cases in which paraplegia, generally painful, is caused by an osteo-arthritic lesion limited to a few vertebrae. Such a case is described by Bailey and Casamajor, in which the existence of an extra-mucillary tumour seemed probable as the cause of the paraplegia, but at the operation the laminae and spinous processes of the twelfth dorsal were found thickened, abnormally soft, and greyish in colour, and were removed. Pathological investigation showed chronic osteo-chondritis with new bone formation. The patient completely recovered. In a man of 65 whom I saw there was paraplegia of subacute onset, apparently due to a transverse myelitis at the level of the eleventh dorsal roots. At operation it was seen that the eighth, ninth, and tenth dorsal laminae had undergone some form of sclerosing osteitis, with great thickening, that of the ninth being fully one inch thick.

Tabes Dorsalis.

Tabes dorsalis fairly maintains its frequency in the sixth decade of life. Of 700 cases, the proportion living over 50 was 24 per cent. In Byrom Bramwell's⁹ statistics of 263 cases the onset occurred in 9.6 per cent. over 50, and 1.9 per cent. over 60 years.

Cases in which the onset occurs after 45 as a rule run a more favourable course. The longer the interval after infection before symptoms of tabes appear the less acute the course of the disease. In some cases the symptoms are slight, and do not advance; in another group the disease is more pronounced, but the average duration before the patient is incapacitated is fifteen years.

Tabes shows a decided falling off after 50 as compared with the period 30-50, and a very marked fall after 60. Arthropathies seem to be present in a larger proportion of cases than in younger patients; in several cases the character of the work as involving the special use of certain joints seemed to determine the site of the arthropathy. Aortic disease is more frequent in elderly tabetics, and other complications are hemiplegia or recurrent paralysis, either monoplegic or hemiplegic, due to syphilitic disease of the cerebral arteries. In some of these patients the signs of tabes may be first discovered when the patient seeks advice for one of these complications.

Cases following an acute course with severe ataxy are rarely met with after 50. The prognosis as to life is not bad, except when there is aortic or vascular disease, or cystitis following old-standing difficulties of micturition.

The Muscular Atrophies.

The myopathic forms of muscular atrophy do not arise in the period of life under consideration, but the myelo-

pathic forms—progressive muscular atrophy, bulbar paralysis, and amyotrophic lateral sclerosis—are relatively frequent after 50. There is good evidence that syphilis may be the cause of myopathic muscular atrophy in some cases. In several cases of progressive muscular atrophy in elderly patients I noticed that the atrophy started in muscles or groups of muscles which were chiefly used in the occupation, and may presumably have become exhausted. The rate of progress of the atrophy was rapid in these cases; the disease steadily spread beyond the muscles first affected, so that there was no question of a mistake in diagnosis for a limited atrophy of muscles due to occupation. Is it possible that a muscular atrophy from occupation starting from over-fatigue of special muscles tends in an elderly person to spread widely, whilst in those younger it remains limited to the muscles involved in the particular action concerned? The occurrence of these forms of atrophy after 50 is not obviously connected with arterial disease, which was not more evident than in normal persons of the same age.

Some rare cases of progressive muscular atrophy run a subacute course, and are especially met with in the elderly. Oppenheim¹⁰ classes them apart as subacute and chronic anterior poliomyelitis, and suggests a toxic cause. Other writers assign the cause to traumatism. Of two well-marked cases of this affection, both in men in good circumstances and of previous good health, one was aged 67. Three weeks after a heavy fall weakness of the left hand and arm began and steadily increased; two months later he had very little use of the upper extremity, and its muscles generally showed atrophy with fibrillary tremor. Five months after the accident the muscular atrophy had greatly increased, both upper extremities and the neck being now involved. The disease shortly afterwards spread to the bulb, and he died quite suddenly. The other patient was aged 66. He had been overworked for some time before the onset of the disease. The distribution of the atrophy, as in the other case, was practically confined to the upper extremities. The course of the illness was four months, and he also died suddenly.

Disseminated Sclerosis.

Disseminated sclerosis generally begins much earlier than the period of life under consideration, but as it may run a long course there are a certain number of survivors after 50. Moreover, it is well known that remissions, sometimes of very many years' duration, may occur, and the final outbreak may exceptionally be deferred to quite late in life. The remissions may be of such duration as almost to amount to recovery from the disease; possibly such remissions may very occasionally be permanent.¹¹ Allowing for a source of error from the fact that in common diseases only exceptional cases are recorded, instances of the onset of the disease in patients over 50 are very uncommon. In 536 cases from various sources irrespective of age of onset, the number over 50 years of age was from 4 to 5 per cent.

The few cases in which the onset occurs late seem often to present exceptional features, and are therefore of importance from the point of view of diagnosis. The rare form in which disseminated sclerosis runs its course with muscular atrophy, and may resemble amyotrophic lateral sclerosis, is considered by Schmitzer¹² to affect older patients and to run a more rapid course. There are also cases such as those reported by Bornstein,¹³ in two women aged 60 and 62 respectively. The clinical signs were those of subacute transverse myelitis, and pathological examination showed areas of multiple sclerosis, together with marked changes in the vessels.

Syringomyelia.

The large majority of cases of syringomyelia occur between 20 and 45 years of age. The disease, however, is met with at all ages, and considering that it is one of the rarer nervous diseases, fairly often over 50. Out of 135 cases 23 per cent. were between 50 and 70. Hospital statistics give a rather lower percentage (about 17 per cent.) than reports of special cases. On the view now generally held that syringomyelia is due to a gliosis of the cord, it is interesting to compare the age incidence with that of glioma elsewhere. Dr. Tooth,¹⁴ in 127 cases of glioma of the brain, gives 11 per cent. with onset between 50 and 70. Syringomyelia may run a very long course,

and such cases form a certain proportion of those over 50; on the other hand the onset may be after that age; this happened in 13 out of 79 cases. Sometimes the disease suddenly takes on an acute phase, or progresses afresh in later life after quiescence for long periods. Although there is still a difference of opinion on the point, the evidence that the cause of this activity is often an injury is strong.¹

Pathologically syringomyelia in later life is characterized (1) by the replacing of gliosis tissue by connective tissue, which originates from the adventitia of diseased vessels, and (2) by the formation of cavities in the lateral columns of the cord not connected with the central canal and due to patches of softening.² The first appearance of syringomyelia in later life, or the sudden aggravation of symptoms, may be due, at any rate in part, to secondary vascular changes in the cord and to haemorrhages.³ Haemorrhage from diseased vessels may easily occur into the cavities, and has been actually found as the cause of a sudden aggravation of the disease in elderly people.

In other cases the symptoms are clinically those of syringomyelia, but are due to the formation of cavities in the cord, as a direct result of haemorrhage from vessels with degenerated walls. When syringomyelia originates or starts into fresh activity late in life it is generally progressive.

Destructive disease of the joints in atypical syringomyelia is probably more frequent than is generally recognized. A remarkable case came under my notice. A woman, aged 62, had her left leg amputated above the knee five and a half years previously because it was so extremely contracted as to cause great pain, and the heel was forcibly pressed against the anus and hindered defaecation. Subsequently the right leg became contracted and flexed across the abdomen. When I saw her this leg had been straightened by osteotomy. At the operation the femur and tibia were found to be remarkably brittle and atrophic.

Neuritis.

In 250 cases of multiple neuritis from various sources only 10 per cent. occurred over the age of 50, and 75 per cent. of the cases were between the ages of 30 to 50.

In 45 cases under my care 24, of whom 18 were women, were between the ages of 40 and 53 years. There seems to be a special incidence of alcoholic neuritis during the climacteric. The mental depression and the feelings of nervous exhaustion or lassitude which are such common features of the climacteric tend to induce the less strong-minded to seek relief in alcohol. The nervous changes of the climacteric may possibly impair the nutrition of the lower neurones, and render them more susceptible to the poisonous action of alcohol. As to symptoms, I think that the characteristic mental symptoms of Korsakov's syndrome are more frequent and pronounced in this group than in cases occurring at an earlier age, and also that there is, very constantly, affection of the heart muscle.

Of the less common forms of multiple neuritis, the glycosuric is perhaps relatively the most frequent after 50. The etiology is often mixed—gout, glycosuria, and alcohol. A rare but grave form is acute or subacute toxic polyneuritis. Instances of this disease may occur at any age, though the majority fall between 20 and 45. Of 13 cases under my care, 4 occurred at the ages of 72, 68, 50, and 49 respectively.⁴ A widespread paralysis of acute or subacute onset due to toxic polyneuritis may follow an ascending course and constitutes one group of the cases classed as Landry's paralysis. In the majority the presence of decided sensory changes, "glove" and "stocking" anaesthesia, pains, and muscular tenderness are distinctive of polyneuritis, but there is one form which affects the lower motor neurones almost exclusively; early diagnosis from the spinal form of ascending paralysis may then be difficult.

It remains to mention the calcætic forms of neuritis, and especially that which develops in connexion with carcinoma, for the majority of such cases fall between the ages of 50 and 70. The symptoms as a rule are of slight intensity. Towards the end of this period the senile form of multiple neuritis, which in some instances is referable to arterio-sclerosis or atheroma, appears. Brachial neuritis is in my experience relatively not infrequent between 50 and 60, and this also applies to anterior cranial neuritis, which often seems to be started by slight traumas or by muscular effort.

Of 50 cases of sciatic neuritis, many very severe and of long standing, and all of them sufficiently bad to compel the patients to seek treatment in hospital or to confine them to bed, 27 occurred between 30 and 50, and 23 cases between 50 and 70 years of age, 16 of the latter falling between 50 and 60. Rheumatism and gout, with exposure to cold and wet, and excessive muscular exertion are the chief causes. In my experience the prognosis is not distinctly worse, nor treatment less successful, in patients over 50. The treatment adopted in nearly all the cases was immobilization by means of the long splint.

BRAIN.

I do not propose to deal with meningitis except briefly with the tuberculous variety, and that on account of the peculiarity of its symptoms in adults. Meningitis due to pus-producing organisms becomes uncommon after 50; when it occurs as a primary infection the diagnosis is now greatly facilitated by lumbar puncture. Perhaps the most frequent form is the pneumococcal, which may either be primary, or a complication of pneumonia, or one feature of a general pneumococcal infection.

Tuberculous meningitis in persons over 50 is very exceptional. Of 560 cases of tuberculous meningitis, 4 had passed this age. There were also 8 cases between 40 and 50. In adults it occurs chiefly as the termination of chronic pulmonary tuberculosis. The early symptoms may be deceptive and mistaken for early mental disease, hysteria, or delirium tremens.

Cerebral Haemorrhage and Thrombosis.

The most common of all nervous affections between 50 and 70 years of age are those due to disease of the cerebral vessels, and the causes and methods of prevention therefore belong to diseases of the vascular rather than of the nervous system. The subject is too extensive to be considered here. Of 500 cases of cerebral haemorrhage, the onset was between the ages of 50 and 70 in 321, or 64 per cent., and, of 110 cases of cerebral thrombosis, in 67, or 60.9 per cent.

Cerebral Tumours.

With regard to the age incidence of intracranial tumours there are available the valuable statistics compiled by Dr. H. H. Tooth.⁵ The first symptoms in his 500 cases occurred between the ages of 50 and 70 in 7.2 per cent. In 238 of these the nature of the growth was verified by operation or *post mortem*: of these the age at onset was between 50 and 70 in 9.6 per cent. Gliomata constituted 49.2 per cent. of the total, and of these 10.2 per cent. occurred at from 50 to 60, and 0.7 per cent. at 60 to 70 years of age. Carcinomata were few in number, but the percentage between 50 and 70 was nearly 40. In a further number of 485 cases which I have collected from various sources, similarly verified or not, the proportion between 50 and 70 is rather higher—13 per cent. In 18 cases of intracranial tumour observed by myself in persons over 50, in 12 of which the diagnosis was verified *post mortem* or at operation, in 1 the tumour was cerebellar, in 2 the tumour was in the cerebello-pontine angle, and in the remainder in various parts of the cerebrum. Three patients were over 60 years of age. In several of the cases the sudden onset of symptoms suggested some intracranial circulatory disturbance. Optic neuritis was well marked in these cases, attacks of vertigo especially frequent, and, apart from the situation of the growth, mental changes were prominent. In 2 the intracranial growth was secondary to cancer of the breast. Affection of the nervous system by cancer is generally through secondary metastatic growths. The order of frequency of metastases is (1) vertebrae, (2) bones of skull, (3) brain, and (4)—very rarely—spinal cord. The secondary growths may occur in any part of the brain, and are often multiple, and may be diffuse or localized. The symptoms they cause may be pronounced or, on the other hand, absent or overshadowed by those due to growths in other organs, and the intracranial metastases only discovered *post mortem*.

The diagnosis of a cerebral tumour in a person over 50 is often difficult. In the case of a primary tumour the symptoms may be attributed to other diseases of the brain more frequent at this period of life. Thus for the mental disturbance produced by a growth other causes may easily

be assigned; headache and vertigo are common complaints in persons over 50, and of various origin; and hemiplegia or monoplegia would rather suggest vascular disease, though the gradual onset of hemiplegia is always suggestive of a tumour.

To sum up, an intracranial tumour is rarely met with in persons over 50, and still more rarely in those over 60; when it occurs diagnosis may be more difficult than in younger persons.

Cerebro-spinal Syphilis.

Of 261 cases of cerebral syphilis, 9 per cent. were over 50 and only 3 cases over 60 years of age; these include 60 personal cases, of which the number over 50 was 8. The interval between infection and onset of nervous symptoms is in the majority within ten years, often, of course, much earlier. The statement that has been made, that the older the patient the shorter the interval between infection and appearance of cerebral symptoms, seems not to be correct.²⁰ In cases over 50 a certain number are due to late syphilitic infection; in 3 of my cases the age of infection was 35, 44, and 46 respectively, and signs of cerebral syphilis appeared from twelve to fifteen years later. In the remainder the late onset of cerebral disease is due to a long interval after infection.

The symptoms do not seem to differ greatly from those in younger patients. In two of my cases in which the interval between onset and infection was very long, affection of the cranial nerves was the chief feature; many cranial nerves and also some spinal roots may be affected. Vertigo is often a prominent symptom. The question as to the part played by previous syphilitic infection in the production of disease of the cerebral vessels, that is, as to the proportion of cases of apoplexy or hemiplegia occurring after 50 which are due to vascular disease as the direct result of a previous syphilitic infection, is very important, but I am not able to give exact figures.

It is now generally recognized that fits indistinguishable from those of idiopathic epilepsy may occur as a result of cerebral syphilis. So far as I have been able to ascertain the age of onset as a rule is before 50. I have seen two cases over 50; in one man aged 60, who had syphilis at 46, the attacks resembled *petit mal*, and the other was first affected by repeated severe epileptic seizures at 54.

Syphilitic affections of the spinal cord are relatively still more uncommon after 50 than those of the brain. Though Head²¹ states that "there is no period after infection when the patient may not be attacked by a paraplegia," yet in most the symptoms of spinal syphilis follow somewhat early after infection. This is especially the case in syphilitic meningo-myelitis, which may occur within six months of infection.

In 3 out of 35 cases of various forms of spinal syphilis the patients were over 50. The first was a man of 53 who contracted syphilis at 22, with onset of spinal symptoms at 40. Affection of spinal roots gave rise to the chief symptoms. The disease was probably a chronic meningitis, and was remarkable for its long duration. The second case was clinically a transverse myelitis in the lower dorsal region of the cord, and syphilitic infection occurred at 37. The onset was subacute at the age of 56. The third was one of spastic paraplegia in a woman of 62, whose husband had tabs.

To sum up, the onset of cerebral syphilis after 50 is not common, of spinal syphilis rare, and after 60 still more rare in both.

THE NEUROSES.

The commonly received opinion is that sufferers from migraine either lose their attacks in later life or that they become mitigated, and that in women this relief is to be expected after the climacteric. Speaking generally, this opinion seems to be correct, and migraine is uncommon, at any rate in a severe form, after 50. A confident prognosis can, however, only be given on general grounds; it is impossible to say in an individual case that lapse of years will give relief. Some patients suffer from more frequent attacks during the climacteric, and in a certain number an increase in the frequency and severity of the attacks dates from this epoch. I have seen two cases in which premonitory hemipia has been a constant feature of the paroxysm, and permanent hemipia resulted—one instance

in a woman aged 35, and another in a man aged 54; but he had also arterio-sclerosis, high blood pressure, and glycosuria. There are also instances on record of permanent paralysis following migraine, but these are mostly in persons under 50. Most of the patients showed disease of the vessels, but others were young with presumably healthy arteries. Such consequences of migraine seem to be so rare as to be of little practical importance, and do not especially occur after 50.

Headache in connexion with contracted granular kidney may closely simulate migraine. Thus a patient with well-marked signs of contracted kidney of some years' duration first began to suffer at the age of 55 from attacks of headache exactly resembling migraine, with ocular prodromata in the left eye, in which there was commencing albuminuric retinitis. As migraine never begins late in life, no mistake in diagnosis should be possible, for though in some patients there may be an intermission lasting years, careful inquiry will elicit a history of former attacks. On the other hand, I have come across several instances in which lifelong sufferers from migraine developed granular kidney after 50, the headaches becoming more severe but retaining their original form.

An important question is whether migraine leads to epilepsy in later life. It is a matter of common observation that migraine and epilepsy not unfrequently occur in different members of the same family, either in collaterals or in previous generations. The similarity of some features of the two diseases is also remarkable. The further assumption of anything like identity between them is, however, not justified. Occasionally a patient is subject to both affections.²

Epilepsy.

It is well known that the frequency of epilepsy diminishes as life goes on, but it is also true that epilepsy may begin at any age. I cannot give extensive statistics, but of 100 consecutive out-patient cases 6 per cent. had their first fit after 50, and in 100 consecutive private patients 9 per cent. Especial care is necessary in the diagnosis of idiopathic epilepsy in later life to be sure that the case is not one of an epileptiform attack, symptomatic of some underlying disease. This especially applies to Jacksonian epilepsy, for, after 50, localized epileptiform attacks from the partial closure of a diseased cerebral artery are not uncommon. As to direct heredity in epilepsy of late onset, Gowers gives it as 26 per cent. in those which begin after 40, and Turner 10 per cent. in cases arising between 41 and 70. Finch, however, puts the proportion as high as 66 per cent. In 8 personal cases in which the onset was between 52 and 64 years there was an hereditary history in 2 only. In late epilepsy men are more frequently affected than women. Idiopathic epilepsy between the ages of 50 and 70 comprises: (1) Cases in which the disease persists throughout life; (2) cases in which the patient suffered from fits in childhood or early life, and then was free for a number of years, with a subsequent reappearance late in life; and (3) those in which the onset is after 50.

The occurrence of epileptiform fits after 50 years of age may be connected with the presence of arterio-sclerosis and high blood pressure. These cases cannot be brought into the category of idiopathic epilepsy. Whether the fits are due directly to the high blood pressure or to the toxæmia which produces it is a moot point, but as cases of hypertension are common after 50, and epileptic attacks rare, there is probably some other factor in the causation. The attacks may be severe general epileptiform ones or those of minor epilepsy (*petit mal*). Some of these cases are undoubtedly due to contracted granular kidney, but in others the kidney is not involved, and they cannot therefore be regarded as uræmic.

In late epilepsy, supervening at an age when the wear and tear of life has often produced changes in the blood vessels, it would be anticipated that the strain on the cerebral circulation produced by a fit should sometimes lead to hæmorrhage. Of this I have seen two instances; one was in a lifelong epileptic who at the age of 70 died of hæmorrhage from a cerebral artery which ruptured in the course of a fit. In the other case the first fit took place at 60, others occurred between that age and 70, when he was left aphasic and hemiplegic after a fit.

Vertigo.

Vertigo is occasionally the chief symptom in an attack of late epilepsy, when the differential diagnosis from other possible causes is sometimes difficult and especially so when epileptic attacks and aural vertigo co-exist in the same patient. Thus a man of 47 had a sudden attack of severe vertigo which left him deaf in the left ear, and liable to attacks of vertigo with tinnitus; at 53 he began to suffer from fits in which he felt an indescribable feeling rising from the stomach, lost consciousness, and fell, hurting himself in falling. There was no memory of the attacks. Gowers gives several instances of this coincidence of aural vertigo and epilepsy.²⁷ It may be difficult to determine the nature of a single attack.

Vertigo is one of the common, and certainly one of the most distressing, nervous affections of later life. By far the most frequent form is aural vertigo. Next in frequency come the cases due to increased intracranial pressure. It is also met with over 50 as a symptom of atheroma of the cerebral vessels, in stenosis of the aortic valves, in granular kidney, in cerebral tumours, and in neurasthenia. In a few instances an association with migraine, probably accidental, was present. The patients were between 50 and 60, they had suffered from typical attacks of migraine with ocular symptoms which ceased at or before the age of 50, and then at about 55 began to be affected with severe aural vertigo. Vertigo is a rare premonitory symptom of migraine.

The form of vertigo associated with hypertension, sometimes an early symptom of contracted granular kidney, is worse on movement, and especially apt to occur on getting up in the morning; the attacks are often attended by severe vomiting, which may persist for some time after the vertigo has gone. Consciousness is not affected. In one case with frequent attacks of vertigo and vomiting during two years, often lasting for two days at a time, haemorrhage into the pons Varolii with paralysis of the third, fifth, sixth, and seventh nerves subsequently occurred.

Hysteria.

The more severe hysterical affections are undoubtedly uncommon after 50. They may occasionally appear in persons who have not suffered from hysteria previously. Because severe hysteria is uncommon in later life, errors of diagnosis may be made, and if the patient is a male the true nature of his complaint is the more likely to be mistaken. Hysterical mental disorders and fits are most uncommon after 55, and in the presence of a presumed case it is necessary to bear in mind Dr. Ormerod's warning to exclude alcoholism. I have once seen a severe hysterical fit in a woman over 55, which was followed by hysterical hemiplegia, and due to the shock of her mother's sudden death.

Hysterical paralysis and contractures occur rather more frequently. I can recall two cases of typical hysterical paraplegia in men, both aged 64. Under appropriate treatment they recovered completely. Two instances of hysterical contracture of the leg in women, aged 53 and 51 respectively, are of interest, because in each case there was a possible source of autostimulation; for one patient was a nurse, who had chiefly to do with paralytic cases, and the other lived with a sister whose knee was permanently contracted after an accident. Both recovered after removal to hospital.

Neurasthenia.

The large majority of cases of neurasthenia occur between the ages of 25 and 50. Many neurasthenics, as they reach later life, though perhaps never becoming robust, yet arrive at a measure of health and freedom from morbid anxieties. At the same time neurasthenia, though not frequent, may occur after 50 up to old age. The symptoms present no special feature, except perhaps that vertigo is relatively more frequent and troublesome, that loss of memory may be a pronounced symptom, and morbid fears, if present, often take the form either of fear of paralysis or of sudden death. The diagnosis of neurasthenia, always one of exclusion, requires especial care in later life, because in cases over 50 with symptoms resembling those of ordinary neurasthenia, it is often found that the patient has arterio-sclerosis with abnormally high blood pressure, or early signs of a granular kidney, or that the symptoms are due to changes in the nutrition of the brain from disease of its vessels.

The traumatic neuroses are apt to affect persons after 50 very severely as the result of an accident, and to take the form of neurasthenia rather than of some more strictly hysterical manifestation. Here again the matter is confused by the frequent pre-existence of chronic disease of the vessels, heart, or kidney, so that it may be difficult after an accident to apportion correctly the share of the illness due to nervous shock and that due to antecedent disease. The difficulty is increased by the common experience that the patient, from the gradual onset of these infirmities of advancing age, was unconscious of them before the accident. In medico-legal cases of elderly workmen claiming compensation after an accident—and it is only human nature for them to attribute all their trouble to it—a just decision is often extremely hard. Working men over 60, after a life of toil, generally show signs of vascular or cardio-vascular degenerative changes; they may go on working so long as no accident or acute illness occurs, but they are in an unstable equilibrium, and if unfortunate enough to meet with a bad accident, they are likely to be permanently incapacitated. The prognosis as to return to work in traumatic neurasthenia in persons over 55 is in my experience not good.

Neuralgia.

Between 50 and 70 true neuralgia is not an infrequent affliction. Gout, arterio-sclerosis, various cachexias, and presenile disturbances of nutrition are the chief causes. The senile and arterio-sclerotic forms chiefly affect the fifth nerve. Neuralgia may be a complication of a granular kidney, and in my experience this often affects the occipital nerve. Occipital pain, not definite neuralgia, is sometimes a symptom of uraemia. Lapinsky has traced the neuralgia of nephritis to disease of the vessels of the nerves.

A most severe form of neuralgia in the elderly is that which follows herpes zoster. A sufferer from herpes in later life rarely escapes without subsequent neuralgia, often lasting for months. Erans²⁸ thinks that a large majority of cases of herpes zoster are microbial in origin, and regards this as the essential form of the disease, to which he attributes most cases occurring in children, whilst those which occur after 40 are due to causes yet undetermined. He states that half his cases were under 14 years of age, and one-sixth over the age of 40. Head says that of 378 cases, 29 were over 40 years of age.

Paralysis Agitans.

Though not a very common disease, paralysis agitans is pre-eminently one of the period of life between 50 and 70 years. Its main incidence is narrower and lies between 50 and 65. Sir W. Gowers²⁹ states that in 51 out of 236 cases the onset was between 40 and 49, in 100 from 50 to 59, and in 60 from 60 to 69—altogether 211 cases. After 70 there were 10 cases. Stuart Hart³⁰ in 219 cases found the age of onset to be between 40 and 50 in 54, between 50 and 60 in 88, between 60 and 70 in 42, and none after that age. Onset over 65 is thus uncommon. The disease is therefore one of the presenile period. Its cause remains mysterious and it is not especially associated with vascular degeneration or other bodily changes incidental to this age.

CONCLUSION.

If from the foregoing considerations we try to get a general view of the nervous affections of the sixth and seventh decades, it is clear that many nervous diseases do not occur at all, others are modified in their symptoms and course, and a few especially affect this time of life. Except for one important group of diseases, it comes out more favourably in comparison with other ages than one would perhaps have expected.

It is hardly necessary to say that the lesions of the brain due to vascular disease form the exception, and although, strictly speaking, these are not primarily nervous diseases, yet from the practical point of view they are by far the most important of the nervous affections of this period, because of the great frequency of cerebral haemorrhage and thrombosis after 50, and of their disastrous effects both as to life itself and, if that is preserved, as to future usefulness. The frequency alone of such serious diseases marks them as first in importance. Cerebral haemorrhage, thrombosis, and hemiplegia afford a very large proportion of the sufferers between 50 and 70 from all the diseases considered in this

lecture. Further, it has been shown that disease of the arteries materially affects the course of most nervous affections at this period. Since nervous tissue, once destroyed, cannot be restored, the prevention of vascular disease becomes of paramount importance. How this is to be accomplished I cannot consider at length. Often the tendency to vascular disease is hereditary, and beyond our powers to remedy, but apart from such cases it is certain that the chief measures to prevent degenerative changes in the circulatory system are abstemiousness in eating and drinking, care to keep efficient the organs of digestion and excretion, and regular physical exercise. The simple life may prevent, and certainly mitigate, the progress of vascular decay.

Again, granular kidney, a disease for which unfortunately our treatment is merely palliative and not preventive, is the cause of a large proportion of cases of cerebral hæmorrhage. Whilst on the one hand over-feeding has to be avoided, on the other excessive work with insufficient nutrition is also a danger. Exhaustion, over-fatigue, or overstrain are doubtless causes of such diseases as the muscular atrophies in later life. The need for moderation of former activities, both mental and physical, is a lesson that many learn too late. Defect of nutrition, again, may be local in the nervous system from defective supply of blood, due to localized arterial disease.

Turning from the vascular degenerations to those affections more purely of nervous origin, the period from 50 to 70 compares favourably with that of either childhood and adolescence or the age from 25 to 50. In both the latter periods falls the incidence of the nervous diseases due to infections and intoxications, from which the age after 50 is mostly exempt. The main period of onset of the hereditary and familial diseases, those included under Gowers's designation of "abiotrophy," occurs in childhood or adolescence; whilst from 25 to 50, together with some abiotrophic diseases whose onset is late, the numerous nervous affections due to syphilis and alcohol are rife.

We have seen that, with regard to syphilis after 50, the chances of the occurrence of cerebro-spinal syphilis are comparatively slight.

Lastly, the purely nervous diseases which are especially characteristic of this period of life are paralysis agitans, some of the combined scleroses of the spinal cord, and certain muscular atrophies of central origin. It is possible that some of these affections owe their origin to that process of premature senescence or defective vital endurance of certain neuronic systems known as abiotrophy, and that this pathological process may occur at any age. Paralysis agitans especially, in its narrow age incidence, uniformity of symptoms, steadily progressive character, and occasional familial tendency, suggests this mode of origin.

REFERENCES.

- 1 Allbutt and Rolleston: *System of Medicine*, vol. vii, p. 659. ² *Brain*, v. d. xxiii, 1900, p. 29.
- 3 Allbutt and Rolleston: *System of Medicine*, vol. vii, p. 737.
- 4 *Jahresb. f. Neurol. u. Psychiat.*, 1906, p. 612.
- 5 *Loc. cit.*, vol. i, p. 331.
- 6 Allbutt and Rolleston: *System of Medicine*, vol. vi, p. 805.
- 7 *Vide Brain*, vol. xxiv, 1901, p. 453.
- 8 *Journ. Nerv. and Ment. Disease*, vol. xxxviii, 1911, p. 593.
- 9 *British Medical Journal*, 1908, i, p. 669.
- 10 *Loc. cit.*, p. 220.
- 11 Oppenheim: *Deut. Zeit. f. Neurologie*, 1898, xxxiv, p. 61.
- 12 *Vide Brain*, vol. xxiv, 1901, p. 453.
- 13 *Journ. Nerv. and Ment. Disease*, 1911, p. 84.
- 14 *Brain*, vol. xxxv, 1912-13, p. 61.
- 15 *Rev. Neurol.*, 1911, p. 84.
- 16 Oppenheim: *Deut. Zeit. f. Neurologie*, 1908, viii, 1912, p. 61.
- 17 Oppenheim: *Loc. cit.*, p. 378.
- 18 Fries: *Arch. aus d. Neurol. Inst.*, v. d. *Wien. Zeit.*, 1906, Bd. vii, p. 70.
- 19 Vetselen and Harizis: *Jahresb. f. Neurol. u. Psychiat.*, viii, 1905, p. 631.
- 20 *Bristol Med. Chir. Journ.*, March, 1915.
- 21 *Loc. cit.*, p. 61.
- 22 Turner: Allbutt and Rolleston's *System of Medicine*, vol. viii, p. 335.
- 23 *Loc. cit.*
- 24 *Vide Gowers, The Symptomatology of Epilepsy*, London, 1907.
- 25 *Loc. cit.*
- 26 *Brit. Journ. Psychiat.*, 1905, vol. xxiii, p. 191.
- 27 Allbutt and Rolleston's *System of Medicine*, vol. viii, p. 375.
- 28 *Journ. Nerv. and Ment. Disease*, v. d. xxvi, 1904, p. 177.

The *Weekly Bulletin* of the U.S. Health Department quotes from the summary of the investigation concerning the physiological aspects of the liquor problem, by Dr. John S. Billings, junr., which was prepared for a special committee, showing that the common idea that a large part of the injury to health from the use of alcoholic drinks is caused by injurious substances in the liquor, such as fusel oil and furfural which have not been properly removed, is erroneous, as is also the notion that cheap liquors contain larger quantities of such ingredients than others. The injurious effects of the fusel oil are trifling in comparison with those of ethyl alcohol. The general conclusion is that fine old brandies and whiskies are nearly as likely to produce ill effects as the cheaper varieties if taken in the same quantities, and the injurious effect is in proportion to the ethyl alcohol contained.

A Lecture

ON WOUND INFECTIONS AND THEIR TREATMENT.

DELIVERED WITH DEMONSTRATIONS AT THE OPENING OF AN EXHIBITION OF SURGICAL APPLIANCES FOR THE TREATMENT OF THE WOUNDED HELD AT THE ROYAL SOCIETY OF MEDICINE FROM OCTOBER 8TH TO 14TH.

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PART II.

FROM THE INTRODUCTORY PARTS WHICH HAVE UP TO THIS OCCUPIED OUR ATTENTION I PASS TO THE SUBJECT-MATTER PROPER OF THIS LECTURE,

THE TREATMENT OF MICROBIAL INFECTIONS OF WOUNDS.

I would propose, despite the fact that this will sometimes carry me over ground traversed in my last lecture, to discuss with you, one by one, the various therapeutic procedures which have been employed or suggested for use. And then at the end it will perhaps be possible to draw up something in the nature of a general programme for the treatment of infected wounds in their different stages.

Let me tell you—for you will then see our road ahead—what are the therapeutic procedures we shall be dealing with. These are—and I enumerate them in the order which I shall follow—*treatment by antiseptics; treatment by surgical procedures; treatment by "physiological," or, as I would now for the sake of clearer definition wish to call them, "phylacogenic" methods; and, lastly, treatment by vaccines.*

TREATMENT BY ANTISEPTICS.

That one ought, where the organism is unable to deal effectually with an infection, to resort to the use of antiseptics seems to many minds to be perfectly clear *a priori*. Now when a proposition of this sort is said to be evident *a priori*, what this really means is, not that the proposition has been established by clinical experience, but that it has been demonstrated by laboratory experiments; and that we may confidently take those laboratory experiments as our guide.

But, of course, everything will here hinge upon the question whether the laboratory experiments which we trust accurately reproduce the conditions in the wound. Now the earlier experiments on antiseptics—and it is always upon antiquated experiments that the current doctrine of the day rests—did not even aim at reproducing the conditions in the wound. The antiseptics came into application, not as in the wound upon microbes enveloped in albuminous fluids, but upon microbes simply suspended in water. And again it passed as an axiom that if *in vitro* all the microbes were destroyed, then also all the microbes *in vivo* would be destroyed; and there was no thought that the microbes in the cavity and the recesses of the wound, and, above all, the microbes in the infiltrated or granulating wall, might escape destruction.

We have now in the matter of theoretical requirements made satisfactory advance. We now ask of laboratory experiments with antiseptics that they shall conform more closely to the conditions in the wound; and we ask in particular that it shall be kept in view that we have to deal in the wound with microbes enveloped in albuminous fluids; and that antiseptic solutions cannot come into direct contact with all the microbes which we wish to destroy. In other words, we now ask in connexion with every antiseptic for a testimonial of *bactericidal efficiency in albuminous fluids*, and for a testimonial of *penetrating power*. And in accordance with this we find in the prospectus of every new-hatched antiseptic this double certificate of character. It would plainly be beyond the scope of this lecture to look into all these certificates; but I think it will, perhaps, be useful to explain in a general way what sort of an attitude one ought to take up when traffic is made with such credentials.

On Certificates of Character which Testify to the Bactericidal Efficacy of Antiseptics in Albuminous Fluids.

It is familiar matter that the ordinary antiseptics (I shall return later to the case of some very special antiseptics) form chemical combinations indifferently with all native albumins, and not specifically with those which compose bacterial protoplasm. It is a corollary to this that whenever we have in an experiment an antiseptic, and albuminous substances, and microbes, it will, if we propose to sterilize our albuminous fluid, be necessary to cut down very severely its content in albuminous substances. And, again, it will follow from this that every promoter of antiseptics will, if he is conducting his experiments with any of the albuminous fluids of the body, find it to his advantage to employ serum rather than whole blood, and whole blood rather than pus. And, again, when he is operating with serum he will find it to his advantage either to operate with very little serum, or—and this amounts to the same—to use a large number of volumes of antiseptic to every volume of serum. This particular device is, one may see, legitimate or illegitimate according as the experiment is designed to elicit what strength of antiseptic is required for flushing out and irrigating a wound; or to create the impression that the circle has been squared, and that an albuminotropic antiseptic can do its office efficiently in the presence of albuminous substances. Let us reflect that if our ordinary antiseptics, instead of combining as they do with the albuminous substances of the blood, combined only with microbial protoplasm, it would be a perfectly proper policy to administer them intravenously in septicæmia.

Let us, however—for the above may be thought to savour of theoretical discussion—come down to the hard fact. It is, we have found, practically impossible, when employing as material pus from foul, suppurating wounds, to sterilize it by addition of any ordinary antiseptic.

Let me, with the aid of these rough coloured diagrams

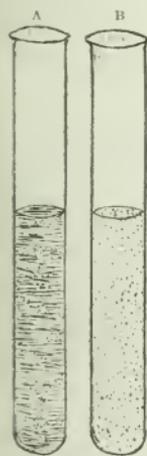


FIG. 8.

(reproduced with shading instead of colour in Fig. 8), indicate what he stands in our way. In Fig. 8, B, I have a representation of a test-tube full of thick pus, and I have represented the thick albuminous pus by a uniform wash of deep yellow, and the contained microbes by a stippling of orange. In Fig. 8, A, I have represented in a very rough way, by quite irregular hatchings of blue chalk, the effect that would be obtained by an addition of antiseptic. You will appreciate that no matter how long I go on imposing blue strokes upon my yellow ground, there will, because my blue strokes will never fuse and run into each other, still remain over small islands of yellow stippled with specks of orange. Now we have here a rough representation of what occurs when we add an antiseptic to pus and shake it up. What that gives us is a system made up of islands of pus intersected by channels of antiseptic—the sphere of action of the antiseptic being in each case limited

by confining banks of coagulated albumin. When we dilute pus with very many volumes of an antiseptic solution, as we do in washing out a wound, we, of course, effectively sterilize.

On Certificates of Character attributing to the Antiseptic Penetrating Power such as would render it Efficacious in the Sterilization of the Wound.

It will be well in embarking upon the discussion of this question to place it clearly before ourselves that when we speak of an antiseptic having penetrating power, we mean that the active agent will diffuse out into, and come into operation in, any contiguous fluid.

In other words—if I may illustrate exactly what I mean by the aid of this diagram (Fig. 9)—we say that a chemical agent has penetrating power when, applied in a fluid a, it

passes out into, and produces its effects in, a contiguous fluid b—and let me, for the sake of facilitating exposition, call a the discharging fluid, and b the recipient fluid.

Having recognized that penetration is only diffusion under another name, it will be plain that we shall be able to consider the question of penetration without travelling outside familiar ground. We know in connexion with chemical agents generally that their rate of diffusion, that is, the rate at which they will pass out from a discharging into a recipient fluid, will—exclusive of the influences exerted by temperature, extent of surface of contact, and such like—be determined by the concentration of the chemical agent in the discharging fluid, and the receptivity of the recipient fluid—in other words, it will depend upon the respective *plentitude* and the *avidity* of the contiguous fluids.

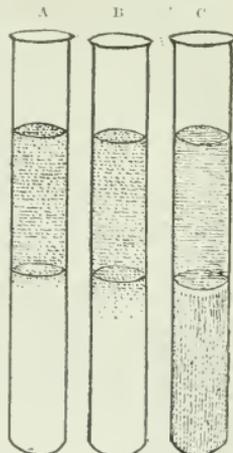


FIG. 9. In A is represented a test-tube containing: above a watery solution of methylene blue, and below clear water. In B is represented a test-tube with a watery solution of methylene blue above and strong salt solution below. In C we have represented above a deep blue, and below a deep yellow fluid.

Now, in the case of the ordinary antiseptics which are employed in wounds we have chemical agents, which, owing to their toxicity and escharotic properties, are of necessity brought into application only in dilute solutions;

and, moreover, many of these chemical agents are not very soluble in water. By consequence we are, when dealing with ordinary antiseptics, confronted with conditions which are anything but favourable to diffusion. They will resemble those roughly indicated in the diagram on the blackboard (reproduced with stippling for colour in Fig. 9, A), where we have a dark blue discharging fluid superposed upon a colourless recipient fluid, and have below the line of contact of the fluids a comparatively narrow zone of paler blue representing a slight carrying over of colour by diffusion.

But in reality the conditions in the wound, where our recipient fluid is, instead of water, a concentrated albuminous fluid, much more nearly resemble those depicted at C (Fig. 9, C). Here we have, as before, our blue discharging fluid, but there has been substituted for the colourless watery recipient a deep yellow fluid stippled with orange, representing pus with scattered microbes. And you see what we get. Instead of the narrow blue zone which diffusion gave us in Fig. 9, A, we have now a much narrower zone which is—for yellow quenches blue—nearly colourless. I think you will recognize that under conditions such as are here postulated, the prospect of getting any penetration which would be worth while may be abandoned as hopeless.

But perhaps you will suggest that one ought not to place too much confidence in demonstrations conducted on blackboards with coloured chalks; and you would wish the experiment coloured from the blackboard into the real world in order to see whether it would also apply there. Let me suggest such an experiment.

I will suppose that we have as our discharging fluid a dilute solution of nitrate of silver standing over a recipient fluid consisting, in the one case, of water derived from a fresh-water pond; and, in the other case, of sea-water—both peopled with living organisms. You will discern what would then happen. In the case of the pond water, the nitrate of silver will slowly diffuse into it: killing, as it is carried in, all the living organisms it encounters. In the case of the sea-water, the effect would be quite other. Where the two fluids meet, the nitrate of silver would be thrown down and rendered inert. And below, the marine life would go on absolutely unaffected.

But you will wish for actual experiments conducted with an antiseptic, and blood fluids, and leucocytes, and microbes such as we have in the wound. Let me therefore show you here in the form of a rough diagram the results of typical experiments—experiments carried out with blood implanted with streptococci, and then centrifugized and allowed to clot in emigration tubes, and then covered in with carbolic acid in strengths of from 1 in 50 to 1 in 20 (Fig. 10). You will see that we have here in our white clot, and—I want you to note—quite close up under the covering layer of antiseptic, colonies of streptococci derived from those we have implanted. And below—as you discerned would happen in our sea-water—you have the living elements going about their avocations quite unaffected. The leucocytes have, as you see, emigrated into the white clot, and they have, in point of fact, been hunting down and ingesting the microbes. And I see no reason to doubt that the results would have come out just the same if we had in our experiments used instead of carbolic acid any other of the antiseptics which are employed in wounds.



FIG. 10.

With this, I think, we have, in connexion with the sterilizing and penetrating power of ordinary antiseptics, got before us all the really vital points in the evidence furnished by laboratory experiments. And let me now—for you will bear in mind that the advocates of antiseptics rest their case almost exclusively on the data of laboratory experiments—try to summarize for you what these experiments really teach.

And there are here, as I see the matter, two distinct issues. The first has reference to the effect exerted upon the microbes of pus which are removed by washing; the second to the effect exerted on the microbes which are left behind in the wound.

In connexion with the first of these issues, it has been shown that while it is all but impossible to sterilize undiluted pus by any addition of antiseptics, it is quite practicable, by diluting and mixing the pus thoroughly with many times its volume of an antiseptic fluid, to kill all the microbes.

But, note, to kill these microbes is simply a work of supererogation; for they are in any case destined to go down the drain. And, moreover, pus is not in the same case with typhoid stools, which we might hesitate to put down the drain unsterilized.

Coming, then, to the microbes we have really to combat—those that washing does not remove from the wound—it will be clear that these will be killed off only so far as the antiseptic may possess penetrating power. And we have seen how the case stands with regard to this. We have appreciated that our antiseptics are incapable of penetrating through anything more than the very thinnest film of pus. They will therefore fail to kill the microbes which washing does not dislodge from the blind passages and cul-de-sacs and pockets of the wound. And *a fortiori* the antiseptic will not come into operation upon the microbes in the solid barriers of albuminous substance provided, in the early stages of the wound, by exposed muscle and connective tissue, and, in the later stages, by infiltrated walls or granulating membrane.

And what holds true of the suppurating wound would clearly hold true also of that filled with blood clot. The antiseptic will, if it exerts any influence at all, exert it here only at the particular spot to which it is applied.

I am not at all sure that the kind of evidence I have just tried to summarize—or, indeed, any array of laboratory experiments—could convert from his beliefs the man who knows with *a priori* knowledge that antiseptics must be useful in wounds. And with regard to that type of man I feel that, despite the fact that his faith in antiseptics is really based upon laboratory experiments, he will, now that the old laboratory experiments have been invalidated by the new, desire to appeal from these to the tribunal of clinical experience. And he will, I take it, desire to discover by cross-examination whether clinical or bac-

teriological investigation has not furnished data which might tend to show that the course of wound infections has sometimes been favourably modified by treatment with antiseptics.

On the important principle of logic which is here raised—that is, on the issue as to how far therapeutic measures ought to be adjudicated upon by laboratory methods, and how far by an appeal to clinical observation—I would here only say this. What we are, in difficult issues such as that in which we are here involved, concerned to arrive at is a verdict based on unambiguous evidence; and I feel confident that clinical observation cannot safely adjudicate upon a therapeutic measure unless it happen to give either outstandingly good or outstandingly bad results. Where the results are neither brilliantly successful nor the reverse—and antiseptic treatment of wound infections is precisely an instance in point—I submit that we shall be well advised if we guide ourselves, when this is unambiguous, by the verdict of laboratory experiments.

With thus much by way of protest and explanation, I will try to put before you the clinical evidence as I see it; and to resume for you the data of our bacteriological examinations of wounds treated with antiseptics.

I can put what I have to say in a very few words. I have not myself come across—and I have the permission of all my fellow-workers to say that they also have not come across—any satisfactory clinical or bacteriological evidence of the utility of antiseptics as employed in infected wounds. In connexion with this, let me say that working as we have been for the last year in the largest base hospital in Boulogne, we must, I think, have watched and examined bacteriologically very many thousands of wounds—to say nothing of our having conducted the bacteriological examinations in no less than four long series of clinical experiments undertaken to put to the test the confident prognostications of reputable promoters of this or that antiseptic. And let me also say here that the opinion I have just expressed—that is, the opinion that, judged by its clinical results, the antiseptic treatment of infected wounds is of quite doubtful utility—is that which is, I believe, held by the very large majority of those who have had prolonged practical experience in this war.

I am well aware that also contrary opinions have been expressed. I would, however, submit that these should be very largely discounted. For the more part they are opinions expressed by persons possessing a very limited experience and unfamiliar with the course the wound follows when left to itself. Moreover, the observers here in question were, as I think, deceived by the fallaciously favourable appearance of the wound in the stage that precedes the advent of suppuration. Coming to those favourable opinions which have, as I hear, been expressed by a few experienced and very competent observers, I would submit that it is possible that credit may have been given to the antiseptic, where it ought really to have been given either to the menstruum in which it was applied, or to incidental circumstances attendant upon the treatment. Thus, for instance, continuous irrigation practised with antiseptic solutions would effectively wash out the wound and keep it constantly moist; a hypertonic menstruum used as an excipient for the antiseptic would act as a lymphagogue; peroxide of hydrogen would effectively assist in the evacuation of the pus; carbolic acid or other antiseptic used in the form of hot fomentations would bring heat and moisture to bear; and no doubt many different varieties of antiseptic would induce temporary hyperaemia. I think it will be seen that favourable results occasionally manifesting themselves after antiseptic treatment, might quite well be interpreted in the sense here suggested.

So far we have considered in connexion with the clinical data only the question whether the antiseptic has had any beneficial effect in the wound. Let us now turn the leaf, and see whether there are entries also on the debit side; and let us here consider the effects produced in the wound itself, dealing afterwards with those produced on the healthy skin in its neighbourhood. In connexion with this let me first emphasize the fact that disastrous results—I am thinking more particularly of the development of gaseous gangrene—supervene when antiseptics made up in viscid or semi-solid excipients are introduced into the wound. For

this result the excipient which confines the discharges and imprisons the infection would seem to be primarily responsible.

It is, however, not only antiseptics in unsuitable menstrua which arrest the outflow of lymph and imprison the infection. With perhaps the exception of carbolic acid employed in concentrated form, all antiseptics in their degree, and strong antiseptics in particular, would seem, by coagulating the albuminous substances on the surface of the wound, to exert this prejudicial effect.

Coming now to the application of antiseptics to the skin surface in the neighbourhood of the wound, we have, of course, here a procedure which has exactly the same aims as the preparation of the skin for operation, except only that it is here foreseen that the wound will remain open.

The usual procedure for the sterilization of the skin in field ambulances is to paint strong iodine all round the wound, and then—plant for sterilizing dressings not being available so far to the front—to cover in the wound with cyanide gauze. This in many cases is followed by results like those which used to be obtained when carbolic fomentations were used as a prelude to surgical operations. There is produced—and this applies quite generally in connexion with every application which "irritates the skin"—first, reddening of the epidermis; then effusion and blistering; and then there develops in the blisters a luxuriant growth of serophytic microbes. In other words, by our misdirected energy we cultivate at the very doors of our wound, upon the very area of skin which we intended to keep free from microbes, a copious harvest of streptococci and staphylococci.

This, however, has been of the nature of a digression, and I must now, before saying something about a fundamentally different variety of antiseptics, come back and try to make clear what is the general conclusion which emerges from the clinical study of the effects of antiseptic treatment. It can be put into a sentence. The data of clinical observation, such as they are, not only confirm the verdict of the laboratory as to the inefficacy of antiseptic treatment; but they suggest that such treatment may sometimes be not only useless but prejudicial.

Antiseptics which are, instead of Indiscriminately Albuminotropic, Specifically Bacteriotoxic.

I have now to say just one word about a kind of antiseptic which concentrates its chemical energy upon the microbe; instead of like the ordinary antiseptic, expending it wastefully upon the albuminous substances in which the microbe may be embedded. Those of you who have followed the development of "chemiotherapy" will immediately perceive that I refer to *sarvarsan* and ethyl-hydrocuprein hydrochlorate* (now known as *optoquin*), and will appreciate that, if these chemical agents can be shown to exert a powerful bactericidal effect upon pyogenic organisms, and in particular upon serophytes, they might perhaps usefully be applied both directly in the wound and also by the channel of the blood: reaching in these ways all the microbes in the body with the exception only of those embedded in dead spaces and infiltrated tissues.

We have made in connexion with this subject-matter as yet only preliminary researches; and I do not here propose to say anything more than that my fellow-workers, Captain S. R. Douglas and Lieutenant A. C. Luman, working the one with *sarvarsan* and neo-sarvarsan, and the other with *optoquin*, have found that these kill off the streptococcus in serum, and that *optoquin* in particular kills the streptococcus in serum in very high dilutions.

TREATMENT BY SURGICAL PROCEDURES.

A long series of surgical procedures all having reference to the treatment of wound infections might quite properly come up for consideration here if this were a treatise instead of an introductory lecture. Let me, however, just run over the list, indicating in connexion with each the place that it would take in the treatment of the wound infections. We have, first, the opening up of the wound, and the incision of the tissues undertaken to get drainage for imprisoned infections; secondly, the washing out of the wound and the irrigation of the walls with therapeutic

fluids; thirdly, the immobilization of the limb for the avoidance of autoinoculations; fourthly, the ablation of the heavily infected and infiltrated walls and floor of the wound; and, fifthly, the secondary suturing of the wound for restricting the area of exposed and infected surface, and closing the wound when the infection has been overcome.

The first of these procedures I have already treated of. Its rationale and the methods of making it really effective were considered in a Memorandum on Wounds which was officially circulated to the Medical Service of the Army and which was published in the BRITISH MEDICAL JOURNAL of April 24th, 1915, p. 735.

The second and third procedures—those for the irrigation of wounds and the splinting of fractured limbs—form the subject-matter of the demonstrations which are to be given in this exhibition.

The principles involved in the so-called "excision" and "secondary suture" of wounds I propose here very briefly to consider.

Ablation of the Heavily Infected and Infiltrated Lining of the Wound.

The customary procedure in connexion with wounds is to remove only those portions which are sloughing; and to amputate, where a limb is involved, only that portion which is deprived of its blood supply, or quite hopelessly infected. To Colonel H. M. W. Gray is due the credit of pointing out and enforcing by a long series of cases successfully treated under his supervision in the military hospitals at Rouen, that it is possible in suitable cases to abort wound infections by the excision of the infiltrated wall and floor, the operation being completed by sewing up the wound immediately, or after treatment with hypertonic salt solution. I may explain that the kind of cases which Colonel Gray selects for treatment by excision are scalp wounds and what we may call "gouged out" and "punched in" wounds of soft tissues.

The theoretical considerations which commend the procedure of Colonel Gray are that it removes heavily infected portions of tissue which, though they could be brought back to a healthy condition, are for the moment incapable of contending successfully with infection. And, above all, the method holds out a prospect of immediate victory over the infection; and, of course, practically immediate convalescence.

There, however, suggests itself in connexion with the procedure the plenary question as to what amount and kind of microbial infection we can allow ourselves to shut up inside a wound. This is the issue which confronts us everywhere in connexion with secondary suture.

Secondary Suture of Wounds.

That a deep wound when once infected must be allowed to granulate up from the bottom, and that a surface wound must be allowed to close by the growing in of skin from the sides, are maxims which would be in their proper place in a system of surgery which aimed at doing all it could to delay healing and keep the patient in hospital for the longest possible time.

On the other hand it might quite well be imprudent to embark deliberately upon a policy of sewing up microbes in wounds to accelerate healing.

This is the kind of dilemma which sooner or later confronts us in connexion with every wound. To resolve it we must sit down, and take thought, and ask ourselves what precisely are the risks we have to take; and whether there are not precautions to be adopted; and whether we really are, in the matter of the closure of the wound, irrevocably condemned to a policy of inertia and inaction.

Let us place before ourselves first these facts. An infection of subcutaneous tissues is always of more serious import than a mere surface infection. There will always be something unfavourable either in the general condition or in the histological conditions when microbes succeed in maintaining themselves in the tissues. Here at least the leucocytes and the blood fluids ought to be able to hold their own. Exactly the contrary holds true of surface infection. On denuded surfaces, no matter how healthy the condition,

* In connexion with this drug, vide the author's *Treatise on Pharmacotherapy and Preventive Inoculation Applied to Pneumonia in the African Native*, Part I. and Appendix I.

† See the Memorandum by the author on the Employment of Bandages for the Irrigation of Wound-Surfaces with Therapeutic Solutions, and the Drainage of Wounds, BRITISH MEDICAL JOURNAL, October 16th, p. 561.

the microbes, though they may sometimes have to struggle, will always find means to maintain themselves. We may, I think, attribute this to the circumstance that on an exposed surface the leucocytes are subjected to every kind of uncongenial condition—to aerobic surroundings, to desiccation, to a tryptic or diminished antitryptic environment, and—who can tell?—perhaps also to conditions of famine.

We now see that where we have an infection of tissues—that is, a form of infection which would, if conditions had been favourable, have been driven out, and been converted into a mere surface infection—we shall be taking a serious risk if we sew up the wound. For that would be to follow leisurely and with deliberation the disastrous practice of those who in the earlier period of the war in the hospitals at the front precipitately sutured infected wounds, or securely sealed up imprisoned infections by resorting to escharotic or glucy antiseptic applications.

On the other hand, we see that, if we are dealing with a purely surface infection, it will be possible, by bringing the opposing surfaces of the wound into intimate contact, to procure for the leucocytes and blood fluids those more favourable conditions which prevail in the interior of tissues; and, by procuring these, to contribute to the destruction of the microbes.

But clearly our decision as to whether we may, or may not, bring the edges of the wound together ought not to be determined solely by whether we are dealing with an imprisoned, or a surface infection. There will in connexion with surface infections be other factors to be taken into account.

There is, for instance, a great deal of sound common sense hidden away in the maxim, that an infected wound which goes down into the depths must be allowed to granulate up from the bottom. The lessons which that precept enforces are, first, that if we allow dead spaces to develop in closed wounds we must expect to find the infection go ahead therein; and, secondly, that, since pus will gravitate downwards, dead spaces will tend to develop at the bottom of the wound, while the upper part unites and converts the dead space into the abscess sac. Of all the mechanical conditions which have to be secured in secondary suturing of wounds, the most important will clearly be the avoidance of such dead spaces.

There is another important consideration to be kept in view—and this time it is not a mechanical consideration. We must expect success or failure in secondary suturing to depend in large measure on the condition of the surfaces, and the number of microbes on those surfaces. Where we have very few microbes and a profusion of active leucocytes we may confidently look forward to success. Where we have a large population of microbes and disintegrated leucocytes it will be only reasonable to expect to fail.

This much by way of general principles. And let us now turn and inquire how these can be applied in practice, and by what methods we ought to proceed in deciding whether a wound is in fit condition to be closed down. We shall have first to certify ourselves that we are dealing only with a surface infection; and then we shall require a method of examination to tell us what is the condition of the leucocytes, and the number of microbes on the surface of the wound.

The first of these points is resolved by a mere clinical examination. As long as the floor and walls of the wound are still indurated we can be sure that we are still dealing with an imprisoned infection. On the other hand, when we have lying naked before us in the wound a system of lymph spaces communicating freely with one another, filled in with clear fluid, and fed from full capillaries, we then know that we have got rid of the imprisoned infection; and that if any infection still lingers it is a purely surface infection.

There remains the question as to what number of microbes have to be dealt with on the surface of the wound, and what force of active leucocytes we have there at disposal. It will probably in the case where the walls and the floor of a wound have been freshly resected—provided always that this has been done in a workmanlike way—be unnecessary to insist upon such inquisition. But where we are dealing with a granulating wound whose edges have not been refreshed it will assuredly be required.

The method of obtaining the information is quite simple. We first prepare a number of cover-glasses by coating them on one side with a layer of agar or serum (serum is preferable) and then letting them dry. We then bring the coated side down upon the surface of the wound. And we make in this way (using, of course, a number of cover-glasses) a series of impression preparations. We now fix and stain either by the method of Gram or with carbol thionin. Micro-copic examination then tells us whether we have few or many leucocytes; and whether the leucocytes are degenerated or well preserved.

And a concluding word may now be said on the technique of closing in the wound and on the procedure to be followed.

Except possibly in cases where we pass directly from the excision of the wound to secondary suture it will be well always to preface the operation by phylacogogic treatment conducted upon the lines laid down in the next section of my lecture, and controlled, of course, by the making of impression preparations.

Where we are dealing with a deep and extensive wound it will be well to undertake the work in stages and to content oneself at first with bridging and subdividing the wound by bringing the walls into application by sutures passed in from the skin from each side deep into the tissues. And I may add in connexion with such sutures that they ought, in order to prevent extension of the microbes along their track, to be withdrawn at the earliest possible moment. Where bridging operations have been undertaken, the interspaces between the connecting bridges ought still to be irrigated and drained. Where it is a question of the closure of large gaping "gouged-out" wounds, it will be well to choose for the patient such a position as will minimize the gaping of the wound and the strain upon the sutures. Where large surfaces of skin have been carried away grafting ought to be resorted to; or the skin ought to be unperfected, and the liberated flaps drawn over the wound by strips of adhesive plaster. Where a limb has been amputated by the flapless operation, the sleeve of skin ought to be slowly drawn down over the stump by an extension apparatus.

TREATMENT BY PHYLACOGOGIC METHODS.

When I was discussing with you the clinical results obtained by the antiseptic treatment of wounds, I drew your attention to the fact that with this a variety of physiological stimuli were brought into application, and that the good results which were upon occasion witnessed might quite well be credited to these.

Now, of course, physiological stimuli are in connexion with wounds applied, not only incidentally to antiseptic treatment, but also of set purpose as therapeutic agents. Dry or moist heat is brought into application; ether is introduced into the cavity of the wound; stimulating ointments and lotions are applied; or, as the case may be, the wounds are uncovered to air; they are exposed to sunlight, or electricity and radium are exploited: each of these measures being resorted to with a more or less vague idea that the particular form of stimulus in question will directly or indirectly assist in combating the wound infection.

So far as I can discern, all these are forms of treatment—and the same holds true also of the surgical procedures we have considered above, of the methods of Bier, and, of course, of saline solutions and vaccines—which are capable of bringing the protective elements of the body—that is, the blood fluids and leucocytes—into application in the wound. And I would submit that they can be useful only so far as they serve as—let me suggest the word—*phylacogogic* agents.

We ought therefore to give up employing these agents as fetichs, and ought to preclude their use by a careful study of their physiological action.

This field of study being so endlessly wide I propose here to confine myself to the study of strong and weak salt solutions. We shall see that we have in these *phylacogogic* agents—in hypertonic saline solution a *lymphocogic*; and in physiological saline solution a *leucocytogogic* agent.

Physical and Physiological Action of Hypertonic Salt Solutions.

Hypertonic salt solutions exert three kinds of effects: a physical effect; a physiological effect; and an effect on

the condition of the wound and the bacterial infection. Let me deal first with the physical action, for it was this which I had chiefly in view when I suggested the employment of hypertonic solutions in the treatment of infiltrated tissues which were the seat of bacterial invasions.

Physical Action of Strong Saline Solutions.—I can perhaps most conveniently introduce what I have to say with reference to the physical action of strong salt solutions if I take up again the discussion of the phenomena of diffusion at the point where I left off when I was discussing with you the penetrative powers of antiseptics.

What we were there considering was the conveyance of the chemical agent outwards by diffusion from the discharging into the recipient fluid; and we did not then need to concern ourselves with the return movement from the recipient into the discharging fluid. But in connexion with every diffusion there is always a process of barter and exchange: so that when we have, as in Fig. 9, a, as our discharging fluid water containing a colouring material, and as our recipient fluid clear water, there is, in point of fact, not only a passing out of colour into the recipient fluid, but also a return flow of water; and, as a result, a certain dilution of the discharging fluid.

It will subserve the purposes of exposition, and perhaps help to call up in the mind clearer pictures, if, speaking as we do of the conveyance of the chemical agent into the recipient fluid as *diffusion*, we may call the conveyance of the water (or other excipient) into the discharging fluid, *infusion*.

Let us now look—for this will carry us a step further—from Fig. 9 a to Fig. 9 b. Here, while the coloured fluid in the upper part of the test-tube remains as before, strong salt solution has at the bottom of the tube been substituted for clear water; and we have now a double process of diffusion—a diffusion of colouring matter downwards into the coloured water; and along with this we have also infusion into each fluid. This will give, on either side of the surface of contact, a broader zone of mixture; and you have in Fig. 9, b, below the junction of the coloured and colourless fluids a broader band of stippling representing colour.

We can by the aid of a very simple experiment satisfy ourselves that there is a much greater indrawing with a strong salt solution than with a weak solution or simply water. We take a capillary pipette, seal it at the end, fit on a rubber teat, and then squeezing this with the fingers so as to get up a positive pressure in the interior, introduce a small portion of the wall, about half way down the stem, into the flame of a by-pass. The glass will, as soon as it softens, blow out here and give us a lateral opening. We now resect our capillary stem at some little distance above, and again some little distance below, this opening. Having provided ourselves with such tubes we fill in one with strong salt solution and another with water, and then pour a little water solution of methylene blue into a Petri dish or other shallow, flat-bottomed vessel. This done, we take up first one, and then the other, of our capillary tubes. We seize it in the middle with a pair of forceps; hold the central orifice uppermost and the two limbs horizontally; and in this position immerse for a matter of a second or two into the coloured fluid. We then wash the outsides and compare the two tubes.

In the tube of water there will be three narrow, and in the tube of salt, for there is here more indrawing, there will be three very broad bands of blue: one occupying the middle and the others the ends of the tubes.

And let me show you also another experiment which brings clearly before the eye the drawing power of salt. I have here two test-tubes filled in each case to a depth of 3 or 4 centimetres with a watery solution of methylene blue; and standing in these test-tubes I have two pieces of glass tubing, open at both ends and packed with moist cotton-wool; and, lastly, in the one tube I have at the top of the cotton-wool a layer of salt. These pieces of tubing have been standing, as they are standing now, since last night. I now lift them out, and you see that here again the methylene blue has been drawn far up into the tube where we have the salt; while it has in the companion tube been carried in only a very short way.

With this we have come some little distance on the way

The actual procedure employed was to fill in the cotton-wool, to immerse in water, and then to remove the superfluous fluid by centrifugalization.

to an understanding of the physical action of hypertonic salt solutions applied in wounds. This further series of test-tube experiments (reproduced in Fig. 11) will, I think, show you exactly what happens.

I have here a tube of water agar (Fig. 11, a). That is to say, I have dissolved in the distilled water, which is here going to serve as a recipient fluid, a sufficiency of agar to set it into a firm jelly. And I have added also a little trace of nitrate of silver. Into the next tube (Fig. 11, b)—a precisely similar tube—I introduced some twelve hours ago a cube of sodium chloride, imposing it upon the surface of the just moist jelly. And you here see the result. The sodium chloride has diffused into the water agar to a considerable depth, discolouring the silver salt. But the important thing to note is the counter movement. Water has been drawn out from the jelly, and we have now, round what remains of the pellet of salt, as you see, a layer of fluid a centimetre or a centimetre and a half in depth.

This is the particular effect which I set out to get when I suggested the employment of hypertonic solutions as a dressing for infected surfaces. I expected to get that combination of diffusion and infusion which we have under our eyes here—in other words, a process of barter in which salt and water should be exchanged, not in volumetric equivalents, but, as you see here, in the ratio of very many volumes of fluid for one of the solid.

Let me try to make plain another point. The whole question of diffusion and infusion is to the ordinary medical man and biological student complicated by ideas connected with osmosis: his mind being taken up in particular with the idea that crystalloid substances can, and albuminous substances cannot, traverse a so-called vegetable or animal membrane. In fact, some have come to believe that it is the interposition of a membrane between the recipient and discharging fluid which calls into existence the attractive forces of salt for water and all the phenomena of infusion; or, to put it in other words, that it is the interposition of the sieve which confers upon the salt the power of drawing water to itself. It is this confusion of thought which has inspired the criticism: that while hypertonic solutions may be competent to draw fluid out from the walls of a wound, the fluid thus extracted will by theoretical necessity be a fluid deprived of all its albuminous substances, and with these of all its antibacterial powers.

The test-tube I now show you demonstrates to the eye that the theoretical deduction here in question is quite unfounded. You see here (Fig. 11, c) a tube of water agar into which I have incorporated a considerable amount of blood. I have dealt with it in precisely the same way as with the tube of silver nitrate agar; that is to say, I imposed upon it yesterday a cube of sodium chloride. You will see for yourselves that the salt has here drawn out from the agar a very considerable amount of a turbid blood-stained fluid; and when I take a sample of this and boil, you will see that we obtain a very heavy precipitate of albuminous substances (Fig. 11, d).

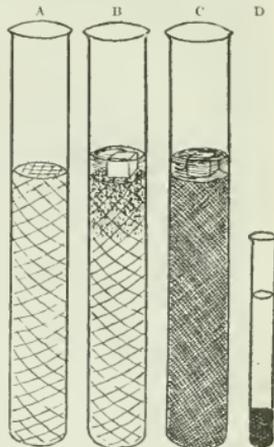


Fig. 11.—A, A test-tube filled with water agar serving as a control to B and C. B, A test-tube filled with silver nitrate water agar upon which has been imposed a cubical block of sodium chloride, showing the precipitation of the silver salt in the interior of the agar, and on the surface of the agar the fluid which has been drawn out. C, A test-tube containing water agar in which blood has been incorporated on the surface of the agar; a cube of salt and the turbid blood-stained albuminous fluid which has been extracted by the action of the salt is seen. D, A small test-tube showing the albuminous precipitate thrown down on boiling a sample of the fluid obtained from C.

I think we may feel reasonably confident that this is exactly what occurs in the wound. And at any rate we may be sure that neither in the earliest stage of the wound, where the tissues lie exposed; nor yet in the later stage, when the walls are infiltrated; have we in the wound, any more than we have here in this test-tube, anything in the nature of a membrane which could filter out albuminous substances.

Arising directly out of the physical properties of concentrated salt solutions is another point which has a very important bearing on the therapeutical action of these agents. We have seen in connexion with antiseptics that inasmuch as they have as good as no penetrative power, they will exert their effect only at the immediate point where they are applied; and, in the case where the antiseptic marches with an albuminous fluid, only on the face where the two fluids come in contact. In other words, the antiseptic will not diffuse into, and come into application in pus held up in the upper reaches or recesses of the wound, nor even in islands of pus encompassed by antiseptic fluid.

Now the exact contrary of this holds true of strong saline solutions introduced into the wound. No sooner are they introduced than the sodium chloride—for it is, of course, highly diffusible and is not quenched by antiseptics—will radiate out by diffusion through all the fluids of the wound. (In an experiment in which a tube full of water agar was inverted in a shallow receptacle of 4 per cent. salt solution we found that diffusion carried the salt up $4\frac{1}{2}$ centimetres in a night.) We may therefore picture in our mind's eye, in connexion with strong saline solution applied to the mouth of a wound, that the salt will very soon, in the lower reaches of the wound, attain a high concentration and act as a lymphagogue; and that afterwards it will come into operation in the upper reaches in a dilute, but perhaps still therapeutically valuable, form.

But let us note that this will apply only if the concentration of the saline solution is maintained throughout. Where the salt solution is applied in the form of a damp pad, and is then very rapidly diluted by the exudation, we shall get, but only very temporarily, a hypertonic solution in the lower reaches of the wound, and after that we should obtain only the same effects as with an isotonic salt solution.

Finally—and this is a point which may upon occasion have a practical interest—let us remember that 4 per cent. salt solutions have a specific gravity equivalent to that of the serum; and more concentrated solutions of course a higher specific gravity. It will therefore be theoretically possible, by availing ourselves of gravity, to get strong saline solutions directly to the bottom, not perhaps of a wound filled with pus, but certainly of a wound in which we have only blood-clot and serum.

(To be continued.)

THE OPERATIVE TREATMENT OF GUNSHOT INJURIES OF NERVES.

BY

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The majority of the patients were in the section of the War Hospital at Croydon which the Surgeon-General of the Eastern Command has set aside for the treatment of injuries of the peripheral nerves and for stiff joints arising from wounds, and which he requested Dr. Woods and myself to organize. Other patients were in military or V.A.D. hospitals in other portions of the Eastern Command, and three in H.R.H. Princess Henry of Battenberg's Hospital for Officers.

The cases operated on by one of us (F. E.) numbered

28, of which 21 were due to bullets, and 6 to shrapnel or shell wounds. As regards the distribution of the lesions: 5 were injuries of the brachial plexus, 8 of the musculo-spiral nerve, 1 of the posterior interosseous nerve, 5 of the ulnar, 2 of the median and ulnar nerves together, and 7 of the sciatic or external and internal popliteal nerves. In 6 cases the injured nerve or nerves were completely divided. The sciatic nerve, as might be anticipated on account of its size, was divided three times; the other nerves divided were the median and ulnar together in one case, musculo-spiral and posterior interosseous once each. In one instance the sciatic nerve was perforated with incomplete division of the external popliteal portion. Many of the cases having been in V.A.D. hospitals before being transferred to Croydon, the period elapsing between the receipt of the wound and the operation was often considerable. This period in all but 4 cases was three months or over; in the remainder the shortest period was seven weeks. In the absence of evidence of improvement, and if the electrical reactions indicate a severe injury of the nerve, we are of opinion that an operation should be performed as soon as the condition of the wound permits of its being carried out aseptically. Excluding the 5 injuries of the brachial plexus, it was thought necessary in 8 cases out of the remaining 23 to resect the damaged portion of the nerve, or to refresh the ends if they were separated. In other cases the nerve was separated from adhesions and surrounded with Cargile's membrane. The various reasons determining the procedure adopted are given below in considering the electrical reactions. The smallest nerve operated on was the posterior interosseous. This was found to have been completely severed (the ends being separated) by a bullet which had comminuted the head of the radius. The nerve was exposed by an incision on the outer side of the forearm, just below the external condyle and on a plane corresponding with the palmar surface of the head of the radius. After dividing the muscles attached to the external condyle, the proximal end of the nerve was at once found. The ends were refreshed and the junction surrounded by a portion of the basilic vein. As regards the 8 cases of injuries of the musculo-spiral nerve, half of them were associated with fracture of the humerus.

In those cases in which resection was performed the fibrotic tissue, or bulbous end, was removed on the proximal side until the section showed well-defined nerve bundles; and the distal end was refreshed. The ends were pierced with a round shafted needle, and united with one or, in the case of large trunks, two sutures of twenty day chronic catgut (0 or 1 size). It was always found possible to get the ends together by freeing the nerve above and below, and flexing the nearest joint or adducting the upper arm. Where a portion of the nerve was thickened and appeared to be "hided-out," chiefly from thickening of the perineurium, an incision was made into the thickened tissue.

The five cases of injuries to the brachial plexus furnished many points of interest. One was due to a bullet smashing the centre of the clavicle. The clavicle was divided, and fragments of bone were found pressing upon the anterior divisions of the fifth, sixth, and seventh nerves, which were enveloped by dense scar tissue. This was removed, the nerves were surrounded with Cargile's membrane, and the clavicle wired. In another case the injury was by a bullet at the root of the neck. At an operation, two months after the injury, the trunks of the fifth, sixth, and seventh cervical nerves were found thickened and more or less adherent. The condenser reaction of the paralysed muscles read from 1 to 4 microfarads charged at 70 volts. The thickened nerves were separated from adhesions and surrounded with Cargile's membrane. Five months after the operation there was a good return of movement in the paralysed muscles. In the other cases the injuries were below the clavicle, and in two instances were of a most extensive character. The difficulty in dealing with these cases is increased by the fact that the axillary artery and vein are usually involved in the scar tissue and require careful separation. In one case it was found necessary to ligature the artery and vein above and below the lesion. No trouble occurred as regards the circulation of the limb, probably because the anastomotic circulation had been enlarged owing to partial occlusion of the axillary artery. A dense mass of

* A paper read before the Medical Society of London on November 1st, 1915.

ciatricial tissue had matted together all the cords of the brachial plexus and was adherent to the anterior aspect of the subscapularis muscle.

When confronted for the first time with this condition of things surgical interference appears hopeless, but it was found that by cutting combined with teasing by blunt dissection the various strands of the cords could finally be separated out and the cicatricial tissue removed. In the case above referred to, a rounded mass of fibro-neuromatous tissue the size of a thrush's egg was removed from the posterior cord; and a portion of the inner cord, three-eighths of an inch in length, was resected and the nerve united. In another case the cords were matted together by a dense scar behind the pectoralis minor, just above the point where the internal circumflex is given off. The bullet had entered on the posterior surface of the root of the neck through the outer part of the trapezius, had passed under the clavicle, and made its exit behind the anterior axillary fold. The site of the lesion of the plexus was fixed as just below the point where the musculocutaneous is given off, by the fact that the muscles on the front of the arm were the only ones giving normal reactions. It was found possible to separate the median nerve from the cicatrix, but half an inch of the posterior cord and three-eighths of an inch of the internal cord were excised, and end-to-end union effected. Dr. Pantou kindly examined the portion excised from the posterior cord: it consisted solely of dense fibrous tissue, and contained no nerve fibres.

In a third case the median and ulnar trunks were matted together below the lower edge of the pectoralis minor, but were separated and surrounded with Cargile's membrane.

Boldness is justifiable in operating on these severe lesions, as one knows that the limb must remain useless unless restoration of conduction in the nerves can be effected by surgical measures. There is the less hesitation in operating freely since it has been established by the experiments of Professor Robert Kennedy¹ that the junction of the peripheral end of a divided nerve to the corresponding proximal portion of the same nerve is not necessary for the re-establishment of function. He writes: "In Macacus the paralysis resulting from section of the fifth and sixth nerves may be largely restored by anastomosis of the peripheral segments of the two roots to the seventh cervical nerve, or to the spinal accessory." Two cases of partial paralysis of the brachial plexus as a result of arterio-venous aneurysm in the axilla have been met with. At the operation in one case pressure was found on the median, ulnar, and musculo-spiral nerves in the lower part of the axilla. The other case is an example of an arterio-venous aneurysm involving the lower part of the axillary artery with paralysis of the musculo-spiral nerve. After keeping the patient under observation, it has been found that the aneurysm is increasing and the condenser shows that the paralysis is not improving, in spite of the treatment. An operation will therefore be performed.

All the cases except one have been tested electrically by Dr. Woods. In practically all instances the paralysed muscles did not react to faradization. We found the Lewis Jones condenser of great assistance, as it furnished a numerical equivalent indicating the degree of interruption to conduction through the nerve and the condition of the muscle; for example, in 6 cases in which there was evidence of complete division of a nerve, in one instance there was no response with the condenser, while in 4 the numbers ranged from 2 to 4 m.f. charged at 70 to 100 volts.* In these cases operation was performed three to five months after the infliction of the wound. The period elapsing after the infliction of the wound must be taken into consideration, for in the remaining case, in which operation was performed for complete division of the internal popliteal nerve seven weeks after the wound, the muscles responded to a 1 m.f. capacity at 70 volts. There could be no doubt as to the nature of the lesion, since the ends of the nerve were widely separated. This patient had received massage and electrical treatment from an early date, and the consequent state of nutrition of his

* Normal muscles give, with a condenser, a reading of 0.025 to 0.075 micro-farads capacity charged at 70 volts. In a moderately severe lesion of a nerve the muscle gives 0.75 to 1 micro-farads charged at 70 volts, and a severe lesion 1 to 4 micro-farads charged at 70 to 100 volts.

muscles probably had an effect as regards the electrical reactions.

As showing the effect of time on the reactions obtained by the condenser, it may be noted that in the case of division of the posterior interosseous nerve operated on five months after the injury, the muscles at the back of the forearm, except the extensor carpi radialis longior, gave no response to testing with the condenser.

The chief point in the operative treatment of these nerve lesions is to determine whether simply to separate the injured nerve from the surrounding tissues or to resect it; and this is of greater importance owing to the fact that anatomical division is comparatively rare. A definite indication is usually afforded by inspection. There may be evidence of complete division with union by a band of fibrous tissue, and in this case an enlargement of the proximal end will be present; or the site of division, which may be partial or complete, is indicated only by a well-defined bulbous enlargement. In less severe injuries there is often a fusiform thickening of some extent involving the nerve trunk. In other cases, especially in injuries to the musculo-spiral nerve associated with fractures of the humerus, the nerve may be embedded in callus. In one case it was stretched round a spicule of bone. The musculo-spiral nerve may be generally thickened and enlarged for some length; it was in a case of fracture of the humerus as thick as the end of a little finger. The condenser required for the extensors of the wrist and digits was of 2 m.f. capacity at 70 volts; nevertheless, after freeing the nerve voluntary movement returned rapidly, and in two and a half months there was almost complete restoration of function.

Not infrequently the affected nerve is evidently constricted by cicatricial tissue surrounding it, or by the pressure of a dense cicatrix of the integuments. Where doubt exists as to the advisability of resection, an indication of the amount of damage is sometimes furnished by blunt dissection of the nerve bundles from above into the cicatrix to ascertain if they are continuous across it.

The condenser also furnishes important indications of the site and severity of the lesion. In a case of wound of the thigh at its middle third by a portion of shell the sciatic nerve had been perforated. The condenser required was of 4 m.f. at 120 volts for the muscles on the front of the leg, 1 m.f. at 70 volts for the peronei and 0.25 for the calf, showing that the damage was to a portion of the external popliteal nerve. At the operation the internal popliteal nerve was separated from the external nerve by blunt section, and a dense nodule or neuroma was found involving the inner half of the external popliteal. This was excised without interfering with the outer strands of the external popliteal, and the gap was united with catgut.

Further, the condenser gives reliable and easily recognized indications as to when cases of nerve injury are improving under treatment. The two following cases may be quoted:

CASE I.

An officer received a bullet wound at close range which carried away the internal condyle and paralysed his ulnar nerve; very definite improvement occurred. Three weeks after the injury the muscles supplied by the ulnar nerve required a condenser of 2 m.f. capacity, the charging voltage being 75. Nine months later the reactions were precisely the same and the improvement as regards sensation and voluntary power had remained stationary for some time. Operation was therefore decided on. The nerve was constricted, and just above the injured part was a small, bulbous enlargement. Seeing that there had been considerable restoration of function the nerve was freed and surrounded with Cargile's membrane. Treatment by massage and electricity was continued. At the end of two months the condenser test was exactly the same as before the operation. The patient was therefore advised to submit to resection of the injured portion of the nerve.

CASE II.

A patient was admitted to Crofton War Hospital with a shrapnel wound behind and above the head of the fibula and paralysis of the muscles of the front and back of the leg. On August 25th the condenser required for the peronei muscles was of 0.25 m.f. capacity at 70 volts. After continuous treatment the condenser capacity for the peronei, seven weeks later, was 4 m.f. at 80 volts. Operation showed that the external popliteal nerve was definitely thinned at a point corresponding to pressure by a very indurated cicatrix of the integument.

The disappointing feature of the treatment of nerve injuries is the long period required for the completion of

the reparative processes, and so far we can give very little information as regards the ultimate results of our work in respect of restoration of function, most of the cases having been operated on after the beginning of August.

REFERENCE.
1 *Proc. Roy. Soc., Series B*, vol. LXXXIX, No. D, 610.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

MAGNETIC PROPERTY OF GERMAN BULLETS.
It does not appear to be generally known that German rifle bullets are strongly attracted by an ordinary magnet, whereas the English bullet is quite devoid of this quality. The difference is due to the composition of the casings. The English bullet has a casing of 80 per cent. copper and 20 per cent. nickel, and although nickel and many of its alloys possess magnetic qualities, the alloy of nickel and copper in the above proportions is non-magnetic.

At my request, Mr. Leslie Aitchison, M.Met., of the Sheffield University, very kindly made an analysis of a German bullet, with the following result:

The casing is a steel containing 3.36 per cent. nickel and low in carbon. The body of the bullet contains 96.92 per cent. lead and 2.95 per cent. antimony.

With the highly successful methods now available for localizing war missiles in the body by x rays, magnetic tests are no longer of any value for this purpose, but the magnetic attraction possessed by the German bullet may, under certain circumstances, be utilized to assist in its removal from the body. The following notes of a case will indicate what I have in mind:

I. W., aged 38 years, a sergeant in the 6th Sherwood Foresters, was standing up in a trench with his hands in his greatcoat pockets when he was struck by a bullet in the right arm, just below the insertion of the deltoid muscle. The bullet passed upwards and inwards until it encountered the first rib, which it fractured. The resistance so offered was sufficient to arrest its momentum, and it fell into the pleural space and gravitated to the base of the right lung.

Examinations with the x-ray screen demonstrated that it was freely movable in the pleura in response to alterations in the patient's posture, and, as it was causing discomfort, it was decided to attempt its removal by a giant magnet which my ophthalmic colleague, Major Pooley, kindly placed at my disposal.

The idea was to employ intratracheal ether anaesthesia, and under the positive intrapulmonary pressure thus secured to make an opening into the pleura and extract the bullet by means of a soft iron probe connected at one end to the magnet. Tests showed that the attractive force so available would be amply sufficient for the purpose. But "the best laid schemes o' mice and men gaug aft a-gley." On the eve of the day selected for the attempt the intratracheal apparatus was unfortunately broken, and the delay caused thereby led to the bullet being extracted in the ordinary way. The case had an ironic aspect. The bullet turned out to be an English one, and was, of course, unresponsive to a magnet.

My excuse for sending this note for publication is that I have not come across any reference to the matter in the literature within my reach.

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COMPOUND DISLOCATION OF THE KNEE: RECOVERY WITH A USEFUL LIMB.

A STATEMENT in Major Robert Jones's recent work on *Injuries of Joints* leads me to record a case which I treated at Nablous some few years ago.

An Arab aged about 60 was brought to the C.M.S. Hospital at Nablous, Palestine, in 1903 or 1904 one morning, on the back of a fellow-workman, a distance of fully half a mile. He had bled considerably on the way, and the femur was not only dislocated but had ruptured the skin posteriorly and was protruding therefrom.

The history of the case was interesting because, from the account of the English nurses at the above hospital, he

had been treated twice before at intervals of two years, once for fracture of the same thigh, and also, I was told, for dislocation. In spite of the weakness of the joint he was still following his avocation of a porter, and whilst so engaged and carrying a heavy load the knee gave way under him, with the result stated.

It was found absolutely impossible to reduce the dislocation without further enlarging the rent in the skin, which tightly grasped the femur above the condyles. This was possibly a blessing in disguise.

After reduction the limb was put up on a side splint and a large-sized drainage tube inserted; after a daily or almost daily syringing with mercury perchloride 1 in 2,000 for about a month, the wound closed without infection of the joint or rise of temperature; there was very free discharge of synovia.

The patient left the hospital with a weak but not a useless limb. I am sorry not to have further details, since I was only in temporary charge of the hospital.

Chepstow.

JOHN CROPPER, M.D., B.C.Cantab.

Reports of Societies.

DISCUSSION ON GUNSHOT WOUNDS OF PERIPHERAL NERVES.

THE discussion on this subject was resumed at a meeting of the Medical Society of London on November 1st, when Sir FREDERIC EVE made the communication which is published in full at page 676.

Dr. E. F. BUZZARD said that information was required concerning three points especially: (1) Which cases should be operated upon; (2) what should be done at the operation; (3) how could pain be relieved? With regard to the first point, it was difficult to lay down any rule, but he thought it wise to explore in cases of doubt. Whether operation should be performed or not depended upon whether the local conditions were favourable to return of function. He was sceptical as to the value of the electrical reaction of degeneration, as it was influenced by the treatment applied. It was difficult to decide what should be done at the operation when a fusiform swelling was found consisting largely of scar tissue, but carrying many nerve fibres. In peripheral nerve lesions he advised that the nerve should be examined carefully both with the eye and with the finger. In the case of partially divided nerves, whether the nerve were excised or merely stunted, incomplete recovery would follow. Pain and hyperaesthesia of a most severe type might continue for months. In such cases operative treatment was required, and excision might be necessary, although the injury was only partial. Injection of alcohol into the proximal end of the nerve was of great value as a means of abolishing pain.

Mr. JOCELYN SWAN gave his experiences of 63 cases of nerve injury: 38 had been operated upon, 41 nerves being explored, and 25 were not operated upon. Of these, 6 had refused operation; in 3 it had been deemed inadvisable; 4 had been deferred, and in the remaining 12 improvement and recovery of function had occurred in from two to four weeks after the injury. Those cases which thus recovered had been ascribed to "nerve concussion," and in such it was difficult to say whether any actual damage had been done to the nerve or not. In them a strong faradic current produced a reaction, and this provided a valuable prognostic guide. He thought that no operation should be undertaken until the surface wounds had firmly healed, and there was no evidence of an underlying focus of infection. If there were paralysis of muscles, a corresponding area of anaesthesia, and an absence of faradic reaction, he advised exploration. In some cases with partial injury to a nerve some muscles escaped and anaesthesia was imperfect. Of the 41 nerves explored complete division was found in 13, and in the remaining 28 scar tissue had to be dealt with to free the nerve. In 2 cases metallic fragments were buried in the nerve, and in another a fragment of bone. There was no means of distinguishing between complete division of the nerve and its binding by scar tissue. When the latter had been encountered the result had been more satisfactory when both nerve and scar had been excised. Voluntary movements often returned long before even a feeble reaction was obtained to a strong faradic current. He had

found the skin damp and sweating in the area of distribution of nerves which had been injured.

Mr. BERNARD ROTH was of opinion that all cases in which definite recovery was not taking place after a few weeks should be operated upon. In a large majority of the cases the symptoms were due to compression merely. If the nerve were partially severed he favoured leaving the undamaged fibres and approximating those which were divided. When a so-called neuroma was found this should be left if it affected only a part of the nerve. It could be removed afterwards if necessary. With regard to post-operative treatment, he said that if the leg were affected a suitable walking instrument should be provided to prevent dropping of the foot. It was the efficiency of after-treatment which often decided the degree of recovery.

Dr. E. G. FEARNSIDES agreed with Dr. Harris that accurate chartings of the interferences with sensibility were of greater value in estimating the completeness or incompleteness of the injury than the presence of complete muscular paralysis with the reaction of degeneration. The alteration should be charted at varying intervals, special attention being paid to the delineation of the borders at which the patient appreciated any change in the sensation evoked by the stimulus. At first motor losses and areas of sensory interference often did not match the anatomical distribution of nerves. It was important to attempt to separate disabilities owing to gross mechanical causes from those of directly nervous origin. He still thought that the nerve fibres underlying deep sensibility run a course to the spinal cord different from that of the fibres which underlie cutaneous sensibility. It was not right to speak of "ulnar" or "median" anaesthesia, for in each case it varied with the situation of the injury as well as with its extent. In cases of injury of the brachial plexus the association of pain due to an involvement of a peripheral nerve, with referred neuralgia due to visceral disease, was not infrequent.

Dr. F. HERNIMAN-JOHNSON demonstrated the Lewis Jones condenser, and made a plea for the standardization of the method by which it was used.

Dr. WILFRED HARRIS and Mr. WILFRED TROTTER briefly replied.

At the first meeting for the session of the Section of Dermatology of the Royal Society of Medicine, on October 21st, the chair was taken by Dr. J. H. STOWERS, who has succeeded Dr. J. J. Pringle in the presidency. A number of cases were exhibited, among others one by Dr. H. SPENCE (introduced by Mr. McDONAGH) showing the results of *Eczeliative dermatitis* following novarsenobenzol (French). The patient, who had received one intravenous injection, had cicatricial alopecia and marked arsenical pigmentation. The rash appeared a few days after the injection, and the patient was unable to leave the hospital for six months. Mr. McDONAGH related nine similar mishaps, two of which ended fatally.

Revisus.

VENEREAL DISEASES.

Mr. McDONAGH's recent work on *The Biology and Treatment of Venereal Diseases*¹ is one of the most original books on this subject which has appeared. The statement that "the *Spirochaeta pallida* is not the cause of syphilis, and its destruction does not result in the cure of the disease," is, at first sight, rather startling. The explanation given by Mr. McDONAGH is that the spore of the parasite of syphilis is the true cause of the symptoms, and the *S. pallida* only the male gamete of the life-cycle of an organism which he has named the *Leucozytozoon syphilitidis*, of which he gives a minute description, illustrated with microphotographs and coloured plates. It must be borne in mind that other observers have described developmental changes in *S. pallida*—Lauriaux and Geets and MacLennan in 1906, and more recently H. Ross in 1912. Mr. McDONAGH does not refer to the two former observations, and states that the life-cycle described by Ross was not observed in the living state, and, further, that the

bodies described by him have been found in non-syphilitic material. It appears to us that none of the descriptions of these life-cycles are convincing, and that the subject might well be reinvestigated by an independent protozoologist. The assumption made by McDONAGH that the spore is the real cause of the symptoms naturally influences his views as to treatment and prognosis.

Thus, concerning the curability of syphilis, he holds that a cure cannot be guaranteed after generalization of the parasite has occurred, but he is optimistic as to the results of treatment commenced in the primary stage. The method he now adopts consists in intravenous injections of neo-salvarsan, combined with intramuscular injections of grey oil. Neo-salvarsan is preferred to salvarsan because it can be given to out-patients and at shorter intervals than salvarsan—every four days—with as good results. As regards intrathecal injections of salvarsanized serum, Mr. McDONAGH rightly remarks that this method is based on theoretical grounds, and its value in the future can only be decided by experience. He recommends it in meningeal syphilis, and also in generalized syphilis, when the cerebro-spinal fluid is altered. In degenerative encephalitis no antisyphilitic drugs are advised, but sodium nucleinate is said to be useful. With regard to other arsenical preparations, he thinks galy and lilyl inferior to neo-salvarsan. In addition to neo-salvarsan, McDONAGH makes free use of mercury and iodides. In congenital syphilis he prefers these to salvarsan, but his reason for this is not obvious.

Discussing the chemotherapy of salvarsan, McDONAGH expresses the opinion that Ehrlich's work is unsound, because it was directed against the destruction of the *S. pallida* and not against the spore, which is resistant to direct attack. McDONAGH places less reliance on the Wassermann reaction than he formerly did, and states that antibodies may continue to be found long after the syphilitic organisms are destroyed; hence, a positive Wassermann reaction is not necessarily a sign of active syphilis. With regard to the question of syphilis and marriage, his views are that if the patient is under treatment before generalization occurs he may marry, after four or five injections of neo-salvarsan and a year's course of mercury; but that if treatment is not commenced till generalization has occurred, there is a risk of recurrence, although this risk is small after nine injections of neo-salvarsan and a two years' course of mercury. On this view, the value of salvarsan and neo-salvarsan appears doubtful, for it is quite common for a man to marry and not infect his wife after a course of two years' mercury alone, although marriage is not to be recommended in so short a time. A better rule is to wait till two years after the last symptoms.

The chapters dealing with gonorrhoea are excellent; in McDONAGH's opinion "too much and too drastic treatment are the curse of the present-day treatment of gonorrhoea," and the urethroscopie is of little use for diagnosis and no guide to treatment. The urethroscopie, he holds, is not wanted in anterior urethritis, and is often dangerous in posterior urethritis. The difficulty of urethroscopie treatment is due to the presence of gonococci in the sub-epithelial tissues, which cannot be reached by local applications. He gives an account of investigations conducted by Klein and himself with regard to vaccines in gonorrhoea, and concludes that vaccine treatment is useful provided it is only supplementary to local and general treatment. As a rule he prefers sensitized vaccines, and considers that those sensitized with human antigenococcal serum are superior to those sensitized with immune horse serum. The complement fixation test in gonorrhoea he thinks valuable in diagnosis and useful for regulating vaccine treatment. He attributes the destruction of gonococci to the action of antibodies, chemical substances produced by the epithelial cells, and the growth of secondary organisms, rather than to phagocytosis, which is the idea generally accepted.

In an interesting chapter on venereal disease and public health the evidence obtained by the Royal Commission on Venereal Disease is adversely criticized. In later chapters of the book dealing with the biology of inflammation and its relation to malignant disease, the author puts forward some ingenious and interesting views.

To sum up: whether we agree or not with McDONAGH's views on the life-history of the parasite of syphilis and other

¹ *The Biology and Treatment of Venereal Diseases*. By J. E. R. McDONAGH, F.R.C.S. London: Harrison and Sons, 1915. (Cr. 4to, pp. 665; 54 plates. 25s. net.)

questions of a theoretical nature, we must admit that he has produced a monograph of much practical value and an important addition to the literature of syphilology. The book is well illustrated with coloured plates and micro-photographs.

MATERNITY FROM THE WOMAN'S SIDE.

Maternity is a remarkable book, and one which the profession in general and the obstetricians in particular will do well to read and ponder over. It consists of letters from working women collected by the large and active body known as the Women's Co-operative Guild, and, as Mr. HERBERT SAMUEL says in the preface, "these letters give an intimate picture of the difficulties, the troubles, often the miseries, sometimes the agonies, that afflict many millions of our people, as a consequence of normal functions of their lives." "An unwise reticence," continues Mr. Samuel, "has prevented the public mind from realizing that maternity among the poorer classes presents a whole series of urgent social problems. These letters give the facts." They do, indeed—a series of 160 human documents which, in all truth, throws a pathetic sidelight upon the circumstances, antecedent and sequent, under which childbirth in many homes (save the mark) takes place. One may fastidiously object to the direct and homely phraseology in which the women recount their obstetric experiences, and one may see here and there, perhaps, the inevitable tendency to distribute the blame capriciously, but none of these considerations should for a moment be allowed to divert attention from the stories of strain and misery themselves. The writer of the introduction, who remains anonymous, is scarcely seeing the facts in proper focus when reproaching the medical profession with encouraging the attitude of carelessness towards the pains of motherhood and in summing it up in the saying, "You'll be worse before you're better." Such a reflection can hardly be brought against the profession which in the person of Sir James Simpson gave first ether and then chloroform to the suffering world or women in childbed and pressed the use of anaesthesia even in normal labour. It may be admitted, however, that possibly medical men have been a little slow to recognize all the unrelieved and often unrecorded pain and trouble of pregnancy, although it must be said on the other side that some obstetricians have pressed this aspect of the subject upon the profession, and that this JOURNAL for the past fifteen years has constantly advocated primumaternity provision for suffering expectant mothers. It may confidently be said that no one who ill read the touching letters published in this book will any longer be blind to the pressing necessity there exists for helping women about to become mothers, and indeed the nation as a whole must set its house in order that there may be in the future strong and healthy men and women to carry on its imperial tasks.

NOTES ON BOOKS.

The new edition of the *Pharmacopœia* of University College Hospital, edited by Mr. HAMPSHIRE, contains a full list of the stock prescriptions in use at the hospital, and in addition a large amount of information of service to senior students and house officers. The editor seems to have done his work excellently. Quantities in both metric and the imperial measures are given side by side where dosage is mentioned. We doubt if many students can be familiar with the subdivision of the inch into "lines" that Peacock used (p. 68). The book is interleaved, and is well printed.

The *Transactions and Annual Report of the London Dermatological Society* has been published in a small volume which contains the reports and meetings held from October 20th, 1914, to June 15th, 1915, with notes on exhibits and the discussions held.

² *Maternity: Letters from Working Women Collected by the Women's Co-operative Guild*, with a preface by the Right Hon. H. Samuel, M.P. London: G. Bell and Sons, Limited. 1915. (Cr. 8vo, pp. 212. 2s. 6d. net.)

³ *Pharmacopœia of the University College Hospital*. Edited by C. H. Hampshire, B.Sc. Lond., F.J.C. Published by authority of the Medical Committee. 1915. London: John Bale, Sons, and Danielsson, Ltd. 15 x 5½, pp. 97. 2s. 6d. net.

⁴ London: John Bale, Sons, and Danielsson. 1915. (8vo, pp. 87. 2s. 6d.)

ROYAL MEDICAL BENEVOLENT FUND.

(Continued from p. 645.)

At the last meeting of the Committee, held on October 12th, twenty-eight cases were considered, and £227 7s. was granted to twenty-seven of the applicants. The following is a summary of the cases relieved:

Wife, aged 35, of M.B. Dubl. who practised in Ireland but took to drink and drugs and then deserted his wife who had a baby a few months old. Applicant, a trained nurse and able to take a light case, but must be somewhere near her baby. Wants a little help towards the support of the child. Voted £9 in twelve instalments and referred to the Guild.

M.D. Glasg. and M.D. 76, married, and who practised in Harrow Road, has recently had a paralytic seizure and now unable to do any work. Has no means, and his wife only a small income of her own. Has three children, two sons abroad, and a daughter married, none able to help. Voted £18 in twelve instalments and referred to the Guild.

Widow, aged 61, of L.R.C.P. and N. Ircl. who practised in the City of London and died in 1893. Applicant a trained midwife, and managed to make a living until severe illness, followed by an operation, prevented her from working. Hopes to be able to work again when she is a little stronger. Friends lent a room. Voted £12 in twelve instalments and referred to the Guild.

Daughter, aged 56, of M.R.C.S. Eng. who practised at Newport, Mon. Since death of her father in 1892 has managed to make a living by keeping a small school, but owing to the war has lost most of her pupils. Her health is also bad. Has spinal curvature and a varicose vein. Voted £12 in twelve instalments and referred to the Guild.

Widow, aged 81, of M.R.C.S. Eng. who receives some help from the Fund and Guild. Joint income not sufficient to keep them and provide the invalid comforts necessary. £12 voted to the Guild to distribute as they consider best.

Widow, aged 49, of M.R.C.S. Eng., L.R.C.P. Lond. who was a naval surgeon, and died in 1904. Help required to assist son, who was educated at Epsom College, and has now obtained a scholarship at one of the London hospitals. Voted £5 and referred to the Guild.

Widow, aged 65, of M.R.C.S. Eng. who practised in London. Left quite unprovided for at husband's death in 1889. Suffers from chronic neuritis. Three sons, married, with families, only able to help very slightly. Previous relief ten times. £12b. Voted £12 in twelve instalments and referred to the Guild.

Widow, aged 56, of M.R.C.S. Eng. who practised at North Kensington. Until the war managed to make a living by taking in boarders. One son abroad, unable to help. Previous relief twice, £20. Voted £10 in two instalments and referred to the Guild.

Daughter, aged 59, of M.R.C.S. Eng. who practised at Dorking and died in 1905. Applicant a trained nurse, but, owing to ill health, unable to work. Only income a grant of 5s. per week from another charity. Voted £10 in two instalments and referred to the Liverpool branch of the Guild.

Widow, aged 68, of M.B., B.S. Lond. who practised at Islington. Was left with a very small income on the death of her husband in 1907. Has three sons married and only able to help slightly. Relieved once, £12. Voted £5.

Daughter, aged 49, of M.D. Glasg. who practised at Glasgow. Applicant tries to make a living by taking in boarders, but owing to the war has not been able to get sufficient to pay her way. Relieved once, £10. Voted £10.

Daughter, aged 57, of M.R.C.S. Eng. who did not practise on account of ill health. Applicant, who lives in North London, is suffering from cancer, and is quite unable to work. Only income £40 per annum. Relieved once, £12. Voted £12 in twelve instalments and referred to the Guild.

Widow, aged 62, of M.D. Dublin who practised at Acton, and died in 1912. Endeavours to make a little by taking boarders but has not been very successful lately. Son in South Africa unable to help a little before the war, and daughter, an actress, has had very little work of late. Relieved three times, £15. Voted £10 in two instalments.

Daughter, aged 55, of M.R.C.S. Eng. who practised at Birmingham. Applicant lives in a cottage at a seaside resort in Wales, and tries to make a living by taking in lodgers, but for the last few years has been very unsuccessful. Eyesight very bad. Relieved four times, £44. Voted £12 in twelve instalments and referred to the Guild.

Daughter, aged 37, of M.R.C.S. Eng. who practised at Strat-ham and died in 1914. Applicant's only certain income £17 per annum. Health very bad and unable to work. Has earned a little by painting but no sale for her work at present. Relieved once, £5. Voted £5.

Daughter, aged 62, of M.D. Lond. who practised at Notting Hill and died in 1885. Applicant is blind. Only income a pension from a blind society. Relieved three times, £36. Voted £12 in twelve instalments.

Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, 11, Claudos Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild appeals for gifts of secondhand clothing, boots, and shoes in good condition, also household linen. The gifts should be sent to the Secretary, Royal Medical Benevolent Fund Guild, 43, Bolsover Street, W.

British Medical Journal.

SATURDAY, NOVEMBER 6TH, 1915.

THE PREVENTION OF CEREBRO-SPINAL FEVER.

TEMPORARY SURGEON-GENERAL H. D. ROLLESTON, at the end of an able report¹ on the occurrence of cerebro-spinal fever in the navy from August, 1914, to August, 1915, gives a number of suggestions for the limitation of the occurrence and spread of the disease. There have been 170 cases in the navy during this period, with a mortality of 53 per cent.; 146 of the cases occurred in the first four months of the present year. Some evidence of infection was traced in only 59 of the 170 cases; but there can be little doubt that the disease is spread by patients or carriers, to judge from the way in which outbreaks appear to be stopped by the isolation of contacts and mild disinfection of the throat. Overcrowding does not seem, by itself, to exercise any great influence on the spread of the disease; catarrhal affections of the nose and throat, thus vaguely diagnosed, do appear to be related to cerebro-spinal fever, as the two vary together. Youth and recent enlistment both predispose to the disease; on the other hand, bad weather, including north and east winds, a low atmospheric temperature, and sudden falls in the temperature, appear to exert no influence on the outbreak of cerebro-spinal fever. The statistical results of various forms of treatment in the 163 patients the notes of whom were abstracted can only be described as disappointing; they will be found in the BRITISH MEDICAL JOURNAL of October 23rd last (p. 604).

Dr. Rolleston does not discuss the ordinary symptoms of the disease further than to say that rashes, rare in sporadic cases, occurred in this epidemic in 102 out of 163 cases (62.6 per cent.); of the cases with rash 52 died and 50 recovered. In a few of the cases the rash was papular; in the rest it was petechial or purpuric. The rashes with large haemorrhages were specially fatal. The rash came out early in the septicaemic stage, being comparable in this respect with the rose spots of enteric fever, and was commonly present when the patient was first seen; in some instances a haemorrhagic rash occurred before death. Herpes was noted in 35 cases; in 18 of these there was also a rash; in 5 the rash and the herpes occurred together; in 13 the herpes followed the rash, usually after an interval of four days. In a few instances the herpes extended to the ears, or was very extensive. Serum rashes were mentioned in the notes of 19 cases, but it is thought likely that they were commoner than this would seem to show, and in a few instances they were accompanied by pains in the joints. Synovitis, Dr. Rolleston states, occurred in 8 cases, 6 of which recovered; in 2 of these cases the meningeal symptoms were absent or very slight; it has been stated that the prognosis is good in cases with articular manifestations, because the joints receive the meningococci and so divert them from the meninges. The

synovitis was usually multiple and transient, and never suppurated.

The recommendations as to the prevention of the disease and of its spread are comparatively simple. The ideal is to avoid the introduction of carriers of the bacillus into barracks, establishments, and ships. Practically speaking, however, this is impossible from the bacteriological point of view on any but a small scale. All suspects should be examined before an outbreak of the fever is expected; this might well be done in December. In order to avoid the risks entailed by the presence of intermittent carriers, it would be advisable to invalid out of the service all those who have recovered from an attack of cerebro-spinal fever. Overcrowding should be avoided, and special attention should be paid to the ventilation of sleeping rooms. Recent recruits should be treated tenderly, so far as may be, to avoid the increased susceptibility associated with over-fatigue from unaccustomed exercises. The patients should be isolated as far as possible. Every effort should be made to limit the spread of catarrhal affections such as influenza, coryza, tonsillitis, sore throat; the use of handkerchiefs and towels in common should be stopped. When the disease has made its appearance, its spread should be controlled by the well-known routine methods of disinfection and isolation, with bacteriological examination of the suspect and contact cases. Carriers spring up freely around a case of cerebro-spinal fever, but speaking generally it suffices that the two who sleep and the two who mess on either side of the patient, and his two most intimate friends, should be examined as possible carriers; further inquiry should show whether special circumstances make the examination of further suspects desirable. The naso-pharyngeal secretion and urine of the contacts and suspects should be specially destroyed; their noses and throats should be douched two or three times a day with some warm mildly antiseptic solution. Their isolation need not be carried out in hospital; they may be placed in a camp or buildings preferably in the neighbourhood of a medical establishment.

THE WORKING EXPENSES OF LONDON HOSPITALS.

THE statistical reports issued every year by the managers of King Edward's Hospital Fund for London have hitherto provided a vast amount of useful information as to the manner in which the various hospitals in the metropolis are spending the funds allotted to them. With each succeeding year some improvements have been added to render such information more easily assimilable, but there still remain many striking discrepancies as between one institution and another doing similar work but at dissimilar cost. The attention of all hospital administrators might well be drawn to some of these, and the report for the year 1914¹ supplies much food for careful consideration on their part.

The disturbing influence of the war, entailing upon many of the hospitals a large increase of expenditure, only partially met by Government grants, has rendered it impossible to carry on the statistical report in quite the same form as heretofore. Hence the opportunity has been taken to introduce certain alterations and improvements which may with advantage be

¹ Statistical Report on the Ordinary Expenditure of One Hundred and Eight London Hospitals for the Year 1914. For King Edward's Hospital Fund for London. Spottiswoode and Co., Ltd. August, 1915. 1s. net; post free 1s. 2d.

adopted in future. Of these new features, the most marked is the separation of the details of management of the large general hospitals with medical schools, from the larger general hospitals without schools, and these again from the group of smaller general hospitals.

The report is admirably arranged for easy comparison. In each group the tables are presented in exactly the same form, so that any general or special increase or decrease of relative expenditure can promptly be traced to the department which may be chiefly responsible for it.

The main interest centres round the expenditure upon those items which are controllable from year to year. The charges for repairs and establishment, official salaries and pensions, finance, rates and taxes are excluded, and hence cannot be held to explain the variations which in some instances are very marked. It is a very striking fact that the large general hospitals with medical schools attached to them are spending on the average nearly £16 more for each occupied bed than the larger general hospitals without schools. This difference may be traced through all the departments of administration except that of management (apart from official salaries, etc.): the lower rate here may be due to the fact that a considerable amount of unpaid work is done by students or by the school as apart from the hospital.

In the group of the smaller general hospitals there is less difference, but their expenditure would appear to be at a slightly higher rate than that of the larger hospitals without schools.

In the group of three consumption hospitals a very marked difference is to be noted between the expenses of one of them as compared with the other two. There would seem to be no reason why a difference of £13 for each occupied bed should subsist between kindred institutions doing exactly the same class of work. Such discrepancies should be brought to the notice of the respective committees, but it is to be feared that the reports in which these facts have been appearing year by year seldom penetrate beyond official circles. It would be well if greater publicity were afforded by a somewhat more liberal distribution of them to all members of hospital committees at any rate, if not to a wider circle.

Turning to other groups of special hospitals, it will be noted that the range of expenditure in most of them is by no means insignificant. The general average of cost in children's hospitals is, perhaps, the most uniform, while that of the hospitals for paralysis and epilepsy presents some remarkable differences.

It will be seen that a careful perusal of the figures given in such simply classified form should enable any one to discover the lines upon which expenditure may be running too freely in any given institution with a view to ascertaining the reason thereof. In many instances, no doubt, there would be found to be some adequate cause in operation, but it is not easy to explain some of the large discrepancies referred to, except as being due to preventable causes.

The statistics of 108 London hospitals are recorded in the report for 1914, which concludes with some useful details as to the cost of washing and of some of the most important drugs.

A large number of beds in civil hospitals were occupied during a part of the year by naval and military patients, and in most cases the expenditure upon them and the corresponding figures of cost per bed have been included in the general account. It is obvious that this must have introduced a disturbing element into the whole statistical report.

WAR PENSIONS AND ALLOWANCES.

The differences between the Houses of Lords and Commons as to the Naval and Military Pensions Bill were settled on November 2nd, when the House of Lords accepted the amendments carried at the instance of the Government in the House of Commons. The bill provides for the creation of a statutory authority closely associated with the Royal Patriotic Fund Corporation, and containing representatives from Government departments, including each of the three Local Government Boards of the kingdom, and the Joint Committee of Insurance Commissioners. This central body is to supervise the setting up of Local Committees—for example, for the counties and county boroughs—which in their turn are to create subcommittees for smaller areas, and delegate powers and duties to them; the functions of such local and subcommittees are to consist mainly of reporting on individual cases to the central authority and granting supplementary assistance. The Lords proposed to abolish the representation of the four departments referred to, and to reduce the number of representatives of the Royal Patriotic Fund Corporation, making up the full number of the central body by increasing the number of representatives appointed by the Crown and also those appointed by the Soldiers' and Sailors' Families Association. The central authority would then have consisted of a "Board" with a constitution approximating to that of a Government Department, but in dealing with the constitution of the local committees greater attention would have been given to existing voluntary associations—particularly to the Soldiers' and Sailors' Families Association—than in the original bill: for instance, there would have been some members of such associations on the local committee, and the delegation of the duties might have proceeded not only down to a subcommittee, but further to a local committee of those associations, so long as they performed the required functions to the satisfaction of the local committee.

It will be seen that the points in dispute involved principles of some importance, and not mere matters of detail. The broad distinction is between, on the one hand, a central voluntary body based on the Royal Patriotic Fund Corporation and delegating powers down to local committees appointed *ad hoc*, and on the other hand, a central Government authority delegating down to existing voluntary organizations, which in practice, and in the contemplation of the Lords, would have meant down to local committees of the Soldiers' and Sailors' Families Association. Which of these two schemes would be found to be most satisfactory in working was fair matter for argument; what was not open to question was that the matter should be settled one way or the other at once, so that the committees to be set up may commence their operations.

The Government issued, on October 25th, a white paper¹ setting out the general effect of the Admiralty Orders and the Army Orders and Regulations made or to be made for the payment of allowances from navy or army funds to the dependants (other than widows and children) of sailors and soldiers whose deaths are due to the present war. It does not appear to be intended to apply to officers. For parents wholly dependent on the deceased the allowance is not to exceed the amount of the ascertained dependence prior to mobilization or subsequent enlistment, or the amount of the widow's pension appropriate to the deceased's rank, whichever

be the less. In the case of other dependants or parents partially dependent, the maximum allowance is to be 5s., whatever may have been the ascertained dependence. Disablement (but not sickness) benefit under the Insurance Act and old age pension will be reckoned in diminution of these benefits. Women who have been entirely dependent and would otherwise be destitute will have a gratuity or weekly payment not exceeding in all the amount of a year's separation allowance and allotment; further allowances may be paid where the woman is wholly or partially incapable of self-support or where there are children. Disablement (but not sickness) benefit under the Insurance Act and old age pension will be reckoned in diminution of the above benefits to the woman (not to the children).

It is clear that there is an urgent need for the setting up of local machinery for testing, recommending, and paying claims. The Naval and Military Pensions Bill is entitled "A bill to make better provision as to the pensions, grants, and allowances made in respect of the present war to officers and men in the Naval and Military Service of His Majesty and their dependants, and the care of officers and men disabled in consequence of the present war, and for purposes connected therewith," and should be considered in connexion with the third special report of the Select Committee on Naval and Military Services (Pensions and Grants), which was analysed in the JOURNAL of September 18th, p. 437. That report made a number of recommendations with regard to combatant officers disabled through war services, and to widows and orphans and dependants of combatant officers, and stated that the cases of other officers should be reviewed departmentally where necessary on similar lines.

CENTRAL MEDICAL WAR COMMITTEE.

THE Central Medical War Committee has issued to the authorities of voluntary hospitals a letter directing their attention to methods for staffing these hospitals during the war. While recognizing that there are grounds for fearing lest a further withdrawal of men from these hospitals should endanger their efficiency, to the disadvantage of the civil population and of the sick and wounded soldiers admitted to them, it is pointed out that the hospital committees must realize that the withdrawal of men of military age from their institutions is inevitable, for war is essentially work for young men. Hospital residents, from the nature of their present work and their experience of responsibility, are particularly suitable as army medical officers; and, since the successful termination of the war is the first consideration for the whole nation, the army must have the first claim on their services. Suggestions founded on actual experience are made. In the first place, it is pointed out that the honorary staff of a hospital is technically responsible for the whole of its medical work, and it is suggested that during the war its members should be actually responsible, supplementing the work of such residents as remain by undertaking some of that usually left to junior officers. Where the number of residents is insufficient for emergency work, it might be undertaken by members of the honorary staff doing service in rotation as "orderly" officers, and residing in the hospital for arranged periods. This plan is already in force, we understand, in some hospitals in London. The memorandum goes on to suggest that all teaching hospitals should take advantage of the scheme approved by the War Office under which recently qualified men are given honorary commissions and seconded to voluntary hospitals as residents for three months, subject to the liability of being called up in emergency at forty-eight hours' notice. At present this

regulation applies only to teaching hospitals, but it may be possible for certain other hospitals to arrange for the employment of senior students supplied from the teaching hospitals to act as dressers, their time being counted for graduation purposes. In the one case application should be made to the War Office, and in the other to the Dean of a medical school. It is suggested further that general practitioners living near hospitals should be appointed as casualty medical and surgical officers to give service at certain hours, or to attend in case of emergency. To obtain such services it is suggested that the hospital committee should make application to the local Medical War Committee, and it appears from a return presented to the meeting of the Executive Committee of the Central Medical War Committee held on Monday that 162 such committees have been appointed and that they cover all but nineteen of the Divisions of the British Medical Association in England and Wales. The desire of the Central Medical War Committee is to co-operate with the governing bodies of voluntary hospitals in England and Wales in regulating the flow of medical men for the services, and in order that the matter may be put on a business footing it is hoped that members of hospital staffs who are of military age will fill up the enrolment form, copies of which can be obtained from the secretaries of the Central Medical War Committee, 429, Strand, London, W.C. The main functions of the local Medical War Committees are concerned with protecting the interests of men on service, and advising the Central Committee on matters of importance or urgency relating to their districts. A list is kept at the central office in which each local committee is credited definitely with the men posted by the War Office as having applied for commissions but have not yet received them. From these lists it would appear that there may be some considerable interval between the date on which a practitioner applies for a commission and that on which it is officially granted. The Committee is considering the possibility of the withdrawal of more men from the service of local authorities, and particularly from the tuberculosis service. Acting on the principle enunciated in the memorandum to the governing bodies of hospitals, that the successful termination of the war is the first consideration for the whole nation, and that therefore the army must have the first claim on the services of all efficient men, it has been argued that in the matter of tuberculosis the unfit must give way to the needs of the fit, and, regrettable as it may be to diminish in any way the efficiency of the tuberculosis service, it appears that further curtailment is necessary. It may, however, be found possible, as we think it should, to provide that tuberculous patients should be looked after by men above military age, and possibly in the case of sanatoriums which cannot be converted into military hospitals, to utilize for supervision the services of general practitioners resident in the neighbourhood.

A NAVAL SURGEON OF THE FIRST FRENCH REPUBLIC.

IN a note published in the BRITISH MEDICAL JOURNAL of October 2nd (p. 513) it was stated that, after the suppression of the faculties of medicine of old France, the armed forces of the Republic one and indivisible came near to extinction in its early years for lack of doctors. It was at war with the civilized world, and hospitals, churches, convents, and private houses were overcrowded with sick and wounded soldiers, who, starving and uncared-for, died like flies. The crews of the fleet were in like case, and all contemporary records speak of the foul and unhealthy state of the ships. In this extremity the Government issued a requisition, dated August 23rd, 1793, by which all medical practitioners of France from 18 to 40 years of age were placed at the disposal of the Ministers of War and Marine. As the need for surgeons became more pressing, further requisitions were made, and

medical students were taken from the dissecting-room and the hospital and compelled to serve in the army or navy. Among these was Joseph Claude Anthelme Récamier, who afterwards rose to the highest position in his profession, and who has a permanent place in the history of medicine as a leading pioneer of French gynaecology. He was a godson of Brillat-Savarin, the author of *Physiologie du Goût*, and a relation of the famous beauty, Madame Récamier. He was born in 1774 at Rochefort-en-Bugy, a small village in the Ain department. His family was one of the oldest and most respected in the province, and many of his ancestors had been doctors. He was working under his cousin, Anthelme Récamier, at the Belley Hospital when, in 1793, he was summoned to serve forthwith and sent to sea as *aide-major* in a corvette. He had to go on board without linen, clothes, or books, which, left behind in the hurry of departure, never reached him. He had no money and was half starved. Privation and overwork brought on an illness, for which he was admitted to the naval hospital at Toulon. The conditions there were so bad that he was glad to leave it after a sojourn of a month almost as ill as when he entered. He was appointed to the line of battleship *Çaïra* (80 guns) which carried five surgeons and an apothecary. Récamier's letters to his father give a vivid glimpse of the life he led. He received no pay except in worthless paper and continually begs for help to enable him to get food. Apparently the stern parent, who was burdened with a large family and ground down by the exactions of the Government, had hinted that his son was living too luxuriously, for the young man indignantly says: "You speak to me of making good cheer, whereas I am speaking of bread, of bread and hunger." In March, 1795, he sailed from Toulon with a fleet sent to open up the Mediterranean to French transports, to assist the operations of the army of Italy and to attempt a landing in Corsica. On March 13th this fleet found itself face to face with a British fleet of thirteen ships under Hotham opposite Cape Noli. The *Çaïra* got separated from its division and had to engage the whole British vanguard commanded by Nelson. The slaughter was terrible. At the beginning of the action the surgeon-major was cut in two by a cannon ball while dressing a man whose arm had been carried away, and Récamier was knocked down and fell covered with blood and splinters. He was thought to be dead, but had not received a scratch. Soon the wounded were brought down twenty and thirty at a time. There were no slight wounds—nothing but arms and legs shot away. The third medical officer was killed while Récamier, who had taken the place of his chief, was dressing him. When three-fourths of the crew were killed or wounded the *Çaïra* struck her flag. Years afterwards the survivors spoke with admiration of the courage and devotion shown by Récamier. He was interned at Saint Florent in Corsica, where he fell ill of typhus fever. When scarcely convalescent he was placed in medical charge of the hospital in which he had been a patient. After a captivity of some months he was exchanged for the surgeon of a British ship and sent back to Toulon, where he arrived in a destitute condition, having been robbed of everything he possessed, not, as his biographer, Triaire, is careful to inform us, by his captors, but by French soldiers.¹ He was attached to the naval hospital, and in spite of many difficulties found means to pursue his medical studies there. He worked at anatomy and operative surgery under Larrey, who thought very highly of the abilities of his pupil. When Larrey left Toulon, Récamier got himself discharged from military service and obtained an appointment in the Hôtel-Dieu at Lyons. There he remained till September, 1797, when he went to Paris to finish his studies. We need not follow him through the rest of his brilliant career. Our purpose

has been to show the stuff of which so many of the men of his day were made. Struggling against the disadvantages of poverty and imperfect training, Récamier never lost heart, and declared that if he did not die very young his teachers would have no cause to be ashamed of him. His life is a fine record of success, achieved not only by power of intellect but by strength of character developed by early contact with the practical problems of life.

THE VACCINE TREATMENT OF TYPHOID FEVER.

In a memorandum by the Board of Health of Hungary to the Minister of the Interior an opinion has been given on the value of inoculation after the outbreak of typhoid fever. "Sufficiently satisfactory results have," it is stated,¹ "been obtained." It was ascertained by Hungarian medical men that in cases of typhoid fever, the diagnosis of which was confirmed by a bacteriological examination, rapid recovery or definite improvement was traced to the inoculation in 40 to 50 per cent. of all the patients thus treated. These favourable results were practically confined to cases in which inoculation was undertaken within ten to fifteen days of the outbreak of the disease. But the Board of Health did not consider that this treatment had emerged from the experimental stage, for the number of cases thus treated and closely observed scarcely amounted to 200, and there were also many factors still requiring elucidation. Thus, little was yet known as to the effect of therapeutic inoculation on patients who had previously undergone prophylactic inoculation. The choice of case, the time at which to inoculate, the dosage, and the comparative value of intravenous and subcutaneous injections, were all matters about which exact data were still wanting. There were also as many as four different vaccines in use for therapeutic purposes—namely: (1) Ichikawa's sensitized vaccine, made from bacteria acted on by the serum of convalescents; (2) Besredka's vaccine; (3) a vaccine made from bacteria killed by heat; and (4) a vaccine made from bacteria killed by chemicals, such as carbolic acid and ether. It was not possible to estimate the relative values of these preparations, but, with regard to the method of administration, it had become evident that intravenous injections should be given only where every facility for preventing sepsis existed. Unfortunately there had been many obscure cases of sudden death following intravenous injections. In the case of Ichikawa's vaccine, an intravenous injection should not be given unless there were guarantees that the serum used for sensitizing the bacteria was not obtained from a convalescent who had suffered from, or was suffering from, some other infectious disease. As a rule, the subcutaneous injection, though less rapidly effective, was preferable, for it was not dangerous, provided due cleanliness was exercised. Though the comparative merits of the various vaccines had not yet been fully tested, the Board of Health recommended Besredka's vaccine, as experience in its use was larger than in the case of the others.

TRANSPLANTATION OF NERVES.

A good deal of work has been done during the last twenty years on the transplantation of nerves. In view of the large number of cases of injury to the nerves now being met with by military surgeons, Dr. R. Ingebrigtsen's recent experimental work on the subject² is of particular interest. His experiments were made on rabbits and guinea-pigs, and transplantations with the excised sciatic nerve of the rabbit. He divides the latter into three classes: (1) Autoplastic transplantations, made into the sciatic nerve of the same rabbit; (2) homoplastic transplantations, made into another rabbit; and (3) heteroplastic transplantations, made into the guinea-pig. His conclusions are as follows: In heteroplastic transplanted

¹ *Récamier et ses Contemporains*, 1774-1852. Par Paul Triaire, Paris, 1898.

² *Deut. med. Woch.*, August 5th.

³ *Journ. Experim. Medicine*, New York, 1915, xxxi, 418.

nerves myelin ovoids, or oval aggregations of myelin, are formed early, but there is no proliferation of the cells of the sheath of Schwann, and no Wallerian degeneration is seen. The graft becomes necrotic in about two weeks, and Dr. Ingbriquets concludes that heteroplastic grafts are unsuitable as bridges in cases of nerve defects in human beings. In homoplastic nerve grafts a process resembling Wallerian degeneration takes place, and the cells of Schwann multiply and survive for a time. In a fortnight, however, there is an immigration of leucocytes, and at the end of the third week the cells of Schwann develop a necrobiotic appearance. The author remarks that the occurrence of a Wallerian degeneration in these grafts during the first two or three weeks after the transplantation should make homoplastic nerve bridging a promising operation, and indicates the possibility of a regeneration of the nerve fibres. In autoplasmic transplanted nerves a degeneration resembling the Wallerian occurs; it may be added that, from the practical point of view, autoplasmic nerve grafts can but rarely be available for use in the human subject.

THE ACCIDENT TO THE KING.

THE results of the accident to the King have been more lasting and incapacitating than the first reports which reached this country led the public to anticipate. The horse when it slipped on the muddy ground in rearing fell backwards, the rider receiving part of its weight on the right side of the trunk and the right thigh. We have the best authority for stating that, though there was considerable shock, careful examination showed that no serious visceral injury had occurred. There was most extensive bruising, and much muscular stiffness has developed, so that His Majesty has been obliged to remain, up till now, in a completely recumbent position. The rumour that any kind of operation has been performed, and on the other hand the report that the King was able to walk to his car, are alike unfounded. The nurse who attended His Majesty when lying ill with typhoid fever is now in attendance on him, in company with other nurses. We need hardly say that it is not the lady who tended the angust patient's father during his attack of typhoid fever in 1872. That lady, previously one of the well-known sisters at St. Bartholomew's Hospital, was certainly not a young woman when she distinguished herself forty-three years ago by taking so large a part in saving the life of the future King Edward VII.

MEDICAL INSURANCE AGENCY.

At a meeting of the Medical Insurance Agency on October 28th the chairman, Dr. G. E. Haslip, reported that the business transacted during the September quarter had been well maintained; that done for the first nine months of 1915 showed a substantial increase on the previous year. Though a fair number of life risks had been adjusted business in life insurance was slack, as those contemplating such insurance were indisposed to entertain the contracts which, owing to military risks, were obtainable under existing conditions. Although the amount of commission earnable in respect of aerial risks was not proportionate to the time and trouble involved, it had been thought advisable to negotiate such risks when requested. On the other hand, motor business had been wonderfully steady and formed an important part of the work done by the agency. The amount of the commissions actually earned by the agency during the nine months ending September 30th had been £900, while the working expenses had been £232. The grants made to medical benevolent institutions of various kinds during the first six months of the year totalled £400. On the present occasion the Committee had a surplus of £270. The Chairman proposed that £230 should be distributed, which would raise the total amount distributed by the

agency for medical benevolence to £1,700. It had been possible to make this important contribution for the benefit of the profession, while at the same time the agency had been able to save to those insured through it something like £5,000. The chairman's report was adopted, and it was resolved to divide a further sum of £230 as follows: The Royal Medical Benevolent Fund, £80, making £230 given to this Fund during the year; the Royal Medical Benevolent Fund Guild, £60, making a total of £160 for the year; Epsom College Benevolent Fund, £45, making a total of £145 for the year; the Royal Medical Benevolent Society of Ireland, £30; and the Royal St. Anne's School, £15. In addition, a sum of £50 has been granted to the Royal Army Medical Corps Benevolent Fund. In view of existing conditions, and in particular of the increasing cost of locomotives, the agency has thought it well to make arrangements for issuing sickness and accident policies. In the case of the policies issued by many insurance companies the contract is annual—that is to say, the company retains the power to refuse renewal of the policy at the end of any year, and cases are known in which a doctor who has claimed for two or three attacks of influenza has been refused when he applied for renewal unless he would consent to exclude influenza from benefit under the policy for the future. The Medical Insurance Agency has arranged with an office of good standing to issue a policy which cannot be discontinued by the company so long as the premiums are punctually paid, until the assured attains a selected age, which must not exceed 65. This policy covers disablement by sickness or accident of any kind; if desired, a provision can be made for the guaranteed return, on the assured attaining the selected age or at his earlier death, of all premiums paid without deduction for any claims that have been paid. As an alternative to the return of premiums, the insured may have a capital sum, with a share in profits, payable at a selected age or previous death. The sickness and accident benefits under the policy are not limited, as is usually the case, to 26 or 52 weeks; they are payable continuously so long as the disablement lasts up to age 65, and therefore afford provision against a permanent breakdown in health. The larger portion of the premium payable for this policy may be deducted from the insured's return for income-tax assessment. It is worth while emphasizing the fact that the agency has been able since its establishment to give £1,700 to medical benevolent institutions. This was one of the motives with which the agency was established, and is the reason why the Committee, consisting of members of the medical profession, under which the agency is conducted by Mr. Guy Elliston, Financial Secretary to the British Medical Association, give their services freely. Nothing is taken out of the pockets of the profession; on the contrary, those who insure through the agency pay a substantially smaller premium than they would pay were their policies effected through any other agency. Full particulars can be obtained on application to the Medical Insurance Agency, c/o. British Medical Association, 429, Strand, W.C.

"RESPECTABLE."

A NORTH country correspondent takes exception to the use of the term "any respectable medical man" in defining a person competent to fill up an interrogatory for the admission of a boy to a certified industrial school near Manchester. It is possible that the word "respectable" in this connexion may be a survival from the days antecedent to the Medical Acts. Such an archaism, with its implied slur on the respectability of the profession as a whole, might, however, gracefully be abandoned and the expression "registered medical practitioner" substituted, which, moreover, would include the duly qualified woman practitioner of to-day. "Respectable" has in modern

lines acquired somewhat of an ambiguous flavour; and Carlyle in his *French Revolution* speaks of "secret scoundrels, in their fair-sounding formulas, speciosities, respectabilities, hollow within; the race of quacks was grown many as the sands of the sea." The authorities of the institution referred to will do well to adopt a less questionable term in dealing with an honourable profession.

Medical Notes in Parliament.

Medical Students and Recruiting.

SIR PHILIP MAGNUS asked the Under Secretary of State for War, on November 3rd, whether he was aware that second and third year medical students had received copies of the letter addressed by Lord Derby to unstarred men eligible for military service, and that they were being actively canvassed at their homes to join the army; and whether, having regard to the difficult position in which first, second, and third year students found themselves as to their duty in the matter of joining the forces of the Crown owing to the absence of any definite expression of opinion on the part of the War Office, he would say at what stage in their course of studies the Secretary of State and he concurred in desiring that medical students should answer to the call to join the army, and also at what stage they should remain at college to continue and complete their studies with a view to qualifying as medical practitioners, of whom it was feared there would be a considerable shortage at the close of the war. Mr. Snowden asked if the policy of the War Office, as explained recently, had been changed in regard to the enlistment of first and second year medical students—namely, that it was neither in the interests of the nation nor the army that they should enlist: if a notification had just been made to such students by the university authorities which said that the Medical Council, in consultation with the War Office, had decided that first, second, and third year students might enlist; and if this decision was made with the knowledge of the seriousness of such a step in relation to the future scarcity and efficiency of doctors. Mr. Tennant, in reply, stated that he presumed Mr. Snowden referred to the answer given to Sir Philip Magnus on June 21st. Mr. Tennant then stated: "It is clear that, if students in their first or second years join the combatant ranks in very large numbers, there will probably be for some years after the war a serious scarcity of doctors. Any expression, therefore, of official opinion which might seem to place on them the obligation of taking up immediate military duty would hardly be in the interests either of the army or of the community as a whole." In reply to Sir Philip Magnus, Mr. Tennant said: "I would now, in the light of the experience of the last few months, make this modification of that statement. I think we must remember that we have first to win the war, and afterwards to encounter problems arising out of it, if they do arise. I would therefore answer these questions by saying that the view of the War Office at the present time is that fourth and fifth year students should continue their studies, but that students in the first and second and third years must consider for themselves what answer they should make to the recruiting appeal addressed to them, and not regard themselves, so far as the War Office is concerned, as under the duty of continuing their medical studies."

The Secretary of the Faculty of Medicine of the University of London informs us that the Dean of the Faculty, Sir Alfred Pearce Gould, who was accompanied by the Presidents of the Royal College of Physicians of London and the Royal College of Surgeons of England, and Dr. Shore, Dean of St. Bartholomew's Hospital Medical School, had an interview with Lord Derby, Director General of Recruiting, on November 2nd. After considering all that the deputation could urge as to the importance of maintaining a contiguous supply of qualified medical men for the needs of the country, Lord Derby stated that in his opinion "it is the duty of medical students, other than those in their fourth and fifth years of study, to join His Majesty's forces."

Casualty Statistics.—In a written reply to Mr. Molton, issued on October 29th, the Prime Minister stated that the casualties up to October 9th in the western and other areas of operations totalled 493,294, made up as follows:

	Western Area.		Other Areas.	
	Officers.	Other Ranks.	Officers.	Other Ranks.
Killed	4,401	63,059	2,259	31,933
Wounded	9,169	225,716	3,464	79,116
Missing	1,567	61,134	433	11,043
	365,046		128,248	

Australian General Hospitals.—With reference to the answer to Mr. Cathcart Watson by Mr. Tennant on October 19th (JOURNAL, October 23rd, p. 616), Mr. Tennant stated on November 2nd, in reply to a further question by Mr. Watson, that a general hospital consisted of 34 officers, 72 nurses, and 201 non-commissioned officers and men, with about 1,000 tons of ordnance and medical stores. The personnel of the 10th Australian General Hospital was at the disposal of the Australian military authorities, and he understood that most of its members were employed on special work in connexion with a large number of Australian sick and wounded at present in the United Kingdom. There was a possibility of this personnel being utilized in one or more special units, but he was not in a position to make any definite statement.

Inoculation.—Mr. Partington asked the Under Secretary for War on October 28th whether there had been reported to the War Office any, and, if so, how many, cases in which pneumonia had supervened upon inoculation for typhoid, and where, in some cases, inoculation had brought on madness and in others led to invalidity, so that men had become totally unfitted for their duties and had been cast diseased upon the world incapable of gaining their livelihood. Mr. Tennant said that such reports as those mentioned in the question had been made to the War Office by Mr. H. G. Chancellor, but not, so far as he was aware, by other persons. Investigation had been made, and it had been proved that the individuals spoken of as having died as a result of inoculation against enteric fever had, in fact, died of some quite ordinary disease. In particular his attention had been called to a speech delivered on October 16th by Mr. H. G. Chancellor, and he would like to say with reference to the statements then made, some of which were reproduced in the question, that they were not only without foundation, but were grotesque misrepresentations of the results of a treatment from which the army had derived incalculable benefits.

Vivisection.—In reply to Mr. George Greenwood, on October 28th, the Home Secretary said that paragraph 122 of the report of the Royal Commission on Vivisection related to the selection and appointment of an advisory committee, and his predecessor, who consulted the Chairman of the Royal Commission as to the precise scope of the recommendation, was informed by him that it was not the intention of the Commission that the names of the persons who were recommended for licences and were granted certificates should be published; the object they had in view was to secure the publication of the names of the persons selected by the Secretary of State to form an advisory committee, and effect had been given to their personal proposal in the annual returns.

THE annual meeting of Fellows and Members of the Royal College of Surgeons of England will be held at the College, Lincoln's Inn Fields, W.C., on November 18th at 3 p.m. A resolution will be moved on behalf of the Society of Members affirming the desirability of admitting members to direct representation on the Council, and another requesting the President to explain the view of the Council with regard to this matter.

THE WAR.

THE CARRIER PROBLEM IN WAR.

The Parliamentary Secretary to the War Office stated in the House of Commons on Tuesday (November 2nd) that the total number of officers and men, including native Indian troops, leaving the Gallipoli peninsula on account of sickness from April 25th to October 20th was in approximate figures 3,200 officers and 75,000 other ranks. Of these two aggregates, 1,500 and 27,000 respectively had been removed to England. During the month of August approximately 160 officers and 3,800 other ranks, and during September 600 officers and 11,500 other ranks were removed to England on account of sickness, but he was unable to give the number of those removed from the peninsula in the two months mentioned.

A large proportion of the sick have, we believe, suffered from bowel complaints, typhoid fever, paratyphoid fever A and B, and dysentery, as well as certain other disorders of the intestines, the exact nature of which has not yet, we gather, been fully worked out either clinically or bacteriologically. The dysentery has, we understand, been both of the amoebic and bacillary type, but opinions differ as to whether the one or the other has preponderated.

The "carrier" problem is one of the most serious with which the military and civil medical administration is confronted at the present time. It arises in particular with regard to enteric cases, whether of the typhoid or paratyphoid type, and applies also to dysentery. We announced some time ago that with the approval of the Director-General A.M.S. and of the British Red Cross the house and grounds of Addington Park, near Croydon, had been placed at the disposal of a committee, of which Bishop Boyd Carpenter is chairman and Lord George Hamilton treasurer, to provide treatment in this country for cases of infectious fevers of all kinds, especially typhoid fever and dysentery. The hospital has been at work for about eleven months, and has, of course, had to give close attention to the carrier problem; the staff includes a pathologist and two assistant pathologists. The general principle proposed to be followed at the Addington Hospital was, we understand, somewhat as follows: In the case of a man convalescent from typhoid or paratyphoid fever, the faeces and urine were to be examined four times at intervals of a week; at the end of a period of four weeks, if the results were negative, the man would go to a convalescent home for three weeks, during which period three examinations would be made, and he would then return to Addington, when he would again be kept under observation while further bacterioscopic examinations were made.

The "carrier" of typhoid or paratyphoid may seem to be, and so far as he himself is concerned may really be, in excellent health, yet his urine and faeces may constantly or intermittently contain the microbe in a virulent state, and may easily, especially under conditions of camp life, be transferred from him to the host. The length of time for which a carrier may carry the infective microbe is indeterminate, and cases have been recorded in which the condition has persisted for years, but the general experience seems to be that by the tenth week of convalescence the typhoid or paratyphoid bacillus has disappeared in all but a very small percentage of cases, possibly under 1 per cent.

Treatment by drugs, which was very systematically tried in the navy and army before the war, has not given constant or encouraging results. The agglutination test, even if it did not involve tedious and difficult manipulation, is found not to give constant results, either negative or positive. We are therefore driven back upon bacterioscopic methods, and it has to be recognized that the absence of the microbe at a single examination during convalescence is not conclusive; the technique is not easy, and apart from errors due to this source the presence of the microbe in the excretions may, as has been said, be intermittent. Repeated bacterioscopic examinations are therefore necessary before a man can be given a clean bill, and this fact has introduced a most serious complication into military medical administration. The War Office, we understand, has recently issued an order that the stools and urine of every typhoid convalescent shall be examined

four times at intervals of a week. This order must involve a serious tax on the time of the pathologists of military hospitals and may interfere with other pathological investigations, as for instance, with regard to dysentery, which must be regarded as only of lesser importance. It would appear, therefore, that the time has come when the pathological departments of military hospitals in this country must be considerably increased. The difficulty of finding competent men will, we fear, be considerable, but it may be found that sufficient use has not yet been made in some centres of the pathological laboratories of universities and teaching institutions.

From the administrative point of view, the problem, as has been said, is extremely difficult. To return carriers of typhoid fever or dysentery to an army in the field is not to be thought of. Looking at the matter solely from a military point of view, it will at once be admitted that the enteric carrier, owing to the efficiency of the precautions taken with regard to the water supply, is now properly to be regarded as the chief source of typhoid fever and paratyphoid fever in an army in the field. On the other hand, to discharge carriers of typhoid or paratyphoid fever from the army to mingle with the general population, or even to give them six weeks' furlough to go to their homes or friends, is a serious matter from the point of view of civil and public health administration. To dysentery similar observations apply, but with this addition—that a man carrying the infection, although apparently well, may at any time suffer a relapse or develop a liver abscess. At the same time it seems undesirable to keep typhoid convalescents in hospital during the time that they are necessarily under suspicion of being carriers, and it may be that a solution of the difficulty will best be found through an extension of convalescent camps, where the men can be exercised in military work, while adequately staffed bacteriological laboratories would be able to carry out the periodic examination of excretions.

WITH AN AUSTRIAN HOSPITAL TRAIN.

An account is given by Dr. Alfred Neumann¹ of his experiences in a hospital train, to which he was attached as senior medical officer from the beginning of the war. Owing to the rapidly changing conditions arising out of the Austrian army's advances and retreats, his experiences were both varied and instructive. At one time his train was only three to four kilometres behind the fighting line, and the wounded were conveyed direct from the field into the train. At another time most of the casualties had occurred several days before the wounded were drafted from the dressing stations into the train, and though most of these patients were in a fit condition for travelling, it was sometimes impossible to refuse recent cases of lung and abdominal wounds, although they were not really fit to be moved. At another time, again, the hospital train was employed in the interior, the wounded at this stage having already passed through the base hospitals, where their wounds had healed sufficiently to enable further transport by train to be effected without risk.

Operations in a Moving Train.

Although there were excellent facilities for operating in the train, Dr. Neumann came to the conclusion, shared by his German colleagues, that, whenever it was possible, it was wiser to slant the carriage occupied by the patient than to undertake the operation while the train was moving. Urgent operations, such as tracheotomy and ligation of vessels, had, however, sometimes to be carried out in the moving train. While operations were thus reduced to a minimum, there was no limit to the conservative treatment of wounds. Thanks to the excellent construction of the Austrian ambulance trains, the dressings of the wounded in their beds were, with a little practice, quickly changed, provided the train did not jolt much. To prevent excessive jolting the train was slowed down for curves, but in the straight it was easy to change dressings when the train was travelling at forty-five kilometres an hour. In the interior of the country, and far from the fighting line, it was often convenient to travel at a rate of sixty kilometres when the wounds had

¹ *Der Militärarzt*, July 24th, 1915.

already been well attended to, and the wounded thought more of getting quickly to their destination than of escaping jolting.

Fast or Slow Trains for the Wounded.

Dr. Neumann came to the conclusion that increased speed had only a trifling effect on the pain of the wounds, for the jolting caused at certain points on the rails was inevitable, whether the train was travelling fast or slowly, and the more rapid succession of these jolts due to the greater speed of the train was to a certain extent compensated for by the jolts themselves being reduced by the greater speed. On one occasion, when the train was empty, a member of Dr. Neumann's staff developed acute appendicitis as the train was travelling at 60 kilometres. The pain was severe, and Dr. Neumann thought he would mitigate it by reducing the speed of the train to 45 kilometres. But this change did not affect the pain, and the patient himself begged that the original speed should be resumed so that he might reach his destination sooner.

Nature of the Casualties Treated in the Train.

Most of the wounds of the head and neck treated were inflicted by rifle bullets; but some of the wounds, notably those of the face, were caused by shrapnel. Even recent wounds of the brain were not invariably a contraindication to a long journey by train, and in some cases, during a journey of two or three days, patients suffering from severe wounds of the skull improved greatly, consciousness returning in the train, the pulse improving and the temperature remaining normal. Owing to the great danger of infection, it was made a rule not to change the dressings of these wounds, and when alarming symptoms occurred, the carriage in which the patient lay was slung at the first opportunity. With regard to other wounds of the head and neck, excellent results were observed in the case of wounds of the cheek and mouth, and patients admitted to the train with severe hæmorrhage, suppuration and œdema of the tongue and pharynx improved rapidly on the journey, during which fragments of bone were removed, and the wounds were kept clean by frequent and careful irrigation with hydrogen peroxide. Thus, at the end of the journey, these patients could often eat, drink, speak, and breathe freely, and showed no signs of fever. Even cases of recent wound of the abdomen and lungs stood the journey surprisingly well. Careful dieting and nursing were insisted on in these cases, which were slung as soon as alarming symptoms developed. To show how successful the early transport by train of the severely wounded can be, Dr. Neumann recorded the case of a lieutenant, aged 29, who was wounded on September 13th, 1914. Next day he was admitted to the hospital train, where a bullet wound of the left lower abdomen was found. The bullet had passed out through the left lumbar region. The temperature was 38.9 C., the pulse was 110, and there was a faecal fistula. It was impossible to slung the carriage in which the patient lay, and the patient's urgent request to be conveyed to Vienna was therefore granted. An icebag was applied, 0.005 gram of morphine was given every day, a fluid diet and complete rest were prescribed, and a drain was inserted into the abdominal cavity. The fever abated, the pulse improved, and no sign of general peritonitis supervened. After a journey of three days the patient reached Vienna safely. Another patient was an ensign, aged 21, who was wounded on March 21st, 1915. A rifle bullet had entered the chest close to the apex of the heart, and had passed out again between the fifth and sixth ribs in the posterior axillary line. He was kept in a field hospital for a day and was transferred on March 23rd to the hospital train, in which he had not been long before he suddenly collapsed. The temperature was 39.2, and the pulse 140, very small and irregular. There was a hæmatoma as large as a plate over the apex of the heart, the nostrils were distended, and the patient was dyspnoeic. Injections of amorphous and morphine were given, combined with digitalin. An icebag was applied to the heart, and absolute rest was maintained. In the evening of the same day, when the train was about to start, the patient was not slung, as he had improved considerably, and as it was advisable to transport even the severely wounded, for they were very near the firing line. During the two days' journey the patient improved greatly.

In the case of wounds of the lungs the regular administration of morphine was considered necessary on account of the danger of hæmorrhage. In the case of wounds of the spine, particularly in the lumbar region, with paralysis of both legs, the bladder and large intestine required catheterization twice daily, and, when cystitis developed, irrigation of the bladder was also undertaken in the train. The numerous bullet wounds of the limbs which were uncomplicated by fractures were dressed without difficulty during the journey, and when these wounds were complicated by fractures, Cramer's splints proved of great value. It was necessary to slung the patients suffering from wounds of the limbs only when an immediate operation was indicated. The injection of saline solution was found to be most efficient in combating the effects of severe hæmorrhage. Many medical cases, including inflammation of the lungs, pleuræ, kidneys, and joints, also came under Dr. Neumann's observation. They were treated on ordinary principles and stood the journey well.

The Use of Narcotics during the Transport of the Wounded.

The common view that narcotics should be given as a rule to the wounded during transport, to relieve the severe pain caused by jolting, is not, in Dr. Neumann's experience, sound. He, as well as other medical men attached to hospital trains, came to the conclusion that this procedure was often superfluous. After their exhausting experiences, the wounded found the change to a clean bed, the absence of excitement, and the opportunities for sleep so conducive to peace of body and mind that they often hardly noticed the discomforts of the journey. Though they must often have suffered severe pain, they fell asleep during the journey, and though they frequently asked for a sedative as soon as they entered the train, they fell asleep before it could be given them. So small a dose as 10 drops of tincture of opium was often sufficient to relieve their pain. Dr. Neumann considered that the routine use of morphine for the wounded during transport is not only often superfluous, but is in some cases likely to be the beginning of the morphine habit.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died of Wounds.

CAPTAIN ALEXANDER GRAHAM, R.A.M.C.(T.F.), is reported as having recently died of wounds in the Dardanelles. He was educated at Glasgow University, where he took the degree of B.Sc. in Agriculture in 1902, and those of B.Sc. in Pure Science, M.B., and Ch.B. in 1905. Afterwards he was successively resident medical officer at the Victoria Hospital, Burnley, clinical assistant at the Woodlee Asylum, Lenzie, Glasgow, assistant medical officer at the Brook Fever Hospital of the Metropolitan Asylums Board, and medical inspector of schools to the county borough of West Ham. He then settled in practice at Stratford, London, where he was clinical assistant to the Victoria Park Chest Hospital. He was medical officer of the 7th battalion of the Essex Regiment, in which he attained the rank of Captain last year.

Died on Service.

Lieutenant Bertram Chiene Letts, R.A.M.C., died on October 21st at Alexandria, of dysentery contracted at the Dardanelles. He was the only son of Professor Letts, of Belfast, and was educated at the university of that city, where he took the M.B., B.Ch., and B.A.O. in 1913. He had only recently taken a temporary commission in the R.A.M.C.

Major J. O'Leary, I.M.S., whose death in Egypt was noted in the BRITISH MEDICAL JOURNAL of September 25th, was accidentally drowned at Ismailia on September 9th.

Wounded.

Captain W. Brown, R.A.M.C.(T.F.), Dardanelles.
 Captain A. B. Foot, R.A.M.C. (temporary), France.
 Captain Y. C. Martin, R.A.M.C. (temporary), France.
 Lieutenant N. Booth, R.A.M.C. (temporary), France.
 Lieutenant A. C. Giles, R.A.M.C. (temporary), France.
 Second Lieutenant R. D. M. Macpherson, M.B.Ed., 7th Seaforth's, France.

DEATHS AMONG SONS OF MEDICAL MEN.

Anderson, Laurence, Second Lieutenant 14th Battalion Lincolnshire Regiment, son of the late Mr. William Anderson, Surgeon of St. Thomas's Hospital, was killed in France, October 11th-15th. His commission was dated September 19th, 1914.

Cook, Gerald Haslam, Lieutenant 101st Grenadiers, Indian Army, son of the late Surgeon-General H. Cook, I.M.S., died as a prisoner of war in German East Africa, on July 25th, of wounds received in action on November 4th, 1914. He was born on July 14th, 1876, joined the army as Second Lieutenant on August 29th, 1906, joined the Indian Army on October 17th, 1907, and became Lieutenant on November 25th, 1908.

Davies, Geoffrey Boisselier, Captain 11th Battalion Essex Regiment, only son of Dr. Hughes Davies, of Woodford, Essex, killed near Hulleuch, France, on September 26th, aged 22. He was educated at Rossall, where he gained a classical scholarship, was captain of the school eleven, captain of his house, rackets and lives champion, joint editor of the school gazette, and vice-president in the O.T.C. From Rossall he went on to Selwyn College, Cambridge, with a classical exhibition. At the University he got his cricket blue in his first summer term, played for Cambridge for three years, for two years he headed the Cambridge bowling averages, and for three weeks in 1914 that for all England. He also played frequently for Essex. He joined the Essex Regiment as Second Lieutenant on September 14th, 1914, became Lieutenant on January 29th, 1915, and was recently promoted to Captain.

Falmey, Eric P., Sergeant 8th Battalion Seaforth Highlanders, son of Dr. A. Falmey, of Amoy, China, was killed in France on September 25th, aged 24. He was born in Egypt, and educated at Edinburgh University, where he was a well-known Rugby football player, being captain of the Lismore football club.

Gay, J., Second Lieutenant Royal Flying Corps, second son of Dr. J. Gay, of Putney, was killed in France on October 16th, aged 22nd, as the result of a fight in the air while taking photographs over the German lines. He was educated at Felsted school and at St. Bartholomew's Hospital. He was a member of the City of London Yeomanry, and got a commission on March 30th, 1915.

Hartley, Horace Neville, Second Lieutenant 16th Battalion North Staffordshire Regiment, eldest son of the late Dr. Horace Hartley, of Stone, Staffordshire, was killed in France, October 11th-15th, aged 26.

Hunt, A. L., Captain Royal Field Artillery (T.F.), fourth son of the late A. Hunt, M.D., of Dungarvan, County Waterford, and of Pau, France, was killed during an attack by an Austrian submarine while engaged on transport work for Gallipoli at the mouth of the Bay, aged 46. He joined the 1st Battery, 1st (City of London) Brigade, R.F.A. (T.F.), as Lieutenant on October 26th, 1914.

James, Baron Trevenen, Captain R.E., attached Royal Flying Corps, eldest son of Dr. C. A. James, of the Pollard Elms, Upper Clapton, killed near Avret, close to Hooge, on July 15th, aged 26; was at first reported missing in July. He joined the Royal Engineers as Second Lieutenant in 1909, became Lieutenant on January 23rd, 1912, and joined the Royal Flying Corps in the same year, becoming Flight Commander and temporary Captain on November 24th, 1914. He went to the front in August, 1914, was mentioned in despatches in February, and awarded the Military Cross in June. He was well known for his experimental work in wireless telegraphy from aeroplanes, and wireless ranging with artillery.

Leahy, George Geoffrey Whitely, Lieutenant 10th Battalion, Gloucestershire Regiment, only son of Dr. E. G. Leahy, of Alfreton, Derbyshire, was killed in Flanders on September 25th, aged 23. His commission was dated October 29th, 1914.

Macnaught, Frederick Clement, Lieutenant R.E., elder son of the late Dr. F. J. Macnaught, of Walsham le Willows, Suffolk, was killed in France on September 25th, aged 29. He was educated at Brighton School, and took the B.Sc. at the University of London. For seven years he served in the Westminster Dragoons 2nd County of London Yeomanry, and held the rank of Squadron Sergeant-Major when promoted to Second Lieutenant in the Royal Engineers on October 24th, 1914. He went to France with the 91st Field Company, R.E., in July, and was promoted to Lieutenant on July 18th.

MEDICAL STUDENTS.

Badecek, Arthur Laurence, Second Lieutenant King's Own Yorkshire Light Infantry, youngest son of the late Rev. Thomas Badecek, Rector of Walgrave, Northampton, was killed in the recent advance in France, aged 21. He was educated at Radley, where he was in the O.T.C., and at St. John's College, Cambridge, where he had a medical student. He got a commission in the 5th Battalion Northamptonshire Regiment as second Lieutenant on September 29th, 1914, and was subsequently transferred to the K.O.Y.L.I.

Farragher-Thomson, D., Second Lieutenant 10th Battalion Gordon Highlanders, attached 1st Cameron Highlanders, killed in the recent fighting in France, aged 26. He was a medical student at the University of Edinburgh, where he was in the O.T.C. His commission was dated October 14th, 1914.

Wilson, Robert A., Captain Royal Field Artillery, only son of the late John R. Wilson, killed in the late battle in France, aged 32. He was a medical student at the University of Edinburgh, joined the R.F.A. as Second Lieutenant on October 6th, 1914, became Lieutenant on March 7th, 1915, and was recently promoted to Captain.

NOTES.

HONOURS.

Legion of Honour.

Among the officers decorated by President Poincaré on the occasion of the visit of the King to the Forces in France, was Surgeon-General Sir A. T. Sloggett, K.C.B., K.C.M.G., Director-General of the Medical Department of the British Army, who received the decoration of Commander of the Legion of Honour.

British Honours.

In the *London Gazette* of October 29th was published a list of honours conferred for services in Mesopotamia, Egypt, and other minor seats of war in the East. Among them were included the following medical officers. Colonel Hehir is Principal Medical Officer of the Indian troops in Mesopotamia, and Colonel Robinson of those in Egypt. Lieutenant-Colonel Hennessy, Major Bransbury, Captains Allnut and Wright, and Lieutenant Bal were all recently mentioned in despatches for services with the Persian Gulf expedition.

To be C.B.

Colonel P. Hehir, I.M.S.
Lieutenant-Colonel (temporary Colonel) W. H. B. Robinson, I.M.S.
Lieutenant-Colonel J. Hennessy, R.A.M.C.

To be C.M.G.

Lieutenant-Colonel W. G. Fridmore, I.M.S.

Awarded D.S.O.

Major H. A. Bransbury, R.A.M.C.
Major R. W. Knox, I.M.S.

Awarded Military Cross.

Captain E. B. Allnut, R.A.M.C.
Lieutenant N. K. Bal, I.M.S.

Promoted to Brevet Major.

Captain R. E. Wright, I.M.S.

In the same *Gazette* the D.S.O. was conferred upon fourteen officers, and the Military Cross upon thirty-four, for services in Flanders and Gallipoli. Among them one medical officer, Captain B. S. Finn, of the New Zealand Medical Corps, received the D.S.O. and two temporary Lieutenants A. N. Minns and H. B. Walker, R.A.M.C., the Military Cross, for the following services:

Captain Bertram Sibbald Finn, New Zealand Medical Corps. For conspicuous devotion to duty in the Gallipoli peninsula during operations from August 6th to 9th, 1915, when he worked day and night with unceasing zeal and without rest evacuating the wounded. His work was carried out under continuous fire, on one occasion the dressing station being heavily shelled for an hour, and many assistants and wounded being hit. Owing to Captain Finn's efforts the wounded lying in the more exposed positions were got into a place of greater safety.

Temporary Lieutenant Allan Noel Minns, 39th Field Ambulance, R.A.M.C. For conspicuous gallantry and devotion to duty at Suvla Bay, Gallipoli peninsula, on August 30th, 1915, when attending to the wounded under heavy shrapnel fire.

Another officer who was assisting him was killed. Lieutenant Minns later returned to the dressing station, took out twelve stretcher squads, and brought in twenty-four wounded men.

Temporary Lieutenant Harry Bertram Walker, M.B., R.A.M.C., attached 9th Battalion York and Lancaster Regiment. For conspicuous gallantry and devotion to duty near Amiens on September 25th, 1915. A battery was being heavily shelled, but he proceeded at once to attend to the wounded at one of the guns. While doing this the next gun was put out of action, all the detachment being killed, but he continued to attend to the wounded till the arrival of the field ambulance. Mr. Walker received his medical education at the London Hospital, took the diplomas of M.R.C.S., L.R.C.P. in 1911, and the degree of M.B., B.S. in 1915. He had filled the appointment of senior dresser to surgical out-patients, pathological assistant, and house-physician to the hospital, and had also held appointments at the Poplar Hospital.

ANGLO-RUSSIAN HOSPITAL.

As was mentioned some time ago, a committee, with Lord Chylesmore as chairman and Sir Starr Jameson as vice-chairman of its executive committee, was formed in London about three months ago to organize and equip a complete hospital unit for service in Russia as practical evidence of the sympathy of the British with the Russian people. It has now been arranged that the hospital shall be established in the Dumri Palace in Petrograd, which is being adapted for the purpose. An advance party went out some time ago, and a further part of the medical staff, together with nurses and orderlies, left London on November 2nd.

MEDICAL OFFICERS WANTED.

2nd South Wales Mounted Field Ambulance.

There is a vacancy for a lieutenant in this unit, which is now stationed on the East Coast. There is also a vacancy for a regimental medical officer in one of the yeomanry regiments of the brigade. All particulars concerning these vacancies can be obtained from Lieutenant-Colonel Herbert Jones, Lyons Farm, Blythburgh, Halesworth.

2nd London Field Ambulance.

There are at present a few vacancies for medical officers in this unit, which is expected shortly to go overseas. Candidates will be expected to sign the imperial service obligation. Promotion to captain after six months' satisfactory service assured. The conditions of this service have just been considerably improved, and now compare very favourably with terms offered to civil surgeons. Full particulars can be obtained by communicating with Officer Commanding, 2nd London Field Ambulance, R.A.M.C.T., Bishop's Stortford.

Canada.

MEDICAL COUNCIL EXAMINATIONS.

THE autumn examinations of the Medical Council of Canada were conducted during October in Montreal. There were fifty candidates from all parts of Canada, and those who are successful will receive the L.M.C.C., which under the provisions of the Canada Medical Act—commonly known as the "Roddick Act," since Sir Thomas Roddick of Montreal was its father—entitles the holder to practise in any province of Canada. Every facility was offered by the medical faculty of McGill University for the conduct of the examinations, and the four chief general hospitals in Montreal granted the use of their public wards for the clinical examinations. But for the war the proportion of candidates would probably have been much larger. At the spring examination in Winnipeg last June forty candidates presented themselves. The next examinations will be held simultaneously at Toronto and Winnipeg in June, 1916.

THE PROFESSION AND THE WAR.

In his address on October 3rd, 1915, before the Academy of Medicine, Toronto, Dr. W. H. B. Aikens reminded his audience that 61 Fellows of the Academy were on active service. The medical students of Toronto University had also responded to the call, and had supplied 6 officers and 88 men. There were also 252 medical graduates serving. Soon after the outbreak of the war the Fellows of the Academy of Medicine pledged themselves to undertake, without charge, the professional care of the needy dependants of the men on active service. Dr. Aikens further recalled the fact that medical reciprocity had been established between Ontario and Great Britain in consequence of the war. The Fellows had found that many patients could no longer afford to pay the ordinary fees; but while consultants and specialists were suffering considerable pecuniary loss this was less felt by the general practitioners, who in a few cases had benefited financially by the absence of their colleagues on military service. The United States had done much to help in the treatment of wounded Canadians, and had made generous contributions towards the equipment of hospitals.

UNIVERSITY NEWS.

AS was to be expected, the number of students who have registered in the medical faculties of the universities is somewhat smaller than usual. The eighty-fourth session of the faculty of medicine of McGill University opened on October 4th, with a total registration of 297 students and, in addition, 35 students in the dental department. It was hoped that fifth year students who accompanied the McGill Military Hospital would return to complete their studies, but owing to some misunderstanding it has not been possible to arrange for their release from duty with the hospital. The work of the faculty is being carried on by a staff much reduced in number, as many of its members are on active service, but all the regular courses are being conducted in a satisfactory manner. Dr. A. D. Blackader is acting as Dean of the Faculty during the absence of Colonel Birkett, who is in command of the McGill Military Hospital, No. 3 Canadian General.

At the University of Toronto 507 students have registered in the medical faculty for the present session, as compared with 568 last session and 533 during the year

1913-14. A large number of members of the staff of this university also are on active service, many of them with the No. 4 Canadian General Hospital at the Dardanelles. About 100 undergraduates of the faculty of medicine are at the front. The fourth and fifth year students have returned from the front to complete their studies. This is also the case with the students of the Manitoba Medical College, where the total number of students enrolled this year is 108, as compared with 180 last session. The decrease here is due partly to the fact that a number of students have gone to Europe and partly to the new arrangement whereby one year's work in science is now required before a student can enter the faculty of medicine; the result has been a decrease in the number of freshmen from 40 to 11. Fifteen members of the staff are at present overseas and others are preparing to go very shortly.

The new session opened at Western University, London, Ontario, on October 1st, with a total registration of sixty-six students, which is rather less than usual. New equipment has been procured during the summer, and a physical laboratory has been established. A course for the diploma of public health graduates in medicine was opened on October 1st at the Institute of Public Health, of which Dr. Hill, M.O.H. for the City of London, is director. The Institute was established and is maintained by the Ontario Government as the Public Health Department of the Western University. It conducts courses in public health for the faculty of arts as well as medicine, and undertakes for the Provincial Board of Health official diagnostic examinations in diphtheria, typhoid fever, tuberculosis, water and sewage analysis, etc., for the western portion of the province. Clinical laboratory work of all descriptions is also done at the Institute.

At Dalhousie University, Halifax, Nova Scotia, the medical session commenced on September 15th, the number of freshmen enrolled being 22. The fifth year men intend to volunteer for active service as soon as they have received their degrees. The faculties of arts and science have been removed to the new building, thus leaving the old university building for the medical faculty and the faculties of law, dentistry, and pharmacy. Dr. John Cameron, of the Middlesex Hospital, London, has been appointed to the Campbell Chair of Anatomy as successor to the late Dr. A. W. H. Lindsay.

The University of Alberta, at Edmonton South, is offering the first three years in the study of medicine; last year the faculty was only able to give instruction in the first two years. The university authorities have made arrangements with the Universities of McGill and Toronto whereby its students will be accepted without further examination for the fourth and fifth years in medicine. The university hopes at some time in the near future to be in a position to give instruction in the final years. The number of students enrolled this year is about the same for the three years as it was last session for the two years offered.

At Queen's University, Kingston, Ontario, the staff has been much depleted, as many of its members are on active service. A number of changes have been made, and it has been found particularly difficult to fill the place of Dr. Connell, professor of bacteriology, who is at Cairo. In the meantime Dr. William Gibson of Kingston is conducting the course in bacteriology.

South Australia.

FROM OUR SPECIAL CORRESPONDENT.

THE WAR.

THERE are yet more demands being made upon the ranks of our profession for service in England, in Egypt, and on transport steamers. Dr. J. A. G. Hamilton, the lecturer on gynecology at the university; Dr. Smeaton, a clinical lecturer at the Adelaide Hospital; Dr. Gilbert, a surgeon of the Children's Hospital—all have gone, and still more recently Dr. W. T. Hayward, who is to be attached to a military hospital in England. Meanwhile many of the juniors have silently disappeared; we see them in brand new uniforms one day, and hear of them at Lemnos shortly afterwards. We others, whom on account of age

or infirmity the fates have left behind, naturally admire the pluck and self-denial of those who have gone at such sacrifice to their own interests, and notice with pride that Drs. H. A. Powell and John Corbin have been mentioned in despatches. As the result of an inquiry into the management of the No. 1 Australian General Hospital at Helopolis, Lieutenant-Colonel Ramsay Smith has relinquished its command. The Director of Medical Services in Australia (Colonel Fetherston) has left for Egypt to straighten out matters, and Colonel Shepherd of Adelaide is now filling his post.

DEATHS OF DOCTORS.

The departure of so many senior men and the filling up of their places on hospital and university staffs, and still more the drain on the recently qualified members of our profession, have produced such an effect that it is well nigh impossible to obtain qualified house-surgeons. The Adelaide Hospital is partly manned by fifth year students, whilst the Children's Hospital has to be content with third year men as resident clinical assistants; vacations have been dispensed with, and examinations have been held earlier so that students may become qualified in four and a half years instead of five, the understanding being that those who are eligible immediately enter on active military service. Meanwhile, too, the authorities are refusing to enrol medical students in any capacity, it being considered more important for them to complete their course and take a degree.

BELGIAN DOCTORS' RELIEF FUND.

The committee decided to close this fund, and a final draft was sent last week, making £527 in all forwarded from South Australia and Broken Hill.

HEALTH OF CAMPS.

This is a matter which is causing both the profession and the laity great anxiety. Measles has been prevalent and men have died of pneumonia, but a more formidable enemy in the shape of cerebro-spinal meningitis has appeared, and in Adelaide many deaths have been caused by it.

Ireland.

IRISH FOOD AND FOOD SUPPLIES.

PROFESSOR W. H. THOMPSON has written a valuable report,¹ clear and concise in expression, on food values, adding a note on Irish food supplies, and in another pamphlet, written for the Women's National Health Association of Ireland, he deals in particular with the food of the Dublin labourer. He first presents to the reader the content of water and nourishing material and energy of the chief foods, expressing the protein and energy obtained for 40. in a diagram. Taking 3,500 calories as the energy requirement of a day of moderate work, he shows the cost of each food to supply this. The composition and energy value of the chief classes of foods are set forth very clearly in a series of tables and diagrams. The cheapness of Indian corn is noteworthy; 2½d. worth against bread 6½d. (1915 prices), gives 3,500 calories. Whole meal 3½d., oatmeal 4½d., potatoes 7d., peas 7½d. are other relative prices. In an appendix several recipes for cooking Indian corn are given and an effort is made to popularize this valuable foodstuff. The need for attractive and varied diet, together with the supply of vitamins, and the importance of kitchen and house-craft, are insisted on. Professor Thompson says—“we Irish are far too indifferent to the selection and preparation of our food. There seems to be almost an innate feeling, widely prevalent particularly amongst the less well-to-do classes, that it is mean or wrong to think much about what one should eat, and yet it is not overstating the case to say that national prosperity depends much more closely upon the kitchen than is at all appreciated. . . . The proverbial efficiency of Irishmen abroad is at bottom a question of feeding. . . . Cooking amongst the working classes of the city is almost a lost art; the reason often is to be found in the absence of proper or convenient cooking arrangements in the tenement dwellings.” The world has seen how, regardless

of expense, the physical health of vast armies has been organized since the war began. In times of peace, on the other hand, how great has been the neglect, not only in Ireland, seen in the uncontrolled exploitation of land leading to slum cities and townships, tenement dwellings unfitted for the purpose they are put to, the shutting out of wind, sunlight, contact with the beauties of nature, and opportunities for healthy recreation in physical exercise in the open air. Now the nation faces the retribution—a diminished working power and social unrest in the time of stress. It is interesting to note that 94 per cent. of the wheat consumed in Ireland is imported, while the yield of potatoes is 3,200,000 tons, of which only 800,000 tons are consumed as human food. “If only half of that used by livestock were released, it would double the supply of potatoes ordinarily needed in this country for the human population.” As to oatmeal, Professor Thompson rightly says, “the change of diet which its neglect indicates is one of, if not the most deplorable fact in the history of the country for centuries.” The mill hands of Ulster demand the whitest of breads and tea in place of the old-time oatmeal and milk. As to barley, 74 per cent. raised in Ireland goes to the brewery. “It takes 6 lb. of barley to produce 1 gallon of beer. There is ten times as much nourishment in the barley used as in the beer.” In regard to the raising of cattle, the author estimates that an acre of good land yields an output of eatable potatoes giving seventeen times as much protein and thirty times as much food energy as if it were used for grazing and the production of animal food; of oats eighteen times as much protein; of wheat nineteen times as much protein, and fifteen times as much energy. The yield of an acre of such land in potatoes furnishes as bacon nearly five times as much protein and more than seven times as much energy as if the land were used for grazing sheep or cattle. These figures illustrate the advantage of pig keeping. There is plenty of room for food conserving, and no harm will be done to the health of the well-to-do in replacing much of the animal food eaten by cereals, potatoes, and pulses.

INFANTILE MORTALITY AND MILK SUPPLY IN DUBLIN.

The infantile mortality is far higher in Dublin than in any other city of the United Kingdom; the death-rate of children under 1 year per 1,000 of the estimated population of England and Wales during 1914 was 105; for London alone, 101; and for ninety-seven of the principal English towns, 111. For Dublin it was 141 per 1,000. According to the latest report of Sir Charles Cameron, about one-fifth of the total deaths in Dublin are those of infants. Much of this abnormal death-rate is directly attributable to the milk supply. In 1914, of the deaths recorded, 2,772, or 30 per cent., were children under the age of 5 years. Of these deaths, 346 were from diarrhoeal diseases, and only two of the victims were over 2 years of age. The greater number of deaths took place during the summer months, and the increase during the last three months of the present year was, it is believed, greater than it has been for any similar period during the past ten years. It is understood that the infantile death-rate in Dublin during the months of July, August, and September has been really alarming. The medical officer of health officially attributes this to the higher temperature of these months, but the relation between the rise of temperature and infantile mortality is not stated. The explanation is that in impure milk the bacteria which cause gastro-intestinal trouble and diarrhoea multiply rapidly during the summer months. The city milk is, as a rule, only examined bacteriologically when there has been an outbreak of one of the zymotic diseases. There are in the city of Dublin 5,604 heads of families who earn not more than 15s. a week, 9,000 who earn 15s. to 20s., and 2,585 who earn 20s. to 25s. Many of the milk shops in the poorer districts are so situated and managed that the milk is almost certain to be contaminated. The Public Health Committee has prosecuted a number of persons for having dirty dairy shops and cowsheds, but the fines imposed, varying from 5s. to 10s., are small in view of the serious nature of the offence. It is, however, encouraging to find that the police magistrates have now announced that in future the fines in all cases will be commensurate with the offence. During the coming winter the cost of milk is likely to increase. Last

¹ Dublin: Ponsoby. Published for the benefit of the Dublin University Voluntary Aid Detachment Hospital. Price 3s.

winter the price in Dublin was raised to 4d. a quart, and during the summer the usual reduction in price did not occur, the excuse given being that owing to the war the cost of everything was increased. The dairymen have now announced their intention of raising the price to 5d. a quart. As milk can be purchased within fifty miles or so of Dublin for 7d. and 8d. a gallon, and transport by train is only 1d. per gallon up to 100 miles, it would seem that there was no necessity for this further rise in price. There have been public meetings and a great deal of press comment on this threatened rise in price, but so far without any obvious practical result.

The Registrar-General, in his quarterly return, states that in the Dublin registration area, which consists of the City of Dublin and the urban districts of Rathmines and Rathgar, Pembroke, Blackrock and Kingstown, the total area of which is 13,745 acres, and the population estimated at the middle of 1915 to be 409,000, there were registered during the thirteen weeks ending October 2nd, 2,652 births (1,347 boys and 1,305 girls) being equal to an annual rate of 25.9 in every 1,000 of the population. The number of births registered in the city was 2,307, equivalent to an annual rate of 29.5 in every 1,000 of the population. The total number of deaths registered in the Dublin registration area during the quarter was 1,797 (922 males and 875 females) affording an annual rate of 17.6 in every 1,000 of the estimated population. The annual mean mortality represented by the deaths registered during the third quarter of the ten years 1905-1914 in the Dublin registration area was 19.8 per 1,000 of the estimated mean population of those years. Of the 1,797 persons whose deaths were registered 557 were under 5 years of age, and included 397 infants under 1 year of age, the latter representing a rate of 149.7 per 1,000 of the births registered.

Correspondence.

URIC ACID STONES UNDER THE X RAYS.

SIR,—In your issue of October 23rd Mr. C. Thurstan Holland calls in question a statement made by me in an article on ureteral calculus in the JOURNAL of October 16th, and quotes: "It (radiography) is now so perfect that even a small uric acid stone in the lower segment of the ureter can easily be discovered."

To call a concretion a "uric acid stone" does not imply that it is composed entirely of uric acid, but that it is a smooth, brownish-yellow rounded stone, not very heavy in weight for its size, and is composed to a large extent of uric acid. This is the clinical definition; it would not do to limit the term to only concretions of pure uric acid, which give no x-ray shadow. They are very rare.

A number of years ago I was interested in the subject of the composition of calculi, and made sections of the renal and vesical stones in the museums of the Royal and the Western Infirmaries, and had them examined chemically. The composition of 208 stones was as follows: 71 were formed of one substance only, while 137 were made up of two or more. Of the simple calculi, 32 were of phosphates, 26 of uric acid, 12 of oxalate of lime, and 1 of cystine. Of the compound calculi, 118 had, as one of their constituents, uric acid, so that collectively out of the 208 calculi 144 contained uric acid, but of these not one was chemically pure; all contained some earthy matter, as shown by ash on fusion. Examination of my own collection gives very much the same results. Later the question of resistance of calculi to x rays excited interest. On making artificially a pure uric acid stone, I found it practically gave no shadow, but when even a small proportion of earthy salts was added, a shadow was got. Therefore, I may safely say that Mr. Holland and I do not differ in our views as to the want of resistance to the x rays shown by uric acid in its pure state. If the term "uric acid calculus" is to be limited to those stones containing no other ingredient beyond uric acid, I admit that x rays will not detect them.

However, as far as my experience goes, pure uric acid stones are not met with in the kidney and the ureter, while what are commonly classified as uric acid calculi, as distinguished from those composed of oxalate of lime, phosphate of lime, or of mixed phosphates, are by no means uncommon. It is to those I referred in

my article. Not long ago the art of skiagraphy failed to detect them, but now, with more perfect methods, stones containing a very moderate amount of earthy salts "can easily be discovered." So, while I willingly admit that Mr. Holland is correct in stating that pure uric acid calculus gives no shadow, he will no doubt own that the uric acid stone met with in the kidney and ureter, being in the vast majority of cases impure, should show itself by a shadow on a well-taken plate. This has been my experience, certainly for the last six years.—I am, etc.,

Glasgow, Oct. 23rd.

DAVID NEWMAN.

WAR EMERGENCY COMMITTEE.

SIR,—Is it not time for plain speaking to the War Office? While strong and urgent appeals are being issued to members of the profession to give up their practices and take up military duties abroad the authorities at home are still appointing young men to positions on the base hospitals.

Within the last two or three weeks three unmarried men of military age have been appointed on the staff of the 3rd Western General Hospital at Cardiff in addition to those on the staff already, while at least two first class surgeons are passed by men capable of performing any operations—as well as others capable of rendering efficient service who are scarcely young enough to go abroad.

To my own knowledge this is having a prejudicial effect on the effort to obtain men locally for the war, and if it is being repeated throughout the country much harm is being done. Men are saying, and not without justification, Why should I leave my practice and my wife and children to go on war service while the Government is appointing young single men to the comfortable posts at home? I am, etc.,

Cardiff, Nov. 1st.

W. B. CRAWFORD TREASURE.

BROMIDES IN EPILEPSY.

SIR,—Years ago I was resident medical officer in Hoxton House when the late Dr. Hunt was medical superintendent. We often discussed the use of bromides in epilepsy. He deprecated their use in the majority of cases. He was of opinion that even in cases where they diminished the frequency of the fits a more violent attack might be induced which would immediately prove fatal. We used tincture of hyoscyamus as an alternative, which in some cases, at least, was beneficial.

Dr. Mercier's views appear to be similar to Dr. Hunt's regarding bromides. He states, however, a somewhat new idea, that epilepsy is not a disease but a group of diseases, and then qualifies this remark by saying it is certainly more than one.

In one of these diseases of which epilepsy is the outward manifestation he admits immense benefit follows the use of bromides. He does not, however, indicate what that disease is.

That the bromides, whether of potassium, sodium, or ammonium, are useful in many cases is unquestionable. Their continued use without intervals of rest is, however, a mistake. Otherwise they produce both mental and bodily enfeeblement. In such cases they should be stopped, and tonic treatment often proves useful in diminishing the frequency of the attacks. There is one remedy which for some years I have found useful to diminish both the frequency and intensity of the fits, namely, calcium bromide. It is effective in half the doses of the potassium salt. Mental activity increases and general health improves. These results are striking if the patient has previously been taking potassium bromide.—I am, etc.,

Bournemouth, Oct. 27th.

A. HEMPREEY DAVY, M.D.

A STANDARD DIET FOR INFANT FEEDING.

SIR,—The suggestion that there should be a standard diet for infants is a good one because at present a great deal of contradictory, and sometimes quite erroneous, advice is being circulated in leaflets issued by medical officers of health, baby centres, and societies of different kinds. I think it would be a good thing if those of us who are working at infant feeding could agree upon a standard diet for standard babies, and prescribe it for a year or two in all cases unless there should be a definite reason for (probably temporarily) prescribing something else. The method should be as simple, and the directions for carrying it out as definite and practical as possible. It

would then be an easy thing to instruct the health visitors, and through the health visitors the mothers, much more systematically than is done at present. It would be a very valuable experiment if a standard diet could be tried on a large scale, and the results carefully observed, or if two standards were adopted and tried in different towns, for example, the two standards suggested by Dr. Cameron—whole citrated milk, and milk diluted "a little," plus "a little" sugar. But Dr. Cameron will have to tell us what he means by "a little" water, "a little" sugar, "a very young infant," and a "tiny child."—I am, etc.,

Leithburgh, October 27th.

W. B. DRUMMOND.

MEDICAL AUTOGRAPHS.

Sir,—A year ago you inserted an appeal on behalf of the Reading Pathological Society for medical autographs, which that society has for some years been collecting. In response, a large number of specimens have been kindly contributed by the editors of the BRITISH MEDICAL JOURNAL and the *Lancet*, by Sir Lauder Brunton, Mr. D'Arcy Power, Sir R. J. Coilee, Sir Duyc Duckworth, and others.

Our album now contains lithographs or autographs, often accompanied by portraits, of Lister, Charcot, Brodie, Paget, Billings, Weir Mitchell, Virchow, Michael Foster, Oliver Wendell Holmes, Jenner, Huxley, Farr, Lawrence, Liston, *inter multos alios*. Our attitude, however, is that of Oliver Twist when he craved for more, and we shall gratefully welcome further additions. "*In tali nunquam lassat renatio splem.*"

There is a fascination in preserving the portraits, the handwriting, and the signatures of those masters of medicine, who in most cases have ceased from their labours on earth, but whose names must live for ever as benefactors of mankind. Such mementos of the love we bear them and their writings help to keep their memory green, and inspire us to follow in their steps.

May I add that we possess some duplicates which are at the disposal of other medical societies that contemplate forming a similar collection?—I am, etc.,

JAMIESON B. HURRY.

Westfield, Reading, Oct. 22nd.

CHILBLAINS.

DR. RICHARD W. LLOYD (London, W.) writes with reference to the note on chilblains in the JOURNAL of October 23rd, p. 614: I remember the late Sir William Savory said in the course of one of his lectures, "Opium is a sovereign remedy for chilblains." Recollection and appreciation of that remark has on occasion enabled me to cause all unbroken chilblains, even when numerous, to disappear in the course of two or three days, and those that are broken, suppurating or ulcerating to commence forthwith to clean and rapidly to heal, under, in addition, unguentum resinæ and general treatment. Only in severe cases of the kind have I resorted to that drug, for I have always had in mind what is well expressed in Sir William Collins's remark, which appears in the previous article on the same page of the JOURNAL under the heading "Drug and Alcohol Addiction," that "it would be salutary if medical men would think, not once or twice, but many times before prescribing potent drugs of addiction for internal exhibition, if, as often happened, simpler and non-alcoholic remedies would meet the case." Indeed, it has been my custom to arrange that the chemist supplying it should withhold the prescription. Attention to diet, hygienic measures and medication indicated to improve the general health and nutrition should always be prescribed, and generally I have been content with them. But in bad cases of chilblains, which sometimes occur in otherwise fairly healthy persons, I have found that 1 to 1 gr. of opium taken on going to bed, or liq. opii sed. mij —two or three times in the twenty-four hours acts like a charm. The explanation is, I believe, in the effect of opium upon the capillary circulation. It is interesting to recall, in considering the constipating effect of opium, that Sir Lauder Brunton (with whom we all deeply sympathize on the loss of his son in his country's service), speaking of opium, has said that, while moderate doses are constipating, minute doses (mij or mss of the tincture when the constipation does not depend upon insensibility of the intestinal nerves) and large doses are

purgative in their effect. Any constipating effect of the moderate doses mentioned may be suitably provided against.

Dr. C. SMYTH recommends the administration of cod-liver oil, beginning in September before the weather breaks up. When chilblains have developed he advises tincture of opium, mij , three times a day. For broken chilblains he recommends resin ointment.

C. H., who states that he was a martyr to chilblains, found some ten years ago that the complete omission of meat from his diet was followed by their disappearance, and they have not reappeared.

L. B. writes: It might be worth while for your correspondent (whose case is described in the BRITISH MEDICAL JOURNAL, October 23rd, p. 614) to try thyroid gland, beginning with 1 grain every night, and gradually increasing the dose either by taking more at bedtime or by taking the medicine three times a day.

Another correspondent says that he tried last year the suggestion of a correspondent to toast the affected parts in front of a good fire almost up to scorching point, and found the method very effective.

Dr. F. HEKXAMAN-JOHNSON states that chilblains are comparatively easy to prevent, provided prophylactic treatment is commenced at least a month before the expected onset of cold and damp weather. A sinusoidal current generator is desirable, but an ordinary faradic battery is a fair substitute. Two basins are filled with water as hot as can be comfortably borne, and a hand placed in each. The current is then turned on for ten to fifteen minutes, at a strength which just fails to cause cramping, but which can be distinctly felt. This procedure is repeated daily for four to five weeks. The feet may, if necessary, be treated in a similar manner. The treatment is not suitable for chilblains actually established. For mild cases, the high frequency vacuum electrode may be employed, the glass being moved to and fro, lightly touching the skin. In the more severe forms, no instruments must be brought into contact with the inflamed and possibly ulcerated surfaces. The sedative "breeze" is useful, and very small doses of x rays often promote healing.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

(GENERAL COUNCIL.)

THE half-yearly meeting of the General Council of the University of Edinburgh was held on October 29th in the Old University. Principal Sir William Turner presided, but vacated the chair during the election of two assessors in the University Court. The retiring assessors, Dr. R. McKenzie Johnston and Dr. G. Andrew Berry, were re-elected, the former on the motion of Dr. Norman Walker, seconded by Mr. J. Robertson Christie, and the latter on the motion of Dr. A. H. F. Barbour, seconded by Dr. J. W. Ballantyne.

The Convener of the Business Committee (Mr. J. B. Clark), in submitting the report, stated that whilst in May last the university roll of honour contained over 2,000 names, by July 8th it had risen to 3,550, made up as follows: Chancellor, rector, and member of the University Court, 3; teaching staff, 43; clerical staff, 5; technical staff, 21; graduates, 2,233; alumni, 378; undergraduates, 865; and University Military Committee, 5. Since July this number had been largely augmented, but the exact figures could not yet be given. Many honours had also come to the university men on service, including 8 appointments to the Distinguished Service Order, 12 Military Crosses, 1 Distinguished Service Cross, and 1 D.C.M., whilst upwards of 70 had been mentioned in dispatches. The women also had done well in various branches of war service, and special reference might be made to the Scottish Women's Hospitals in France and Serbia, which had been largely organized and staffed by Scottish women medical graduates and students. There were now four hospitals in Serbia and one in France, whilst a second French hospital had, at the request of the French Government, gone with the new Expeditionary Force to Salonika. In connexion with this work the names of Drs. Elsie Inglis, Alice Hutchison, Beatrice Macgregor, and Helen Porter would be specially associated. There was also cause for sorrow, for no fewer than 102 sons of the Alma Mater had fallen in the light, including 54 fellow members of the General Council.

UNIVERSITY OF GLASGOW.

(GENERAL COUNCIL.)

PRINCIPAL SIR DONALD MACALISTER presided at the statutory half-yearly meeting of the General Council of the University

of Glasgow on October 27th, when Sir David C. McVail and Dr. David Murray, the retiring assessors of the Council, were re-elected.

The Council approved of a minute placing on record their appreciation of Professor John Ferguson, who has resigned the Chair of Chemistry "at the close of an academic career so long and so distinguished."

A proposal to ask the General Medical Council that in the preliminary examination for registration there be only one language other than English required, and that that language need not be Latin, was not approved, the previous question being carried by 18 votes to 7.

UNIVERSITY OF ABERDEEN.

Owing mainly to the number of young men who have joined His Majesty's forces the number of students enrolled in the present winter session shows a decrease of 158 as compared with a year ago. The total number last year was 800, this year it is 642. The number of male students last year was 472, and of female students 328; this year the number of male students is 358, and of female students 284. The number of male medical students is the same this year as last year—186, the number of female medical students has risen from 37 to 53.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on Thursday, October 28th, Dr. Frederick Taylor, the President, being in the chair.

Admission of Fellow and Members.

Dr. Thomas Reuter Elliot, who was elected as a Fellow in April last, was admitted to the Fellowship of the College.

The following, who had passed the necessary examination, were admitted Members of the College: Charles Nelson Atter, Miss Hazel Haward Cuthbert, M.D., London, and Edmund Walter Neill Holthouse, M.B., Oxfr.

Licences Granted.

Licences to practise physic were granted to 105 gentlemen who had passed the required examinations.

Johns Scholar.

It was announced that Mr. Ralph Stanley Swindell had been appointed the twenty-third Johns scholar.

lection of Senior Censor.

On the nomination of the Council, Dr. Percy Kidd was elected senior censor in the place of the late Dr. David Bridge Lees. The President paid a tribute of respect to the memory of Dr. Lees, referring to the services he had rendered to the College.

The Library of Louvain.

In response to an invitation from the President of the British Academy, the President and the Harveian Librarian (Dr. Norman Moore) were appointed delegates to a committee whose object is to reconstitute in the future the library of Louvain.

Medico-Legal.

CHARGE AGAINST AN EDINBURGH HERBALIST.

ON October 18th, before the Lord Justice Clerk in the High Court of Justiciary, Edinburgh, Charles Alder, *alias* Charles Smith, was charged with having performed an illegal operation upon Margaret Elaine Anderson, as the result of which she died. According to the report in the *Scotsman*, the Sheriff Substitute said that on July 21st the deceased emitted a dying deposition which stated that "Dr. Temple" by arrangement came to her house on July 1st and used an instrument, as reported in the deposition, on July 5th. Sheriff Substitute Macleod said that on July 24th the deceased emitted a deposition as follows: "I am shown the accused. I recognize him. I know him as 'Dr. Temple.' He is the man who came to see me on the two occasions mentioned in my former deposition, and he used the instrument upon me as mentioned in said deposition, which has now been read over to me." John Baird, clerk, said that he had meetings with the deceased, who in the middle of June told him that she was pregnant. He subsequently called on "Dr. Temple" at West Register Street, and saw the accused, who said that he could not give medicine but had a treatment which would cost £5. He told the deceased about "Dr. Temple," and she consented to see him. He again saw "Dr. Temple," and told him that they were to be no operation. He afterwards endeavoured to stop the matter, but paid the accused £5 on July 2nd. Dr. D. M. Barker stated that he had been called to see Miss Anderson, and finding her seriously ill arranged for her admission to the Infirmary. Dr. A. H. T. Barbour said that the deceased was admitted to the Infirmary on July 20th, and he got from her a statement as to the history. She was suffering from acute inflammation and died on July 26th. The following day a *post-mortem* examination was made by him and Professor Harvey Littlejohn, and they certified that death was due to blood poisoning the result of abortion. In cross-examination, Dr. Barbour said that taking the *post-mortem* examination alone there was nothing which would justify him in saying that this was a criminal abortion as distinguished from one from natural or accidental causes. It was the third month in the case which was most dangerous so far as abortion was concerned. Professor Harvey Littlejohn gave corroborative evidence. Dr. G. B.

Marshall (Glasgow) said that there was nothing in the medical report to indicate that the septic condition was the result of the introduction of a poisonous instrument.

The accused, giving evidence on his own behalf, said that his name was Charles Anthony Alder, and was born in Stanterland; he practised as a herbalist in massage and in connexion with certain diseases. He had bought a business from Mr. Smith and used the name of Charles Smith. At the end of May, in response to an advertisement by "Dr. Temple" for an assistant, he was engaged at £2 10s. a week. The business in Edinburgh was carried on under the name of "Dr. Temple and Co." He denied that he had performed the operation stated in the charge. The Lord Justice Clerk, in summing up, directed the jury as a matter of law that there was not sufficient evidence to justify them in bringing a verdict of murder, but they had to decide the serious question whether there was sufficient evidence to justify them in bringing in a verdict of culpable homicide. The jury returned the unanimous verdict of not proven.

References to the business conducted under the name of "Dr. Temple" or "Dr. Temple and Co.," in Edinburgh will be found in the *JOURNAL* of January 23rd, 1915, p. 186, and February 27th, 1915, p. 402. The person concerned in the cases then reported was not the same as the person concerned in the trial on October 18th.

CHARGES OF ALLEGED IMPERSONATION.

HENRY JOHN HERRING, described as a chemist, was, according to a report in the *Morning Advertiser*, charged at the North London Police Court on October 30th with feloniously giving false certificates of death. Mr. Bodkin, who appeared for the Director of Public Prosecutions, said that the accused had impersonated a gentleman who practised at West Matland, New South Wales, whose name was Edward Ken Herring, and whose qualifications were M.B.C.S. Eng. and L.R.C.P. Lond. Evidence was given by Dr. Hugh Woods, Secretary of the London and Counties Medical Protection Society, who said that he had communicated with Dr. Herring at the address mentioned in Australia, and had received a reply. The accused was asked to be dealt with at once, but the magistrate committed him to the Central Criminal Court for trial.

At the recent Worestershire Assizes, George Bowie Farnham, aged 31, a dispenser, was charged with making false death certificates at Wollaston, Dudley. Counsel for the defence took a legal objection, but in the event prosecutor pleaded guilty. His counsel said that no harm was done because the certificates were perfectly in order, though he agreed that it might have been a serious matter. Prosecuting counsel said that the case was persisted in because of the danger to the public of an unqualified medical practitioner giving certificates of death. The judge, Mr. Justice Bailliac, said that he agreed with that view, and it ought not to be overlooked when it came to the attention of the authorities. He thought that a sentence of two or three months' imprisonment would have met the case, and as prisoner had been in custody since July 20th he ordered his release.

Obituary.

THE RIGHT HON. SIR CHARLES TUPPER, Bt., M.D. EDINB.

ONE TIME HIGH COMMISSIONER OF CANADA IN LONDON.

ONE of the Fathers of Canadian Federation, a distinguished politician, and probably the oldest medical graduate of the University of Edinburgh, Sir Charles Tupper has passed to his rest, full of years and honours, at the patriarchal age of 94. Few men have lived more vigorously, first in the rough and tumble of a large general practice in Nova Scotia, and then in the more turbulent area of politics; yet he retained good health of mind and body nearly to the end. Like so many distinguished Nova Scotians, he was of New England stock, and descended from Thomas Tupper, who emigrated from England in 1635.

Charles Tupper was born in 1821, the son of a Baptist clergyman; he had his early education at Horton Academy, U.S., and in 1839 went to Edinburgh University, graduating in 1843 with a thesis "On the Mechanism and Management of Parturition, illustrated by a report of 116 cases." He was never tired of talking of the happy life spent there as a medical student. Simpson, then newly appointed to the chair of midwifery, was his favourite teacher, and he kept up warm friendships with many of his old professors. Only a few months ago he promised the writer to jot down the reminiscences of his Edinburgh life. Returning to his native town, Amherst, he very quickly had a large and widespread practice. He was fond of surgery, and there were few men among us who could talk of personal experiences in pre-anæsthetic days. He told the writer of an amputation at the hip joint for sarcoma performed on a farmer's wife, on the kitchen table, with a sailor as

assistant. The patient lived eighteen miles away, so he was never able to make a second visit. Three months later the farmer drove to Amherst with his wife strong and well.

In 1855 Sir Charles entered public life as member of the Nova Scotia Assembly, and immediately pushed to the front rank in local politics, becoming successively Provincial Secretary, and in 1864 Premier of the Province. In the preliminaries to confederation, 1867, he took a prominent part, and was a member of the Westminster Conference. In 1870 he became President of the Council in the Dominion Government, and Minister of Customs in 1872. Following the fall of the McDonald Government he was the life of the Conservative party, and to him more than to any other was due their return to power in 1878. In 1884 he retired from the ministry, and took the position as High Commissioner in London for the Dominion. For a short period he was again in the Ottawa Cabinet as Minister of Finance, but returned as Commissioner to London, where he remained until 1896. In this year he became Prime Minister of Canada. After the defeat of his party he was the leader of the Opposition, but in 1900, after the general election, he retired from public life. In 1898 he was created a Baronet of the United Kingdom.

At intervals in this busy life he practised his profession at Halifax, Ottawa, and for a year or more at Toronto. He took an active part in the formation of the Canadian Medical Association, and to the end retained keen interest in the progress of medicine.

Canada owes a deep debt to Sir Charles Tupper, and his political opponent, Sir Wilfrid Laurier, very truly said that next to Sir John A. McDonald, the man who did most to bring about the federation of the Canadian provinces was Sir Charles Tupper. With a strong and daring personality, he had all the qualities for success in public life—calmness and clear judgment in victory, resolution and hopefulness in defeat. Nothing in his history was more remarkable than to have "stumped the country" successfully for his party when in his 80th year. A strong Imperialist, Sir Charles once remarked that "the two aims he has always kept in view . . . have been the strengthening of the golden link which connects England with the first and greatest of her colonies, and the holding aloft of the standard of right of the nation so that she may prove herself worthy of the proud position she has made her own." His life is an illustration of the brilliant success of the doctor in politics. We have to go to France or to the South American Republic to parallel his career. But he never really served two masters; from 1855 he was a politician first, and a practitioner only when stranded by the exigencies of party.

A few months ago, in reply to a question as to what he attributed his kindly old age, said, "A good constitution, a good digestion, and a capacity to sleep." It was in truth his good arteries, which were scarcely palpable when the blood stream was pressed out. Yet here was a man who in 1880-1 was ready to throw up the sponge, as he was believed to have Bright's disease! Some years ago, in a paper "On the advantages of a trace of albumin and a few tubercasts in the urine of men above 50 years of age," the writer mentioned his case. In 1881 he saw Andrew Clark, who gave most sensible advice, but was inclined to take a grave view of the renal condition. The advantage of the discovery was never better illustrated, as he ever after lived a careful life. Of Sir Charles's sons, the elder, Stewart, died a few months ago, and the baronetcy falls to his son a barrister in Winnipeg.

W. O.

J. W. N. MACKAY, M.D.,

ELGIN, SCOTLAND.

DR. J. W. NORRIS MACKAY, of Elgin, died recently at the age of 83. His father was the Rev. George Mackay, D.D., of Raaford, one of the number of Scottish clergymen who followed the dictates of their convictions, and "came out" at the stormy time in Scotland's ecclesiastical history, in 1843. The historical events of those famous times made a lasting impression on the mind of the subject of this notice.

Norris Mackay was educated at Elgin Academy and King's College, Aberdeen, where he took the degree of M.A. He then proceeded to Edinburgh, where he took the diploma of L.R.C.S. in 1852, and the degree of M.D. in the following year. While at Edinburgh he was a

member of the Royal Medical Society. He studied afterwards at the universities of Paris and Vienna.

When he returned to his native country he became resident surgeon to Gray's Hospital, Elgin, and when he relinquished that post he started general practice in the same town. Through his scholarly attainments and his genial disposition, he quickly built up a very large practice in Elgin and the district round about. There was a thoroughness and directness in his methods which brooked no opposition when he set out to probe a case, but at the same time it was accompanied by a sympathetic kindness which won him the ready appreciation of all with whom he came in contact. In every sense of the word Dr. Mackay was a physician of the old school, of a type which is too quickly passing away. In his professional work he never spared himself, and his figure was a familiar one at all hours of the day and night in the district, either on horseback or in his high dogcart.

Dr. Mackay was a member of the British Medical Association for a long period of time, and was secretary for the local Branch for close on thirty years. To commemorate this long service, and to mark their appreciation of his work and worth, his fellow-members in 1895 presented him with his portrait in oils, by Sir George Reid. During his long professional career Dr. Mackay held many appointments connected with the various institutions and public bodies in the town and neighbourhood. He took a keen interest in educational and religious matters, being chairman of the local School Board for many years, and a leading elder of the South United Free Church for over thirty-five years. Dr. Mackay was joined in partnership by his son, Dr. George Mackay, whose early death was deeply and widely mourned. Later he took into partnership Dr. D. G. Campbell. Failing eyesight compelled Dr. Mackay to relinquish his work about ten years ago, but it did not diminish his vigour, for his active figure was, up till a short time before his death, still to be seen about the town where he had laboured so lovingly for nigh sixty years. The death of his wife some years ago told heavily upon him, but his closing years were watched over by two of his daughters.

The large and sympathetic attendance of mourners at the funeral testified to the honour and esteem in which Dr. Mackay had been held by all who knew him.

PROFESSOR CHARLES BOUCHARD,

PARIS.

PROFESSOR BOUCHARD, who died recently after a long illness in a nursing home at Lyons, was for many years one of the chief figures in academic medicine in Paris. He was born at Montier-en-Der, in the Haute Marne department, in 1837, and graduated in 1866, and was appointed professor of general pathology and physician to the Lariboisière Hospital in 1870. He was elected a member of the Académie de Médecine in 1880, and of the Académie des Sciences in 1887, and had been president of both these learned bodies. He wrote a book on pathology, which was the popular students' textbook of its day, and he was one of the first to recognize the importance of antioxydation. It was, however, as an administrator that he did his most important work, and when dean of the Faculty of Medicine he encouraged many reforms. He was a Grand Cross of the Legion of Honour, and but for the war would have received the Nobel prize in 1914.

At this moment we may recall the part he took in the very earliest movement towards the establishment of the Entente Cordiale. It was in 1904 that some friends of Great Britain in France, and of France in Great Britain, all of them members of the medical profession, got into communication: the result was the visit of a large party of French doctors to London in October of that year, when they were shown some of our medical institutions, and were entertained at a dinner at which very cordial fraternal sentiments were expressed. There followed the visit of a large number of British doctors to Paris in May, 1905, when the modest hospitality which London had been able to show the French party was altogether eclipsed. The Committee in Paris which made arrangements for this visit had Professor Bouchard as its chairman, the late M. Lucas-Championnière as its vice-chairman, and Drs. Triboulet (Paris) and Sillonville (Aix-les-Bains) as its secretaries.

The Services.

EXCHANGE DESIRED.

An officer in a field ambulance wishes an exchange with one on an ambulance train, boat, or base hospital in France. Address No. 5390, BRITISH MEDICAL JOURNAL OFFICE, 423, Strand, W.C.

INDIAN MEDICAL SERVICE.

The India Office notify that the following gentlemen have been appointed to the Indian Medical Service: I. D. Grant, M.B., Ch.B., Glasgow, A. Hunter Brown, M.B., Ch.B., Aberdeen.

Medical News.

The Nobel prize for medicine for 1914, of the value of about £8,000, has been awarded to Dr. Robert Barany, privat-docent in otology in the University of Vienna, for his work on the physiology and pathology of the vestibule of the ear. The prize for medicine for 1915 is reserved until next year.

At the annual meeting of the Royal Society of Edinburgh on October 25th, Dr. John Horne, F.R.S., formerly assistant director of the Geological Survey of Scotland, was elected president, and among the vice-presidents elected were Sir Thomas R. Fraser, M.D., F.R.S., and Sir Edward Schäfer, F.R.S. The secretaries of ordinary meetings elected were Dr. Robert Kidston and Professor Arthur Robinson, M.D.

A DISCUSSION on paratyphoid fever will be held by the Section of Medicine of the Royal Society of Medicine on Tuesday, November 9th, at 5 p.m. The discussion will be opened by Sir Bertrand Dawson, who will be followed by Dr. Dreyer and Sir William Osler. The Section of Psychiatry will hold a discussion, jointly with the Section of Neurology, on the functional neuroses caused by shell gas without visible sign of injury, on January 25th, at 8.30 p.m.

A DISCUSSION on gunshot wounds of the head will be opened by Lieutenant-Colonel Percy Sargent, R.A.M.C., F.R.C.S., and Lieutenant-Colonel Gordon Holmes, R.A.M.C., M.D., at the meeting of the Medical Society of London on Monday, November 15th, at 8.30 p.m. Mr. L. B. Rawling and Dr. Wilfred Harris will speak, and Fellows and others desirous of taking part in the discussion are requested to communicate with the honorary secretaries or the registrar.

The regulations made by the French War Office with regard to the sale of alcoholic beverages will not seem to readers in this country very stringent. They apply to soldiers, persons liable to be mobilized, and to munition workers. The sale of wine, beer, cider, perry, and hydromel is permitted, as is also that of aromatized wines not exceeding 18, and of liquors prepared from fresh fruits and not exceeding 25 in strength.

An exhibition organized by the *Daily Express* under the title of "Women and their Work" will be opened at the Princess Skating Club, Knightsbridge, by Queen Amelie of Portugal, on November 8th, and will remain open until November 27th. Among the patrons are Queen Alexandra, Princess Arthur of Connaught, the Duchess of Teck, the Duchess of Wellington, the Duchess of Sutherland, the Marchioness of Londonderry, and many other well-known ladies interested in women's work. The exhibition is intended to show the new openings to women workers which have been created by the war. A particularly interesting feature will be a section of village industries, which it is one of the objects of the exhibition to re-establish. They include South Indian lacework, Devon embroidery and knitting, toy making, Scottish linen weaving, Essex handicraft work, straw plaiting, leather work, and sea moss work from East Coast villages. Other sections are intended to illustrate social and philanthropic work, food reform, economy in the home, hygiene, cooking, and so forth. Everything that can be made for the men in the trenches, from socks to sandbags, will be manufactured by women at the exhibition. Among the exhibitors are Queen Alexandra's Schools of Woodworking and Needlework, Sandringham; the Salvation Army, the Professional Classes War Relief Council, the British Women's Emigration Society, the Women's Emergency Corps, National Food Economy League, the Central Depôt, Surgical Branch Queen Mary's Needlework Guild, and the Home-work Society. The Organizing Secretary is Mr. Ernest C. Digby, 23, St. Bride's Street, London, E.C.

Letters, Notes, and Answers.

THE telegraphic address of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: 41, FLEET STREET, THE BRITISH MEDICAL JOURNAL, Antislip, Westrand, London; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), Antislip, Westrand, London; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, Antislip, Westrand, London; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects of which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

INCOME TAX.

H. F. inquires whether a four and a half months' illness and a prospective reduction of work entitle him to calculate his liability on the year's profits instead of on the previous three years' average, and (2) whether benefits derived from sickness societies should be included in one's income.

(1) No, unless in "H. F." is serving in the forces of the Crown or in the foreign work of the British Red Cross Society or St. John Ambulance Association, or (b) he is giving up his practice and taking another, in which case the reduction might be claimed for the period subsequent to the change. If the prospective decrease in work consists in the giving up of a public appointment he is entitled to have the assessment reduced by the net proceeds of the appointment accruing during the subsequent portion of the financial year. (2) No. Such payments do not appear to be liable to tax, unless they constitute annual payments.

LETTERS, NOTES, ETC.

THE IONIZATION OF ADHESIONS.

DR. ETTIE SAYER (London, W.) writes: As one who has continually had varied traumatisms under electric treatment during the past fourteen years, I should like to confirm Dr. Wey's (Lithium's) remarks (October 30th, p. 643) on the value of chlorine ions in the treatment of adhesions. But why allow adhesions to form at all? If any adhesion can be dissolved by chlorine ions, then its formation should have been prevented by the addition of electro-therapeutics and the ordinary surgical routine at an early stage of treatment.

STARVING AND PURGING FADDISTS.

DR. JOHN HADGON (Hawick) writes: In the JOURNAL of August 28th Dr. Cotton, in his letter, mentions my name along with those of other so-called faddists, whose treatment he describes as "starvation and purging." I hope you will allow me to correct that statement, so far as it concerns me. The treatment set forth in my book I believe to be safer than even fasting from all food; and, as to purging, I look upon it as an unnatural and, in some cases, a most dangerous practice.

WEIR'S VACCINATION INSTRUMENT.

MR. BARRY HOPKINS described in the JOURNAL of October 23rd, p. 628, the evolution of this well-known contrivance. There remains, however, some doubt about the inventor, who is generally believed to be Dr. Alexander McCook Weir. We are informed that Professor John Chiene, C.B., is able to testify that the Edinburgh students used the instrument in question in the Sixties and called it the "Weir vaccinator," and it was always believed that Dr. Graham Weir, with whom Professor Chiene was well acquainted, invented it. The sample in the Lister collection in the museum of the College of Surgeons was most probably given to SYME by Graham Weir. The former bequeathed all his instruments to his son-in-law, Lord Lister.

CHANGE OF NAME.

DR. O. LEYTON writes: I wish to let you know that I have changed my name from Grünbaum to Leyton. The reason for my doing this is a desire to dissociate myself as far as possible from a nation the deeds of which make it lose any right to be included amongst the civilized races. I should like to add that I have not been conscious that my German name has led to my being submitted to any discourtesy.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Advertisements should be delivered, addressed to the Manager, 423, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Preliminary Note

ON THE

CLINICAL ASPECTS AND DIAGNOSIS OF PARATYPHOID FEVER,

BY

J. A. TORRENS, M.B., B.S., M.R.C.P. LOND.,
CAPTAIN R.A.M.C., T.C.

AND

T. H. WHITTINGTON, M.D. LOND.,
LIEUTENANT R.A.M.C., T.C.

In attempting to describe the diseases known as paratyphoid fever, it must be remembered that it is only within quite recent years that any considerable amount of work has been done on the subject; that very little has been published in this connexion, and that any statements now made are largely the result of impressions received while observing some three or four hundred cases of paratyphoid fever in hospital, and may require modification when the material is more fully investigated and scientifically collated at the end of the war.

Paratyphoid fever is a disease caused by one of two bacilli, and is therefore known as "para A" or "para B," according to the particular organism present in any case. Both these bacilli resemble very closely the *Bacillus typhosus* in their morphology and general cultural characteristics, but in their behaviour with specific immune serums and in their reactions on certain nutrient media they differ so markedly from the *B. typhosus* and also from each other that there can be no doubt that they are specific micro-organisms and not varieties of the *B. typhosus* which have become modified by environment.

In 1898 N. B. Gwynne cultivated a "paracolon bacillus" from the blood of a patient "presenting all the clinical features of typhoid fever," and this seems to be the first instance of the definite diagnosis of a case of paratyphoid fever. This case showed throughout negative agglutination reactions with the *B. typhosus*, but the various specimens of serum were kept and were found to give definite agglutination with the organism isolated from the blood.

Many cases of "paracolon" and paratyphoid infections have been described since then, and also cases of infections by other bacilli supposed to be closely allied to these.

Some German writers have contended that food poisoning and paratyphoid B infections are identical, and others have certainly confused the two diseases in their descriptions.

Bainbridge and O'Brien, in 1911, showed that two distinct organisms had been described under the title of *Bacillus paratyphosus* B. Bainbridge, in his Milroy lectures of 1912, clearly showed that meat and food poisoning are due to *B. stipitifer* or *B. enteritidis*, which are conveyed to man in and can be recovered from infected foodstuffs, whereas paratyphoid fever is due, and due only, to one of the paratyphoid organisms—that is to say, para A or para B. The same writer also showed that these last organisms are in practically every case disseminated by the human carrier, and that the other cases of so-called "allied infections" were almost without exception due to one of these four organisms and belonged to one or other of the two distinct diseases—paratyphoid fever on the one hand, and food poisoning on the other.

The incidence of paratyphoid fever is greater, owing to cases being missed or owing to incomplete laboratory examinations, than is generally supposed.

Paratyphoid A is well known in India; and the disease has been described and the methods of isolating the organism well worked out by officers of the R.A.M.C. (Grattan and Wood, Harvey, Firth, and others), whose work ought to be more widely known. In passing it may be noted that all these observers insist on the importance of the "carrier," and therefore on the importance of the clinical recognition of the disease.

Up to 1912 Bainbridge could find no record of para A in England. In America, Proschner and Ruddy (quoted by Bainbridge) found that in 262 patients with "enteric fever" whom they examined 8 per cent. had paratyphoid A.

Paratyphoid B is better known in England. Boyce,

some years ago suggested that 3 per cent. of the cases notified in Great Britain were really para B.

In Western Europe paratyphoid fever seems much more often due to the bacillus para B, and this is certainly borne out in so far as the statistics of the hospital from which this is written are concerned. In an extensive series of blood cultures made at Pretoria Slatham found that 25 per cent. of the cases of continued fever investigated were "paratyphoid fever," both varieties of organism being isolated.

Thanks to protective inoculation and careful sanitary precautions the danger of typhoid fever proving any very serious menace to our troops in this campaign is, we believe, not great; but in so far as protective inoculation against paratyphoid is in its infancy and as yet not widely practised, though eminently desirable, the risk of our having to deal with large numbers of cases of paratyphoid fever is by no means negligible.

The possible modes of infection in paratyphoid fever are many, and, just as in typhoid fever, water, food and milk may all play an important part; but however the disease is ultimately conveyed, the primary and inevitable source of infection is some one who himself has or has had paratyphoid fever. Hence it is of paramount necessity not to overlook any cases of paratyphoid fever, both from the point of view of the immediate risks from improper bestowal of infective dejecta, and equally in order to avoid the possibility of letting loose a number of paratyphoid carriers, any or all of whom may initiate an epidemic of the disease.

It is especially in connexion with this question of carriers that it is hoped our remarks on paratyphoid may be of use. For the important thing is, not to differentiate paratyphoid fever from typhoid fever, but to recognize it or at least to suspect its presence in what appear to be much milder conditions.

These milder diseases are sure to be diagnosed again and again instead of paratyphoid if this latter name suggests to our minds only the classical symptoms of "typhoid," and this is rather the impression one might gather from reading the somewhat cursory remarks on the subject in many textbooks.

The matter, therefore, is not one which only concerns the bacteriologists, since they will not be given the opportunity of examining material unless it is sent to them, and the "material" ought to be sent unless the patients' medical officer suspects the presence of paratyphoid.

To give an instance of the truth that paratyphoid cannot be eliminated if the "carrier" is not eliminated, it is only necessary to refer again to the incidence of paratyphoid A fever.

A number of our troops at the front came from India. Since the arrival of these troops paratyphoid A has occurred among other soldiers in France. The great majority of the patients with this fever in our series have either come from India themselves or have been in close association with the troops of the Indian divisions. Some of the cases have been Territorials or men of new battalions who in France have been attached to units from India. It seems fairly certain, therefore, that paratyphoid A has been planted amongst our troops out here by "carriers" from abroad.

How, then, is it possible to reduce to a minimum the risks of labelling paratyphoid fever, P.U.O., influenza, etc.?

It should be stated at once that in some few cases it is impossible even to suspect paratyphoid fever unless a thorough bacteriological examination is made; but in the great majority of cases, if one is alive to the possibility of these infections, one is enabled to exclude the negative cases, but only—and we cannot too much emphasize this point—by the aid of a thoroughly competent bacteriologist.

To put this in another way, it may be said that paratyphoid fever may be so mild and so atypical that only complete bacteriological investigation will reveal its presence: at the same time, even in these atypical cases there will often be some small point which is sufficient to justify one in treating them as suspects until the negative is proved, and happily it is possible to prove the negative in 99 per cent. of all cases, provided that the investigations are begun at a sufficiently early date. On the other hand, paratyphoid fever, whether A or B (but especially B), may in some cases be so severe as to simulate exactly the gravest and most toxic case of typhoid fever. Such cases are described in all textbooks and are familiar to every one.

It is the more typical and very mild cases that principally concern us in this paper, for they are the cases that are most likely to be confounded with influenza, simple chill, "trunch" fever, rheumatism, and other diseases with similar titles which are really little more than confessions of ignorance.

In the first place it is more than unprofitable to attempt to discriminate clinically between para A and para B. A lucky guess may be made, but that is all. Suffice it to say that typically para B is a ten to eighteen day fever, while the average para A, as seen in this hospital, lasts three or four days longer. The temperature in both forms shows a characteristic disinclination finally to settle down, but the symptoms in para A tend to be even milder than in para B. If all the very mild cases were diagnosed, the average duration of fever would be found to be less than that above stated. This, we think, is especially true of paratyphoid A.

CLINICAL DIAGNOSIS.

The clinical phenomena which may lead to the classing of a case as "suspected paratyphoid" will now be considered in more detail.

To clear the ground it may be suggested that one fertile source of error seems to be the assumption that a case cannot be one of the enteric group which does not present a more or less "typhoid" appearance, or at any rate some abdominal disturbance in the direction of pain or diarrhoea.

The Onset.

This is usually by no means the gradual affair which one is accustomed to associate with the classical descriptions of typhoid fever. It is true that the majority of the cases when pressed will admit to feeling out of sorts for two, three, or more days, but for all practical purposes many of them are not ill until the day on which they are compelled to report sick.

Two main groups may be recognized. The first (60 per cent. of the cases) comprises those who feel increasingly ill for a variable number of days (the average being four) before they report sick. The second group (40 per cent. of the cases) comprises those who are bowled over in a few hours or collapse in the course of their ordinary duties.

A man develops a headache, has slight abdominal pain, with a couple of days' diarrhoea, but does not report sick, for, as he says, he "thought he would get over it." The diarrhoea does pass off, but backache with generalized aching pains and headache (especially the last) persist, and even get worse, till by the fourth day he is so weak and ill at ease that he reports sick. Such a case is typical of the first group.

In the second group a man may go to sleep feeling well, but he wakes up with abdominal pain, diarrhoea, and severe headache, feels feverish, and has a shivering attack, and in a few hours becomes so extremely weak that he is quite obviously too ill to carry on.

The similarity of this type of onset to that seen in many cases of influenza is worthy of note. If this sudden onset occurs while the man is on duty in the trenches or on the march, we get the history of sudden collapse, "legs giving way," fainting, etc.

As the result of an analysis by one of us of 100 cases of para B and 50 cases of para A taken without prejudice from our series it is found that there are eight symptoms which occur in at least 20 per cent. of the cases at the onset. In order of frequency these are:

1. Headache (85 per cent.).
2. Diarrhoea (55 per cent.).
3. Abdominal pain (35 per cent.).
4. Aching pains in the limbs (30 per cent.).
5. Shivering (25 per cent.).
6. Extreme general weakness (25 per cent.).
7. Backache (25 per cent.).
8. Epistaxis (20 per cent.).

Headache is usually vertical in distribution, though a migrainous type, especially severe behind the eyes, has been present in several cases of para A. Of course, headache may be a leading feature in practically every acute infection, but the predominant nature of the headache over the other symptoms is certainly worthy of notice. Eighty per cent. of all cases will voluntarily mention severe headache as a symptom of the onset.

Abdominal pain is rarely severe or colicky and is usually generalized, and does not often last more than two or three days. Sometimes in cases with very rapid onset it may be severe and associated with nausea and vomiting. Typically, it is not more than a general feeling of uneasiness in the abdomen.

The initial diarrhoea is in marked contrast to the constipation which is so common after the end of the first week. It is rarely severe, being usually limited to three or four loose stools per diem. If one is lucky enough to get the case in this initial stage, the motions will be found to be fairly typical of the "typhoid" variety of stool. Otherwise observation of the stools gives little help in diagnosis.

Pain other than abdominal pain or headache is usually referred to the back or limbs. "Pains all over" is a description often given. Joint pains reminiscent of acute rheumatism have been a feature of some cases, but no swelling of the joints has been detected.

Extreme general weakness is often very sudden in its onset, and sometimes this and headache are the only symptoms. It accounts for many of the cases of sudden collapse, though of course there is a suspicion in such cases that the case may have been ambulatory without previous symptoms.

Epistaxis is rarely volunteered by the patient as one of his symptoms. This is because it is usually so small in amount. Its value as a positive sign is very great and it occurs as frequently in paratyphoid as it does in typhoid fever. It may occur during sleep, and sometimes it may be found to have occurred in the earliest days of the onset or even before, when the patient was feeling quite well.

Shivering.—While it is liable to occur in the course of any infection with the liberation of toxins or bacteria into the blood stream, yet the occurrence of repeated shivering attacks seems of special significance at the onset of paratyphoid fever. This is especially true of paratyphoid A, in which shivering is met with in nearly 30 per cent. of cases at the onset, and in which it is liable to occur with rigors throughout the disease (Case vi). Two patients from whom the bacillus of paratyphoid A was isolated stated that they "thought they had ague."

Other symptoms which may not rarely be complained of or elicited are, in order of frequency, cough, nausea and vomiting, loss of appetite, dizziness, deafness, constipation.

Cough is complained of in nearly 20 per cent. of cases, and seems more common in para B, but is rarely troublesome. It is certainly much less frequent than is the case in "typhoid fever," and in view of the almost universal habit of smoking to excess in the British army it is probable that in a number of the cases the cough is not a manifestation of the paratyphoid fever.

Vomiting is far more common in paratyphoid fever than in typhoid fever. This is especially so in para B cases, in which vomiting occurred in 17 per cent. In association with severe abdominal pain and severe diarrhoea, it occurs in that type of para B which simulates food poisoning in its onset—that is, about 3 per cent. of all cases of this variety.

Dizziness and deafness occurred in 7 per cent. of all cases. Deafness would possibly have been found more commonly had it always been asked for, as it is usually transient.

Sore throat or hoarse voice as evidence of laryngitis or pharyngitis occurred only in 5 per cent. of the cases, all those being cases of para B. It was present only in those severe cases which tend to simulate the toxic type of true typhoid fever.

Temperature during the Onset.—As regards this we are not able to speak with great certainty as cases do not usually reach this hospital until the seventh day or later. Patients in whom the onset was rapid have said that their temperatures were 102° to 103° when first taken. Cases which have started in a hospital where the patient was being treated for some wound, and where the temperature was being taken as a routine measure show a rapid rise, the maximum usually being reached in forty-eight hours. Such a case is shown in Chart 7. It seems fairly certain that the "step-ladder" rise so frequently seen in typhoid fever is far from common in paratyphoid.

GENERAL COURSE.

Although a careful history is of the utmost importance, when all is said and done in this direction, the main data

for diagnosis are often only to be obtained by a thorough examination of the patient. The objective features which may be observed in an average case of paratyphoid fever in the second and third weeks will therefore be considered.

Aspect.

The aspect of the patient, if seen in the early days, will tell much. There is then a peculiar heaviness about any except the mildest cases. This is of considerable significance but is rather difficult to describe. One finds the terms "lethargic," "heavy," "drowsy," "inert," applied to the condition. This appearance, we imagine, can usually be distinguished from the bright-eyed, flushed appearance associated with most of the febrile states. The condition is, however, rarely so well marked as in typhoid fever.

The patient can, except in the quite severe cases, be roused up to give a clear history. In 40 per cent. of the cases the patient is flushed, but the eyes are dull, with the pupils often rather dilated. The chief complaint will be headache, or possibly backache. While about 60 per cent. are of this type, there are two extremes: on the one hand, there is the fairly large group of mild cases (25 to 30 per cent.), which often look and feel fairly well by the second week, and are certainly not at all suggestive of enteric fever. There is the other smaller group (10 to 15 per cent.) which are obviously ill—toxic-looking and mentally blurred. These are the cases that will probably be diagnosed as enteric fever in any case.

The Temperature.

During the second week, in the average case, the temperature ranges between 99.2 and 102.4. This produces a "spiky" temperature chart which is very characteristic (see charts, especially Chart 2).

Sixty per cent. of the cases analysed showed this remittent type of fever, while about 20 per cent. were intermittent (see Chart 12). A "spiky" temperature chart with variations of at least 2 and more is therefore seen in 80 per cent. of all cases.

A really steady temperature in the second week was only seen in 5 per cent. of cases; 70 per cent. of all cases of para B and 40 per cent. of para A are of twenty days' duration or less. In about 30 per cent. of all cases of each form the pyrexia lasts fifteen days or less (see Charts 1 and 7). In the average case the temperature in the second week and at the beginning of the third week does not reach as high as 103 (see Charts 4 and 10). Only about 35 per cent. of all cases of paratyphoid fever ever reach 103, and only about 12 per cent. reach as high as 104.

Pulse.

The pulse is one of the most important aids to diagnosis. The rate is uniformly slow as compared with the temperature. While a relatively slow pulse in typhoid fever is common enough, this feature is still more marked in paratyphoid fever. A temperature of 102.5 with a pulse of 70 is characteristic and is more than significant of a group infection. The pulse, while almost always comparatively slow, varies in its slowness. Without any apparent change in the general condition, the rate may be at one time 65 and at another 85 or 90, and, curiously, a high temperature may coincide with a low pulse rate, and vice versa.

The quality of the pulse is characteristic and very important. There is a most marked softness or compressibility present. This is noted in quite 80 per cent. of the cases. About 15 per cent. only of the cases show diastolic, but when present it is almost pathognomonic of an enteric group infection. A slow diastolic pulse in a man without the typical general appearance of enteric fever strongly suggests paratyphoid fever.

The blood pressure in a small series of cases examined by one of us with the sphygmomanometer was found, as might be expected, to vary from 80 to 100 mm. Hg. Some of the lowest blood pressures were found when the temperature was just reaching normal. This phenomenon may therefore be of use in cases which are not met with till late in their course.

Spots.

Spots are present in as many as 75 per cent. of all cases at some time during the disease. They appear in crops, and last three to four days, as in typhoid fever. Owing to

the circumstances in which we get the cases it is difficult to find the average day of the disease on which they first appear. It is probably about the seventh to the tenth day, and they may continue to appear as late as the thirty-fifth day. In 20 per cent. of the cases spots are present after the temperature has reached normal. This is of importance in those rapid mild cases which are not seen until the stage of defervescence is reached, since the presence of spots does not seem to bear any close relation to the severity of the disease.

The spots are larger and much more irregular in outline and of a deeper red colour than those of true typhoid. If scanty they are seen only over the lower ribs in front and on the flanks and on the back of the shoulders. Fortunately paratyphoid spots are usually fairly definite things, and because a doubtful case does not suggest "enteric" it is most unwise to neglect examining for them. The spots may be very profuse, sometimes they may be minutely vesicular and occasionally anemiciform. The rash of para A especially tends to be very profuse and may be rather morbilliform. Cases have been sent to the hospital with profuse paratyphoid rashes which have led to the diagnosis of measles, german measles, chicken-pox, and in one case even small-pox was suggested, without, however, much reason.

Gastro-intestinal Symptoms.

The tongue often gives valuable assistance. In nearly all cases it is dry during the acute stage, and in the severe cases it is exactly like the tongue of a severe case of typhoid fever—dry, brown, and cracked. Even in the milder cases the tongue is fairly characteristic. It is dry and furred, and the fur is distributed in two dorsal slabs, leaving a red tip and red edges, and often a red band up the centre. The red tip is often smooth and glazed, in marked contrast to the rough fur. The fur is not so persistently brown as in typhoid fever. It is frequently thick and dirty-white in colour. On the whole, the presence of a "typhoid" tongue without the other general appearances of typhoid fever is fairly frequent, and in these circumstances is very suggestive of paratyphoid fever.

The abdomen is not nearly so informative as in true typhoid. Frequently it is absolutely normal in appearance and feel. In over 60 per cent. of the cases there is no distension whatever. However, in a fair proportion of cases (about 35 per cent.) the belly can be described as "full," "tumid," or "slightly distended," and in these cases there is a suggestive soft elastic feel about it. Tenderness on palpation is rare and pain is rarely complained of by the time the patient reaches a base hospital. Gurgling on pressure in the caecal region is rare. Pain when feeling for the spleen or in the left lumbar region is suggestive and is present in about 10 per cent. of all cases. Marked distension is very rare and is only seen in the few very severe cases.

Enlargement of the liver and tenderness over the gall bladder, unless cholecystitis is present as a complication, are conspicuous by their absence.

The spleen is either palpable or enlarged to percussion in nearly 60 per cent. of cases; it can be felt in about 35 per cent. of all cases some time during the course of the disease. When felt the paratyphoid spleen seems to be firmer in consistence and remains palpable for a longer period (possibly by reason of this greater hardness) than it does in typhoid fever. On the whole, too, it seems less tender. The value of a palpable spleen is tremendous, and it is just as often present in the quite mild cases as in the more obvious ones, and therefore, like the spots, should be sought for always. Owing to the frequency with which it occurs in a quite undistended abdomen, the paratyphoid enlargement is comparatively easy to make out. It is easy to exclude malaria and the blood dyscrasias in the average patient, and other causes of enlarged spleen are very rare.

Examination of the heart is negative.

Examination of the lungs will show bronchitis in less than 30 per cent. of the cases. Severe bronchitis only occurs in about 5 per cent. of cases, and then only in that type of case resembling true typhoid which is not likely to be missed.

The central nervous system shows no constant abnormality. A very few cases have simulated meningitis, and from every point of view it is desirable to perform lumbar puncture to settle the question without delay.

Only once has a paratyphoid meningismus closely simulated cerebro-spinal fever, and in this case the spinal fluid was quite clear, sterile and free from pus cells.

Defervescence.

In the third week the temperature of the average paratyphoid case reaches normal, while even if fever continues beyond the end of the third week there is nearly always a decided improvement in symptoms. It is quite common to see a case of paratyphoid fever with a temperature ranging up to 102° or even 103° lying on his side reading the newspaper, quite clear mentally and ready for a joke (see Case 11). This, of course, is in marked contrast with true typhoid fever. It has been remarked that para B is a fever of about sixteen to nineteen days, while para A as seen in this hospital is longer. This is due to a characteristic tendency for the temperature in para A to take a long time to settle down, and a tendency to be remittent and to recrudescence just when settling down, although the patient's general condition is obviously improving. This is well seen in Charts 2 and 5. Most of the cases which are apparently rather severe and which simulate typhoid, characteristically take a sudden turn for the better and markedly improve after being in hospital from three to five days, and this quite apart from any measures other than dieting and nursing (see Chart 9). It is important to recognize this feature, otherwise it may be attributed to certain treatments adopted. The termination of the fever is often characteristic. The temperature tends to settle by modified crisis or by short lysis lasting little more than two days (see Charts 4, 7, 10, and 12). It is certainly rare to see the steady long-drawn-out defervescence so common in typhoid fever. The pulse is the chief and almost only reliable guide to the actual condition of the patient. As long as the pulse is regular, below 90, and not too soft in quality it matters not how high the temperature is. A pulse persistently over 100 nearly always means a serious infection. Distension and severe bronchitis are also apt to mean a serious case.

SUMMARY OF SYMPTOMS.

An endeavour has been made in the preceding remarks to describe the signs and symptoms which may be met with in paratyphoid fever.

To recapitulate, in a doubtful case the most important individual features are probably:

1. An onset of about four days with malaise, pains in head, back, and limbs, a tendency to shiver, and abdominal discomfort with a short period of looseness of the bowels.
2. A soft pulse which is strikingly slow in relation to the temperature.
3. An enlarged spleen (not necessarily palpable).
4. A fever lasting upwards of a week to fourteen days.

Now if a case can be observed from the onset, and a temperature chart kept from the commencement, it is comparatively simple to say at the termination of the disease that the patient has probably had either mild typhoid or paratyphoid fever, but unfortunately this is rarely possible. Of course by the tenth or twelfth day there will probably be spots or enlargement of the spleen, or other unequivocal evidence, but there may not be anything so helpful, and it is then that a careful history is so important. A typical case to treat as a suspect would be somewhat as follows:

A Typical Case.

The patient reported sick eight days previously with headache, pain in the limbs, and constipation. On questioning he will admit that for three or four days before reporting sick he had been off his feed and felt generally out of sorts, with a distinct tendency to shiver at odd times, and very probably there will have been about forty-eight hours' looseness of the bowels, perhaps not amounting to true diarrhoea, before he actually was ill enough to go sick. On examination the patient may very likely look a trifle lethargic, and may cerebrate somewhat slowly. His tongue will show dorsal furring, with pink or red edges and tip, but may be quite moist. The abdomen may be a trifle tumid and elastic. There may be vague discomfort in it, or even tenderness under the left costal margin. The splenic dullness will probably be elicited more readily than in a normal individual.

The stools will be constipated and the bowels only opened with enemata. The temperature will be about 101° or 102° at night, with a morning remission of about 2° or more. The pulse will be 70-80, of small volume, and very compressible. There may or may not be an occasional rhonchus in the chest. The patient himself will probably say that he is "in the pink."

Such a case is likely to be paratyphoid fever, and should be treated as such.

COMPLICATIONS AND SEQUELAE.

It is possible for paratyphoid fever to show all the complications and sequelae which are found in typhoid fever. There is, however, a marked difference, both actual and relative, in the frequency with which they occur in the two diseases.

They will now only be described in so far as they are liable to affect the clinical aspect of paratyphoid fever.

Bronchopneumonia and meteorism are perhaps the commonest complications of typhoid fever. Capillary bronchitis, or bronchopneumonia, has not occurred in more than 4 per cent. of our paratyphoid cases. While rare in both para A and para B, it seems relatively more common in the latter. Meteorism, due to paralytic distension of the large intestine, is very rare indeed, and has only occurred in some of those unusual toxic cases closely resembling typhoid infection. The rareness of this complication is surprising when one considers the tendency of para B to cause severe and extensive inflammation of the large gut.

Haemorrhage, on the contrary, seems almost as common in para B as it is in typhoid fever. Severe haemorrhage occurs in about 5 per cent. of all cases of para B, and was solely responsible for the death of one case, while it was a contributory cause in four other fatal cases. In two not fatal cases it was quite copious, but did not seem to affect seriously the patients' general condition. It is far less frequent in para A, occurring only in about 1 per cent. of cases. In para B it is liable to occur at a definitely earlier date in the disease than in typhoid fever.

Perforation (a distressing accident which no one can foresee or guard against) has occurred in 3 cases of para B and in 1 case of para A—that is to say, in about 1 per cent. of all cases of paratyphoid fever.

Thrombosis of the femoral vein occurred in 3 out of 100 cases of para B and once in a series of 50 cases of para A. A mild otherwise average case seems quite as liable to this complication as one of the more severe variety. It seems to begin at a relatively earlier date in the disease than it does in typhoid fever. Of 4 cases the left femoral was involved three times and the right once.

Amongst the other complications and sequelae that have been met with are:

Relapse,	Suppurative orchitis,
Recrudescences of fever,	Neuritis,
Pleurisy,	Meningismus,
Empyema,	Mental weakness in convalescence,
Abscess of lung,	Periostitis,
Pericarditis with effusion,	Pyelitis,
Tachycardia,	Cholecystitis,
Laryngitis,	Abscess of spleen,
Tonsillitis,	Peritonitis without perforation
Otitis media,	of the bowel.
Parotitis,	

We would like to call particular attention to what seem to be two definite idiosyncrasies of paratyphoid B:

The first is a tendency (of which mention has already been made) to involve the large gut, and secondly, the special liability to pus formation. The former peculiarity is shown by the fact that the three perforations which have so far occurred in our para B cases were all situated in the large intestine—namely, one in the sigmoid, one in the appendix, and one in the descending colon. Also, it is the usual thing at necropsies on cases of paratyphoid B to find the caecum and the colon as far as the splenic flexure severely affected, and in three or four cases the solitary follicles have been extensively involved nearly as far down as the rectum.

The second tendency of para B—namely, that to pus formation—is evidenced by the occurrence of the following complications. Three cases of suppurative orchitis, two cases of splenic abscess, one case of empyema, one of periostitis of a rib, one of abscess of the liver, one of abscess of the lung, and the case of suppurative peritonitis above

mentioned, all occurring in the course of paratyphoid B. The bacillus paratyphoid B was recovered from two of the cases of orchitis, both the splenic abscesses, and from the abscesses of the liver and the lung, and from the pus around the rib.

Relapses, Etc.

The disinclination of the temperature of paratyphoid A finally to settle has already been noticed. Sudden recrudescences of the temperature both during and after the primary period of pyrexia are fairly common in both para A and para B, but especially in the former. In para A these rises are liable to be associated with rigors, which occurred in 4 of the 50 cases. Over 25 per cent. of all cases of para A show one or more of these recrudescences, and half of these show two or three such rises (Chart 5). Similar rises, which have not, however, been associated with rigors, occur in about 15 per cent. of the para B cases. The duration of these pyrexial bouts is usually about three days.

Relapses—that is to say, more serious and prolonged rises of the temperature, associated with more or less of a return of the original symptoms, and frequently fresh enlargement of the spleen and reappearance of spots—occur in from 6 per cent. (of the B cases) to 10 per cent. (of the A cases). The relapse usually lasts from six to ten days. Examples of such cases are seen in Charts 3 and 6.

Irregularities of the Pulse.

Some interesting irregularities of the pulse are met with. Troublesome tachycardia, leading to prolonged convalescence, occurs in about 5 per cent. of the cases, being decidedly more common in para A. Bradycardia is still more common, but seems to be a favourable feature. It is especially frequent in para B, occurring in over 10 per cent. of the cases, sometimes starting before the temperature has settled. Lieutenant Marris has suggested that some of the cases of tachycardia are due to disturbances of the splanchnic vasomotor control, and certainly the application of a wide elastic belt has been found to do good in a number of them. He has also examined with the polygraph other cardiac irregularities, such as heart-block, auricular fibrillation and auricular flutter, which would appear to be by no means infrequent, but which are only temporary disabilities. It will be seen that the period of convalescence is sometimes attended by quite interesting clinical problems.

Mortality.

The death-rate of paratyphoid fever is very low compared with that due to *B. typhosus* infection. The mortality of para B is a little over 4 per cent. and that of para A under 1 per cent. It is hoped in a further paper to refer more fully to the fatal cases and to describe the morbid anatomy and *post-mortem* appearances.

A *post-mortem* examination has been made in all the fatal cases except one. The causes of death in paratyphoid B have been as follows:

- One case from profuse hæmorrhage.
- Three cases from severe toxæmia combined with severe hæmorrhage.
- Two other cases from sheer toxæmia.
- One case from gangrenous pneumonia.
- Three cases from perforation.
- One case from abscess of the spleen with peritonitis.
- One case from peritonitis without perforation.
- One case died after drainage of a localized abscess in the region of the caecum (? appendicular in origin), and showed abscesses in the liver and also an abscess in the lower lobe of the right lung.
- Two cases died of intercurrent or associated disease, namely, one from lobar pneumonia and one from cerebrospinal meningitis. This last was the only one in which no *post-mortem* examination was made, but during life the *B. paratyphosus* B was isolated from the blood and the meningococcus from the cerebro-spinal fluid, thus definitely proving the coexistence of the two diseases. In all the other cases the *B. paratyphosus* B was isolated from the bile, and in many of the other cases from the spleen as well. Only one case so far has died in this hospital of

paratyphoid A fever. This was a rather severe case in which a paratyphoid ulcer of the appendix perforated, causing general peritonitis.

ROUTINE OF DIAGNOSIS.

In the preceding remarks we have endeavoured to indicate the clinical phenomena which should lead a case to be classed as "suspected paratyphoid"; we will now mention briefly the routine measures which must be adopted in order to place the diagnosis of such a case on as sure a basis as is possible.

A positive diagnosis can be made in one of two ways. First, the specific bacillus may be recovered from the blood, faeces, or urine of the patient, and secondly, evidence may be discovered in his blood that he has acquired, or is acquiring, an immunity to a specific infection.

1. *Cultivation of Bacillus.*

Before accepting the identity of any bacillus it must conform rigidly to certain cultural characteristics, it must agglutinate with the appropriate high-titre immune serum, and it must satisfy the specific "absorption" tests first advocated by Castellani. If these requirements are not all rigorously exacted there will be many instances of faulty diagnosis, especially in the case of bacilli isolated from the stools.

The recovery of a bacillus from the blood is, unfortunately, not practicable so often as could be wished, for the bacillæmia of paratyphoid fever is often very transient, and cases are frequently not seen until too late.

The attempt should, however, always be made, for the bacilli may be present in the blood as late as the twenty-third day. It is best to do the venepuncture when the temperature is at its highest, and for this reason the evening is probably better than the morning; 5 c.cm. of blood should be removed from a vein and placed into about 10 to 15 c.cm. of sterilized ox-gall. This is incubated at body temperature for twelve hours before plating out, and re-inoculated and replated for the next three days. In a like manner, unless one is dealing with a carrier, the bacilli are most often found in the faeces and urine during the height of the disease. Hence it is advisable to send for examination three or four specimens of both faeces and urine during the first week that the patient is under observation; more can be sent later if the clinical phenomena continue to indicate a positive diagnosis.

2. *Agglutination.*

The second method of diagnosis is to search for the visible evidence of the immunity which the patient must have acquired or be acquiring if he has or has recently had the infection, and is of course the old Widal agglutination reaction. The only satisfactory method is to examine the blood for the specific agglutinins of typhoid, paratyphoid A and paratyphoid B on at least three separate occasions at intervals of four or five days, the first occasion being on the day of admission.

In each case the end-point, that is to say, the maximum dilution of serum in which agglutination occurs, is noted, and it is found that the strength of agglutination follows a definite curve in any recent infection. The macroscopic method is employed, standard emulsions of the micro-organisms must be used, and the result must be read after a constant interval has elapsed, which interval experience has shown to be sufficient for complete agglutination to take place. The technique and the correct interpretation of the resulting curves (especially in the case of typhoid fever where protective inoculation has been practised) are much more difficult matters than might be expected from the short description we have given, but the method adopted in this hospital is that elaborated and published by Captain Dreyer, professor of pathology in the University of Oxford.

In conclusion, we would say that, in view of the constant leucopenia which is present in all enteric group infections, a routine enumeration of leucocytes should be undertaken in all cases, though, of course, this does not help in the absolute diagnosis of paratyphoid fever.

We have not found the diazo reaction to be of diagnostic value in paratyphoid fever, since it appears to be absent or equivocal in all except the most severe cases.

Typical mild, short paratyphoid A with thirteen days' pyrexia.

CASE I.

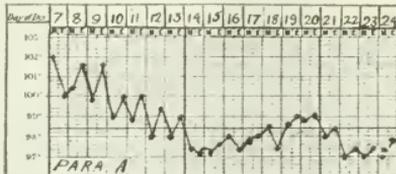


Chart 1.—Case I.

On admission seventh day: No distress, sallow complexion, soft small pulse, dry brown tongue, firm easily felt spleen in

normal looking abdomen. A few typical spots. Stools "typhoid." Blood culture grows para A. No agglutination with *Bacillus paratyphosus A*.
 Fourteenth day: Feels well. Spleen just felt, no spots; agglutination with *Bacillus paratyphosus A*, 1 in 100.

CASE II.

Mild but prolonged case of paratyphoid A, with thirty days' pyrexia. The patient was cheerful and quite undistressed from the thirteenth day onwards with nothing suggestive of a "typhoid" appearance. Blood culture on the tenth day of illness grew *B. paratyphosus A*.

On admission (thirteenth day): Sallow complexion, looks seedy but quite bright mentally. Soft, good volume pulse, more rapid than usual; moist, slightly furred tongue, abdomen negative and spleen not enlarged. A few big, well raised paratyphoid spots. Bowels constipated.

Thirty-fifth day: Feels and looks well. Many big spots. Chart shows well a characteristic "spikiness."

CASE III.

Rather severe paratyphoid A with pyrexia of average length (twenty days),

but followed by relapse of fifteen days. Blood culture showed *B. paratyphosus* on sixth day of disease and on seventh day of relapse (thirty-third day).

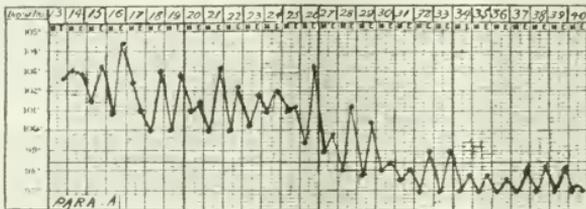


Chart 2.—Case II.

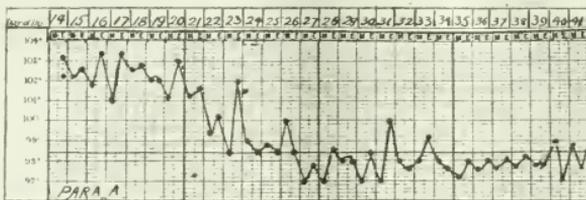


Chart 3.—Case III.

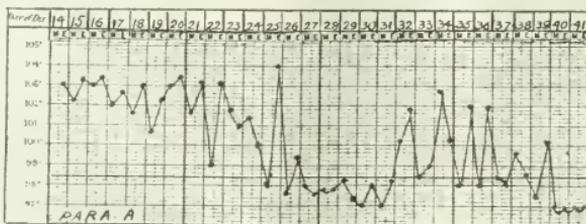


Chart 4.—Case IV.

Fourteenth day: General condition markedly improved. No spots. Spleen not felt. There were no fresh signs during relapse, which patient bore

CASE IV.

Typical mild paratyphoid A with seventeen days' pyrexia.

On admission ninth day: A little flushed, but otherwise fairly normal appearance. Good volume, but soft pulse. Dry tongue with brown fur in centre. Abdomen negative. Spleen not found enlarged. Several typical spots. Stools confirmed. Blood culture grows *B. paratyphosus A*. This case ran a typical mild non-toxic course without wasting or distress. The chart shows a typical regularity of the temperature.

CASE V.

Paratyphoid A of average severity in which the temperature reached normal on the twenty-third day. The pulse was rather more rapid than is usual, and there was some tachycardia in convalescence. The chart shows a rather characteristic disinclination of the temperature finally to settle.

On admission thirteenth day: Looks flushed and heavy and is disinclined to talk, but is quite clear when roused. Pulse soft and diastolic; tongue dry, rough, and furred; abdomen negative except tenderness in left flank, but the spleen is not made out enlarged. Bowels constipated. Blood culture shows *B. paratyphosus A*. The general condition rapidly improved.

CASE VI.

Paratyphoid A, severe up to third week and necessitates for great irregularity in temperature associated with rigors, and for a relapse with dry plenury. The primary period of pyrexia lasted twenty-six days. Blood culture taken before admission showed *B. paratyphosus A*.

On admission thirteenth day: Flushed "typhoid" appearance, but mental condition good. Pulse small and very soft. Paratyphoid A, severe up to third week and necessitates for great irregularity in temperature associated with rigors, and for a relapse with dry plenury. The primary period of pyrexia lasted twenty-six days. Blood culture taken before admission showed *B. paratyphosus A*.

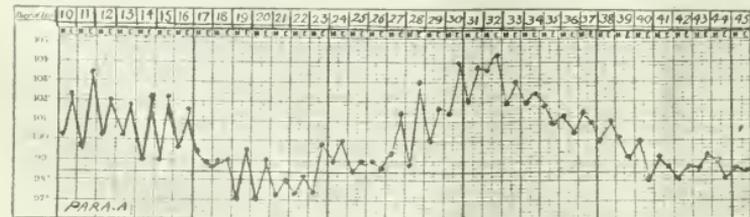


Chart 5.—Case V.

Sixth day: Flushed, very lethargic, very soft pulse, dry tongue with a yellow dorsal fur, a tender "doughy" abdomen, spleen enlarged to percussion, a few typical spots,

Tongue dry and furred in centre. Abdomen a little distended. Spleen palpable. A few typical spots were present. "Typhoid" stools.

CASE VII.

Typical short paratyphoid B showing rapid rise of temperature at onset and quick fall to normal on the ninth day. At the time of onset the patient was in hospital for bruises, the result of a shell explosion. He was up and about, when he felt cold, had headache and pains in the back, and next day his temperature was 103°. He had a discharge from the ear, and it was thought at first that this local condition accounted for the fever. He was seen by one of us on the eleventh day, and sent in as probably paratyphoid.

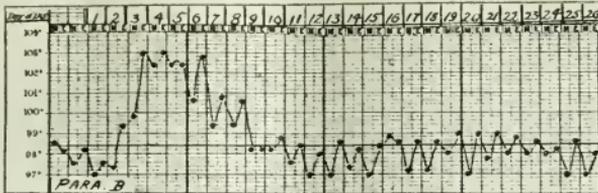


Chart 7.—Case VII.

On admission (eleventh day): Feels and looks fairly well. The pulse is slow and soft; tongue moist, but has brown fur; the abdomen is negative, and the spleen is not found enlarged. A few spots are present. Bowels constipated. Strong agglutination of *B. paratyphosus B*. Both stools and urine on this day were found to contain the para B organisms.

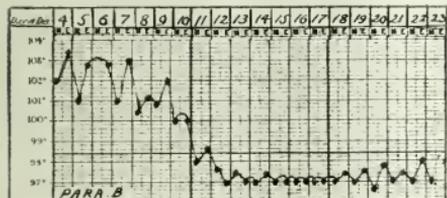


Chart 8.—Case VIII.

CASE VIII.

Typical rather severe case of paratyphoid B, running rapid course with eleven days' pyrexia. On admission (sixth day): Flushed and looks feverish, but is quite clear mentally. Pulse slightly dicrotic; tongue dry, with thick, dirty white fur; the abdomen "full," and spleen not enlarged. A few developing spots are present. Bowels constipated. Blood culture negative. Strong agglutination with *B. paratyphosus B*. A blood culture taken before admission grew *B. paratyphosus B*. The patient made a quick convalescence.

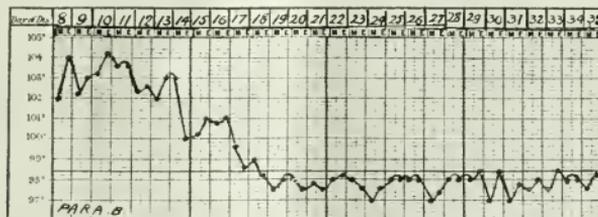


Chart 9.—Case IX.

CASE IX.

A severe toxic case of paratyphoid B, which began to improve rapidly at end of second week, the eighteenth day.

On admission (eighth day): Flushed, looks toxic, muttering, a little tremulous; is too ill to get history. The pulse is of big volume and very soft. The tongue is dry, with yellowish-

temperature reaching normal on the

CASE X.
Typical mild paratyphoid B, in which the temperature reached normal on the seventeenth day.

CASE XI.
Very mild non-toxic case of paratyphoid B.

On admission (tenth day): The patient looked debilitated, but otherwise nothing abnormal was found, and the blood culture and serum reactions were negative. During the next few days the temperature rose, and blood was again taken on the fifteenth day, and this time grew *B. paratyphosus B*, and the serum strongly agglutinated *E. para-*



Chart 11.—Case XI.

typhosus B. By this time, however, the stools sent for examination on the day of admission had grown *B. paratyphosus B* also. There were at no time any definite physical signs. Presumably the patient had a mild, brief attack, accounting for the normal temperature and the organisms in the stools, on the tenth day, and the febrile period occurring in this hospital, during which the organism was grown from the blood, was a relapse.

CASE XII.

Mild case of paratyphoid B fever showing big intermittent type of pyrexia.

On admission (fourteenth day): The patient looks poorly and feels weak. The pulse is of small volume and soft. The tongue is dry with brown fur. The abdomen is sunken, and

the spleen not enlarged. Several spots seen. Bowels constipated. Blood culture negative. Stool culture grew *B. paratyphosus B*.

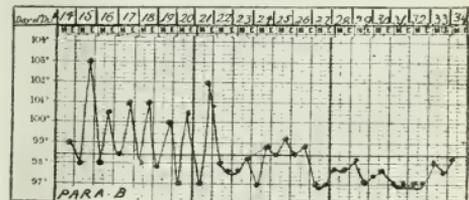


Chart 12.—Case XII.

Twenty-fifth day: Fresh crop of spots. Spleen felt enlarged and remained so until thirty-first day. Uninterrupted convalescence.

BIBLIOGRAPHY.

- ¹ Bainbridge and O'Brien: On the Paratyphoid Group of Bacilli, *Journ. of Hygiene*, March, 1911.
- ² Bainbridge: Paratyphoid Fever and Meat Poisoning, *Milroy Lectures, Lancet*, 1912.
- ³ Grassian and Wood: *Journ. of the Royal Army Medical Corps*, 1911.
- ⁴ Grassian and Harvey, *ibid.*: Firth, *ibid.*
- ⁵ Boycott: *Journ. of Hygiene*, 1905.
- ⁶ McNaught: *Journ. of the Royal Army Medical Corps*, 1911.

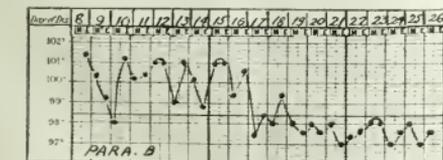


Chart 10.—Case X.

brown fur. The abdomen is not distended, and the spleen is felt. There are many big, well-raised spots. Bowels constipated. Diagnosed as severe paratyphoid B fever. Blood and stool cultures both grew *B. paratyphosus B*.

Twelfth day: Continues severe, with rapid grunting respiration, is restless and flushed, and has a dicrotic pulse.

Fifteenth day: Better. Quiet and undistressed. The patient continued rapidly to improve, and made a good convalescence.

RECENT BACTERIOLOGICAL EXPERIENCES WITH TYPHOIDAL DISEASE AND DYSENTERY.

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WITH NOTES ON THE PROTOZOAN PARASITES IN THE EXCRETA.

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ONE result of the extension of hostilities to the Near East has been the opportunity afforded to the medical profession at home of studying on a fairly extensive scale certain infectious diseases not with only sporadically in time of peace. During the past two months (that is, since the middle of August, 1915) this hospital has admitted from the Dardanelles area a considerable number of cases presenting a recent history of acute dysentery with the classical symptoms of tenesmus and frequent evacuations of blood and mucus. In the great majority of these cases the stools on admission had either regained their normal character or were for a varying time after admission persistently loose, unformed, or semifluid. In a small minority of cases the disease at the time of admission still continued in a subacute or chronic form, with constant or intermittent discharge of blood and mucus in the dejecta. Simultaneously with these admissions of convalescent or subacute cases of dysentery there has been a succession of cases of typhoidal disease, in the main due to *B. paratyphosus A*. The bacteriological supervision of these cases, necessitating, on the one hand, the examination of numerous samples of excreta, and on the other, the carrying out of blood cultures and serological tests for purposes of diagnosis, has been no light addition to the ordinary routine of a bacteriological department attached to a hospital of 1,600 beds.

We venture to communicate the following notes on our bacteriological experiences, solely in the hope that they may be of interest and perchance of service to others working in similar fields and possibly under less advantageous surroundings.

EXAMINATION OF FAECES.

In the first place, it may be advisable to detail briefly our routine technique for the bacteriological examination of stools, urine, and blood, and for the performance of serological tests with the serums of patients.

When large numbers of stools have to be dealt with, the development of rapid and reliable methods of identification is of paramount importance, otherwise reports are apt to get in arrears, and confusion is likely to reign in the laboratory. Further, it is to the interest of the clinician that bacteriological diagnosis should be forthcoming at the earliest possible moment. The technique for faeces examinations here detailed is that to which we have been led by gradual modifications of the scheme with which we commenced operations, and it has proved very satisfactory.

ESSENTIALS.

1. MacConkey's bile-salt-lactose-neutral-red-agar.
2. Mannite peptone water containing Durham's tube.
3. Thoroughly tested specific agglutinating serums of high potency for *B. typhosus*, *B. paratyphosus A*, *B. paratyphosus B*, *B. enteritidis* Gaertner, *B. dysenteriae* Shiga, and *B. dysenteriae Y*. These serums we obtain from the Lister Institute.

The following dilutions of these serums are made with carbollized saline (0.5 per cent. carbolic in normal saline) and kept in bulk preferably but not necessarily in the cold chest.

1. P.G. mixture containing in equal parts, *Paratyphosus A* serum (1 in 66), *Paratyphosus B* serum (1 in 66), and *Gaertner* serum (1 in 65). Concentration of each in final mixture 1 in 200.
2. P.T. mixture containing in equal parts, *Paratyphosus A* serum (1 in 66), *Paratyphosus B* serum (1 in 66), and typhoid serum (1 in 66). Concentration of each in final mixture = 1 in 200.

3. *Y* serum diluted 1 in 100, or 1 in 200.
4. *Shiga* serum diluted 1 in 100, or 1 in 200.
5. *Paratyphosus A* serum diluted 1 in 200.
6. *Paratyphosus B* serum diluted 1 in 200.
7. *Typhoid* serum diluted 1 in 200.
8. *Gaertner* serum diluted 1 in 200.

STEPS.

Portion of faeces emulsified in broth and allowed to stand on bench for an hour. One or two drops from the upper layers of the fluid are spread on the bile-salt-agar plates.

Next Morning.—Pick off several non-lactose colonies (discrete colonies wherever possible) and inoculate each colony into mannite and into ordinary broth. The number of colonies taken off will depend on many factors: for example, (1) the number of white colonies present, (2) the appearance of the colonies, (3) the clinical symptoms of the case if known, (4) the appearances of the stool.

Evening of Same Day.—After at least five hours' growth, examine the broth tubes, preferably with the dark ground microscope, and record motility or non-motility. At the same time inoculate an agar slope from each broth tube.

Second Morning.—The mannite tubes are examined and the results acid and gas, acid only, or no change recorded on the corresponding agar slopes.

1. If acid and gas and motile, test the corresponding slope with P.G. mixture. A loop of culture is emulsified in 4 or 5 c.c.m. of saline. Equal parts of this emulsion and the P.G. mixture are placed in a small "agglutination" test tube and kept at 37°C. Examine the tube every hour and note if agglutination is taking place. If so, test the corresponding emulsion with *Paratyphosus A* serum, *Paratyphosus B* serum, and *Gaertner* serum separately (one dilution of each giving 1 in 400 in the final mixture). If agglutination takes place with *A* serum but not with *B* or *Gaertner* serum the emulsion may then be tested up to the full titre of the serum.

2. If acid and gas and non-motile, no further steps need be taken, but it must be remembered that a positive motility is final, while a negative result may leave a certain element of doubt, in which case it is wise to treat the culture as in 1. The extra labour is small.

3. Acid only and non-motile. Test with the P.T. mixture. Many paratyphoid strains give little or no gas in the sugars they normally ferment, and for this reason it is necessary to treat all cultures giving acid only in mannite and motiles as possible paratyphoids as well as typhoids. If agglutination occurs, test further with *A*, *B*, and *T* serums separately.

4. Acid only and non-motile. Test with "Y" serum.

5. No acid and motile. Discard for the time being, or, if time permits, test further to determine whether the culture is Morgan's No. 1 *Bacillus* or a member of the *Proteus* group.

6. No change on mannite and non-motile. Test with *Shiga* serum.

The emulsions are arranged in a test rack according as they have to be tested with P.G. mixture, P.T. mixture, Y serum, etc. Equal volumes of serum (say from the stock P.G. mixture) are placed in small "agglutination" tubes by aid of a large-bored capillary pipette with rubber teat and fiducial mark, delivering about 0.4 c.c.m.

Similar volumes of the corresponding emulsions are added by means of the same pipette, which is cleansed (between each operation) by boiling water from a beaker. As mentioned above, the tubes, after being placed in the incubator, should be examined every hour or so, and any that have reacted should be further tested if necessary. No negative results should be recorded, however, until the following morning, when the final readings are made.

NOTES WITH REGARD TO THE METHOD.

There has never been the slightest difficulty in differentiating *B. paratyphosus A*, *B. paratyphosus B*, and *B. Gaertneri* by the specific serums. Absorption methods have never been necessary. As will be mentioned below, we have so far isolated only one member of the mannite-fermenting group of *B. dysenteriae* (Flexner-Y) which has agglutinated to the full titre of our "Y" serum. Organisms probably belonging to this group but inagglutinable by the specific serum are set aside for later examination at leisure. In view of the high specificity frequently met with in this group with respect to agglutination by specific serum, it is highly probable that we may be dealing with a group which can only be differentiated by a serum prepared by immunization with one or more of their number.

The *Shiga* strains we have obtained have all been agglutinated in high dilution by the specific *Shiga* serum 1 in 1,500 to 1 in 4,000. In the presence of decisive agglutination tests, confirmatory fermentation tests may with confidence be deferred to a more convenient time.

The following extract from our ledger is given to illustrate the method in practice:

Index No. 899.

Name, H.

Date, October 13th.

Particulars of Faeces.—Fairly stiff yellow stool. No blood or mucus seen.

Microscopic Examination.—No blood or mucus. No flagellates or smoochae.

MacConkey Plates.—A few suspicious colonies.

Cultures Picked Off.

A. Mannite—Motility + Discard.

B. Mannite + Motility + P.T. (+ + +); A 400 (+ + +); B. 400 (0), T. 400 (0).

C. Mannite + Motility + Reacted similarly to B.

B finally taken up to 1 in 3,200.

Report, *B. paratyphosis A.*

Technique for Blood Culture in Typhoidal Cases.

10 c.cm. blood from an arm vein are taken; 5 c.cm. are inoculated into a tube containing about 10 c.cm. of pure egg bile. The other 5 c.cm. are placed either in a flask of ordinary broth or in a mixture in equal parts of bile and broth.

The bile tube is examined next morning (hanging drop under dark ground microscope). If a motile organism is seen the bile is plated out on MacConkey's medium, or (preferably) an agar slope may be plentifully inoculated with the bile and a culture obtained for agglutination purposes next morning (or possibly the same evening). The bile tubes should be examined for at least four days, as we have on several occasions recovered *B. paratyphosis A* on the fourth day while apparently negative on the third. Before being finally discarded, all bile tubes should be plated out.

Ordinary broth has been most unsatisfactory. In many cases the broth has remained sterile while the bile tube has given positive results.

Technique for Widal Tests in Cases of Typhoid, Paratyphoid, and Dysentery.

The macroscopic method is used, small test tubes being required.

Standardized emulsions of *paratyphosis A*, *paratyphosis B*, *typhoid*, *typhoid*, *Shiga*, etc., are made by emulsifying twenty-four-hour agar slopes in normal saline containing 1 in 1,000 formalin in the case of *paratyphosis B*, which is emulsified in *half-normal saline* containing formalin. These emulsions are standardized to a certain opacity corresponding to about 2,000 millions per c.cm. The tubes are placed in the incubator at 37° C. for at least two hours and then kept on the bench till next morning, when the final reading is taken and recorded. The reading is made in the first instance from the appearance of the sediment examined under a strong light and eventually controlled by microscopic examination of the shaken-up mixture (the tube being rolled a definite number of times between the hands). A capillary tube is inserted into the highest dilution and a drop therefrom removed to a slide, then a drop from the next highest, and so on. The row of drops is then examined without any coverslip under the low power of the microscope.

CASES OF PARATYPHOID FEVER.

CASE 1.—O—y. Admitted August 23rd with fever which lasted till September 7th. *B. paratyphosis A* was recovered from the blood on August 26th.

Agglutination.—September 10th: r. A, 1 in 40 (+ + +), 1 in 80 (+), 1 in 160 (0); r. B, 1 in 40 (+), 1 in 80 (0).

CASE 2.—E—s. Admitted August 26th with fever which lasted till September 17th. The patient had a relapse which lasted from October 2nd till October 14th. *B. paratyphosis A* recovered from the blood on August 27th.

Agglutination.—September 10th: r. A, 1 in 40 (+ + +), 1 in 80 (+), 1 in 160 (+ +); r. B, 1 in 320 (+), 1 in 640 (trace); r. B, 1 in 40 (0).

CASE 3.—W—s. Admitted August 23rd. Pyrexia on August 24th which lasted till September 14th. Relapsed September 13th. Temperature normal on October 1st. *B. paratyphosis A* recovered from the blood on August 31st.

Agglutination.—September 10th: r. A, 1 in 40 (0), 1 in 80 (0); r. A of Case 4, 1 in 40 (0), 1 in 80 (0); r. B, 1 in 40 (0).

CASE 4.—H—n. Admitted August 24th. Pyrexia from August 28th to October 6th; exacerbation from October 6th to October 29th. *B. paratyphosis A* was recovered from the blood on September 1st; and *B. dysenteriae Shiga* from the blood on October 11th. (See Case 14 in Dysentery series.)

Agglutination.—September 8th: r. A, 1 in 40 (+), 1 in 80 (0), October 12th: 1 in 40 (+), 1 in 80 (0), 1 in 160 (0); r. A (homologous), 1 in 40 (+), 1 in 80 (trace), 1 in 160 (0); r. Shiga, 1 in 40 (trace), 1 in 80 (0); r. Shiga (homologous), 1 in 40 (0), 1 in 80 (0).

CASE 5.—O—a. Admitted August 27th with slight fever. Normal on September 17th; relapse September 19th to Sep-

tember 26th. *B. paratyphosis A* recovered from the blood on September 21st.

Agglutination.—September 10th: r. A, 1 in 40 (+ + +), 1 in 80 (+), 1 in 160 (0); r. A of Case 4, 1 in 40 (+ + +), 1 in 80 (+), 1 in 160 (0); r. B, 1 in 40 (0).

CASE 6.—C—s. Admitted August 23rd. Pyrexia from September 1st to September 10th; since normal. *B. paratyphosis A* recovered from the blood on September 4th.

Agglutination.—September 10th: r. A, 1 in 40 (+), 1 in 80 (0); r. B, 1 in 40 (+ +). End-point not reached.

CASE 7.—W—n. Admitted August 23rd. Pyrexia from September 8th to 22nd. Since normal. *B. paratyphosis A* recovered from the blood on September 11th.

Agglutination.—September 11th: r. A, 1 in 40 (0), 1 in 80 (0); r. B, 1 in 40 (0), 1 in 80 (0).

CASE 8.—B—t. Admitted August 23rd. Pyrexia from September 11th to October 9th. *B. paratyphosis A* recovered from the blood on September 15th, and from the pus of a testicular abscess on October 21st in pure culture.

CASE 9.—F—t. Admitted September 16th with pyrexia which lasted till October 7th. *B. paratyphosis A* recovered from the blood on September 19th.

Agglutination.—September 27th: r. A, 1 in 40 (trace), 1 in 80 (0); r. B, 1 in 40 (0), October 5th: r. A, 1 in 40 (0); r. B, 1 in 40 (0); r. T, 1 in 40 (+ + +), 1 in 80 (+), 1 in 160 (trace).

CASE 10.—A—r. Admitted September 16th. Pyrexia from September 21st to October 17th. *B. paratyphosis A* recovered from the blood on September 28th.

Agglutination.—October 9th: r. A, 1 in 40 (trace), 1 in 80 (0); r. B, 1 in 40 (0), 1 in 80 (0), 1 in 160 (+), 1 in 320 (+), 1 in 640 (trace). (Zone effect.)

CASE 11.—S—r. Admitted September 22nd. Pyrexia for six days before admission; normal on October 16th. *B. paratyphosis A* recovered from the blood on September 23rd, and from the faeces on the following day.

Agglutination.—September 27th: r. A, 1 in 40 (+ + + +), 1 in 80 (+ + +), 1 in 160 (+ +); end-point not reached; r. B, 1 in 40 (+), 1 in 80 (0).

CASE 12.—T—y. Admitted September 10th. Pyrexia from September 13th to October 1st. *B. paratyphosis B* recovered from the blood on September 23rd.

Agglutination.—September 27th: r. A, 1 in 40 (+ + +), 1 in 80 (+ +), 1 in 160 (+), 1 in 320 (0); r. B, 1 in 40 (+ + +), 1 in 80 (+ +), 1 in 160 (+ +); end-point not reached. October 9th: r. A, 1 in 40 (+), 1 in 80 (0); r. B, 1 in 40 (+ + +), 1 in 80 (+ + +), 1 in 160 (+ +), 1 in 320 (+ +), 1 in 640 (+, 1 in 1280 (trace); r. T, 1 in 40 (+ +), 1 in 80 (+), 1 in 160 (+), 1 in 320 (+), 1 in 640 (0).

CASE 13.—M—e. Admitted September 16th with fever which lasted till October 2nd; normal since. *B. paratyphosis A* recovered from the blood on September 21st.

Agglutination.—September 27th: r. A, 1 in 40 (0); r. B, 1 in 40 (0), October 5th: r. A, 1 in 40 (0); r. B, 1 in 40 (trace), 1 in 80 (0); r. T, 1 in 40 (+ +), 1 in 80 (+ +), 1 in 160 (+ +), 1 in 320 (+), 1 in 640 (+), 1 in 1280 (0).

CASE 14.—M—y. Admitted September 5th with fever which lasted till September 21st. Severe relapse October 2nd to 27th. *B. paratyphosis A* recovered from the urine on October 6th, and from the blood on the following day.

CASE 15.—D—1. Admitted September 12th. Pyrexia September 22nd to October 7th. Slight relapse October 22nd to 26th. *B. paratyphosis A* recovered from the blood on October 1st.

CASE 16.—M—n. Admitted September 26th. Pyrexia from September 30th to October 21st. *B. paratyphosis A* recovered from the blood on October 3rd.

CASE 17.—M—n. Admitted September 13th with fever, which lasted till September 24th; since normal. Blood culture negative on September 15th. *B. paratyphosis A* recovered from faeces on September 14th.

Agglutination.—September 21st: r. A, 1 in 40 (+ + +), 1 in 80 (+ + +), 1 in 160 (+ + +); end-point not reached; r. B, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0); r. T, 1 in 40 (trace), 1 in 80 (0).

CASE 18.—F—y. Admitted September 6th. Pyrexia September 8th to 19th. *B. paratyphosis A* recovered from faeces on September 16th.

CASE 19.—R—n. Admitted September 26th. Pyrexia October 3rd to 17th. *B. paratyphosis A* recovered from faeces on September 28th.

CASE 20.—C—k. Admitted September 26th with pyrexia which lasted till October 7th. Blood culture negative on October 2nd. *B. paratyphosis A* recovered from faeces on September 28th.

Agglutination.—October 9th: r. A, 1 in 40 (+), 1 in 80 (trace), 1 in 160 (0); r. B, 1 in 40 (0); r. T, 1 in 40 (+), 1 in 80 (+), 1 in 160 (trace), 1 in 320 (0).

CASE 21. H—J. Admitted September 9th. Pyrexia September 20th to October 13th. *B. paratyphosus* B recovered from faeces on September 25th.

Agglutination.—October 7th: r. A, 1 in 40 (++), 1 in 80 (+), 1 in 160 (0); r. B, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0); r. C, 1 in 320 (0), 1 in 1280 (trace). Note initial inhibition zone.

CASE 22. G—B. Admitted September 16th. Had dysentery in August with blood and mucus. Slight diarrhoea on admission, with fever which lasted till September 27th. *B. paratyphosus* A recovered from faeces on September 23rd.

Agglutination.—September 27th: r. A, 1 in 40 (0); r. B, 1 in 40 (0), 1 in 80 (0); r. Shiga, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+), 1 in 320 (0).

CASE 23. H—N. Admitted September 16th. Pyrexia September 18th to October 13th. Blood culture negative on September 25th. *B. paratyphosus* A recovered from faeces on October 13th and 15th.

Agglutination.—October 9th: r. A, 1 in 40 (+), 1 in 80 (+), 1 in 160 (0); r. B, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0); r. T, 1 in 40 (+), 1 in 80 (+), 1 in 160 (trace), 1 in 320 (0).

CASE 24. C—N. Admitted September 9th. Pyrexia September 12th to 20th; relapse September 30th to October 22nd. Blood culture negative on September 18th. *B. paratyphosus* A recovered from faeces on October 11th.

Agglutination.—October 5th: r. A, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0); r. B, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0).

In the following the diagnosis rests so far on serological data.

CASE 25. N—B. Admitted August 23rd with fever which lasted till September 8th; relapse September 17th to October 8th. Blood culture negative on August 26th.

Agglutination.—September 10th: r. A, 1 in 40 (+++), 1 in 80 (++), 1 in 160 (+), 1 in 320 (0); r. B, 1 in 40 (0), 1 in 80 (0).

CASE 26. C—E. Admitted August 23rd with fever: normal September 1st; relapse September 23rd to October 6th. Blood culture negative on August 26th.

Agglutination.—September 8th: r. A, 1 in 40 (+++), 1 in 80 (++), 1 in 160 (+); limit not reached; r. B, 1 in 40 (+), 1 in 80 (0).

CASE 27. B—R. Admitted August 27th with fever which became normal on September 13th. Pyrexia again from September 14th to 18th; since normal. Blood culture negative on August 31st.

Agglutination.—September 10th: r. A, 1 in 40 (++), 1 in 80 (+), 1 in 160 (+); limit not reached; r. A, of Case 4, 1 in 40 (+), 1 in 80 (0); r. B, 1 in 40 (0), 1 in 80 (0).

CASE 28. B—T. Admitted August 30th with fever which lasted till September 20th. Blood culture negative on September 1st.

Agglutination.—September 1st: r. A, 1 in 40 (++), 1 in 80 (+), 1 in 160 (+), 1 in 320 (0). September 10th: r. A, 1 in 40 (+), 1 in 80 (+), 1 in 160 (0); r. B, 1 in 40 (0), 1 in 80 (0).

CASE 29. G—M. Admitted August 30th with acute fever which lasted till September 10th; since normal. Blood culture negative on September 2nd.

Agglutination.—September 10th: r. A, 1 in 40 (++), 1 in 80 (+), 1 in 160 (0); r. B, 1 in 40 (0), 1 in 80 (0).

CASE 30. F—R. Admitted August 8th with pyrexia which lasted till September 1st. Blood culture negative on August 10th.

Agglutination.—September 5th: r. A, 1 in 100 (+++). Not taken further.

CASE 31. P—P. Admitted August 50th with slight fever (convalescent case). Blood culture negative on September 6th.

Agglutination.—September 10th: r. A, 1 in 40 (++), 1 in 80 (+), 1 in 160 (0); r. B, 1 in 40 (0), 1 in 80 (0).

CASE 32. T—S. Admitted August 23rd with fever which lasted till September 1st; since normal.

Agglutination.—September 7th: r. A, 1 in 40 (+++), 1 in 80 (+), 1 in 160 (0); r. B, 1 in 40 (0), 1 in 80 (0).

CASE 33. G—M. Admitted September 3rd with slight fever (convalescent case). Blood culture negative on September 7th.

Agglutination.—September 10th: r. A, 1 in 40 (+++), 1 in 80 (+), 1 in 160 (+); limit not reached; r. B, 1 in 40 (+), 1 in 80 (0).

CASE 34. N—S. Admitted August 26th with fever complicated by wound. Blood culture negative on September 7th.

Agglutination.—September 10th: r. A, 1 in 40 (++), 1 in 80 (+), 1 in 160 (0); r. B, 1 in 40 (0), 1 in 80 (0).

CASE 35. E—P. Admitted September 5th with fever; nine days of fever before admission; fever lasted till September 30th. Blood culture negative on September 8th.

Agglutination.—September 9th: r. A, 1 in 40 (+), 1 in 80 (+), 1 in 160 (0).

CASE 36. II—S. Admitted September 9th with very slight pyrexia which continued till September 17th; history of fever previous to admission. Blood culture negative on September 11th.

Agglutination.—September 11th: r. A, 1 in 40 (trace), 1 in 80 (0), 1 in 160 (0); r. B, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+), 1 in 320 (0).

CASE 37. V—E. Admitted August 30th. Had dysentery, with blood and mucus, in Gallipoli. Blood culture negative on September 2nd.

Agglutination.—September 10th: r. A, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0); r. B, 1 in 40 (+++), 1 in 40 (0); not taken further. September 14th: r. B, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+), 1 in 320 (0).

CASE 38. K—Y. Admitted September 10th with slight fever (convalescent case). Blood culture negative on September 15th.

Agglutination.—September 21st: r. A, 1 in 40 (+), 1 in 80 (+), 1 in 160 (0); r. B, 1 in 320 (0); r. B, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+); not taken further.

CASE 39. P—N. Admitted September 10th with very slight pyrexia (convalescent case). Blood culture negative on September 15th.

Agglutination.—September 21st: r. A, 1 in 40 (trace), 1 in 80 (0), 1 in 160 (0); r. B, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+); not taken further.

CASE 40. R—N. Admitted September 10th. No high temperature (convalescent case). Blood culture negative on September 15th.

Agglutination.—September 21st: r. A, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0); r. B, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+), 1 in 320 (0); r. T, 1 in 40 (+), 1 in 80 (+).

CASE 41. M—E. Admitted September 5th. Pyrexia from September 8th to September 28th. History of a previous fever in Malta. Blood culture negative on September 15th.

Agglutination.—September 21st: r. A, 1 in 40 (++), 1 in 80 (+), 1 in 160 (0); r. B, 1 in 40 (0), 1 in 80 (0).

CASE 42. J—E. Admitted September 9th with fever which continued till September 23rd.

Agglutination.—September 16th: r. A, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0); r. B, 1 in 40 (+), 1 in 80 (+), 1 in 160 (0); limit not reached.

CASE 43. W—L. Admitted September 10th. Pyrexia September 11th to 23rd. Blood culture negative on September 16th.

Agglutination.—September 21st: r. A, 1 in 40 (trace), 1 in 80 (0); r. B, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+), 1 in 320 (0); r. T, 1 in 40 (+), 1 in 80 (0), 1 in 160 (0).

CASE 44. P—R. Admitted September 10th with fever which lasted till October 11th. Relapse October 12th to 19th. Blood culture negative on September 17th.

Agglutination.—September 21st: r. A, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+), 1 in 320 (0); r. B, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+), 1 in 320 (0).

CASE 45. F—R. Admitted August 28th. Pyrexia from September 9th to 26th.

Agglutination.—September 21st: r. A, 1 in 40 (++), 1 in 80 (+), 1 in 160 (0); r. B, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0).

CASE 46. M—R. Admitted September 16th with fever which lasted till October 5th. Blood culture negative on September 16th.

Agglutination.—September 21st: r. A, 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (+); limit not reached; r. B, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+), 1 in 320 (0); r. T, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+), 1 in 320 (0); r. A, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+), 1 in 320 (trace), 1 in 640 (0); r. B, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+), 1 in 320 (+), 1 in 640 (trace), 1 in 1280 (0).

CASE 47. D—N. Admitted August 20th. Pyrexia September 10th to 19th; normal since. Blood culture negative on September 13th.

Agglutination.—September 21st: r. A, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+); limit not reached; r. B, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0).

CASE 48. S—E. Admitted September 16th with slight irregular fever, which lasted till October 5th.

Agglutination.—October 1st: r. A, 1 in 40 (+), 1 in 80 (+), 1 in 160 (trace); r. B, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0); r. T, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+), 1 in 320 (trace), 1 in 640 (0).

CASE 49. C—S. Admitted September 26th with pyrexia, which lasted till October 20th. Blood culture negative on October 2nd.

Agglutination.—October 3rd: r. A, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0); r. B, 1 in 40 (+), 1 in 80 (+++), 1 in 160 (+), 1 in 320 (+), 1 in 640 (0); r. T, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+), 1 in 320 (trace), 1 in 640 (0).

CASE 50. G—S. Admitted September 16th. Pyrexia September 25th to October 11th; since normal. Blood culture

negative on October 6th. *E. dysenteriae* Shiga isolated from faeces on October 18th.

Agglutination.—October 15th: r. A, 1 in 40 (0), 1 in 80 (0); r. B, 1 in 40 (+), 1 in 80 (+), 1 in 160 (0). October 22nd: r. A, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0); r. B, 1 in 40 (trace), 1 in 80 (0), 1 in 160 (0); r. Shiga, 1 in 40 (1), 1 in 80 (0), 1 in 160 (0).

CASES OF ENTERIC FEVER.

CASE 1.—R.—s. Admitted September 16th with pyrexia, which continued till October 21st. *B. typhosus* recovered from the blood on September 16th.

Agglutination.—September 27th: r. A, 1 in 40 (+), 1 in 80 (0), 1 in 160 (0); r. B, 1 in 40 (+), 1 in 80 (+), 1 in 160 (0); r. T, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+); r. Shiga, 1 in 40 (trace), 1 in 80 (0), 1 in 160 (0). October 5th: 1 in 40 (0), 1 in 80 (0); r. B, 1 in 40 (0), 1 in 80 (0); r. T, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+); r. Shiga, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+); r. B, 1 in 40 (+), 1 in 80 (+), 1 in 160 (+).

CASE 2.—M.—d. Admitted September 11th. Pyrexia September 11th to 17th; normal September 18th to 22nd; very acute fever September 22nd to October 10th; normal since. *B. typhosus* recovered from the blood on September 25th.

CASE 3.—M.—d. Admitted August 30th with symptoms pointing to necrotic endocarditis. *B. typhosus* and streptococci recovered from the blood on September 2nd. Death took place on September 6th. At the autopsy the Flexner's plaques were congested and inflamed, but no actual necrosis was found in the gut. The mesenteric glands were enlarged and acutely congested. The spleen weighed 121 oz., and was soft and diffused. The gall bladder was healthy; there were no calculi. Left ventricle greatly hypertrophied. Cusps of aortic valve united together from old endocarditis. No recent vegetations. There was also a discharging wound on the left shoulder.

REMARKS WITH REGARD TO THE CASES RECORDED ABOVE.

It may be well to point out, in the first instance, that diagnosis only has been our object—in fact, our only possible object. When the blood culture was positive no further work was necessary, but in a certain number of cases we have made careful serological tests in order to obtain some estimate of the reliability of the latter for diagnostic purposes. As a rule the agglutination test was not performed until some days or perhaps a week (or more) had elapsed after the positive or negative blood culture.

Of the first group of 24 cases in which the causative bacillus was recovered from the blood, faeces, or urine, it will be observed that 8 or 9 cases gave little or no agglutination with the corresponding organism. The remainder, however, gave as a rule very definite reactions with the organism found to be the infecting agent.

Titres so high as 1 in 320 have been obtained in *paratyphosus A* infections, but a definite reaction even in 1 in 40 is to be regarded as significant in these *A* infections. Normal serums in our experience have given no reaction with *B. paratyphosus A* in this dilution.

In *paratyphosus A* cases also the serum has rarely given a group reaction with *paratyphosus B*. On the other hand, in the few *paratyphosus A* cases in which the typhoid *Widal* has been tested (Nos. 9, 13, 17, 20, 23) this has proved to be very low except in one case (No. 13), where agglutination of *B. typhosus* was obtained up to 1 in 640 dilution. (All cases, so far as could be ascertained, have been inoculated against enteric fever.)

B. paratyphosus B was recovered from two cases only (Nos. 12, 21). In case No. 12 the serum was tested on two occasions, when very high titres with *paratyphosus B* were found. There was also—at least on the first occasion—a very definite group reaction with *B. paratyphosus A*, which, however, had apparently in great part disappeared before the second test. This phenomenon may be analogous to that noted recently by certain Continental workers who have recorded positive typhoid *Widals* in the early stages of bacillary dysentery. As the dysentery *Widal* became established the group reaction tended to disappear. With regard to the second group of cases (25 to 50), in which the diagnosis has rested on serological data, 15 (namely, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 41, 45, 47, 48) were almost certainly cases of *paratyphoid A* fever, 8 (namely, 36, 37, 39, 40, 42, 43, 49, 50) almost certainly *paratyphoid B* fever, while 3 (namely, 38, 44, 46) were either *A* or *B*, or mixed infections. In this latter group of three only the recovery of the actual causative agent or agents would effectively clear up the diagnosis. Apparently, however, many of these cases came in during the convalescent stage, when blood culture

was not likely to yield positive results. In 5 cases (namely, 40, 43, 46, 48, 49) the typhoid *Widal* was tested, but only in 2 (namely, 48, 49) was a well-marked positive reaction evident. Three cases only of enteric fever have occurred, *B. typhosus* being recovered from the blood in all. Case No. 3, which came to autopsy, has been already referred to. In case No. 1 the serum was carefully titrated against *paratyphosus A*, *paratyphosus B*, and *B. typhosus* on two occasions. A remarkably strong typhoid reaction was obtained on the first occasion with distinct evidence of group reaction with *A* and *B* (especially the latter). On the second occasion this group reaction had completely disappeared, while the specific typhoid *Widal* remained at the same high level.

On the whole we are strongly of opinion that the serological test in typhoid disease, while of the greatest service in practical diagnosis, should be employed only as a second string when bacteriological methods have failed to reveal the causative agent. To this object, namely, the isolation of the causative bacillus from the blood or excreta, chief attention should be directed. For statistical purposes, there can be no doubt that the best evidence is that derived from positive bacteriological findings.

No doubt the value of the serological test, and more particularly the interpretation of the same in doubtful cases, might be greatly improved by repeated titration of the serum from the commencement of the disease onwards, but a routine of this scope does not come within the realm of practical diagnosis, and moreover may fail entirely to detect the real nature of pyrexias during which (possibly because they are of short duration and small intensity) agglutinin development in measurable or significant degree fails to take place. A more detailed analysis of the results is for the moment deferred.

Mixed Infections.

The question of mixed infections, or rather of secondary infections, occurring during the convalescent or possibly carrier stage of the first infection, demands notice. Most of the *paratyphoid* cases have come in with a history of dysentery. Where typhoid disease and dysentery are simultaneously prevalent, the occurrence of post-dysenteric *paratyphoid* fever or post-*paratyphoid* dysentery is to be expected.

In Case 22, which gave a history of dysentery, *B. paratyphosus A* was recovered from the faeces. The patient's serum did not agglutinate *A* or *B*, but gave a very marked reaction with the Shiga bacillus. In Case 50 also, although the serum gave a significant agglutination with *paratyphosus B*, the organisms recovered from the stools were *E. dysenteriae* Shiga and *E. enteritidis* Gaertner.

Case 4, in which Shiga was obtained from the blood during a so-called relapse in the course of a definitely diagnosed *paratyphoid A* fever, was probably also one of post-dysenteric *paratyphoid* in a person who had become a dysenteric (Shiga) carrier. From another case—not listed—of convalescent dysentery whose serum agglutinated Shiga in high dilution, *B. paratyphosus A* has recently been recovered in the faeces.

Cases of this kind will doubtless tend to increase, and they demand careful bacteriological attention, both from the point of view of science generally and preventive medicine in particular. In the absence of further data it is impossible to discuss the matter further at this stage.

BACILLARY DYSENTERY.

A large number of convalescent cases of dysentery have arrived with few or no symptoms. The stools were examined, as a rule, only once (and with generally negative results), and the patients were not retained in hospital. Among these admissions, however, were a few subacute or chronic cases either still passing blood and mucus or soft fluid unformed motions with or without mucus.

From 15 cases of this kind *B. dysenteriae* Shiga has been recovered. (See list of cases below, with notes regarding the appearance of the motions.) Agglutination tests have been performed in most of these cases with the stock Shiga strain and occasionally with the homologous organism also.

Apparently, during convalescence, very high titres may be expected.

One case only of Flexner's dysentery occurred, the

infection running its course from start to finish in the hospital. It lasted only a few days, and was heralded by high fever and the passage of blood and mucus.

As mentioned above, samples of stools have been examined, from which organisms probably belonging to the mannite-fermenting group of *B. dysenteriae* have been recovered, which do not agglutinate with the specific Y-serum available. The only case of dysentery which ended fatally soon after admission, and which showed intense enteritis of the large bowel at autopsy, was probably due to infection by a member of this group. From the bloody and mucoid stool before death, and also from the colon at autopsy, organisms of this type were recovered. Their consideration must remain over for the present.

The following list of cases, with particulars of the nature of the stools and the organisms isolated, is appended.

CASES OF BACILLARY DYSENTERY.

(Subacute or Chronic and Convalescent Cases.)

CASE 1.—I.—A. Admitted July 27th. Diarrhoea eight weeks before admission. No history of blood and mucus before admission. Mucoid stool of July 27th showed microscopically: Blood, pus, catarrhal cells, *Lambda intestinalis* (inactive), and cysts of the genus *B. dysenteriae* Shiga recovered in almost pure culture. Two other samples on the same day had similar features, except that there was much less pus and blood and far more food detritus, muscle fibres, and innumerable bacteria.

A sample taken on July 29th was apparently pure mucus. Microscopically: Numerous flagellato cysts were found. *B. dysenteriae* Shiga again recovered.

Sample of July 30th: Quite different from previous samples. Soft creamy stool not containing blood or pus, but numerous actively motile flagellates (*Lambda* and *Macrostoma*).

July 31st: Pure mucus stool. No flagellates seen. Some *Lambda* cysts present.

August 1st: Mucus stool, with pus and little blood. No active flagellates or cysts seen. *B. dysenteriae* Shiga recovered.

August 2nd: Greenish grumous stool, containing undigested muscle fibres, very few pus cells, and innumerable bacteria. No active flagellates.

August 3rd: Greenish-yellow mucoid stool. No motile flagellates seen. *Macrostoma* cysts present.

August 4th: Creamy stool like that of July 30th. Swarming with flagellates.

From the grumous and creamy stools, which contained food residues and many bacteria, *B. dysenteriae* Shiga could not be recovered.

Blood count on August 2nd:

Red cells	...	...	4,350,000
White cells	...	...	16,000
Differential count:			
Small lymphocytes	...	...	3.7 per cent.
Large lymphocytes	...	...	9.4
Large mononuclears	...	...	8.1
Plasma cells	...	...	1.3
Polymorphonuclears	...	...	76.9
Eosinophiles	...	...	0.3

Agglutination.—October 18th: r. Shiga, 1 in 40 (++), 1 in 80 (+), 1 in 160 (0); v. Shiga (homologous), 1 in 40 (++), 1 in 80 (trace), 1 in 160 (0).

The serum of the patient gave only a trace of agglutination with the homologous Shiga in 1 in 10 (performed July 29th).

This patient is still in hospital (October 28th), and is slowly putting on weight after a period of considerable emaciation.

CASE 2.—S.—r. Admitted August 23rd. Dysentery started with blood and mucus three months before admission.

First sample of August 24th: Like fluid blood with mucus. No flagellates present. *B. dysenteriae* Shiga recovered.

Second sample of same day: Fluid brownish grumous material containing numerous flagellates. *B. dysenteriae* Shiga recovered. *E. paratyphosus* B recovered.

August 25th: Stool containing blood, mucus, and pus, but no flagellates. *B. dysenteriae* Shiga recovered.

Agglutination.—September 23rd: r. Shiga, 1 in 20 (+++), 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (+++); not taken further; v. B, 1 in 40 (+), 1 in 80 (trace), 1 in 160 (0). October 18th: r. Shiga, 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (+++); v. Shiga, 1 in 320 (+++), 1 in 640 (+++), 1 in 1280 (+++), 1 in 2560 (0); r. Shiga (homologous), 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (+++), 1 in 320 (+++), 1 in 640 (0). This patient is slowly convalescing in hospital.

CASE 3.—D.—I. Admitted September 16th. Diarrhoea started on August 22nd. Blood appeared in the dejecta eight days after commencement of illness. The acute symptoms were over about September 11th. On September 18th the patient passed a watery stool containing mucus, but no flagellates or amoebae. *B. dysenteriae* Shiga recovered.

Agglutination.—September 23rd: r. Shiga, 1 in 20 (+++), 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (+++), 1 in 320 (0).

CASE 4.—W.—e. Admitted September 9th with slight diarrhoea and some abdominal pain. Dysentery apparently began about June 10th. On September 14th the patient passed a

formed normal solid stool. *B. dysenteriae* Shiga recovered. Probably carrier case.

Agglutination.—September 23rd: r. Shiga, 1 in 20 (+++), 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (+++). Not carried further.

CASE 5.—R.—s. Admitted September 27th. Dysentery with blood and mucus started at the end of August. Slight diarrhoea present on admission. On September 18th passed a yellowish semifluid stool containing some mucus. No flagellates or amoebae seen. *B. dysenteriae* Shiga recovered.

Agglutination.—September 23rd: r. Shiga, 1 in 20 (0), 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (+++). Not taken further. Note initial inhibition zone.

CASE 6.—F.—b. Admitted September 13th. Dysentery commenced on August 10th, with blood and mucus. He has frequently passed a stool since admission. Subacute case. Sample of September 22nd: Semifluid, brownish-yellow stool with a little mucus. No flagellates or amoebae. *B. dysenteriae* Shiga recovered.

Agglutination.—September 23rd: v. Shiga, 1 in 20 (+++), 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (trace).

CASE 7.—P.—k. Admitted September 26th. Sick for a month previous to admission. Diarrhoea still present on admission and some abdominal pain. Sample of September 28th: Greenish-yellow mucoid stool. No flagellates present, but some amoebic cysts (probably *E. coli*). *B. dysenteriae* Shiga recovered.

Agglutination.—October 12th: r. Shiga, 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (0); v. Y, 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (0).

CASE 8.—W.—h. Admitted September 13th. Dysentery began in hospital on October 1st; ten motions on that day, with blood and mucus, and a temperature of 104°; watery diarrhoea, for a few days afterwards. Acute dysentery with blood and mucus, lasting only a few days. Sample of October 2nd: Fluid stool with much blood and mucus and pus. No flagellates. *B. dysenteriae* Y recovered.

Agglutination.—October 12th: r. Shiga, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0); v. Y, 1 in 40 (+++), 1 in 80 (0).

CASE 9.—W.—e. Admitted September 26th. Dysentery began at the end of August with passage of blood and mucus. Some diarrhoea and abdominal pain still present on September 30th. Convalescent case. Sample of September 30th: Brownish-yellow loose stool. No flagellates or amoebae. *B. dysenteriae* Shiga recovered.

Agglutination.—October 12th: r. Shiga, 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (0); v. Y, 1 in 40 (+++), 1 in 80 (+), 1 in 160 (0).

CASE 10.—Admitted September 23rd. Diarrhoea for two months previously. Blood and slime appeared in the motions about September 12th. Convalescent case. Stools occasionally loose, and slight abdominal pain. Sample of September 28th: Liquid soup character containing mucus. No flagellates, amoebae, or blood. *B. dysenteriae* Shiga recovered.

Agglutination.—October 12th: r. Shiga, 1 in 40 (0), 1 in 80 (0), 1 in 160 (0); v. Y, 1 in 40 (--), 1 in 80 (0).

CASE 11.—M.—w. Admitted October 11th. Dysentery with passage of blood and mucus commenced on August 12th. Diarrhoea with mucus still present on admission. Convalescent case. Sample of October 11th: Loose yellow mucoid stool. No blood or pus. Some cysts of *E. coli*. *B. dysenteriae* Shiga recovered.

Agglutination.—October 18th: r. Shiga, 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (+++), 1 in 320 (trace), 1 in 640 (0); r. Shiga (homologous), 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (trace), 1 in 320 (0).

CASE 12.—B.—v. Admitted September 26th. Dysentery began on August 16th. Convalescent case. Sample of October 20th: Stiff dark brown stool. No blood or mucus. No active flagellates, but a few *Macrostoma* cysts. *B. dysenteriae* Shiga recovered.

Agglutination.—October 22nd: r. Shiga, 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (+++), 1 in 320 (0); v. B, 1 in 40 (+++), 1 in 80 (+++), 1 in 160 (0); v. A, 1 in 40 (+), 1 in 80 (0), 1 in 160 (0).

CASE 13.—G.—s. Convalescent case (see No. 50 of Paratyphoid series). Sample of October 18th: Loose yellow slightly mucoid stool. No blood, but numerous *Lambda* cysts. *B. dysenteriae* Shiga recovered, also *E. enteritidis* Gaertner.

CASE 14.—H.—n. (See No. 4 of Paratyphoid series.) *B. paratyphosus* A was recovered from the blood of this case on September 1st (about the fifth day of pyrexia). An exacerbation of pyrexia (so-called relapse) occurred on October 6th, and on October 11th a blood culture yielded *B. dysenteriae* Shiga in pure culture. This case was, in all probability, one of post-dysenteric paratyphoid A fever.

CASE 15.—D.—y. Admitted October 8th. Dysentery with blood and mucus began at the end of May. Slight diarrhoea since admission. Sample of October 22nd: Loose yellow stool containing mucus and pus, but no blood. *B. dysenteriae* Shiga recovered, also *E. enteritidis* Gaertner.

REMARKS ON CASES REPORTED ABOVE.

It will be noted that the stool from which the specific organisms were recovered, was not invariably of the typical mucoid variety with blood. In several cases the stool was of the watery order, with or without admixture of mucus, and in two cases at least the stool was normal and formed. This point is, of course, by no means new, but it has a distinct bearing on the preventive medicine and the carrier question in relation to bacillary dysentery. This, however, we do not propose to discuss here for lack of relevant data. The general carrier question in relation to bacillary dysentery is fully discussed elsewhere.³ All that we can definitely say at present with regard to the carrier question in relation to our cases is that the specific organism has been isolated at periods varying from one to four months after the onset of the infection. Case No. 14, in which *B. dysenteriae* Shiga was recovered from the blood during a pyrexial exacerbation in the course of paratyphoid A fever, deserves notice. So far as we can ascertain, this finding is unique. *B. dysenteriae* "Y" has recently been recovered from the blood during life in a series of cases with obscure clinical picture (partly typhoid-like, partly dysentery-like) by Ghon and Roman,² and the explanation suggested by these authors was that the cases were really dysentery carriers secondarily infected with enteric.

The dysentery organism had succeeded in invading the blood stream, perhaps owing to the disordered condition of the bowel. In our case there is little doubt that the patient was a dysentery carrier secondarily infected by *B. paratyphosus* A. The patient had suffered severely from diarrhoea previous to his attack of paratyphoid fever. During the pyrexial exacerbation there was no return of blood and mucus in the dejecta.

No cases of amoebic dysentery have been met with (see section on flagellates, etc.). Several patients have been admitted with a history of having had injections of emetine. In no case, however, have motile forms or cysts of *E. trayingana* been detected.

The question of flagellate dysentery is discussed in the next section.

To the resident medical officers of the hospital we are greatly indebted for their cordial co-operation.

INTESTINAL PROTOZOAN PARASITES PRESENT IN THE FAECES.

Up to the time of writing, protozoan parasites have been found in the faeces of 26 cases. In several instances more than one kind of parasite occurred at the same time. The following is a list of the parasites observed:

Parasite.	No. of Cases.
<i>Lamblia intestinalis</i> (active and/or encysted) ...	7
<i>Macrostomum mesnili</i> active ...	6
<i>Trichomonas hominis</i> active ...	3
<i>Ceromonas hominis</i> (active and encysted) ...	1
Active flagellates, not specifically determined probably <i>Macrostomum</i> or <i>Trichomonas</i> ...	4
Encysted cysts ...	5
<i>Entamoeba coli</i> cysts ...	6
<i>Blastocystis hominis</i> ...	5

As there are very few records in England of these human intestinal parasites, it may be of service to give a

few notes with regard to them, particularly as they are likely to be met with in the examination of faeces in cases of dysentery or diarrhoea among soldiers home from the Dardanelles or France.

The examination is best made by taking up a very small quantity of the faeces on a platinum loop and mixing it well with a drop of sterile saline (0.5 per cent.), sufficient in amount to run under a cover-slip. The faeces must be well diluted, otherwise cysts especially are apt to be overlooked. The faeces should be examined as freshly as possible, because after four or five hours most of the active flagellates become motionless, degenerate and die. If the sample is kept in an incubator, at blood temperature, a few individuals will usually remain sluggishly motile for some hours longer. A convenient and rapid way of making a permanent preparation is as follows: A thin smear of the faeces, diluted as above, is made in the same manner as an ordinary blood film. The slide is immediately placed in a stain tube containing at the bottom a small quantity of 4 per cent. osmic acid solution + a drop of glacial acetic for fixation, and is left in for about ten seconds. Allow the smear to dry in air and then put in absolute alcohol for a quarter of an hour to harden.

Wash with tap water and stain with Giemsa (1 drop to 1 c.c.m.) for twenty minutes or so. Rinse with tap water. The smear must be fixed before drying, otherwise the active flagellates, which are soft and plastic, will be round and flattened, and usually unrecognizable as such.

Lamblia intestinalis (Fig. 1, A-D).—The active individual has a characteristic and unmistakable appearance. In shape it is like a flattened pear, with a broad, rounded anterior end and a taper-

ing hinder extremity. As is well known, there is a large saucer-like depression or concavity on the ventral side, in the anterior part of the body, by which the creature applies itself to the intestinal cells. This depression is best seen when the flagellate turns over on its side in moving. The creature does not change in shape at all—that is, it is not amoeboid. In stained preparations the double arrangement of the organellae is seen—two nuclei, four pairs of flagella, and two axial rods (axostyles). In Fig. 1, B, the karyosomes of the nuclei have come out well, but in Fig. 1, A, the nuclei have stained uniformly, as generally happens with Giemsa, though all these flagellates have karyosomatic nuclei. The cysts are frequently present in the stools when no active forms can be found. They are elongate-ovoid and slightly smaller than the active forms. Even in life four nuclei can generally be made out; also, in early cysts, remains of the flagella and axostyles. In stained preparations (Fig. 1, C and D) apparently all the cysts contain four nuclei (that is, two pairs), and there can be little doubt that cyst-formation is preceded by conjugation of two individuals. The protoplasmic contents are sometimes shrunk away from the cyst membrane.

Macrostomum (syn. *Tetranitius* p.p.) *mesnili* (Fig. 1, E and F). This flagellate is slightly smaller than *Lamblia*. The body is pear-shaped but not flattened, and it generally possesses a tail process; it is capable of altering its form to some extent, and in faeces which have been standing for some time the body form may have become quite irregular. Contrary to what is the case in *Lamblia*,

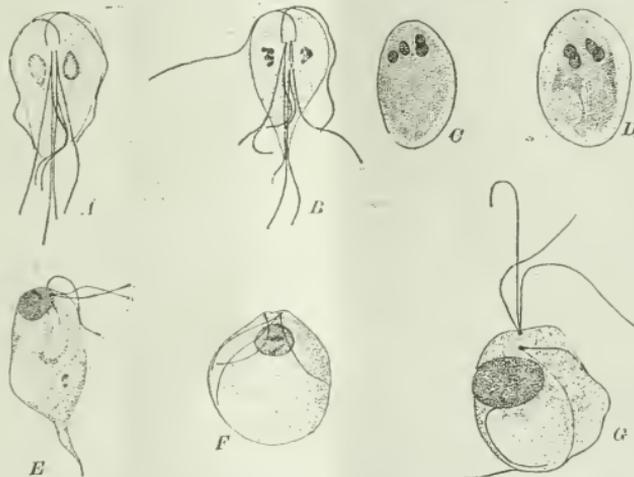


Fig. 1.—A and B, *Lamblia intestinalis*, active forms; C and D, cysts of same; E and F, *Macrostomum mesnili*; G, *Trichomonas hominis*. × 2000.

the protoplasm of *Macrostoma* is usually vacuolated, some of the vacuoles containing ingested food masses. At the anterior end is a large, conspicuous cytostome or oral groove, inside which one of the four flagella, rather shorter than the other three, invariably lies. This flagellum, by its vibration, produces a constant flickering inside the cytostome. The single nucleus is situated quite at the anterior end of the body, and the flagella originate close to it. Even with the precaution of first fixing the smear, these parasites are too often rounded and flattened (cf. Fig. 1, F), though the flagella can usually be made out; after drying alone, before hardening, nothing is seen but a shapeless mass of protoplasm, with a large nucleus. There cannot be the slightest doubt that the parasite found by Castellani in dysenteric stools in Ceylon, and regarded by him as an entirely new type of organism ("Entoplasma") was one of these flagellates, probably a large form of *Macrostoma*. Cysts which may have belonged to this form have been seen very rarely. They were ovoid, but smaller than *Lambli*a cysts, and showed a single (?) dull nuclear area, somewhat nearer one end of the protoplasm.

Trichomonas hominis (Fig. 1, G).—The body is usually pear-shaped, but may be rounded. This form can be distinguished by its jerky, irregular movements, and by the conspicuous undulating membrane running along one side. The vigorous action of this membrane often produces waves of the peripheral protoplasm, passing down the side of the body, from before backwards. The membrane ends posteriorly, and its flagellar border is continued as a short free flagellum. Three anterior free flagella are present, which can be made out in sluggish individuals. In the stained individual of Fig. 1, G, the curved wavy line on the right is the attached flagellum, which terminates freely to the left. The inner line running roughly parallel with the attached flagellum is the so-called axial line, marking the base of the membrane. The shorter curved line on the left starting from the nucleus, is the single axial rod; in life this projects backwards, forming a stiff tail to the body. Up to the present the cysts of this form have not been observed.

Cercarionas hominis.—Only on one occasion has an infection—a very slight one—with this flagellate been observed. A single active individual was found; it was very amoeboid, but the main flagellum could be seen vibrating freely, thus distinguishing the creature from an amoeba. A scanty number of cysts were present. These are spherical, with finely granular contents. They are slightly larger than the other flagellate cysts, but distinctly smaller than an Entamoeba cyst; there is only a single nucleus in the cyst, not always clearly visible. This form is a true human parasite, distinct from the coprozoic form, *C. longicauda*, which passes through the bowel in the encysted state and is only active in faeces (cf. the case of water Amoebae and parasitic Entamoebae).

Coccidian Cysts.—Human coccidiosis has always been regarded as a very rare and exceptional occurrence. In the faeces of 5 cases

bodies have been found which are in all probability coccidian cysts (Fig. 2, A and B). They were usually scanty, but in one case not infrequent, five or six cysts being quickly found in one fresh preparation. The cyst is ovoid, with rather narrow ends. The membrane is definite and firm, but rather thin. The size of the cyst is very generally about 32 by 14 microns. It is thus little more than half the size of any human nematode ova, according to textbooks of parasitology; on the other hand, the dimensions are well within the limits of those given for the cysts of coccidia which have been described from man. Further, the contents of the cyst appear quite different from those of eggs. The cyst contains either one or two protoplasmic masses, larger or smaller respectively, which are full of large refringent granules, strongly resembling the characteristic reserve food granules of

coccidian oocysts. More than two masses have never been observed—that is to say, this does not appear to be the segmentation process of an egg. Nor have any worms been found in a single case. The two masses, resulting, doubtless, from the division of the single larger one, represent most probably two sporoblasts, which will become the sporocysts. For some reason or other no further development has ever been observed in cysts taken from faeces, after the latter have been kept for a day or two. The coccidian is apparently of the *Isospora* type rather than the *Coccidium* type, which has four sporocysts; a species of *Isospora* is known to occur frequently in cats and dogs. There has been so far no opportunity of determining whether this coccidian infection is restricted to the intestinal epithelium or whether it also invades the liver.

Blastocystis hominis.—This peculiar parasite, which has been known only a few years, is usually regarded as allied to the fungi (Ascomycetes) rather than to the protozoa. It has been undoubtedly the cause of much confusion, and has been mistaken for resting or resistant stages of different flagellates—for example, *Trichomonas* or *Macrostoma*. In one case, where the stool was very watery and of a clayey colour, enormous numbers of this parasite were present. Different stages of *Blastocystis* are seen in Figs. 3, A and B. The body is spherical, motionless, and in the earlier stages shows a large vacuole; frequently, in fact, the body appears to be nearly all vacuole, there being only a narrow rim of protoplasm enclosing it. The vacuole is clear, and not fatty or oily in appearance. The limiting membrane of the body is thin and delicate, and does not resemble the cell wall of a fungus. The parasite is probably more closely allied to the protozoa than to the yeasts or blastomycetes. At first there is only a single nucleus, lodged in the rim of protoplasm. With increase of size the nucleus divides, the two daughter nuclei pass to opposite sides of the body, and simple binary division may take place. Or nuclear multiplication may continue, and the vacuole may diminish and tend to disappear as such. This condition probably leads to multiple fission. Resistant stages, or cysts, have not yet been observed.

Entamoeba coli.—Up to the present no cases of infection with *Entamoeba tetragena* (the cause of amoebic dysentery) have come under notice. In several cases, however, the cysts of *E. coli* have been found in the faeces, usually in scanty numbers, but once or twice fairly numerous. Active forms have not been observed at all. The cyst of *E. coli* is usually spherical (Fig. 4), but may be ovoid. It is considerably larger than any of the flagellate cysts, and is further distinguished from the latter by the fact that the membrane is thick, with a well marked double contour. By careful focussing, moreover, many nuclei, appearing as small rings slightly clearer within than the surrounding protoplasm, can be made out. Practically all the cysts in which the nuclei could be clearly made out had from six to eight nuclei, the latter being the normal complete number. This fact, of course, is usually given as a definite diagnostic character distinguishing *E. coli* cysts from those of *E. tetragena*, which have four nuclei as the complete normal number. All the evidence obtained so far supports the view that *E. coli* is non-pathogenic, and a distinct form from *E. tetragena*.

Pathogenicity.

With regard to the question of the pathogenicity of the above flagellates, the data so far to hand afford only slight indications. Of late years, several Continental workers have recorded cases of "flagellate-dysentery" (the flagellates being usually *Lambli*a or *Trichomonas*),

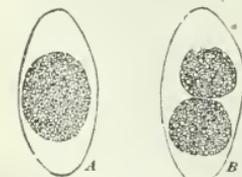


Fig. 2.—Coccidian cysts: A, containing a single protoplasmic mass; B, with two masses (sporoblasts). Drawn from life. $\times 1000$.

14 microns. It is thus little more than half the size of any human nematode ova, according to textbooks of parasitology; on the other hand, the dimensions are well within the limits of those given for the cysts of coccidia which have been described from man. Further, the contents of the cyst appear quite different from those of eggs. The cyst contains either one or two protoplasmic masses, larger or smaller respectively, which are full of large refringent granules, strongly resembling the characteristic reserve food granules of



Fig. 3.—*Blastocystis hominis*: A, with a single nucleus; B, with two. $\times 2000$.



Fig. 4.—Cyst of *Entamoeba coli* with eight nuclei. Drawn from life $\times 1000$.

which have been chronic, giving rise to continued diarrhoea, often with blood and mucus in the stools, and proving refractory to ordinary methods of treatment. These cases have been regarded as not due to bacillary or amoebic dysentery, but precise evidence as to the absence of the former is usually lacking. The present series of cases is complicated by the fact that, in the majority of them, one or more types of pathogenic bacteria have been obtained. Blood, mucus, and pus stools have occurred only in two cases, from both of which Shiga's bacillus was recovered. On other occasions, where loose stools have occurred, at times slightly mucoid but with no blood or pus, Shiga has either been obtained or, where not actually recovered, the patient's serum has subsequently given the agglutination reaction. Or, again, some other organism—for example, *B. paratyphosus A*—has been present. In several cases, in fact, the patients appear to have been infected with several different organisms, bacteria and protozoa. It is quite possible that the bacterial infection and the disturbance caused by it have favoured the establishment of the protozoan infection, whatever this has been.

Nevertheless, there is a residuum of cases, where loose diarrhoeal stools have occurred, containing flagellates or their cysts, where no evidence of pathogenic bacteria has been obtained. Where active flagellates are present the motions are nearly always loose or thin and creamy or bright yellow in colour, the latter being markedly the case with stools containing *Trichomonas*. This parasite has occurred in diarrhoeal stools from one patient at intervals over eighteen days, after which it apparently died out. Up to the present this form has not proved persistent or refractory. *Lamblia* is probably a more important cause of intestinal derangement, and this can be readily understood when the essential parasitic character of this form and the situation it occupies are borne in mind. The following is the record of one of three very similar cases of infection with this parasite, uncomplicated (now) by the presence of any other pathogenic organism. In the instance in question, the active forms have never been seen in the stools examined; this fact shows the importance of the recognition of the cysts.

- W s. Admitted September 26th, 1915.
- September 28th. Pasty yellow stool; fair number of *Lamblia* Cysts.
- October 13th. Loose, slightly mucoid stool; no blood or pus; some *Lamblia* cysts.
- October 22nd. Pasty, olive-green stool; very numerous *Lamblia* cysts.
- October 30th. Thin, soup-like, greenish-brown stool; no blood or mucus; numerous *Lamblia* cysts.

The presence of cysts in such numbers indicates, of course, a heavy intestinal infection with the active forms. During this period the patient has suffered from chronic diarrhoea; during the night before the last sample was examined, for instance, he had five thin or loose motions. Prior to admission, the patient, who came from Gallipoli; had a history of six weeks' dysentery and diarrhoea, with blood and mucus in the stools during the first two or three weeks. During this early period he had three or four injections of emetine. Probably, therefore, the patient had amoebic dysentery, which was entirely cured by the emetine, for neither Entamoebae nor their cysts have ever been found in the stools. The emetine had apparently, however, no effect upon the *Lamblia*. French workers strongly recommend turpentine (terebenthine) in cases of persistent diarrhoea due to these flagellates. It is hoped to obtain further information upon this subject as time goes on.

REFERENCES.

1. Medusham and Arkwright: *The Carrier Problem in Infectious Diseases* (Typhoid). 1912. 2. *Wien. Klin. Wochn.*, 1915, pp. 579, 630.

ACCORDING to the New York Medical Record, the field service of the American Ambulance in Paris during the first eleven months of its activity transported 57,000 wounded from the front. The number of automobiles now employed in this service is about ninety, and, in addition, twenty machines are attached to the hospital at Neuilly. One supply and one staff machine accompany each of the units in the field, themselves composed of from ten to twenty-five cars. There have been no deaths among the drivers of the field ambulance, although they go very near to the fighting lines and are frequently under heavy fire. More cars are added to the field equipment as the fund grows. The number of beds in the hospital at Neuilly has been increased from 175 to 600.

NOTE ON THE TETRAVACCINE: TYPHOID, PARATYPHOID A, PARATYPHOID B + CHOLERA.

BY PROFESSOR ALDO CASTELLANI, M.D., PHYSICIAN, II AND VI (LADY PORTER'S) MILITARY HOSPITALS, SROPLJE, SERBIA, AND RALPH W. MENDELSON, M.D., MEMBER OF THE AMERICAN RED CROSS SANITARY COMMISSION, SROPLJE, SERBIA.

It may be of interest to put on record the somewhat extensive experience we have had in Serbia with the tetravaccine: typhoid + paratyphoid A + paratyphoid B + cholera, one of the combined vaccines prepared and used for several years in Ceylon by one of us.

Technique of Preparation.

This is identical with that used by one of us previously, and already published in various papers. It may, however, be of advantage to describe it again briefly.

The growth of typhoid cultures is washed off with sterile 0.85 per cent. salt solution, to which 0.5 per cent. carbolic acid has been added; the emulsion so obtained is stored at room temperature (18 to 20 C.) for twenty-four hours, and then standardized. To standardize it the germs are counted by using a Thoma-Zeiss apparatus, and sufficient carbolic salt solution is added to bring the number of germs down to 2,000 millions per cubic centimetre. The standardized emulsion is tested for sterility. The same procedure is carried out with paratyphoid A and paratyphoid B cultures, these two emulsions being also standardized to contain 1,000 million germs per cubic centimetre. The above procedure is also carried out with cholera, the emulsion of which, however, is standardized to contain 4,000 million germs per cubic centimetre. The four standardized emulsions when found sterile are mixed together in equal proportions, and the vaccine will therefore contain per cubic centimetre:

Typhoid	...	...	500 million
Paratyphoid A	...	...	250 "
Paratyphoid B	...	...	250 "
Cholera	...	...	1,000 "

Of this mixture 0.5 to 0.6 c.c.m. are given under the skin of the arm the first time, and the same amount a week later; A third dose, also $\frac{1}{2}$ c.c.m., given two weeks after the first, is of advantage, but not essential for practical purposes.

The Peptone Water Method.—Owing to the scarcity of agar at one-time in our laboratory we prepared a certain amount of vaccine with peptone water in the following way. Large bottles were filled with peptone water containing 1 per cent. peptone and 0.75 per cent. sodium chloride, and sterilized. Some of the bottles were then inoculated with typhoid, others with paratyphoid A, others with paratyphoid B, and others with cholera. The cholera bottles are kept in the incubator at 35 C. for twenty-four hours. The bottles inoculated with typhoid, paratyphoid A, and paratyphoid B were incubated for forty-eight hours, as the growth of *B. typhosus* and allied germs is slow and scanty in such a medium. We found by experience that with the peptone water we used and with the strains of germs we had, provided the bottles were kept in the incubator exactly the stated period of time and temperature, the number of germs was, for practical purposes, nearly constant. The cholera bottles will contain approximately 3,800 to 4,000 million cholera vibrios per cubic centimetre and the typhoid and paratyphoid bottles will contain approximately 900 to 1,000 million per cubic centimetre. The peptone water cultures were then mixed in the following proportions:

Typhoid	...	...	2 parts
Paratyphoid A	...	...	1 part
Paratyphoid B	...	...	1 part
Cholera	...	...	2 parts

To this was added $\frac{1}{2}$ per cent. carbolic, which is sufficient to sterilize the vaccine in a very few hours. We may say at once that the results obtained with this vaccine as regards agglutination, etc., appear to be very

similar to those obtained with the carbolized agar culture vaccine, though whenever possible we prefer to use the latter.

Experimental Work on which the Preparation of the Tetravaccine and other Mixed Vaccines is Based.

The preparation of tetravaccine, as well as other combined vaccines, is based on the experimental work of one of us carried out in 1901 and 1902,¹² when it was demonstrated that if an animal (rabbit) was inoculated with two or three species of bacteria, agglutinins and immune bodies for all the germs were elaborated, provided a sufficient minimum quantity was given, the amount of agglutinins and immune bodies elaborated for each germ being nearly the same as in control bodies inoculated with only one species. It was also demonstrated that when immunization is obtained by a single inoculation, the amount of agglutinins and immune bodies elaborated is not in proportion to the amount of culture injected, provided a sufficient minimum dose be used. A series of rabbits inoculated with 2 c.cm. of typhoid culture gave the same average agglutination limit and the same amount of immune bodies as a series of rabbits inoculated with 4 c.cm. In rabbits no good results were obtained, as a rule, by inoculating more than three species of bacteria.

American Red Cross Sanitary Commission.	
Tetravaccine (Castellani)	
Combined typhoid + paratyphoid A + paratyphoid B + cholera vaccine.	
1st dose 1/2 cc; 2nd dose a week later, 1/2 cc; 3rd dose (not essential) two weeks after the first, 1/2 cc	
The injections should be given subcutaneously in the arm	
This bottle contains 100 doses. Shake well before using	
Американска Санитарна Мисија Цовеног Крста	
Тетравацини (Кастелани)	
Комбиновани из вакцине за туберкули тифуса, из вакцине за паратифус А и Б и колеријне вакцине, заједно.	
Прва ијекција 1/2 cc; друга недељу дана после прве опет 1/2 cc; трећа (није баш неопходна) две недеље после прве ијекције 1/2 cc.	
Ијекције се израђују у руке подложно	
Ова флаша садржи 100 порција. Пре употребе добро протресајте.	

Facsimile of label.

But more recent experiments have shown that in rabbits the tetravaccine—typhoid, paratyphoid A, paratyphoid B, and cholera, induces protective substances for the four germs in the rabbit.

Blood Examination of Rabbits Inoculated with the Tetravaccine.

The particulars of the investigation will be given in a future more complete paper. Here we will limit ourselves to the statement that according to our researches the blood of the inoculated rabbits developed agglutinins for the four germs, and that the amount of agglutinin developed for each germ was not distinctly less than in rabbits inoculated with monovaccines. Porcelli, using Castellani's tetravaccine, has come to the same conclusion.¹³

Number of Individuals Inoculated and Technique of Inoculation.

The number of individuals inoculated by us with the tetravaccine amounts to 50,000, and more than 120,000 by colleagues, among whom we would like to mention Colonel Randon, who has very ably organized such vaccination for the civil population, also on a very large scale, and Dr. Boricki, who has now started the preparation of the tetravaccine at the Government Pasteur Institute of Nish. The method for preparing the arm for inoculation was simple. At first we took elaborate means to scrub the arm thoroughly with soap and water, drying, and then painting with tincture of iodine; but when inoculating at the rate of several thousand a day, we found it impossible to spend the time necessary for this procedure, and depended entirely upon the iodine alone, with excellent results.

The reactions were usually very mild and consisted usually of a small area of redness, a slight local temperature and some tenderness. General reactions were very seldom complained of, and when inquired into revealed a

slight headache and a general inaptitude. These particulars were carefully looked into in all cases upon the second inoculation.

It seems hardly permissible to elaborate upon the technique of inoculation, yet with continued practice one acquired a skill that almost assumes the dignity of an art. We have found it possible when everything is going right to inoculate at the rate of 400 an hour. The left arm is chosen, the skin over the insertion of the deltoid, and a quick stab, as though one were shaking a drop of ink from a pen, results in placing the point of the needle at the exact depth. The syringe is held in the right hand between thumb and index finger, while the tip of the ring finger is placed just above the point of the needle, acting as a check to the force applied. No after-treatment such as massage or sealing the puncture is used.

Blood Examination of Individuals Inoculated with the Tetravaccine.

We have examined the blood of more than 100 individuals inoculated with the tetravaccine for agglutinins. In ten we studied the agglutination curve for several weeks. We propose giving the particulars with all the tables referring to this subject in a future more complete paper. We are limited here to giving a table containing the results obtained in three individuals in whom the observations were carried on for six weeks.

Tetravaccine (Two Inoculations: 2 c.cm. first, 3 c.cm. second.)

Individuals Inoculated.	Blood tested against	Limits of Agglutination. Weeks after First Inoculation.					
		1	2	3	4	5	6
No. 1.	<i>B. typhosus</i> ...	1,000	1,500	1,400	1,300	1,150	1,100
	<i>B. paratyphosus</i> A ...	1,200	1,500	1,200	1,150	1,100	1,100
	<i>B. paratyphosus</i> B ...	1,200	1,500	1,200	1,150	1,100	1,100
No. 2.	<i>B. typhosus</i> ...	1,400	1,300	1,300	—	1,500	1,100
	<i>B. paratyphosus</i> A ...	1,200	1,500	1,400	—	1,300	1,100
	<i>V. cholerae</i> ...	1,200	1,400	1,400	—	1,200	1,100
No. 3.	<i>B. typhosus</i> ...	1,400	1,000	1,000	1,000	1,150	1,200
	<i>B. paratyphosus</i> A ...	1,200	1,250	1,200	1,100	1,150	1,100
	<i>V. cholerae</i> ...	1,100	1,100	1,100	1,100	1,100	1,100

The individuals inoculated with the tetravaccine produce a very large amount of agglutinins for typhoid, a fairly large amount of agglutinins for paratyphoid A and paratyphoid B, a certain amount for cholera, which varies between the limits 1:20 and 1:150. Comparing the results with those obtained in control individuals inoculated with typhoid, paratyphoid A, paratyphoid B, and cholera, we find that the amount produced is not distinctly smaller. The tables referring to all the cases, including the controls inoculated with monovaccines, will be published in a later more complete paper.

Statistics.

We are not in a position now to give any elaborate statistics, but we may say that so far, in the inoculated troops, typhoid, paratyphoid A, and paratyphoid B have been practically absent. The very few cases reported—without any death—have mostly been proved to be cases of intermittent or remittent subtertian, there being in the country now an extremely severe epidemic of malaria. As regards cholera, no cases have been reported, but the disease is not now present in Serbia.

CONCLUSIONS.

1. The preparation of the tetravaccine (typhoid, paratyphoid A, paratyphoid B, and cholera) as well as other combined vaccines is based on the experimental work carried out by one of us in 1901, when it was demonstrated that animals inoculated with more than one species of bacteria, within limits, developed agglutinins and immune bodies for all the species injected, the amount of such bodies being not distinctly inferior to that observed in control animals inoculated with one species only.

2. The inoculation of the tetravaccine is harmless. We have had no septic or other accident in any of the more than 50,000 men we have inoculated, this entailing more than 100,000 injections, nor have we heard of any untoward

accident observed by colleagues who have inoculated in Serbia more than 120,000 men with the tetravaccine. We have never observed any really serious reactions, either local or general, the inoculated persons being as a rule able to attend to their duties in from twenty-four to forty-eight hours after injection.

3. The inoculated persons develop protective substances for the four germs: typhoid, paratyphoid A, paratyphoid B, and cholera. The amount of agglutinins present for each of the four germs is practically the same as in control individuals inoculated with typhoid, paratyphoid A, paratyphoid B, and cholera monovaccines.

4. We are of the opinion, as stated in previous publications, that the tetravaccine should be used as a matter of routine to inoculate the troops taking part in the present war, greatly exposed as they are to the four diseases, typhoid, paratyphoid A, paratyphoid B, and cholera. Its use renders it possible to give a contemporaneous protection for the four maladies by a simple and rapid procedure.

As we have already received numerous requests and inquiries from many quarters, and as the time at our disposal makes it impossible for us to supply the vaccine to all who ask for it, it may be mentioned that the tetravaccine is now prepared on a large scale by Mulford and Co., of Philadelphia, and can be obtained from them.

REFERENCES.

¹ Castellani: *Ceylon Med. Reports*, 1904-1905; *Centr. für Bakt.*, 1909; *BRITISH MEDICAL JOURNAL*, 1913 (vol. ii, p. 1577), 1914-1915; *Journ. Ceylon Branch British Medical Association*, June, 1914; *Spermin-stoffe*, 1915. ² Castellani: *Zeit. für Hygiene*, 1902, p. 1. Agglutination in experiment. *Mischinfect.* ³ Forcetti: *Il tetravaccino Castellani*, *Riforma Medica*, 1915.

PARATYPHOID "A" FEVER.

BY
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ALTHOUGH paratyphoid fever has been recognized for several years, and during the last three or four years has become of considerable importance in India, especially as affecting the British troops, it appears seldom to be recognized by civilian practitioners, and not much attention been paid to it outside the army. This is no doubt due to the fact that few textbooks give more than a brief sketch of the disease.

The following notes are based on over a hundred cases which I have personally observed and in which the *Bacillus paratyphosus A* was isolated in each instance, either from the blood, urine, or faeces.

Definition.—A septicæmia caused by the presence of the *Bacillus paratyphosus A*, causing a remittent type of fever of about twelve days' duration.

Incubation.—From ten to fifteen days.

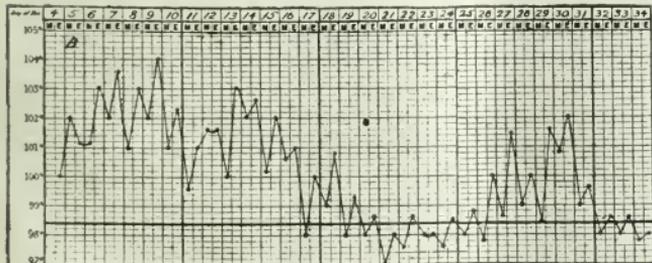


Chart to illustrate a severe case of paratyphoid A fever followed by a relapse. B, Blood culture positive.

Immunity.

In India race seems to bear no relation to immunity, for although the organism has been more frequently isolated from Europeans than from Indians this is due chiefly to failure in taking the necessary steps for its isolation among the latter. From five blood cultures from Indians I have isolated *B. paratyphosus A* on two occasions and *B. typhosus*

once. It appears to be more common among men than women, but no definite statement on this can be made at

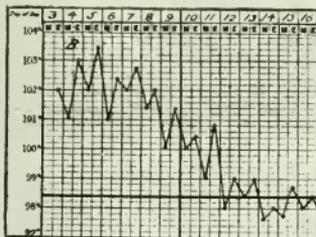


Chart to illustrate a typical case of paratyphoid A fever. B, Blood culture positive.

present owing to the excess of male over female population in the army in India. One attack protects against a second. I have never seen or heard of a second attack. As might be expected, antityphoid inoculation gives no protection against paratyphoid.

Bacteriology.

A Gram-negative motile bacillus is present which agglutinates with high titre paratyphoid A serum, and by the absorption test can remove the agglutinins.

Reactions.

	24 Hours.	48 Hours.	10 Days.
Glucose ...	Acid + gas +	Acid + gas +	The same as after 48 hours' incubation.
Lactose ...	No change	No change	
Cane sugar ...	No change	No change	
Mannite ...	Acid + gas +	Acid + gas +	
Dulcitol ...	No change	Acid + gas +	
Inulin ...	No change	No change	
Neutral red agar	Gas + fluorescence -	Gas + fluorescence -	
Litmus milk	Acid + clot -	Acid + clot -	
Indol ...	Nil	Nil	

Symptoms.

The onset is as a rule insidious, there being a general feeling of lassitude and loss of appetite. There is complaint of headache (frontal and occipital), pain in the back and limbs, and chills. A rigor seldom occurs. The

headache becomes very severe and the patient suffers from insomnia for the first few nights, but when once the headache is relieved sleep returns. There is constipation and the tongue is coated with a yellowish-brown fur except the tips and edges, which are clear. The temperature varies considerably with the severity of the case, but is generally 101° to 102°, or even higher at nights, and 99° to 101° in the morning. There is generally defecescence, the fever lasting about twelve days.

The pulse-rate is slow in comparison with the temperature. This is a very diagnostic sign, and often gives one a clue to the real nature of the disease during the first few days.

The pulse-rate is often described as being rapid in this disease, but careful observation of my own cases and a study of a large number of charts from various stations in India entirely disproves this.¹

In a few cases there is initial bronchitis or tonsillitis, and epistaxis sometimes occurs.

A rash may be present during the first few days, but

I have seen so many varieties and also so many cases in which no rash appeared that I do not consider the presence or absence of a rash any aid to diagnosis.

Tenderness or even pain over the gall bladder is a common symptom. There is often an initial enlargement of the spleen but seldom of the liver.

By the end of the first week the headache is relieved and there is marked improvement in the general condition of the patient; this is in marked contrast to the case of true typhoid. Although the fever continues a few days the patient feels quite well, and is anxious for an increase of diet or even to be allowed to get up.

Complications and Sequelae.

A relapse is fairly common, and usually begins within seven to ten days after the cessation of the initial attack, but seldom runs the full course, lasting five to seven days. Haemorrhage is rare, but blood-tinged mucus is sometimes passed. Perforation is extremely rare, but has been recorded. Phlebitis and cholecystitis appear to be the most common complications, the former occurring more often than in typhoid.

The mortality is very low, and is generally placed at 1 per cent., but even this figure is, I think, too high.

Convalescence is slow: considering the comparatively short duration of the fever there is marked debility and anaemia.

Treatment.

The case should be isolated and treated on general lines, as a case of typhoid.

Beyond relieving the headache and constipation little can be done except careful nursing. For the relief of the headache small doses of aspirin are useful, and for the first night or two hypnotics may be used. An initial dose of castor oil should be administered if the case is seen early; if not enemata should be given. The pain over the gall bladder is seldom excessive, and can generally be relieved by hot fomentations.

The diet should consist entirely of milk or milk-whey during the fever and be very gradually increased. Too early feeding is, in my opinion, the cause of most cases of relapse.

Diagnosis.

Little reliance can be placed on Widal's reaction as an aid to diagnosis, as the agglutinins are very feeble—seldom higher than in a dilution of 1 to 40 during the disease, and are frequently entirely absent.¹ They appear to be highest at about the twenty-second day of the disease, by which time the patient is convalescent. The most rapid and satisfactory method of arriving at a diagnosis is by blood culture, but it is essential that the blood should be drawn within the first five or six days of the disease. I have recovered the bacillus from the blood as late as the ninth day, but this is uncommon. A bottle containing 20 c.cm. of sterile ox bile should be inoculated with 5 c.cm. of blood from the vein. This is best done with an all-glass syringe which has been sterilized by dry heat or hot oil at a temperature of 140 C. The syringe should not be sterilized with antiseptics. The further stages in the isolation of the organism must be carried out by an experienced bacteriologist. Failing isolation from the blood, the urine and faeces should be daily examined. The disease varies considerably in intensity from the ambulatory type, which is fairly common, to the typhoid type. The fever in this type lasts three or four weeks, but even in this severe type the "typhoid state" is seldom, if ever, seen.

An intermittent type of temperature sometimes occurs.

REFERENCES.

- ¹ Gratton and Wood, *Journal of the Royal Army Medical Corps*, August, 1911; *Bainbridge, Lancet*, March 16th, 1912. ² Gratton and Harvey, *Journal of the Royal Army Medical Corps*, January, 1911.

THE Pan-American Medical Congress, at its seventh meeting, held in San Francisco in June, passed a resolution requesting the president to organize a Pan-American Committee on Medical Education to include one representative from each American country. The committee is to investigate the status of medical education and medical practice in the different countries; and to consider the feasibility of a system of exchange professorships between American universities. Its report is to be communicated to the national medical organizations of the countries represented, and a final report is to be submitted to the eighth Pan-American Medical Congress.

THE TREATMENT OF AMOEBIC DYSENTERY.

BY

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RECENTLY many cases of dysentery have been coming home to England from Gallipoli and other places abroad, and as a result people who have little or no experience of this symptom-complex of disease are called upon suddenly to treat them. Naturally the results in many instances are not very satisfactory, and, in the hopes that some information on the subject may help any practitioners so situated in the future, I propose to give a brief account of the up-to-date treatment of one of the commonest forms of this disease. Since Rogers proposed the use of emetine for amoebic dysentery I have treated many cases, both in private and in the Seamen's Hospital, by this drug, and the method of administration now given is therefore based on actual experience and is one that will be found useful and efficacious in actual practice. Other ways of giving the drug I have no doubt may prove equally successful—at any rate, in the hands of experts—but there are certain points that must be carefully followed if success is to be obtained.

Space will not permit of a dissertation on all the varieties of dysentery met with. It is sufficient to say here that there are bacillary forms of the disease, protozoal forms, and helminthic. Of these the one termed amoebic comes under the protozoal group, and is caused by a parasite termed the *Entamoeba histolytica*. The cases of dysentery that have recently reached England from the Dardanelles have, at least in the vast majority of cases, been bacillary or of some undetermined type, and certainly have not been amoebic.

The administration of emetine to such is useless, as this drug is only specific for the form of dysentery caused by the *Entamoeba histolytica* just mentioned, and by its improper use in cases not due to such parasites negative results are first obtained, and the drug is brought into disrepute. The first thing to do in dealing with a case of dysentery is to determine its type, and for this purpose the faeces must be carefully examined for protozoal and other parasites. To detect pathogenic amoebae is not difficult, at least to the expert, but there are pitfalls the unwary may easily fall into, especially if one has not had sufficient practice in examining stools. *Lambliæ* cysts, *Blastocystis*, vegetable cells, and desquamated cells from the bowel are easily mistaken, and such mistakes are serious, as they may condemn a patient to a long course of emetine for no purpose whatsoever. Still more difficult, at least in the vegetative stages of the parasites, is the distinction between *Entamoeba coli*, a harmless amoeba, and the *E. histolytica*, the harmful one. In the tropics and abroad generally the former is very common, and there is no reason why mixed infectious with both should not occur. The distinction between the two lies in the hands of the expert, but the broad rule generally adopted now is, if a patient is passing blood and mucus—that is, has signs of definite dysentery and has amoebae present—the case may be looked upon as an amoebic one and treated accordingly. Later on, when the case becomes chronic or passes into the stage of the true carrier, cysts appear, and these can be differentiated from each other by their size and the number of their nuclei.

Having then diagnosed the case properly—a most important thing—the next thing is to treat it, and this is done by emetine hydrochloride in varying doses and amounts. The drug may be administered in one of three ways: (1) Intravenously; (2) subcutaneously or intramuscularly; or (3) by the mouth.

As regards intravenous injections, I have had no occasion to use them, but there is no reason why they should not be employed in fulminating or in moribund cases where time is precious. The most usual method of administering emetine is subcutaneously or intramuscularly. Subcutaneous injections often give rise to a considerable amount of pain and stiffness, and to avoid this some give them deep into the muscles similarly to quinine. There seems to be an idiosyncrasy in some individuals, a man I lately treated having considerable trouble—pain and stiffness—after his injections, whether

they were given subcutaneously or intramuscularly. These symptoms did not disappear for several days, and in two injections given in the loose cellular tissue of the abdominal wall slight haemorrhages occurred as well as a considerable amount of redness at the site of the injection. This happened, though every care was taken to sterilize the skin, syringe, and needles, and the ampoules came from the usual source. At the same time as this two other patients had similar injections, both subcutaneously and intramuscularly, without the least trouble. The stiffness and pain in the case just mentioned definitely prevented the patient having full use of his arms for several days, and this possibility must be borne in mind in giving injections to people who are up and about. As a rule now I give the injections intramuscularly, avoiding giving a second one near a place where one has been previously given, until all signs have disappeared. Even with large doses no sickness is produced by the injections.

As regards giving the drug by the mouth, the method has the disadvantage that sickness may be produced. Provided the drug is retained, however, it acts quite as efficiently as by injections, and I know of one case where it did better. When administered by this route one gives it in keratin-coated tablets at night when the patient has gone to bed, taking the same precautions as one used to do with the old ipecacuanha treatment. I have tried this method fairly extensively and find that one of three things happens: (1) Either the patient has no sickness at all. (2) He may be sick for a night or two and then get quite accustomed to the drug, or (3) it may make him sick every time.

In acute cases in bed injections are best. In chronic cases with slight local lesions that one does not wish to keep in bed, or for some reason finds it inconvenient to inject, then the mouth method may be employed.

Another objection has been raised to the keratin coated tablets, and that is that they may not dissolve and may be passed unchanged per rectum. This has not been my experience, but it is a possibility. If there is any suspicion of it, as evidenced by the case not improving as he should, the stools can be washed and the tablets searched for.

The salt usually employed, as already stated, is emetine hydrochloride. Recently I tried another preparation for Dr. Balfour, made by Burroughs, Wellcome and Co., named methyl emetine. Though larger doses of this can be employed, it does not seem to be any more efficient than the hydrochloride, but one would need to try it on further cases before deciding finally.

The dose of emetine hydrochloride I now usually employ is 1 grain for each injection, two of these being given a day, morning and night, for the first two or three days if the case is a bad one with much blood, mucus, and pain; or if not, only once a day. After that 1-grain injections are administered every night until a total of 12 grains in all has been given. By this time all blood and mucus should have disappeared from the stool, and amoebae should no longer occur. Not uncommonly about the fifth or sixth day of treatment a moderate degree of looseness of the bowels, or in some instances a definite diarrhoeic condition, is met with. This may be due to the emetine itself, similarly to what one got and aimed at in the old ipecacuanha treatment, and it does not harm. After the cessation of the drug the stools become solid, of a normal consistence, and no blood or mucus is seen on their surface. They should be carefully searched for amoebae, and if these return or if mucus and blood appear again a second course of emetine will be required. This does not, as a rule, require to be so prolonged as the first, and may be given again in 1-grain doses every night until 6 grains in all have been taken. Third courses are practically never necessary. In my experience larger doses than those mentioned are not required. If all symptoms of dysentery have not disappeared by the time the 12 grains are taken, then the diagnosis is in all probability at fault, and the condition is due to some other cause than the entamoeba. With such doses toxic symptoms do not occur, but it is quite possible that if the drug is given in larger individual doses and kept up over long periods of time such might appear. As has been pointed out, there is no necessity for this, excessive doses not being required. The action of the drug on the vegetative or living stage of the amoebae is very rapid, the parasites quickly disappearing, as do also the

blood, and mucus, and other symptoms. In addition to the emetine treatment, acute cases of dysentery are, of course, kept strictly in bed and on a strict diet. At first only milk or liquid diet in the shape of whey and weak soups are allowed; then, as the symptoms subside, milk puddings may be substituted, these in turn being followed by a further increase until pounded white fish and chicken are reached. No alcohol is permitted at any time. After treatment, during convalescence, and for at least four to six months afterwards, the patient must be kept on a simple white meat diet with plenty of milk, no beef, coarse vegetables, curries, spices, alcohol, or things of that sort being allowed. In addition to diet, chills and wettings must be very carefully guarded against. Relapses of amoebic dysentery, even after very careful treatment, are frequent, and it is only by taking the greatest precautions and care that these may be avoided.

Often chronic cases of amoebic dysentery present themselves for treatment. The symptoms depend upon the amount of bowel involved and the character of the lesions present. Blood and mucus to a certain extent are generally present in the stools, or all that may be found is some looseness of the bowels, with two or three actions a day, or slight diarrhoea. In this latter type of case the only reason for suspecting dysentery is the presence of the specific parasite, often now in the cystic or resting stage. These cases act as true carriers and are dangerous to other people, the cysts being the infective agent that passes the disease on from one person to another. Such cases may require to be isolated. It has been stated that emetine has no effect upon the cysts and does not cause them to disappear. In a case Dr. Wenyon and I recently studied carefully this was not so. Injections of emetine in 1-grain doses daily quickly caused them to vanish, and they have not reappeared again up to date (some months later). The treatment of these chronic cases and carriers is the same as for the acute ones. It may not be necessary to confine them so strictly to bed or even to keep them in bed at all, but they should be put through a similar course of emetine and be dieted in exactly the same way. In addition to amoebic manifestations of the bowel, the liver may be involved and an abscess may threaten to form. Here, again, emetine works in a most miraculous manner, and if applied in the doses mentioned above may completely abort all the symptoms. Since its introduction the chances of averting suppuration have increased enormously, and fewer cases of abscess of the liver now come to the operating table.

Though practically all cases of amoebic dysentery respond quickly to emetine treatment, there is a small residuum—in which there has been no doubt of the correctness of the diagnosis—which does not, symptoms continuing and amoebae, vegetative or cystic, being still found in the stools. Such cases require further careful study to explain this anomaly.

In all the stages of the treatment of the disease it is of fundamental importance that the stools should be carefully looked at every day. There is no other way really of being certain how the drug is acting unless this is done. Where obtainable, flat glass stool dishes will be found very useful. One can examine the faeces then without removing the glass top and so avoid the horrible smell so many of these stools have. In addition to these macroscopic examinations, careful microscopic ones must also be carried out at least every second or third day.

In many instances physicians send samples of such stools to experts for diagnosis. In such a case it is not necessary to send the whole stool, all that is required being a small portion in a small glass bottle. Only practice in the microscopic examination of stools will make perfect. Students who have passed through the tropical schools are now supposed to possess this proficiency, but one must impress upon the home doctor, who has not had similar chances, that the subject is by no means an easy one and that there are many sources of fallacy.

Finally a word of warning as to the significance of flagellates in the faeces. Though this has nothing to do with amoebic dysentery or its treatment, yet in the search for entamoebae in the faeces they are sure to be met with, and as a matter of fact the cystic stages of some of these are often mistaken for amoebae. Three of the commonest intestinal flagellates are *Lambia intestinalis*, inhabiting the small intestine in its upper parts, *Trichomonas*

intestinalis and *Tetramitus mesnili*, inhabiting the large bowel. These, of course, have been known to tropical workers, and not only known but studied for years. Some have suggested that they cause diarrhoea, but on the whole the consensus of opinion is that they are harmless. They certainly are to many individuals, who may harbour them (*Lambia* at least) for long periods of time with no symptoms, but that, of course, does not preclude the possibility of them becoming pathogenic under certain unknown conditions. It is very improbable that they ever produce dysenteric symptoms; in fact, one may say they never do. The fact of them being found in dysenteric stools, as they have been recently, in many instances in cases coming to London from Gallipoli, simply means the patients have had a double infection, the dysentery being due to Shiga's or Flexner's bacillus, paratyphoid bacilli, or other bacterial causes.

It may even be that the flagellates flourish better in a bowel already damaged, but careful examinations of apparently healthy individuals in the tropics would tend to negative this, as sometimes the heaviest infections seem to occur in people with no bowel symptoms whatsoever. If they are harmless there is no special necessity to destroy them by treatment. In a case of *Lambia* infection Dr. Wenyon and I recently studied—the case that had *Entamoeba histolytica* cysts—we tried emetine and other drugs. Emetine had no effect whatsoever, while beta naphthol though causing a diminution of the parasites did not completely destroy them, and after the drug was stopped they became as numerous as ever again. As already emphasized, emetine has no effect on bacillary dysentery. The treatment of this disease is quite a different one, being chiefly carried out by diet, salines and sorbents, and the diagnosis of this type is purely a bacteriological one, similar to that of typhoid and paratyphoid fever.

ON A CASE OF SEPTICÆMIA TREATED BY INTRAVENOUS INJECTION OF EU SOL.

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Preliminary Note.

In the paper on the antiseptic action of hypochlorous acid which was published in this JOURNAL on July 24th, 1915, by Lorrain Smith, Murray Drennan, Rettie, and Campbell, it was shown that 5 c.cm. of esol can be injected intravenously into rabbits without harmful effect. In the paper referred to the name "esol" had been given to an aqueous solution of free hypochlorous acid of 0.5 per cent. strength, prepared by shaking up 25 grams of a mixture of equal parts of chloride of lime and boric acid in 1 litre of water and subsequently filtering. For intravenous injection 8.5 grams of common salt per litre are added. Since July we have made further observations, and find that 25 c.cm. can be injected intravenously in the rabbit without harm, and in one case as much as 45 c.cm. were given—that is, an amount equal to a quarter or half of the total blood volume.

The possibility of applying this method to generalized septic conditions was offered by a case of puerperal septicæmia which was sent into the Royal Maternity and Simpson Memorial Hospital, Edinburgh. The following is a summary of the clinical account of the case:

Mrs. M., aged 27, 4 para, delivered without assistance of a female child on October 5th. When the maternity nurse arrived she found the patient sitting by the fire with the baby in her lap. Placenta had not come away but was expelled naturally shortly afterwards. The progress was normal till the fourth day when, though the patient had not complained, she was found to have a rise of temperature. The prexia continued, and on the sixth day had reached 103 F. with a pulse-rate of 126. The breathing was rapid and shallow, with a short suppressed cough and some pain on the right side of the chest. On examination there was a suspicion of bronchial breathing

over a small area in the right base. The patient was removed to the hospital, where a diagnosis of puerperal septicæmia was made, the lung condition being looked on as secondary and slight in extent. On the day following admission the temperature was normal for a few hours, but this was followed by a steady rise till three days later it reached 103.4 F., pulse 145, respirations 38. The patient's condition was looked on as exceedingly grave and the prognosis hopeless. At Sir Halliday Croom's request we undertook treatment with esol.

In view of the animal experiments we decided to begin with a dose of 100 c.cm. Dr. R. W. Johnston exposed the median cephalic vein, and we injected with a transfusion apparatus 100 c.cm. of esol into it, made up in normal saline, and warmed to 37 C.; the injections took five minutes. The temperature was rising at the time of the operation, and continued to rise for an hour thereafter, when it reached 106 F. It then fell continuously for twelve hours till it reached 96 F. Stimulants were administered, and the temperature slowly rose again. When it reached 101 about twenty-four hours after the first injection, another dose of 100 c.cm. of esol was injected. The temperature ceased to rise, and continued for four days between 99 and 101, and then fell to normal, where it remained for five days.

The patient then developed pelvic cellulitis, and the temperature rose again to 102, and continued to show an evening rise to this point for eight days, after which it fell again to normal. The cellulitis was regarded by Sir Halliday Croom as a purely local condition.

On the day following the second intravenous injection intravenous douching with esol was applied, and also on the subsequent day. This was the only other treatment employed to combat the septic condition itself.

REVIEW OF THE CASE.

There seems no reason to doubt that this was a typical case of puerperal septicæmia in the ordinary acceptation of the term, and, further, that there was every likelihood of a fatal result, and this was the opinion of Sir Halliday Croom and other members of the staff. Cultures from the interior of the uterus yielded a *Streptococcus pyogenes* which was fatal to mice. Cultures from the blood, however, were sterile, so that in all probability life was threatened mainly by the toxic effects due to absorption from the local foci.

The immediate effect on the temperature due to the injections of esol may be regarded as evidence of the action of the hypochlorous acid on the circulating toxin. This view of the case is confirmed by the subsequent temperature disturbance caused by the parametric inflammation.

This case is published at the earliest possible moment because of its bearing on the treatment of septicæmia among the wounded soldiers.

The method is obviously a safe one if carried out with caution and on the lines indicated above.

It has not been possible to determine the maximum quantity of esol which can be injected with safety into the human subject. Since 100 c.cm. is a small fraction of the blood volume we consider that it is possible where repeated doses are given that this amount might be cautiously increased. On the other hand, to judge from our animal experiments, large amounts may diminish the coagulability of the blood and cause hæmolytic.

In a case of malignant endocarditis with pneumonia which is still under treatment we have demonstrated that the 80 to 120 c.cm. esol can be injected without harm.

The success which has followed the treatment of gas gangrene by local applications of esol in Captain John Fraser's hands, taken along with the above observations, suggests that the method of intravenous injection may be expected to give favourable results in cases of general septic infection in the field, gas gangrene, tetanus, and other kindred conditions characterized by toxæmia.

This case was under the care of Sir Halliday Croom, and we beg to express our thanks to him for permission to publish an account of the clinical observations.

REFERENCE.

BRITISH MEDICAL JOURNAL, October 9th, 1915.

The first medical congress of Ecuador, organized by the College of Medicine of Guayaquil, was held in that city from October 9th to the 16th. Among the subjects discussed were the climatic conditions of Ecuador, the special features of typhoid and malarial fevers as seen in various parts of that country, the means of preventing the spread of epidemics, the medical botany of Ecuador, a scheme for the compilation of a *Pharmacopœia Ecuadoriana*, and the practice of medicine in Ecuador.

A Lecture

WOUND INFECTIONS AND THEIR TREATMENT.

DELIVERED WITH DEMONSTRATIONS AT THE OPENING OF AN EXHIBITION OF SURGICAL APPLIANCES FOR THE TREATMENT OF THE WOUNDS HELD AT THE ROYAL SOCIETY OF MEDICINE FROM OCTOBER 8TH TO 14TH.

By COLONEL SIR ALMROTH E. WRIGHT, M.D., F.R.S., C.B.,

A CONSULTANT PHYSICIAN TO THE EXPEDITIONARY FORCE IN FRANCE. (From the Research Laboratory attached to No. 13 General Hospital, Boulogne-sur-Mer.)

(Continued from p. 476.)

PART III.

Physiological Action of Strong Salt Solutions.

In connexion with the physiological action of strong salt solutions—and when speaking of strong salt solutions I have in view those containing about 5 per cent. of salt—we have to consider primarily the effect produced upon leucocytes. And we have to distinguish between the case where the strong salt comes into direct application, and the case where it comes into operation from a distance.

In the former case—both in pus and blood—the leucocytes are broken down; and, in pus, evidence is obtained of a setting free of trypsin. In other words, strong salt solutions acting on a medium containing leucocytes will promote auto-digestion, and provide a nutrient substratum which will, as soon as the excess of salt is removed, favour the growth of microbes.

To study the effect of strong salt solutions acting from a distance we centrifuge blood in an emigration tube or cell;¹ let it clot; superpose our 5 per cent. salt solution; allow time for the salt to diffuse; and then incubate at 37 C.

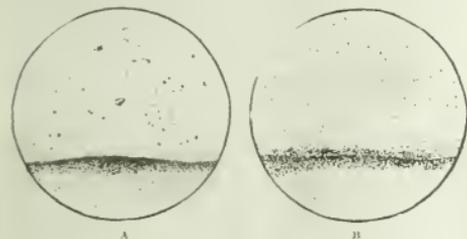


Fig. 12.—We have represented in A and B the lower portion of the white and the upper portion of the red clot obtained by centrifuging blood in one of Emery's cells. The white corpuscles only are shown in the figure. In A strong solution has been imposed upon the free surface of the white clot. In B physiological salt solution has been imposed. The appearances are described in the text.

Fig. 12, A, shows the picture that we then get; and I add for comparison Fig. 12, B, showing the picture obtained when we impose upon the blood, instead of 5 per cent., 0.85 per cent. salt solution. In each case we have: below, the red corpuscles; and above these, the layer of leucocytes; and above these again, the white clot. In A, where the 5 per cent. salt solution has been imposed, we have practically no wandering out of the leucocytes into the white clot. We have instead a tightly packed and sharply margined band of leucocytes intervening between the red and white clots. Below this we see a good many leucocytes which have, as it seems, travelled back from the leucocytic layer into the red clot. In other words, we have here, instead of positive chemiotaxis as in B, paralysis, and presumably also negative chemiotaxis. There would seem to be little doubt about the negative chemiotaxis; for in companion tubes or cells, treated in every other respect than the salt solution as exactly alike, the white corpuscles have all been by the centrifugalization separated out from the red. It will be appreciated in connexion with Fig. 12, A, that the elements of the blood

¹ The cell referred to is a special form of cell devised by my fellow-worker, Captain d'Este Emery, and made by fitting together two pieces of glass slide with paraffin wax.

have, first by the mechanical force of the centrifuge, and secondly by the chemical stimulus of the strong salt solution, been disposed in what I have called the "kakotropic" arrangement—that is, the blood fluids are in front, and the leucocytes behind. The import of this in connexion with the conduct of the wound will presently appear. For the moment let us merely put it down upon our tablets that it would seem to follow from what we see in Fig. 12, A, that we have in strong salt solution an agent which would be capable of arresting all suppurative processes.

Effect of Strong Salt Solution on the Condition of the Wound and the Microbic Infection.

The effect of strong salt solution on the wound will, of course, be the resultant of its physical and physiological effects; and there will be in addition an effect exerted directly upon the microbes.

This last may very quickly be dealt with and disposed of. Percentages of 2 per cent. will begin to inhibit, and 5 per cent. solutions will completely arrest, the growth of pyogenic microbes. In other words, undiluted 5 per cent. salt solution will by itself—and this is to be borne in mind in connexion with proposals to combine this with carbolic acid—prevent any growth of microbes in the wound.

Let us, however, turn—for this is of more moment—to the effect exerted by the hypertonic salt solution on the condition of the wounds. And we may take the case of hypertonic solution applied to a sloughing or indurated wound. Now coming, as it will here, into direct application upon leucocytes, the strong salt solution will break these up, and set free trypsin and favour auto-digestion; and, coming into operation at the same time on the walls, it will promote an outflow of fluid. The effect of this will be to loosen and separate the sloughs, to disperse the induration, and finally to give us—always provided that the concentration of the salt is maintained—a wound in which muscles and connective tissue lie before us as bare and clean, and as free from pus, as meat exposed on a slab at the butchers'. Moreover, impression preparations will show that the surface lymph is practically free from leucocytes, and that the sero-saprophytic microbes have disappeared, leaving behind only a few staphylococci or streptococci. This complete result is, as a matter of fact, only rarely seen—for applied in the ordinary way on a pad of lint or gauze, the hypertonic solution is by the outflow of lymph very rapidly diluted.

But whether we have before us the complete, or only the incomplete, result, we have a wonderful improvement upon the state of the wound before treatment. None the less, the prospect for the future is not quite reassuring. In point of fact, we have here lying open and naked before us all the lymph spaces; and, moreover, the elements of the lymph are disposed in the "kakotropic arrangement"—the fluid elements which furnish a favourable culture medium in front, and the leucocytes which would be capable of combating the streptococci behind; and at any rate, so far as the superficial lymph spaces are concerned, there would now seem to be nothing to prevent microbial invasion save only that we have here an outflowing current.

But if the salt which has been absorbed into the tissues were no longer carried away, or if the saline solution outside were now to be diluted, the tide might easily turn and flow inward. In short, we see that we have made a successful advance, but that we must, before we can congratulate ourselves, advance a great deal more.

Our experiments in connexion with the bactericidal power of the whole blood tell us that our next step must be. If we want to keep the streptococci at bay, and destroy them, we must get the elements of our lymph into the agathotropic order; in other words, we must now bring forward our leucocytes. Our studies on emigration tell us how this is to be done. We shall have to substitute for our 5 per cent. 0.85 per cent. saline solution.

Effect of Physiological Salt Solution.

It will in connexion with physiological salt solution be unnecessary to go much into detail with respect to its physical and physiological action. All that requires to be emphasized is that 0.85 per cent. salt solution, which we call normal or physiological, is normal and physiological

only with respect to its tonicity. It has, of course, a much higher content in sodium chloride than the blood fluids, and will, when placed in contact with these, send into them sodium chloride, exchanging this against other salts. It is to this different salt content that we have to ascribe the physiological action which 0.85 per cent. salt solutions exert when superimposed on centrifuged blood. Fig. 12, n, has shown us what then invariably happens. The white corpuscles—and in particular the polynuclear white corpuscles—are carried forward by a chemiostatic movement in the direction of the free surface upon which the physiological solution has been imposed. And precisely the same occurs in the wound. After the lapse of a few hours the perfectly bare wounds which are obtained by treatment with strong salt solution begin to clothe themselves with a grey film. And when we make impression preparations we find on the surface of our cover-glasses a layer of beautifully well-preserved polynuclear white corpuscles. In other words, the elements of the lymph are now in the agathotropic arrangement; and microbes if found at all are only very few in number.

This marks another great step in advance. It is, however, as we shall presently see, one that falls very far short of a final conquest over the infection. But for the moment let us turn aside and see what will happen when hypertonic salt solution is applied to a clean, or, as the case may be, a suppurating wound, and is then diluted. We shall see our new data dovetailing perfectly with the old.

To study the sequence of events where a hypertonic salt solution is spontaneously diluted with outflowing lymph, we carefully clean the surface of a granulating wound. We then bring down upon it—and I owe this piece of technique to my fellow worker, Lieutenant H. H. Tanner—a lymph cup such as is shown in Fig. 13, fastening it

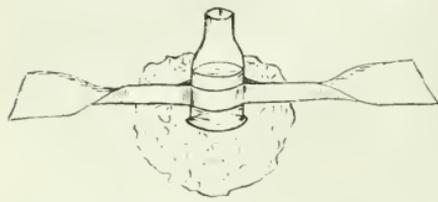


Fig. 13.

down securely upon the skin by strips of adhesive plaster. We now introduce a measured quantity of hypertonic solution into our lymph cup, and then from time to time remove and sample the fluid. During the first hour or more only a lymphagocytic effect is produced. The fluid in the cup increases in quantity—in an experiment I have in mind the original 3 c.cm. of 5 per cent. salt solution increased in three hours to 5 c.cm.—but the fluid remains quite limpid. After that a leucocytogenic effect begins to manifest itself. First a few, and then more and more leucocytes emigrate into the fluid in the lymph cup; and the streptococci, which in the first phase of the experiment may have been fairly numerous, gradually decrease until it is difficult to find them.

To study what will happen when 5 per cent. salt solution is brought into operation upon a suppurating surface and is afterwards diluted, we take a sample of pus, mix it with 5 per cent. salt solution, and then place it in the incubator. We then dilute with sterile water until we have brought down the content in salt to 0.35 per cent., and then we incubate for a further period of hours. After the expiration of that period we find—and we may put this down to the setting free of trypsin from the cells broken down by the strong salt solution—a much more luxuriant growth of microbes than in a control sample incubated for the whole period with physiological salt solution.

Reverting now to our wound which was treated with physiological salt solution, you will remember that we had there a position won but not consolidated; and, if events were now allowed to take their course, the leucocytes which had been drawn up to the surface, and in particular, perhaps, those which had done service in the destruction of microbes, would not long maintain their vitality, for

the conditions which prevail on denuded surfaces are, as we have seen, uncoagulative to leucocytes. Now just as soon as the first leucocytes die and break up and set free their trypsin, all those in the neighbourhood become involved in the same ruin, and this provides for any microbes that have survived or come in from outside in an eminently favourable culture medium. After this we have very soon upon our wound surface in the place of an almost extinguished infection a luxuriant culture of microbes; and though no doubt it might be possible, by instituting continuous irrigation with physiological salt solution, still to hold on, our position cannot really be consolidated by anything except the restriction of the infected surface and the final closure of the wound. In other words, that as soon as we have practically conquered the infection surface we ought, as I said in an earlier section of this lecture, to proceed immediately to secondary suture of the wound.

TREATMENT BY VACCINES.

Treatment by vaccines would have hardly any meaning in connexion with antiseptic treatment; but it is, as a moment's consideration will make plain, very intimately linked up with phylagocytic treatment. For, once we have made up our minds that an infection will have to be fought by the protective powers of the organism, it will be reasonable to look round and see whether the protective powers of the organism generally cannot be reinforced. And it will also occur to the mind that not only the blood fluids could be reinforced in protective substances but also chemiostatic sensibility of the leucocytes could be so altered as to give a more vigorous emigration response. If this were secured, the leucocytes would not only come more rapidly and more effectively into action, but they would come into action in the whole theatre of infection, instead of, as in the case where salt solutions are applied, only in those regions into which the salt is conveyed by diffusion.

Having seen where vaccine therapy fits in, we have next to consider how and upon what principle we shall select from the bacterial flora of the wound those microbes which ought to be combated by vaccines. The principle here is quite clear: we ought to direct our attention to those microbes which are least easily killed by the protective elements of the blood. That will mean that we ought to put into our vaccine primarily the streptococcus and the staphylococcus, for these belong to the class of serophytes; and in the second instance the bacillus of Welch and the *Bacillus proteus*, for these belong to the class of imperfect serophytes, microbes which will, provided we make a sufficiently heavy implantation, establish themselves and then grow luxuriantly in the blood. Let me explain that whenever in the following I speak of a vaccine for bacterial infections of wounds I shall have in view either (a) a vaccine containing streptococci and staphylococci obtained from wounds, or (b) a vaccine which contains in addition to these the bacillus of Welch.

The question of the vaccine settled, the next question is at what stages in the wound infection we can find specially favourable opportunities for the use of vaccines. The first of these specially favourable opportunities will present itself immediately after the wound has been received. The patient is here just entering upon his incubation period; and it may quite well make all the difference to him if he is, now, before the microbes which have been carried into his tissues grow out, enabled to kill them. I hold very strongly—and there would be no difficulty at all in arranging for this—that every wounded man should be inoculated as soon as he reaches the first-aid post. A second, and also very favourable, opportunity of achieving definite good by inoculation would present itself at a later stage, in those cases where the streptococcus, or the bacillus of Welch, or the two acting in conjunction, establish a footing in the tissues, and begin to spread there. I am thinking, of course, of the early stage of erysipelas, cellulitis, or gaseous emphysema, where we have, as the case may be, the beginnings of an inflam-

² Both varieties of vaccine are available in all military hospitals, the first under the designation "antistreptococcal vaccine," the other that of "antistaphylococcal vaccine." If an autogenous vaccine were to be made for a particular patient one would determine the microbes which menaced him by taking a sample of his pus and making, as described in the first portion of this lecture, progressively smaller implantations of this into his serum or blood by the method of pro-culture, or two-haem-culture, and then using for the vaccine those microbes which grew most readily in the blood.

matory blush on the skin, or the beginnings of induration, or it may be that purplish mottling of the skin which heralds gaseous gangrene.

And the employment of vaccine would also be specially opportune when we address ourselves to the partial or complete secondary suture of the wound. For the conditions are here analogous to those which obtained when the original wound was received—analogue in the respect that we have in both an implantation of microbes into the depth; and analogous also in the respect that success or failure will hinge upon the rapidity and effectiveness with which the protective elements of the blood are brought to bear upon the implanted microbes.

But to all this it may be objected that we have here merely plausible theoretical considerations; and that what is required is direct evidence establishing the utility of inoculation.

Let me therefore consider with you how far it would be possible here to procure probative evidence; and for the sake of those who attach superior authority to clinical evidence, let us begin with this.

A comparison of what would be procurable in connexion with antiseptic inoculation with what has been procured in connexion with antityphoid inoculation will here clear up certain points for us. The first of these is, that once a man has been inoculated against typhoid, events will take their course unaffacted by outside interference. In other words, if an inoculated man comes into contact with infection, and the typhoid bacillus effects a local lodgement in him, nobody comes and interferes between the organism of the patient and the invading microbe. Moreover, when the invading microbes are successfully disposed of, there will not remain open any door to after-infection. The exact reverse will hold of antiseptic inoculation.

Here there will be all sorts of interference, useful or, as the case may be, harmful, at the point where the microbes have effected a lodgement; and the wound will remain open to further infection from outside, and in particular it may readily be reinfected in the course of operative interference. By reason of this it will, if the wound becomes septic, be impossible to tell whether the responsibility lies with the microbes originally implanted, or whether these were killed off, and we are in presence of an after-infection. Enough will have been said to show that it will be quite out of question to procure in the case of antiseptic inoculation trustworthy statistical data such as are available in connexion with typhoid.

Precisely the same will hold true in the case of antiseptic inoculation undertaken as a preliminary to secondary suture of the wound. For here everything will depend on the operative skill of the surgeon and on the scientific preparation of the cases. And the only judgement which will have value will be that of the surgeon who has actually followed the cases; and, again, his opinion will have value only if he have experience also of cases of secondary suture undertaken without inoculation.

There remains the third class of case, that where vaccine is employed to abort an incipient infection of tissues. Here, again, statistical proof will be unattainable. When, however, a sufficient number of separate observers shall have experimented with the vaccine, using control, and shall have formed each his own experimental judgement, we shall have evidence which will really have probative value. But experimental judgements of that kind are not yet available in sufficient number.

For the present, therefore, there is not—nor will there ever be, except only in connexion with the last class of case—anything to carry conviction to that type of man who puts aside what he calls "theory" and demands everywhere proof and certainty.

But, while we have in these matters no certainty—and let us not regret it overmuch, for certainty is like the stick without the dog to the blind man who wants "to get a move on"—we have here all that an exacting mind could require in the way of inferential evidence of the value of immunizing response in wound infections. Such evidence is furnished by the fact that patients who make only very indifferent immunizing response suffer from long-continued pyrexia, and their wounds heal slowly, and they not infrequently develop serious complications, in particular in the form of spreading infections and metastatic infections of joints. The direct reverse holds of patients who are making satisfactory immunizing

response. Their wounds heal rapidly; and they never give cause for a moment's anxiety. Now, such immunizing response as we see here safeguarding the patient is, in the case of healthy men—and I reckon as healthy men all who are not suffering from autoinoculations and fever—readily obtainable by the inoculation of vaccines.

I have now completed what I have to say about the different ways of treating wound infections; and you will have appreciated that, while antiseptic treatment stands apart, the three other methods are closely interlinked—forming together a complete system of phylacagogic treatment. Let me now draw the threads together, and put before you in outline a scheme which might serve as a basis for the treatment of wound infections.

Before that, however, let me just pause to express my gratitude and indebtedness to my fellow-workers in these researches on the treatment of wounds, and in particular to Captain S. W. Patterson of the Australian Medical Service, to Captain d'Este Emery, and to Lieutenant A. C. Inman and Lieutenant H. H. Tanner. And I have at the same time to express my grateful acknowledgement to the authorities of the Army Medical Service, and to Colonel W. l'Estrange Fames, C.B., of the Australian Hospital, and, above all, to the Medical Research Committee for placing the services of these officers at my disposal.

SCHEME FOR THE PHYLACAGOGIC TREATMENT OF WOUND INFECTIONS.

It will be convenient for the ordering of this scheme of treatment to follow the wounded man from the "first-aid post" back through the whole system of hospitals.

Treatment in the First-aid Post.—Here, after hæmorrhage has been arrested and the wound has been cleaned and bandaged and splints have been fitted, it will be well to give a prophylactic injection of "antigangrene vaccine," this being, as already explained, a vaccine containing the streptococcus, and staphylococcus, and bacillus of Welch. For this injection nothing in the way of apparatus would be required beyond a syringe in a metal case and the vaccine in a rubber-capped bottle. From this last the vaccine would be drawn off as required through the rubber cap sterilized with lysol or other antiseptic. To sterilize the skin at the point inoculated is, in connexion with injection of vaccine, a work of supererogation.

There would follow upon the inoculation a rapid immunizing response which would, one is entitled to anticipate, in a bullet wound perforating only tissues, extinguish the infection, and would in other wounds do the same in those regions where the physiological conditions were not too unfavourable.

Treatment in the Field Ambulance.—I would suggest that the work of the field ambulance, which is—except in the case of the wounded who are too ill to move—restricted to mere washing and sterilizing operations, to the application of clean, dry dressings, and to the injection of tetanus antitoxin, should be extended to the performance of simple operations for the excision of the projectile and foreign bodies, and the procuring of efficient drainage. And I would suggest that all wounds, with the exception of those which promise to get well of themselves, should be treated with hypertonic salt solution. These suggestions are dictated by the consideration that where a wound will, if left to itself, certainly become septic, we ought, at the earliest possible moment, both to remove extraneous substances which contain microbes, and provide for a free outflow of lymph from the whole internal and external surface of the wound.

Concerning the operative procedures for the procuring of drainage it will suffice to say that they ought to give sufficient access to permit of loops of sterile bandage, previously steeped in a solution of 5 per cent. sodium chloride and 0.5 per cent. sodium citrate, being carried down into the wound to serve as wicks.³ The introduction of the bandages ought to be preceded by a syringing out of the wound with the aforesaid solution, and the free ends of the bandage ought to be carried out from the wound to be inserted between plies of lint well soaked in the same solution, and folded over so as to form a thick pad. Finally, one or two tabloids of salt ought to be

³File here the author's Memorandum on the Employment of Bandages for the Draining of Wounds, BRITISH MEDICAL JOURNAL, October 16th, 1915, p. 554.

planted in between the back layers of the pad, and over the top of all ought to come a layer of impervious protective tissue. This method of dressing ought to be applied also to the open funnel wound. In the case of "gougged-out" or "punched-in" wounds of soft tissues the wicks of bandage would, of course, be dispensed with.

This will be the place to elucidate two points which come up for consideration everywhere when hypertonic salt solutions are used as lymphagogic agents. The first has reference to the concentration of the salt, the second to the addition of citrate of soda.

In connexion with the concentration of the salt all strengths from that of sea water—corresponding to about 2.5 per cent. of sodium chloride—to a saturated solution—corresponding to 30 to 40 per cent. of sodium chloride—have been used in the wound; and the stronger the salt solution the greater the lymphagogic effect. But as the concentration of the salt increases, treatment will be more and more painful until with saturated, and nearly saturated, salt solutions we get escharotic effects with intolerable burning on the wound surfaces; while on the skin there is produced severe irritation followed by bacterial infection. The strength of the salt solution must therefore be kept within limits. Where we have freshly cut edges of skin, and, as in the flapless amputation, nerve fibres exposed in the wound, it will be unjustifiable to employ more than 5 per cent. of salt; and even then it will be well to protect the cut edges of the skin with a thin coating of vaseline. When, on the contrary, we are dealing with comparatively insensitive granulation tissue, or with quite insensitive sloughing surfaces, we may, with a view to achieving more rapid results, employ somewhat stronger solutions. But even with sloughing wounds it will be better not to go beyond 10 per cent. of salt. Again, when we use a wet pack of salt solution, it will be well to protect all the skin in the neighbourhood with a coat of vaseline. And finally, when we use, as suggested above, tinctures of salt to keep our salt solution up to strength, in despite of outflowing lymph, care must be taken to prevent the solid salt coming into contact with the wound surface.

Passing now to the question as to when citrate of soda should be employed in combination with hypertonic salt solutions, it may be explained that the purpose of the citrate is to prevent the lymph coagulating in the siphon bandages and on the walls of the wound. I may point out, in connexion with this, that while 5 per cent. salt solution will, as already Alexander Schmidt showed, prevent clotting, it will not, as my fellow worker, Lieutenant A. C. Inman, has shown, prevent clotting in blood that is mixed with pus. Such blood is, however, prevented from clotting by 5 per cent. salt mixed with 0.5 per cent. of citrate of soda. The practical rule, therefore, will be to add citrate of soda when we are confining the discharge and may be dealing with pus; and to omit the citrate as unnecessary when we are irrigating and washing away any pus.

Treatment at Casualty Clearing Stations.—As the patient is transported farther and farther back from the front, and x-ray and other equipment becomes available, it becomes possible to undertake more extensive operations for the procuring of drainage, and for the removal of the projectile and extraneous substances, as well as for resection of hopelessly infected tissues. But we have always in connexion with operations upon a patient who has to be transported farther, to consider not only the practicability of the operation, but also that of keeping the patient under close observation sufficiently long after we have operated. It must be remembered here that the wound infection is always the important factor to keep in view, and that the period which is occupied in transport will generally represent for the patient a period of retrogression; and the set-back will generally be proportionate to the duration of the journey. During transport drainage will, unless this can be prevented by wet salt packs applied under protection, be interrupted; the wound may become "lymph-bound," and then cellulitis or gas gangrene may supervene. Or, again, if the wound has arrived at the suppurative stage, the discharges will be confined and become tryptic, and corrupt.

This will, of course, apply retrospectively as well as prospectively, so that in every hospital which receives patients from the front its work will consist largely in efforts to regain for the patients ground lost upon their journey. In particular the induration of the walls of the

wound will require to be dispersed, and relief will have to be obtained for the wounds that are lymph-bound.

Treatment at Hospitals at the Base.—Operative work will here be called for in connexion with two classes of cases. First there will be cases of spreading infection in the tissues—cellulitis and gaseous gangrene—which have manifested themselves during transport. These will require treatment by free incision supplemented by hypertonic salt solution. Further, there will be operations postponed from the casualty clearing stations—postponed either because of pressure of work or for the patient's sake, to give him the benefit of special equipment or special operative skill available at the base, and in conjunction with this the longer hospital stay which is there permissible.

The longer hospital stay will, when it can be secured, allow of quite important progress in the conduct of the wound infection. It will then be possible to embark upon, what I may call, the full programme of phylacagogic treatment.

In this programme we first irrigate with a hypertonic salt solution until we have restored the tissues to their natural condition, and are dealing with a more surface infection, and only with serophytic bacteria. We then irrigate with physiological salt solution till we have extinguished, or all but extinguished, the surface infection. And we then undertake, in one, or in a series of successive operations, secondary suture of the wound.

The essential features of these three linked procedures have already been explained, but the details remain to be worked out. The following practical points may, however, be emphasized.

Lymphagogic Irrigation.—The irrigation and drainage of the wound may with advantage be conducted by the methods which form the subject matter of the demonstrations already referred to (see Footnote 3). The solution which I would suggest for use is a 5 per cent. solution of sodium chloride, boiled, and kept at a temperature of 37° to 40° C. Irrigation with this solution ought to be continued *ad dic in diem* until the desired result is obtained. If we fail in this we have probably some retention of pus in inaccessible spaces, and these ought to be opened up. Whether irrigation ought to be continuous, or whether it ought to be continued for only a few hours at a time, remains to be determined.

Leucocytagogic Irrigation.—Our therapeutic solution will here normally consist of boiled physiological salt solution. It, however, remains to be determined whether in those cases where secondary suture is for any reason impracticable, it may not be better to substitute for physiological salt solution some such fluid as Ringer's solution or Locke's solution (without the sugar), whose salt content will more nearly resemble that of the blood—such a fluid, though as a leucocytagogue not so good as physiological salt solution, might quite as well prove more favourable to the growth of connective tissue and epithelium.

There remain over now two general questions with regard to which an explanatory word must be said. The first relates to infections of joints and serous cavities which are shut off from the exterior; the second, to the employment of antiseptics and antiseptic precautions in connexion with operative interference and the various manipulations and procedures undertaken in the wound.

Treatment of Infections in Unopened Joints and Serous Cavities.—The complete programme of lymphagogic treatment, leucocytagogic treatment, and secondary suture is, of course, a programme for open wounds. But lymphagogic treatment will be superfluous where we have a purely surface infection in a closed cavity. And the question of secondary suture will not come up, unless we have first opened up widely—a method of treatment which is, at least in infections of the knee-joint, of very doubtful wisdom. There remains accordingly of our programme only the irrigation with physiological salt solution, and in combination with this effective drainage. In the particular case of a knee-joint infection the fluid could be supplied through one needle and be carried off through another. Or the fluid might be carried in through a fine rubber tube inserted in a very small incision. And the fluid might be allowed to find its own way out, or it might be carried out by a siphon of sterile bandage inserted through a small counter opening and carried down to a vessel of water standing on the floor.

Employment of Antiseptics and Resort to Antiseptic Precautions in Connection with the Wound.—The employment of antiseptics and the taking of antiseptic precautions in connexion with all operations and manipulations in wounds is governed by the consideration that the patient will have made immunizing response only to those microbes which the projectile carried into the wound, and to those contained in the vaccine—those being *ex hypothesi* those present at the outset in every wound. To all other microbes the patient will, except only so far as the increase of his antitryptic power may protect him, be fully susceptible. From this it follows that we shall, if we neglect any antiseptic precaution, be running the risk of superadding to the already subsisting infection another infection; and in hospital we shall be running the risk of transferring infections from patient to patient. Hence, then, lies the justification for prescribing the prophylactic employment of antiseptics and antiseptic precaution, and in particular the use of sterile instruments and sterile gloves in connexion with the dressing of patients, and in association with this the sterilization of all bandages and salt solutions used in the wound.

CONCLUDING REMARKS.

I pass in conclusion—for in the end one's thoughts always take that direction—to the problem as to whether it would not be possible for the researches I have detailed to bear fruit in a wider sphere than that represented by the present audience and those who will perhaps read this discourse.

You see that my mind is here set upon those questions of organization concerning which I ventured to say something when lecturing here some six months ago.⁴ Let me to-day again break ground for you by indicating that there are included in the Army Medical Service in reality three different services—a Service of Administration; a Service of Sanitation; and a Service for the Treatment of the Sick and Wounded. And let me again, in connexion with the last mentioned, ask you to remember that it is staffed almost exclusively by medical practitioners joining for the war; and that the civil profession is by consequence specially responsible for its efficiency. Now, if that is so, it then must be for the civil profession a duty of special obligation to see that whenever, in the practically unexplored field of wound infections, any new knowledge is gained, that new knowledge shall be brought into application in all military hospitals.

At the beginning of the war the outlook, so far as it related to the wounded, was, I think, somewhat as follows:

It was realized that all sorts of surgical operations in which life would be at stake would have to be undertaken; and that these would, under the conditions that existed, fall to new-joined junior medical officers with very little operative experience. There were, therefore, sent out to the theatre of war a certain number of eminent surgeons.

Here at the very outset we see recognition of the fact that the rank and file of new-joined medical officers will require—and, moreover, will very gratefully accept—skilled help and supervision.

There were two alternative ways of supplying help and supervision.

The one was to associate the eminent surgical experts with the Medical Service of the Army in the capacity of consulting surgeons. To do so, was not to follow the precedent of civil life: for in civil life the operating surgeon is not consultant and adviser to the operating general practitioner. Nor was it to follow the precedent of the army. But, at any rate, that was the course that was adopted.

The other and, I think, the better alternative would have been to have made those who now function as surgical consultants integral elements in the army machine; to have entrusted to them the selection of the operating staff in the hospitals in their administrative unit; and then to have made them directly responsible for all operative treatment in those hospitals.

All this touches, but only indirectly, the particular point in organization I want you to consider.

What seems to me specially required is the organization of all that department of treatment which lies outside the sphere of the operating surgeon, or at any rate the sphere

of the operating theatre. Before the war it was generally held about this department of treatment—let me call it for short “the conduct of the wound infection”—that all that would be required would be: to drain the wound, by making an opening at the most dependent point; then to wash out with antiseptics; and finally, to apply dressings. And it was held—and no doubt correctly—that for the proper carrying out of the antiseptic washings and dressings any doctor who was on the *Medical Register* or any trained nurse would suffice.

Now the wind has swept this all away, and it has come home to everybody that every wound is infected and that the infection is the really serious element in wounds. Coming on the top of this, practically everybody has become aware that the antiseptic system has—so far as the treatment of the wound infection is concerned—completely broken down. So finally it comes to this, that the progress of knowledge has fled away from the ordinary medical officer everything, other than the knife, which he was relying upon for the treatment of bacterial infections of wounds.

And though here and there he may have substituted for the antiseptic hypertonic salt solution, that is, as we have seen, only to take one item out of the programme of bringing the protective elements of the body to bear upon the infection; and what is required is the complete programme. Now to carry out the complete programme it will be necessary to stop every moment and think; and it will be necessary also to verify every step; and to make as occasion requires new departures. Now to stop every moment and think, is not given to everybody; and to verify, and as occasion may require rectify, one's course in combating a bacterial infection involves thinking in terms of microbes and protective substances and antitoxinulations and vaccines, and involves also a certain acquaintance with laboratory technique.

So that I have the conviction that a newly-joined medical officer, supposing him left completely without supervision and help, would more easily perform successfully all the surgical operations that might be required of him than conduct satisfactorily the treatment of a wound infection.

If that is so—and it is for you to judge whether it is so—what follows is that it will be necessary to provide in connexion with the conduct of the wound infection the same kind of aid and instruction as is provided in connexion with operative surgery.

And what holds true with respect to the organization of the one, will hold true also with respect to the other. For the conduct of the wound infection, which we are here considering, one would wish to have in each large administrative unit a responsible head disposing of a staff of men with both laboratory and clinical experience, who would be deputed one to each hospital to exercise supervision as “a physician in charge of wounds” over all that department of treatment which lies outside the sphere of operative surgery.

And I would emphasize that it would be just as necessary in the case of the “physician in charge of wounds,” as in the case of the “surgical specialist,” to confer such rank as would make it possible effectively to direct the operations of the medical officers working in the wards.

ACCORDING to the *Boston Medical and Surgical Journal*, Scandinavian immigrants do not survive in the Southern United States, where their former settlements have entirely disappeared, whilst those in the northern States are thriving. Albinism is markedly frequent in the German and Scandinavian races. The Greeks are subject to various forms of infantilism, especially arrested sexual development, and are particularly prone to spinal meningitis. The Armenians and Syrians are susceptible to sporadic typhus and trachoma. Spanish, Portuguese, and Basque shepherds readily contract anthrax. Italians, who age prematurely, have a marked tendency to arterio-sclerosis, while pellagra, hookworm, malaria, rickets, and osteomalacia are common amongst them. Italian emigrants are very liable to tuberculous diseases. Turks suffer badly from parotitis. Tuberculosis is killing out the red Indian. Diabetes is so common among the Jews that its increase in New York keeps pace with the free immigration of European Hebrews. The admixture of Jews with the physically dominant races in the States has produced a fine type relatively free from the recessive characteristics of Aryans and Semites.

⁴ *The Lancet*, May 1st, 1915, p. 938.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TWO CASES OF DYSENTERY IN CHILDREN DUE TO *B. DYSENTERIÆ* OF FLEXNER TYPE.

I publish these cases with the object of drawing attention to the dysenteric origin of some of the cases of infantile diarrhoea occurring in this country.

It was shown by Bainbridge and Bulfield (1911) that *B. dysenteriae* (Flexner type) was one cause of epidemic infantile diarrhoea in England. Four of the twelve children attacked in the outbreak they described had blood in the motions. Marshall (1909) had previously described one fatal case of dysentery from which he isolated the same organism. Similar observations have been made in Denmark, the United States of America, and elsewhere.

The position in reference to summer diarrhoea of infants is probably this: There is one type of diarrhoea accompanied with blood in the stools, which may occur in infants, and is due to the *B. dysenteriae* (Flexner or Shiga), while there is a second type of acute choleric character, without blood in the stools, associated in this country with the bacillus No. 1 of Morgan.

The two cases I desire to report occurred in my own family, and had the following clinical histories.

CASE I.

P., a girl aged 3½ years, woke up on the night of June 12th-13th, 1915, in a state of delirium. The delirium continued the whole of the following day. Marked diarrhoea and vomiting set in at 7 a.m. on the same day. The motions at the commencement were green and watery, but rapidly became slimy, and contained a considerable quantity of blood.

The temperature on this first day of illness was: 11 a.m., 103.8; 2.30 p.m., 102.8; 6 p.m., 103.2. The treatment was dietetic, while tepid sponging was needed to lower the temperature and diminish the delirium.

Second Day.—The motions, which were very frequent (over a dozen), contained mucus and blood and were intensely foul-smelling. The temperature was normal throughout the day. Delirium had abated, the patient had intervals of restlessness and drowsiness. Thirst was marked. Small doses of grey powder were given.

Third Day.—The patient was much better; blood and mucus were still present in the motions, however.

Fourth Day.—Motions still slimy in character, but no blood present.

Sixth Day.—Motions formed and natural in character.

CASE II.

The infant sister of the first case was attacked on June 20th. This case was afebrile, and no delirium occurred. On the first day of the disease the child passed six motions, the later ones containing blood and slime. The motions were of a similar character the second day. No blood was present on subsequent days. The case was exceedingly mild; the child objected to lie in bed throughout the whole period.

Bacteriological Findings.

A sample of faeces from the first case containing blood and slime was plated on MacConkey's medium on June 13th. The next day the plates showed one-third of the colonies to be non-lactose fermenters; four such colonies were inoculated on to agar and tested on the ordinary media with the following results:

	First Day.	Seventh Day.
Glucose	Acid only	Acid only
Cane sugar	No change	No change
Dulcitol	No change	No change
Lactose	No change	No change
Mannite	Acid only	Acid only
Milk	Acid	Alkaline
Broth	Cloud, non-motile rod	Indol positive
Agar	Dysenteric-like growth	—

The strain was completely agglutinated by a Y serum in dilution 0.1 in 2,560, and slight agglutination occurred at 1 in 5,120 dilution. This was the end titre of the serum. The patient's serum definitely agglutinated her own

organism on the fourth day of the disease in a dilution of 1 in 80 and slightly at 1 in 160.

The first blood-containing motion of the second case was similarly examined. Only one non-fermenting colony appeared on the MacConkey plate, which colony, however, proved to be a genuine *B. dysenteriae* of Flexner type. On testing this new strain against the Y serum it agglutinated also to the full titre of the serum.

Bacteriological Department,
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W. J. PENFOLD.

A NOTE ON THE "IRRITABLE HEART" OF SOLDIERS.

THE somewhat remarkable character of our observations and the urgency of the problem with which they deal is our reason for giving them publicity at the present stage of their progress.

Of soldiers admitted to our beds at University College Hospital for the special purpose of investigation, and sent to us with the diagnosis of "cardiac strain" or "disordered heart action," a large group isolates itself.

They are men in whom the following prominent symptoms have arisen either gradually or suddenly, in some during the period of training, in others while serving actively in the trenches: Aching or sharp pain over the region of the heart, sometimes radiating but rarely severe, and breathlessness and palpitation on the slightest exertion, are the rule. So also is a sense of fatigue or exhaustion with effort; and oftentimes giddiness, occasionally proceeding to actual fainting, may be present.

On examination the heart's action is vigorous, the apex beat often forcible and covering a wider area than is normal. The limits of dullness are not usually increased; no murmurs are heard as a rule, but a systolic murmur may be present at base or apex. The pulse-rate is increased, often notably, and is peculiarly susceptible to posture and exercise. The blood pressure may show a notable fall as the patient passes from the lying to the upright posture. In many subjects there are other evidences of vasomotor instability—coldness and blueness of hands and feet or a prominent *tache*.

For the moment we exclude from this group all such cases as give a past history of rheumatic fever, chorea, or syphilis. In a number of the included patients, on the other hand, there is a history of throat affections or intestinal troubles.

The group is well defined, and in our view the symptomatology suggests, not primary cardiac mischief, but disturbances of function resulting from toxic absorption or actual infection. We have systematically examined eleven patients from this point of view, and in ten of them have found that streptococci (in two cases, staphylococci) are present in the urine; as a rule the organisms are found at the first examination; in other patients several such examinations are required. We take the view that we are dealing with an infection of the blood with organisms of a low grade of virulence and that these are filtered out in the urine, for the urine contains no pus cells, and, in a number of the patients, the organism has been recovered from the blood itself.

The source of the infection, its relation to local mischief, such as may occur in throat or gum sockets, and the relation of the infection to the symptomatology, are subjects which we propose to consider more fully at a later date.

THOMAS COTTON,
THOMAS LEWIS,
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London, W.C.

* Working under the Medical Research Committee.

A RADIUM INSTITUTION on the lines of that which has been at work in London for some years will, it is announced, be established in New York. The institute will consist of a hospital for the treatment of cancer and other diseases by the external and internal use of radium, and laboratories for the study of radium.

THE number of patients treated during 1914 in the Royal Northern Sea-bathing Infirmary, Scarborough, was 590. They included 34 Belgian soldiers (22 wounded and 12 sick), 44 British soldiers from the Expeditionary Force (23 wounded, 9 sick, 2 injured, and 10 frost-bitten), and 6 seamen from a patrol trawler. The Red Cross Society supplied rclags of most willing and capable workers.

Reports of Societies.

DISCUSSION ON PARATYPHOID FEVER.

At a meeting of the Section of Medicine of the Royal Society of Medicine on November 9th, the President, Dr. A. E. GARRON being in the chair, Sir BERTRAND DAWSON, in opening a discussion on paratyphoid fever, said that he would base his remarks on experience gained in a stationary hospital in France. The amount of enteric fever met with in the war had been small; there had been only 1,365 cases in France, and 910 of these were examples of paratyphoid fever. Its existence was due to carriers; no general sources of food supply had been infected, and no epidemics had occurred. The smallness of the number was not due entirely to improved sanitation or to inoculation, but in part to the fitness of the troops. Like typhoid, paratyphoid began as a septicæmia and subsequently invaded the viscera. At the hospital under consideration 18 patients had died from paratyphoid infection; 14 *post-mortem* examinations had been made when death followed infection with paratyphoid B, and one after infection with paratyphoid A. In the last, a condition of the intestines was found closely resembling that of true typhoid. Death had followed perforation at the base of the appendix. Of the paratyphoid B cases, both the small and large intestines were affected in 2, the small intestine alone in 4, the large intestine alone in 8. In both the latter perforation at the base of the appendix had occurred. The mesenteric glands were invariably enlarged and hyperæmic, and often hæmorrhagic. Splenic abscess occurred twice, and in one case an abscess was found at both poles of the organ. In one case the sole lesion found was a splenic abscess, the pus from which contained the organism. Nothing noteworthy was found in the liver in 11, but in others abscesses had followed portal pyæmia. Pleural effusion was met with in one of the cases. Gangrenous bronchopneumonia was found in 2, in one of which a cavity resulted. In another an abscess of the right lung followed one in the liver. There was little in the aspect of the patient suggestive of serious illness, as was seen in typhoid in the un inoculated. There was less chance of death or of complications, and patients got well more quickly with paratyphoid. A case might begin very badly and then damp down to continue as a lower grade infection, thus differing from typhoid. Broadly speaking there were no great distinctions between typhoid and paratyphoid. Most cases began gradually, but a sudden onset occurred in about 30 per cent. The initial features were those of typhoid. Diarrhoea was met with in about half of the patients; the remainder were constipated. Splenic enlargement was detectable clinically in about 50 per cent. The abdomen was flat, not protuberant. The spots, though resembling those of typhoid, were occasionally larger with less regular margins. The rash was profuse in a few cases, morbilliform in two. The pulse-rate was of great importance from the points of view both of diagnosis and prognosis. It was slow in relation to the temperature, and in 80 per cent. of the cases averaged under 90. If the rate remained below 100, it gave a sense of security as to the outcome of the case. The more severe the infection the more the rate tended to rise in relation to the temperature, but no such inference could be drawn if the temperature were below 100° F. He referred to the occurrence of tachycardia, and more rarely of bradycardia, during the subsidence of the fever. In a case of moderate severity the fever persisted for about twenty-one days; in many it fell far short of that duration; and in severe cases the course was prolonged and indefinite, simulating typhoid, though of more favourable portent. In diagnosis most reliance could be placed on laboratory methods. The value of the agglutination test was enhanced by Professor Dreyer's technique. The blood culture was often negative, and that of the stools positive in only a few cases. Diagnosis on clinical evidence alone was often impossible. Negative agglutination tests were not so reliable as positive results. If there was strong evidence on clinical grounds a negative Widal reaction should not lead to the abandonment of the diagnosis. Mild cases were often lacking in distinctive features. Convalescence quickly followed a few days of mild pyrexia. Thirty per cent. of all cases admitted as suspicious turned out to be negative. One group of these

indefinite cases displayed symptoms of abdominal disorder, a second displayed "rheumatic" symptoms, whilst in a third an unhealthy condition of the gums was especially prominent. One such group had been termed "trench" fever, though it was not specially connected with trenches, and was probably no new disease. He would prefer the name "infective gastro-enteritis" pending further investigation. The symptoms were often slight, beginning with headache and lassitude, and causing the patient to lie up on the third or fourth day. Other symptoms were a dirty tongue, nausea, vomiting, and abdominal discomfort, especially in the upper part of the abdomen; constipation was the rule. The fever often reacted normal by the tenth day. No doubt many cases of "trench" fever were diagnosed as paratyphoid, but he was confident that the conditions were distinct. In some cases jaundice supervened. The condition was sometimes called "influenza," but its onset was gradual, there was no catarrh of the upper air-passages, and convalescence was quicker. Catarrhal jaundice might obscure paratyphoid infection. If the onset were sudden, paratyphoid might resemble influenza very closely, but it was important to realize that gastro-intestinal influenza was not so common as was often thought, and many cases so diagnosed belonged to the group of infective gastro-enteritis. Paratyphoid was probably commoner in civil practice than was generally recognized, and the moral was that a blood culture should be made if headache and fever were accompanied by a slow pulse.

Professor DREYER said that the bacteriology of enteric fever fell under three main heads: (1) the bacteriology of the active disease; (2) the bacteriology of carriers; (3) prophylaxis. The bacteriological diagnosis of paratyphoid was of two kinds—the recovery of the microbe from the blood, stools, urine, etc., and the immunity reactions, especially agglutination. The bacillæmia was of very short duration, especially in paratyphoid A. Bacilli disappeared from the stools relatively soon, except in the case of paratyphoid B. Of 100 cases of enteric fever, including all three varieties, all proved by the recovery of the bacteria, in 30 per cent. the bacteria could be isolated from the blood; in 20 per cent. they could be recovered from the stools in typhoid and paratyphoid A, but in between 70 per cent. and 80 per cent. in paratyphoid B, if repeated examinations were made. In ordinary typhoid the disease could be detected by agglutination in 100 per cent., in paratyphoid B in 100 per cent., but in paratyphoid A only in 95 per cent. For the detection of paratyphoid A a 1 in 10 dilution was sufficient for practical purposes. Co-agglutination, which had been so much discussed, need not be regarded; if agglutination occurred to more than one variety, it was to be explained by a mixed or rather superadded infection. The error in the agglutination test was not more than 1 per cent. It could be used in the case of inoculated men. The absolute figure was of no value, but rather the curve plotted out as the result of a series of tests. If the disease were present a rise or drop in the curve occurred during its progress, whilst if the agglutination were due to previous inoculation it showed only a very gradual decline. The agglutination reached its maximum on the twentieth day. In paratyphoid A, a first attack only produced a small quantity of agglutinins, whilst in the relapses they equalled in amount those met with in typhoid and paratyphoid B. The great resistance to typhoid found among our troops be ascribed to antityphoid inoculation. Many slight cases occurred, however, which did not come under observation. There existed a certain group of fevers which did not respond to bacteriological tests. It must be anticipated that the amount of typhoid among inoculated men would increase, for the proportion of the inoculated was greater than during the early stages of the war. It was an important question whether a degree of immunity could be obtained against the paratyphoid infections. The evidence was strong that inoculation against paratyphoid did not lead to susceptibility to true typhoid. Castellani had shown that immunity could be conferred at the same time against different infections, and Professor Dreyer thought it better to inoculate simultaneously against typhoid and paratyphoid, than first to inoculate against one and then the other. He had experimented in this way, and by mixed inoculation had obtained a markedly increased resistance to paratyphoid. The amount which he had employed was 1000 million typhoid bacilli, 500 million paratyphoid A,

and 500 million paratyphoid B. given in two equal doses. This had not led to those who had been so inoculated being placed *hors de combat* to a greater extent than if antityphoid inoculation only had been given. In some cases this treatment had produced marked resistance to one or two of the varieties of infection, and in others to all three. The only way to prevent spread of the disease was by the segregation of carriers, detected by examination of the faeces and urine. He had become convinced that the method of separation of the organism by actinic rays had no special advantage over the usual methods.

Sir W. HERRINGHAM said that the onset of "trench" fever was often quite sudden. The condition began to be prevalent about June, and was now clearing off. He did not ascribe its occurrence to the trenches. Even when the examination was thoroughly carried out the attack could not be proved to be due to paratyphoid in a large majority of the cases. Fever of a two or three days' duration often occurred in bouts, with intervals of two days or more between them. He could draw no distinction between cases which relapsed every few days and those with a normal interval of ten days. In a few other cases the temperature provided a "hog-backed" chart and was not relapsing in type. How the infection was conveyed was under investigation.

The discussion will be continued on Tuesday, November 23rd, at 5.30 p.m.

Reviews.

GUNSHOT INJURIES OF BONES.

In his book on *Gunshot Injuries of Bones* Mr. HENRY GROVES, who is Lecturer on Surgery in the University of Bristol, and now holds a commission in the R.A.M.C., has confined himself to a discussion of the treatment of fractures of the shafts of the long bones. As he announces in his preface: "While the time has not yet come for the formulation of final conclusions about war wounds, it is fully ripe for the emphasis of certain general principles."

The opening chapters are devoted to a discussion of the physiology of bone in relation to repair, and of its pathology as affected by the presence of sepsis. In this latter connexion the author remarks upon the rarity of massive necrosis in relation to gunshot injuries, and expresses an opinion that when it does occur injudicious surgery has usually been a contributory factor. Captain Hey Groves is quite certain that any extensive operative exposure of bones, or drilling into the marrow cavity, will quickly produce the necrosis which so rarely results from a mere gunshot accident. This pronouncement from a surgeon of experience is opportune at the present moment, and will find abundant confirmation from workers both at home and abroad. The author asserts that there is a marked natural tendency for septic comminuted fractures to undergo repair, and when infection has ceased to become aggressive, the repair is rather more rapid than in simple bone injuries. Repair may be aided by timely immobilization and extension, but will be prevented by faulty treatment such as the removal of comminuted fragments of bone, or by operations interfering with the blood supply. These conclusions are sound, and should be remembered. The removal of loose pieces of bone is a prolific source of non-union, and the after-history of cases plated in the presence of sepsis shows that even if there seemed to be an immediate benefit, it was not a lasting one. Inquiries made by the author of several surgeons who have received these cases after plating operations have resulted in depressing stories of failure; he tells us, indeed, he did not hear of a single success. While the author admits that speedy relief of pain may follow plating due to immobilization, which may be helpful to dressings and early transport, he places against these possible advantages the probability of extensive opening up of soft tissues and bone marrow to infection, the liability to increased comminution, the danger of causing extensive necrosis, and even the ultimate loss of

Gunshot Injuries of Bones. By F. W. Hey Groves, M.D., M.S. Lond., F.R.C.S. Eng., German R.A.M.C. (T.). Oxford War Printer, London; H. Frowde, Hodder and Stoughton, 1525. (Figs. 810, 119, 128; 56 figures, 3s. 6d. net.)

the limb. This is a vital issue, for it is possible, apart from open operation, to obtain in all cases immediate fixation allowing of easy dressing. Although the author would retain loose pieces of bone connected with the shaft, he would remove such if found in the neighbourhood of joints, because, if left, they might prove obstructive to mobility.

Early and thorough intervention are advocated in the case of an infected wound, followed by unobtrusive attention. Immediate enlargement of the wound is advocated by counter openings, and even free incisions through apparently healthy tissues. The author discards the ordinary longitudinal incisions, and advocates transverse or cruciform incisions across the great muscles through half their thickness; by this means the wound will keep gaping until healing takes place. The arguments for this procedure do not seem to be convincing, and there are many obvious and urgent objections to it. The author prefers wire wound loosely in spiral form to a rubber tube for drainage, and favours a constant stream irrigation. He summarizes the principles of treatment of compound fracture by insisting on thorough drainage, extension in the correct direction, semiflexion of joints, free access to the wound, the avoidance of voluminous dressing and bandages which he calls "mummification," and early movement of the joints.

The question of extension is fully discussed, and certain types of apparatus advised; it is recommended that after applying an over-extension, 20 lb. of weight should be applied to the femur, 12 lb. for the tibia and fibula, and 8 lb. for the bones of the arm. The extension should be applied in a direction opposed to the muscular pull. Continuous extension by a spring, or weight and pulley, is preferred to fixed extension. Early stroking, as advised by Lucas-Championnière, is recommended, and acts by "producing a degree of anaesthesia by a series of light hypnotic passes." It is not intended, the author asserts, to act on the lymph or blood flow.

Plaster is very properly condemned as foul and filthy. The chapter on fractures of the femur introduces no new principle; the disadvantage of the Liston and Hodgkin's splints are emphasized. Objection is taken to the Thomas splint because, among other reasons, of the painful counter pressure of the ring on the perineum. The author, however, has modified this splint for transport purposes, and the ring is so shaped and padded, if judged by the illustration, that one can quite understand a tragedy in the perineum.

Special methods of operative attack are discussed, such as Codivilla's transfexion pins, horse-shoe screw clamp, and the author's double transfexion apparatus. These methods can only rarely come under consideration, and never in the presence of sepsis.

The book closes with a very excellent chapter on bone grafting—a method which, before the war, was much discussed, and at a later date will be largely practised. Its employment should be postponed in the light of recrudescence supuration.

We have much pleasure in recommending this little book to surgeons. Its appearance is opportune, and it reflects in a concise and lucid way the mind and the practice of a thoughtful surgeon.

LIEUTENANT-COLONEL FAICHNIE, R.A.M.C., in a paper on the recent decline of enterica in India, prepared for publication in July, 1914, concludes that inoculation has undoubtedly increased immunity, and has had a great effect on the prevalence of the disease in India. Opinion as to how this has actually been brought about varies in the importance it attaches to infection by flies and by carriers. Colonel Faichnie considers that the excrement of faecal-bred flies is the more important factor, because in so many instances the absence or presence, decrease or increase, of typhoid bears a direct relation to the number of faecal-bred flies. He cannot see any corresponding relation between the number of carriers and cases of enteric. He believes that faecal-bred flies give a reasonable explanation of the peculiarities of Indian typhoid, and that the large number of cases cannot be explained by the theory of direct infection, although he does not assert that direct infection and other causes have never given rise to typhoid fever. This suggestion as to the importance of the part played by faecal-bred flies is interesting, but the incidence of the disease in countries where water carriage systems are in force cannot be explained in this way.

British Medical Journal.

SATURDAY, NOVEMBER 13TH, 1915.

DYSENTERY AND WAR.

As was to be expected, accounts of the occurrence of epidemic dysentery are coming in from the various armies, and this week we publish a paper of great interest from the Bacteriological Laboratory of the King George Hospital, Waterloo, which throws considerable light on the nature of the dysenteries which have attacked the British forces in the Near East.

Epidemic dysentery in the field is liable to be the starting point of widespread disease amongst civilian populations owing to the return of dysentery carriers among the invalided and disbanded soldiers; a clear idea, therefore, of the type or types of the disease affecting the soldier is of vast importance from the standpoint of preventive medicine. The clinical condition we call dysentery may arise from many causes. It may be bacillary or protozoal in its origin. The bacillary type may be due to Shiga's bacillus, or it may be due to one of the several members of the Flexner group. The protozoal type is chiefly due to the *Entamoeba histolytica*, but possibly it may also be due to flagellates—for example, *Lambliia intestinalis*, and to ciliates—for example, *Balantidium coli*.

Up to the present time epidemic dysentery in England has chiefly affected asylum populations; with one exception all the asylum epidemics which have been investigated have been shown to be due to the *B. dysenteriae* of Flexner type. In addition to the asylum cases a small outbreak of dysentery, due to Flexner's organism, occurred in London in 1911, and evidence is accumulating that this bacillus is much more important as a cause of dysentery in England than has been generally believed. Shiga's bacillus has been reported as the cause of epidemic dysentery in Scotland, and also in one English asylum. Small outbreaks also have occurred in other institutions in addition to asylums, and amongst civilian populations. For example, the small epidemic amongst children which occurred in London in 1911, was found to be due to *B. dysenteriae* (Flexner). Such cases in children are probably not at all uncommon even in this country, and the presence of blood and mucus in the dejecta should immediately suggest the dysenteric character of the malady and the necessity for careful therapeutic and hygienic measures. Summer diarrhoea as we know it in London is not accompanied by the passage of blood and mucus, except possibly in a few cases, and *B. dysenteriae* has not been found in association with it. On the other hand, certain forms of summer diarrhoea in America and Denmark which have been associated with dysenteric motions have been found to be due to *B. dysenteriae*, whereas the choleraic or toxæmic forms unaccompanied by blood and mucus have not been associated with the presence of this bacillus. It is probable that cases of bacillary dysentery, perhaps of only slight severity and duration, are liable to be overlooked, and their true nature therefore missed. Most writers incline to the view that infections by the Shiga bacillus are liable to be more severe and more protracted than Flexner-Y infections, and in

this country, as we have already indicated, the Flexner-Y bacillus seems to have been the main cause of the recorded cases, both in institutions and outside.

We have no evidence that protozoal dysentery in epidemic form has occurred hitherto in England, and it is certain that the bulk of the cases seen here are imported; little is known as to the extent of the danger of these imported protozoal cases to the civil population.

The experience of Ledingham, Penfold, and Woodcock appears to show that the cases returning from Gallipoli and still excreting the specific organisms are chiefly infected by *B. dysenteriae* Shiga, while in a smaller number *B. dysenteriae* Flexner, *Lambliia intestinalis*, and also other flagellates are present. None of the cases they examined showed the *Entamoeba histolytica*, though it has been reported from the Eastern Mediterranean. This apparent discrepancy may, however, be due to treatment by emetine at the seat of war and on the voyage home. This experience is somewhat different from that of Remlinger and Dumas, who have been investigating the type of dysentery prevailing amongst the French in the Argonne, where apparently the large majority of the cases are due to the *B. dysenteriae* "Y" of Hiss and Russell; this organism is a member of the Flexner group. Rumpel has recently examined a small sample of cases from the German army of the west front, and these he likewise found to be due to a bacillus of the Flexner type. Cases due to the bacillus of Shiga have, however, been reported from the Austrian side.

These outbreaks of dysentery in the armies raise many important problems for the sanitarian and the clinician. The carrier problem in the case of dysentery is of great importance, and, although numerous researches have been devoted to the subject, opinions appear to vary greatly as to the duration of the period during which the specific organisms remain in the body after cessation of symptoms. In bacillary dysentery a period of three months has usually been given as a working basis for the sanitarian, but Simon's observations make it probable that this period is too short. Simon examined in 1909 near Strassburg 70 soldiers who had been attacked by bacillary dysentery in 1908. Of these 70 soldiers, 4 were still found to be carriers, and one of these 4 was subsequently shown to carry the infection for over 600 days. In 1909 he examined also 84 healthy carriers detected during the epidemic of 1908, and found that no fewer than 13 of them continued to carry the *B. dysenteriae*.

It is a matter of great difficulty to determine when an individual has ceased to carry. Probably three or four negative examinations made in the course of the two or three weeks after the last positive result, are necessary before the bacteriologist is able to declare that an individual is free from suspicion. Such a rule would certainly not err on the side of undue stringency.

On the other hand the exigencies of war sometimes ride rough-shod over sanitary regulations, and it appears highly desirable that the carrier, and indeed all convalescents, should be trained to observe such a high standard of personal hygiene that they may with a good conscience enjoy almost unrestricted freedom. It is somewhat remarkable that none of the recent papers referring to dysentery in the different armies deals with the healthy carrier. The term is not a good one, as there is little doubt that these so-called healthy carriers have suffered from diarrhoea in some form so mild that it

has been overlooked or ignored. It is well known that *B. dysenteriae* is the infective agent of certain forms of catarrhal diarrhoea not necessarily associated with blood and mucus in the stools. There is much evidence to show that in epidemic seasons many of the infected patients do not show blood and mucus in their stools, but appear to suffer rather from slight catarrhal diarrhoea. These cases, from the standpoint of prophylaxis, require the same strict supervision as the fully-developed dysenterics; this group may really include many of the cases classed by Simon as healthy carriers. It is reasonable to believe that the danger of the carrier varies directly as the number of bacilli he is excreting; on that account, therefore, the relapsing carrier, who probably excretes as many bacilli as the primary cases, is a serious source of danger. Dissemination of the disease appears to depend chiefly on defective personal hygiene, hence its prevalence in asylums and its liability to spread amongst children. Similarly the personal hygiene of the soldier in camp and trench life is often of necessity of a low standard as compared with good civil conditions. These considerations suggest that one of the chief protections of the army as well as of the civilian population will be the explicit instruction given to all soldiers in dysentery-infected areas as to the possible danger that may arise to their fellows if they do not maintain the highest possible standard of personal hygiene, and educational work in this direction should be, and we believe is, one of the chief functions of the R.A.M.C. in its sanitary work.

The treatment of the carrier with a view to the early arrest of his carrier state resolves itself into the thorough treatment of any local lesions of the gut which are accessible. Many of the so-called healthy carriers would doubtless, if examined thoroughly, be found to be suffering from slight diarrhoea, or to show slight local lesions of the rectal mucous membrane. Such cases, therefore, call for careful supervision and treatment in the interest of a sound prophylaxis.

The treatment of dysentery may be specific or non-specific; in the matter of specific agents we are now well equipped. Emetine acts as a specific germicide on the *Entamoeba histolytica*, while bacillary cases have been treated with great success by Ruffer and Willmore, and many others, by means of polyvalent serums derived from horses immunized by the injection of the bacillus of Shiga and various Flexner strains. Antidysenteric serum may, indeed, be considered one of the most successful of all serums used in treatment.

Of novel forms of non-specific treatment which have recently been found of value we may mention the administration of bolus alba¹ and animal charcoal in large quantities, while in acute severely toxic cases the intravenous injection of hypertonic saline solution appears to be of great value. The internal administration of adrenalin appears to have a favourable influence on the tendency to haemorrhage.

Of prophylactic vaccination against bacillary dysentery in man little is yet known. The chief stumbling-block to progress in this work is the intense toxicity of the Shiga strains, both for animals (rabbits) and for man. So far attempts to establish a practicable and efficient method of prophylactic vaccination in man have not been very successful, but the matter is one to which far more experimental research should be devoted than has been the case hitherto. In an early issue of this JOURNAL we hope to return to this side of the dysentery question.

¹ Kaolin, native aluminium silicate powdered and freed from gritty particles by clarification; insoluble in all ordinary solvents and unaffected by most chemical reagents.

PARATYPHOID FEVER AND ITS PREVENTION.

MEDICINE and surgery stand to gain a great deal of practical knowledge from the vast campaigns of the present war, though at a cost of human suffering that is appalling to contemplate. Both the lessons to be learned from the paratyphoid fevers that are endemic in camps and trenches, and the precautions that may properly be taken to lessen the incidence of these fevers among the combatants and the civil population alike, are illustrated by papers in this issue. Captain Torrens and Lieutenant Whittington add considerably to our knowledge of the signs and symptoms of the two varieties of paratyphoid fever distinguished by the bacteriologists as A and B. These two authors have had three or four hundred cases of paratyphoid fever under their charge, all of them, it may be assumed, among the well-trained and unusually well-fed occupants of our trenches, men in the prime of life and on a diet of high caloric value and rich in protein. It would be interesting to know how far such a diet may be held responsible for the initial diarrhoea observed by Torrens and Whittington in more than half their patients. Due emphasis is laid on the facts that paratyphoid B is a much less severe and fatal disease than typhoid fever, speaking generally, and that paratyphoid A is even milder than paratyphoid B. Indeed, the mortality is fortunately low in both these diseases, for only sixteen of the patients died, and only one of the sixteen had paratyphoid A. But by dwelling too much on the low mortality we fail to get paratyphoid fever A or B in true perspective as an incapacitating disease, and may therefore underestimate its importance from the military point of view. The fever lasts two or three weeks or more, and sudden recurrences are common, especially in cases of the A type, while definite relapses occur in both types, but more often in A than in B. We have no data as to the duration of convalescence, but it seems safe to assume that a man who contracts paratyphoid fever can rarely be fit to return to duty in less than three or four months.

Particular attention may be drawn to the interesting remarks made by Torrens and Whittington on the diagnosis of paratyphoid fever, a diagnosis depending in the last resort upon bacterial cultures and the specific agglutinative powers of the patient's serum. There is reason to believe that not a few cases of paratyphoid escape detection under such a diagnosis as influenza or pyrexia of unknown origin. Due prominence is given to the fact that the detection and exclusion of paratyphoid carriers among the combatants is the best way of preventing the spread of these diseases, and one bears on all sides from men who have returned from "somewhere in France" that this duty is being carried out with unrelenting thoroughness by the medical authorities responsible.

The other possible method of prevention is that described in their paper by Castellani and Mendelson, who have been applying it on the large scale in Serbia. It consists in preventive inoculation with cultures of paratyphoid A and B bacilli which have been killed by carbolic acid. In view of the special conditions existing in that country, inoculation against paratyphoid has been combined with inoculation against typhoid fever and cholera as well. Professor Castellani therefore employs what he calls a "tetra-vaccine," or preferably a quadruple vaccine, to protect against these four infections. His paper shows that it has been administered to over 170,000 persons among the military and civil population of Serbia, without the occurrence of any untoward results.

Naturally we have no means as yet of judging the success attained by the use of this quadruple vaccine up to the present time. But if it is at all comparable to the success which has attended the employment of antityphoid inoculation in our own armies, Professor Castellani and his medical colleagues will have effectively conferred a most valuable benefit upon the inhabitants of that much vexed country, and prospectively a comparable benefit upon the armies of the Allies which are going to its assistance.

THE LIFE-HISTORY OF AMOEBÆ IN DYSENTERY.

THERE are two amoebæ commonly found in man, one, the *Entamoeba histolytica*, the cause of amoebic or tropical dysentery, the other *Entamoeba coli*, supposed to be harmless. To distinguish between these two amoebæ in their so-called vegetative state is not by any means easy. Different characteristics have been given from time to time which are supposed to distinguish them, but in many instances these are not altogether clear, and even experts may at times be in a difficulty. When, however, the cystic stage is reached the matter becomes relatively easy. The cysts of *E. histolytica* contain four nuclei, and are smaller than those of *E. coli*, which contain eight nuclei. It is the cystic stage of the parasite that passes from man to man; therefore men who are carrying the pathogenic cysts in their bowel are dangerous to others. The cysts are passed in the faeces, and may fall into water; if water so contaminated is drunk the infection passes back again to man. Patients may go on with few clinical symptoms but yet harbour cysts in their bowel probably for long periods. One case of the kind, therefore, if the conditions are such that he contaminates water used for drinking, may be the source of an outbreak of dysentery. The cyst can survive in water for a period which, so far as we are aware, has not been determined, but it is believed to be killed by drying. When the cyst is swallowed, the four nuclei develop into young amoebæ, which burrow into the mucous and submucous coats of the bowel, and so produce the infection and consequent lesions. After this the amoebæ go on and multiply, but eventually, when the case becomes chronic and the infection tends to become quiescent, cysts are again formed. Indiscretions in diet, the abuse of alcohol, and especially getting wet and chilled, may light up an acute exacerbation with the return of blood and mucus in the stools, and the presence of the parasite in the vegetative state again.

IPECACUANHA AND ITS ALKALOIDS.

EMETINE HYDROCHLORIDE, as now used hypodermically for the treatment of amoebic dysentery, is the crystalline salt of a single alkaloid having the empirical formula $C_{20}H_{17}N_3O_4$. The name "emetine," however, has until recent years been applied to the total mixture of alkaloidal substances obtained from ipecacuanha. It was in the early years of the nineteenth century that basic principles were first isolated from crude drugs; at that time, as is well known, ipecacuanha had long been in use in medicine, and had a deservedly high reputation. Following the preparation of morphine from opium by Sertürner, the French chemist Pelletier (who in collaboration with Caventou first prepared pure quinine) turned his attention to ipecacuanha, and in 1817 separated an alkaloidal substance to which he gave the name emetine; the total alkaloid of the drug continued to be known by this name until about 1894, when the English chemists Paul and Cownley showed that it consisted principally of two alkaloids, to which they gave the names emetine and cephaeline. The latter has

the formula $C_{20}H_{17}N_3O_4$, and emetine is dimethyl-cephaeline $C_{23}H_{19}N_3O_4$. Subsequently the same workers showed the drug to contain also a third alkaloid—psychotrine. Rio ipecacuanha, which is the only kind recognized by the *British Pharmacopœia*, is the dried root of *Psychotria ipecacuanha*, formerly called *Cephaelis ipecacuanha*. This contains about 2 per cent. of total alkaloid, of which about two-thirds is emetine. Cartagena ipecacuanha—from *Psychotria acuminata*, which is also official in the United States—contains about the same total amount of alkaloid, but in this cephaeline preponderates, emetine being about two-fifths of the whole. In both drugs the amount of psychotrine is very small, about 0.04 to 0.06 per cent. of the weight of the drug. The physiological action of emetine and cephaeline appears to be very similar, both having an emetic effect. It is usually stated that emetine is the better expectorant, but less powerfully emetic and less toxic than cephaeline; psychotrine appears to have no emetic properties. Sir Leonard Rogers, in a paper contributed to the discussion on dysentery at the Asiatic Society of Bengal a couple of years ago, related some experiments and clinical observations on the relative value of emetine and cephaeline hydrochloride.¹ He administered the two alkaloids separately and together to a number of cases of amoebic dysentery in whose stools pathogenic amoebæ were found microscopically; his conclusion was that, though pure cephaeline hydrochloride and mixtures of it with emetine hydrochloride both gave results far superior to the old oral administration of ipecacuanha powder, yet the results, as judged by the rapidity of improvement in the number and character of the stools and the disappearance of the amoebæ from them, were distinctly inferior to those obtained by the use of an equal quantity of pure emetine hydrochloride. Moreover, the pure cephaeline was inferior to the mixtures of the two alkaloids. He therefore concluded that pure emetine hydrochloride is the best alkaloid in amoebic dysentery. The drug in these cases was administered hypodermically, and experiments in the laboratory pointed in the same direction. It was at one time supposed that the value of ipecacuanha in dysentery depended on some non-alkaloidal constituent or constituents, and even in so recent a work as Henry's *The Vegetable Alkaloids* (1913) it is suggested that for the cure of dysentery the tannin present may be the chief active agent. Acting on this view, the so-called "de-emetized ipecacuanha" was some years ago prepared for use in this disorder; in this a substantial amount of the alkaloid was removed, while the "extractive matter" was returned to the drug. Some alkaloid, however, and often a considerable proportion, was left behind, and was no doubt the active agent in maintaining the reputation of the drug. Improved methods of preparation led to the more complete removal of the alkaloid, with consequent greater freedom from emetic properties, and the reputation of the drug then declined. Now that further research has shown emetine to be the substance having a specific amoebicidal action, the failures of the de-emetized drug are explained. Emetine is a colourless amorphous powder, but its halogen salts and its nitrate are crystalline; the sulphate, acetate, etc., have only been obtained in the amorphous form. Of the crystalline salts, the hydrochloride is the only one which is sufficiently soluble to be suitable for hypodermic use, and it is therefore always employed. This salt, having the formula $C_{20}H_{17}N_3O_4 \cdot 2HCl \cdot 3H_2O$, is a white crystalline powder, easily soluble in water or alcohol. A solution for hypodermic use is made by simply dissolving it in recently boiled distilled water; it can conveniently be prepared as required from the hypodermic tablets supplied by certain firms of a suitable strength for the purpose. The constitution of the alkaloid is unknown, but it is believed to be a quinoline derivative.

THE HISTORY OF IPECACUANHA IN DYSENTERY.

IPECACUANHA had long been in use in Brazil as a remedy for dysentery, but was unknown in Europe till it was introduced by G. Piso in 1648. He accompanied the Prince of Nassau on exploring expeditions in the West Indies and Brazil, and wrote an account of his observations in a treatise entitled *De Indiæ utriusque re naturali et medica*, which was published at Amsterdam in 1648. Apparently Pison's description of the ipecacuanha treatment failed to attract the attention of the profession, except perhaps in Holland. There is no mention of the drug in C. DeLion's *Traité des Maladies particulières aux Pays Orientaux*, published in Paris in 1665. It was first brought into public notice in 1686 by J. A. Helvetius, grandfather of the famous farmer general and philosopher, who treated dysentery in Paris with a secret remedy containing a large amount of ipecacuanha. He was so successful that he was called in to the Dauphin, son of Louis XIV, and was fortunate enough to cure the royal patient. The remedy was then tried with good results in the Hôtel-Dieu, and Helvetius sold the secret for one thousand *louis d'or* to the French Government, which in 1688 made its composition public. The treatment came into general use, but, as inevitably happens in medical practice where the problems are so obscure and complex, there were many fluctuations in professional opinion as to its value. After its first vogue, its use seems to have been abandoned for a considerable time, for Andrew Davidson says that at the beginning of the nineteenth century Balmain, and afterwards Playfair, "adopted, or rather rediscovered, the method of administering it in large doses."¹ Balmain frequently gave ipecacuanha to the extent of two drachms with sixty drops of tincture of opium, and in many cases he found that a dose or two was sufficient to remove every dangerous symptom. This method of treatment, though it excited some attention at the time, did not gain the confidence of the profession. To E. S. Docker, an army surgeon, belongs the credit of finally impressing the value of large doses of ipecacuanha in dysentery on the mind of the profession.² Stationed in the Mauritius from 1851 to 1857, he had to deal with a large number of cases of that "hitherto intractable and fatal disease." He gave the drug in doses ranging from 10 to 90 grains, rarely less than 20. He says: "The action of these large doses is certain, speedy, and complete; and truly surprising are sometimes their effects. In no single instance has failure attended this medicine, thus employed." Although not sanguine enough to expect that it will be invariably successful, he expresses his "firm belief that henceforward dysentery may be as much under control and as expeditiously cured as simple diarrhoea." Docker no doubt had to do with amoebic dysentery, and the value of the drug in that form of the disease has in recent years been established on a scientific basis, largely by the work of officers of the Indian Medical Service. Annesley, Twining, Parkes, Mackinnon, Morehead, Fayer, Maclean and Chevers laid the foundations of our present knowledge of amoebic diseases, but it is only since 1912 that the more exact way of using ipecacuanha root and its alkaloids has been scientifically determined.

EMETINE AND IPECACUANHA IN DYSENTERY.

Though the mixed alkaloids of ipecacuanha were isolated by Pelletier in 1817, and named emetine, a name now confined to one of them, the use of the alkaloids in medicine seems to be comparatively recent. In 1891 Major Tull Walsh, I.M.S., in a paper on the rational treatment of acute dysentery,³ gave an account of the excellent results he had obtained with an average dose of 1 grain of emetine in twenty-four hours. In 1912

Vedder showed experimentally the high amoebicidal action of the alkaloid upon saprophytic and pathogenic amoebae, and suggested the application of his results to human amoebiasis. Sir Leonard Rogers improved upon Vedder's idea by administering emetine hypodermically in cases of acute amoebic dysentery in Calcutta, and found that it had the effect Vedder hoped. Major R. Markham Carter, I.M.S., Professor of Pathology in the Grant Medical College, Bombay, in the course of a discussion on the subject at the Asiatic Society of Bengal, reported in a special number of the *Indian Medical Gazette*, (Mumbai, 1914), said that these results had induced him to introduce the method at St. George Hospital, Bombay, in 1912; he had at once been struck with the swift results obtained. From an experience of 168 cases he had come to the conclusion that emetine administered hypodermically in doses of 1 to 2 grains a day acted rapidly in early cases of uncomplicated amoebic dysentery, but was valueless in bacillary dysenteries. It was a specific in prespurative amoebic hepatitis and of marked value in chronic latent amoebic colitis which gave rise to that condition. He thought the value of emetine in liver abscess doubtful and believed that rational operative treatment gave as good results without as with the exhibition of the drug. He found that both the pathogenic amoebae and the so-called harmless commensal amoebae rapidly vanished from the stools in early cases of amoebic dysentery on administration of a few grains of emetine hypodermically. If amoebic dysentery had lasted for a week or more, emetine injection destroyed the vast majority of the amoebal trophozoites in the first twenty-four hours, but the stools rarely became free from amoebae under seventy-two hours. Even after a week's injection and apparent cure by emetine, there was in some cases a tendency to relapse. The dose of emetine for an adult should be at least 1 grain a day, and in severe cases the drug should be pushed without hesitation. Professor Carter had found that small doses of $\frac{1}{2}$ grain did harm, and accounted for this on the hypothesis that they sensitized the residual source of undestroyed amoebae in the gut wall so as to render them emetine-proof. Such cases passed out from hospital apparently cured, but carried the amoebal cyst and were sources of infection to others. He went on to express the opinion that acute amoebic dysentery required the exhibition of the entire root with all its alkaloids in powdered form, as well as emetine. He gave 90 grains of ipecacuanha powder in 5 grain pills, coated with salol, by the mouth, and 1 grain of emetine hydrochloride hypodermically. Administration of the drug by the mouth insured that the intestinal contents were thoroughly permeated with it, and the amoebicidal effect of the parent drug upon the parasites buried in the wall of the affected intestine was reinforced by emetine carried to them by the blood stream after the hypodermic injections. With regard to the coincident occurrence of amoebic and bacillary dysentery, he made the following observations: "Another point of interest in the dysenteries of Western India is that mixed true amoebic and true bacillary dysentery of one variety or another is not uncommon. As yet we have no means whereby we may gauge the proportional relationship between these two groups of factors as regards virulence, numbers, etc., and it is these conditions of variability that tend to deceive the clinician relying mainly upon the effect of his treatment for his experience in this group of diseases. Further, in cases of true bacillary dysentery it is not uncommon to find that periods of rapid multiplication of the so-called harmless commensal amoebal parasite occur. . . . I believe that where marked alteration in the intestinal flora has taken place as the result of dysenteric infection, with all its conditions of inflammation, toxicity, etc., the normal commensal parasitic amoebae have the power of assuming a pathogenic rôle, and exhibit a degree of multiplication which hitherto has passed unnoticed by observers

¹ *Hygiene and Diseases of Warm Climates*. Edinburgh and London, 1893, p. 620.

² *Lancet*, 1858, vol. i, p. 113 and 169.

³ *Indian Medical Gazette*.

in this field of work. Each year adds new varieties to a small list of bacillary dysenteries, and we read of new types of amoebae with scepticism."

THE PREVENTION OF RELAPSE AFTER EMETINE.

DR. NATHAN BARLOW who, we gather, is the medical officer of a plantation at Cuyamel, Spanish Honduras has attempted to determine the percentage of permanent cures of dysentery after various methods of treatment.¹ He recognized that the cases to be used for statistical purposes must have been carefully examined and recorded, that not less than six months must have elapsed since the cessation of all treatment, and that the cases must be free from complications which might confuse the results. In particular he, like others, had found that intestinal infection with flagellates, or ciliates, or metazoa made the removal of the amoebae much more difficult. He was able to study 400 cases in the Charity Hospital in New Orleans, and 300 cases at Cuyamel. He found that only 18 of the cases in New Orleans and 40 of those at Cuyamel fulfilled all the conditions he had laid down. The most important result of his inquiry appears to be that the initial treatment with emetine must be very thorough. The conclusion he draws from the examination of these 58 cases, which seems to have been most carefully carried out, is that about 80 per cent. or more of cases of infection with *Entamoeba histolytica* remain free from relapse for seven months or more, if treated for at least ten days continuously and with not less than one grain daily of emetine. If treated for less than nine days, relapse is, he considers, almost inevitable. This is in accordance with the experience of British authorities, who, we believe, advise that the initial period of treatment should be twelve days. The simultaneous administration of ipecacuanha does not diminish the number who relapse, but its subsequent administration does. He holds that a permanent cure is possible in a shorter time with emetine than with ipecacuanha. Cases of hepatitis and liver abscess usually remain free from either intestinal or hepatic relapse, partly on account of the more thorough treatment they receive. The plan which he considers best can be carried out only with intelligent patients who are within reach of a competent laboratory worker. One grain (or more, for one or two days) is given daily for fifteen days, followed by 60 to 80 grains of ipecacuanha for from five to twenty days, according to whether intestinal irritation is produced or not. The bowels are cleansed by a saline at the beginning of treatment, and about every five days. If there is either diarrhoea or colic, it is checked by opiates, usually paregoric, in small repeated doses, until comfort is obtained. If severe diarrhoea is present, liquid diet and rest in bed are required until the symptoms improve, when a more nourishing diet and gentle exercise are allowed. On discharge the patient is instructed to return once each month for examination of a fresh stool obtained after a saline cathartic. If either amoebae (of any variety) or cysts of *Entamoeba histolytica* are found, the treatment is repeated. The advantages he claims for his plan are—first, that if amoebae are actually found, patients will readily submit to a second treatment, while even intelligent patients might resent this second treatment merely as a prophylactic measure; secondly, he believes that when a patient is clinically well, and with merely a latent infection, the second course of treatment will usually result in a complete cure; and, thirdly, he points out that the repeated examination of cases results in the accumulation of data which will make it possible to determine the dose and duration of treatment necessary for permanent cure, and is therefore of the highest scientific and practical value.

AMOEBIIC CARRIERS.

DR. ALBERT J. CHALMERS (director) and Captain R. G. Archibald, R.A.M.C. (pathologist), of the Wellcome Tropical Research Laboratories, Khartoum, published recently¹ a paper, in the course of which they insisted upon the importance of amoebic carriers not only in the spread of the disease, but in the consideration of a cure. They agree with Rogers that amoebic bowel disease is frequently overlooked, and that it is necessary to examine the motion for amoebae after a purge in all cases of indigestion living in or coming from dysenteric areas. They state that they have frequently observed this form of cryptic or latent dysentery in Khartoum and that mild anaemia may be the only evidence of infection; as Rogers has pointed out, there is a rare form in which the symptoms of appendicitis are simulated, and Chalmers and Archibald state that they have observed cases of lung abscess and cold abscess in a joint. They have evidence that the latency may continue for as long as three or more years with recurrent diarrhoeal attacks. They consider that the only quick and ready means for the diagnosis of latency is a differential leucocytic count, the important feature being the increase of the mononuclear leucocytes without distinct evidence of malarial or other protozoal blood infections; such an observation should lead to most careful and repeated microscopic examinations of the faeces after the administration of a purgative. The same method, they add, affords a means of ascertaining whether a case has been cured, as the amoebae, though they may gradually disappear from the motions under the treatment, may reappear after a longer or shorter interval if treatment be stopped too soon. Usually after a course of emetine treatment, though the amoebae disappear from the faeces, the mononuclear leucocyte count remains high, or may increase; the treatment is stopped for a couple of weeks, and, if the patient's health continues to improve, the mononuclear leucocytic count is made again, and is generally found to be still high. If during the fortnight the patient becomes languid, and particularly if he suffers from discomfort over the caecum and ascending colon, or other portion of the large intestine, the emetine is at once resumed; this plan, lengthening the intervals of non-treatment and shortening the intervals of treatment, is continued until the mononuclear leucocytic count returns to normal or nearly normal in uncomplicated cases, or is reduced in cases complicated with malaria. They have also observed an increase in the number of eosinophilic leucocytes, and believe that this is in some way a sign of bodily reaction against the amoebae, for with a cure of the anaemic conditions and a cessation of the emetine treatment the eosinophilia disappears. They are so persuaded of the value of the blood count that if, when treating in the Anglo-Egyptian Sudan any person with anaemia not due to malaria or kala-azar, or any person who has peculiar intestinal, urinary, pulmonary, or joint affections, a marked mononuclear increase not to be explained by malaria is found, they administer a purgative, and examine the stools for amoebae on more than one occasion. "We draw," they say, "a number of blanks, but in our opinion we also cure a number of cases of amoebiasis and prevent serious illness." Under treatment the mononuclear leucocytes and also the eosinophilic increase, and only regain a normal percentage after some considerable lapse of time. In another paper written by Chalmers in association with Dimitri Papathodorou, a warning is given against giving full doses of emetine to pregnant women: a daily dose of $\frac{1}{2}$ grain may, however, safely be administered. The attempt to obtain complete cure by elimination of all amoebae must be postponed until after delivery.

¹ *New York Medical Journal*, October 25th, 1915, p. 877.

¹ *Journal of Tropical Medicine and Hygiene*, August 16th, 1915.

CAMERAS DE SANGRE: BLOODIE FLUX.

THE Clarendon Press has issued a facsimile of a very scarce pamphlet¹ by G. W., entitled, *The Cures of the Diseased, in Remote Regions. Preventing Mortalitie, incident in Foyraine Attempts, of the English Nation*. It was printed in London in 1598, and Dr. Charles Singer, who has written an introduction and notes, believes it to be the earliest work devoted to tropical or naval medicine published in English, and not improbably the first work of the kind in any language. The author, there seems little doubt, was George Whetstone, who was a playwright, and produced *Promos and Cassandra*, which is considered to be the original of Shakespeare's *Measure for Measure*. This was written four or five years after he had served for a time with distinction against the Spaniards in the Low Countries. Later on he served again with the army in the West Indies, and was for some time a prisoner in Spain. It was, he says, during his imprisonment that he gathered the notes in his pamphlet from the observation of the practice of the special physician of the King of Spain. In his address to the reader G. W. disclaims writing as a medical practitioner, and says: "The cause that induceth mee, publiquelie to expresse the Cures of Diseases of such consequence, as every iudiciall conceite may perceine. to haue been the onely prejudice to our Nation, in the expeditions of our time to the Southerne parts: from whence in this and former ages, the English haue returned with renowned Victorie: yet exceedinglie opprest with extreame and pennisious sickness, that hath much more prevented the proceeding and performing of their pretentions, than the power of Enemies." One of his chapters is on *Las Cameras, or Cameras de Sangre*, which is the *Bloodie Flux*. This disease, he says, is produced by eating too much fruit or by sudden cold or drinking water abundantly when hot. "And also eating of Butter, Oyle, and Fish, is so hurtfull to the parties that haue it, that they must refrain to eat thereof: and whatsoever els, that defiles the entrailles, with any slimie substance." To cure the disease he says, "With the more expedition, that medicine is ministred to the diseased of *Cameras de Sangre, Laxatiues, or Bloodie Flux*, there is the more possibilitie it should preuaile. And detracting it, the Patients often die suddenly, without feeling much griefe. For speedie and assured remedie thereof, the Patients bodie must be cleansed of the slimines, engendered in the passages of the nutriments; before any sustenance can remaine in his bodie. And for that purpose, gine to purge him in the morning, halfe a pint of white Wine coold, wherin $\frac{1}{2}$ ounce of Rubarb hath been sodden, being small cut; putting in some Sugar Candie to sweeten it. And immediatly after he hath so purged, keepe at his nauch Rosemarie sodden in strong Viueger, applied in the morning and evening verie hot, untill it be stayed; giuing him often Quinces brused and rowled in Marmelct like Pils, which he should swallow whole, and none of the Fruits, or meates before recited, nor any more white wine, but red wine of any sort. And if it be on Land, the liuers of Goates (especiallie) Sheepe, or Bullocks roasted: not willingly permitting the Patient to eat any other meate. And if at Sea, Rice only sodden in water, rather than any thing else vsuall there, untill the infirmitie is perfectly asswaged." Many physicians experienced in the treatment of dysentery within recent times will agree with G. W. as to the need of a laxative at the beginning, and at one time sodium sulphate was very popular for this purpose; they will probably also agree with him as to the advantages of hot applications to the abdomen, although probably preferring a very big mustard plaster covering the whole abdomen, the umbilicus being protected with vaseline.

THE GRAND PUMP ROOM AT BATH.

A FRESH page in the story of Bath was turned on November 8th, when the famous Grand Pump Room again became available for the drinking of the waters. For some months past this has been closed for redecoration, for its faded glory was thought to have become too depressing for invalids, and there were hints that even the eighteenth century would be none the worse for the infusion of modern ventilating science. The renovated room is certainly elegant enough to satisfy any early Georgian master of ceremonies. It has been made to appear, even to the most fastidious detail of decoration, as it must have appeared two hundred years ago. The general tone is ivory white and cream; the original gilding of the capitals of the Corinthian pillars has been retained, and whatever gold has been added elsewhere has been toned down to match. The substitution of clear for coloured glass has opened up the view of the King's bath from the pump room. The statue of Beau Nash and the Tompion clock are in their accustomed places, but the furniture is more truly of the period than it used to be, and before long the whole of it will be Chippendale. When to all this are added draught-proof revolving doors, radiators in recesses under the windows, a ventilating fan and large air ducts in the roof, and a tank for the more expeditious washing of glasses, while even the old candle brackets have been wired for electric light, there is a combination of ancient and modern which should make the pump room more than ever the focus of the life of Bath. If there was any pricking of consciences at the spending of money on a gilded saloon at a time like the present, it subsided after the opening speech by the mayor of the city (Mr. F. W. Spear), who said that the day's function would be without excuse if it were not related in some way to the great war. He proceeded to recount what Bath had done since war broke out. It had, he said, been decided that as a city Bath would place freely at the disposal of the army medical authorities every facility which it could afford. No wounded or sick soldier whose trouble would be alleviated by a visit to the healing springs was to be put to any expense in obtaining the treatment. Sufferers from stiffened limbs, the result of wounds, or from acute rheumatism following exposure in the trenches had been submitted to the Bath waters with the anticipated benefit, and the same was true of soldiers recovering from tropical diseases or from nervous breakdown. Convalescent homes for officers completing their cure had been provided in the city by Lady Stavthoua and Lady de Blaquiere, while the men were being treated at the Royal Mineral Water Hospital. In Combe Park, to the south of the city, a new military hospital to accommodate 500 was in course of establishment, and presently Bath would be treating not far short of 1,000 wounded. Following the mayor's remarks came some personal testimonies to the efficacy of the waters from Dr. O'Sullivan, a visitor to the city, and from Colonel Churchward, an officer from the front undergoing treatment. The mayor then formally drank a glass at the fountain, and, like a celebrated character in fiction who did likewise, declared in solemn and emphatic terms that he felt a great deal better.

THE GROUP RECRUITING SCHEME AND THE MEDICAL PROFESSION.

THE first application of the scheme of the Director-General of Recruiting—namely, the appeal to unstarved men—has touched the medical profession in two directions. In the first place, a certain number of medical men in practice have received the appeal. This point was discussed last week in an interview, at which Sir Alfred Keogh was present, between Lord Derby and representatives of the Central Medical War Committee, which meets at the house of the British Medical Association, and of the Scottish Medical Service Emergency

¹ *The Cures of the Diseased in Foyraine Attempts of the English Nation*. By G. W. Reproduced in facsimile with introduction and notes by C. Singer. Oxford: The Clarendon Press. 1915. (Cr. 8vo. pp. 32. 1s. 6d. net.)

Committee, which meets at the House of the Royal College of Physicians in Edinburgh. The official statement issued after the interview sets out that "the representatives explained to the Director-General of Recruiting the system under which the committees have been working and the measure of success which had hitherto resulted from their efforts. Lord Derby informed them that he fully approved of the scheme, and expressed a wish that this work should be continued, and that the War Emergency Committees should undertake the whole of the arrangements for procuring medical men for the army, and he agreed that, on the recommendation of the Director-General Army Medical Service, the Committees should be recognized as the means of organizing the medical profession with regard to military service." This is a satisfactory decision, and proof of the wisdom of the profession in instituting committees to deal with the matter, but it places a great responsibility on these committees. These committees for England and Wales, Scotland, and Ireland respectively now have in relation to the Director-General of Recruiting and the War Office an established status. They become the agents of the Director-General of Recruiting for the purposes of meeting the necessities of the army for medical officers, and thus the tribunal to which medical men of military age may apply in any difficulty they feel in deciding whether in their own interests, and in those of the profession and of the civil population, they should apply for a commission. The other point in the scheme which has affected the medical profession is that the appeal has been received by a number of medical students who are in doubt as to the proper course to pursue. With regard to men in the fourth and fifth years the position is clear. The view of the War Office, as expressed for it by Mr. Tennant in the House of Commons as recently as November 3rd, is that fourth and fifth year students should continue their studies, but that students in the first, second, and third years must consider for themselves what answer they should make to the recruiting appeal addressed to them, and should not regard themselves, so far as the War Office is concerned, as under the duty of continuing their medical studies. The President of the General Medical Council, speaking in the name of that body, stated during its recent session that the Council desired to inform licensing bodies, medical schools, and approved teaching institutions that the Director-General of the Army Medical Service had intimated to the Council his entire agreement with Lord Derby's decision regarding the recruiting of medical students—namely, that it is the duty of medical students other than those in the fourth and fifth years of study to join His Majesty's forces. These pronouncements have given rise to a considerable amount of criticism by authorities engaged in medical education, who, while indicating their desire loyally to co-operate with the War Office, yet deprecate the enlistment of junior students and the interference which will thereby be caused in the continuity of their studies. It is urged by many that there will be a serious dearth of medical men in the future if this policy is pursued, but we think it may be assumed, and indeed we know, that all such arguments were most ably represented and fully discussed at an interview which the President of the General Medical Council and also the Presidents of the Colleges in London had last week with the War Office. The result was that the decision in regard to first, second, and third year students was maintained. The circular addressed by the President of the General Medical Council to all licensing bodies is the result of this decision. Sir Clifford Allbutt, in a letter to the *Times*, raises another point—namely, that it would be a great hardship and a misfortune for the country if students, who are preparing for the examinations in anatomy and physiology in this term should be prevented from sitting, and he very properly draws attention to the serious loss, financial

and otherwise, which would be inflicted upon them. There should, however, be no difficulty in meeting Sir Clifford Allbutt's wishes. Under Lord Derby's scheme men can either join the colours at once or enlist under the group scheme. Under that scheme there are two primary classes—married and unmarried men—and these in each class are grouped according to age; men in the unmarried groups are to be called up first. The group system provides that any man in a group will get one fortnight's notice before his group is called up, and also provides that if any one in a group called up has good reason to be starved, he can put such reason before the local recruiting tribunal, and may by this tribunal be exempted, or the period at which he is required to join the colours deferred. If individual students will follow this latter method they will not be called upon to join the colours until their group is called upon. When this occurs, members of the group receive a fortnight's notice, and on getting such notice individuals affected are entitled to petition the local recruiting tribunal to be "starved," or at least exempted from joining the colours for a period. Students of medicine following this plan, and, in addition, taking advantage of the help and influence which the authorities of their school might bring to bear, could have the period of their taking service deferred until they have had an opportunity of appearing for an examination for which they happened to be working. We think that a good case has been made for special treatment from the point of view of the future supply of the profession, but we also think that a good case can be shown for consideration in the interests of the army itself. We understand that it is the policy of the War Office to allow a man when enlisting to join the branch of the army he prefers, providing there is a vacancy, and we submit that it would be undesirable to enlist medical students who have advanced sufficiently far in their course to have passed the examination in anatomy and physiology in any other branch than the R.A.M.C. or as orderlies in that corps. In normal conditions these men, as soon as they have passed the examination in anatomy and physiology, would begin clinical work as dressers or clerks, and we suggest that it would be possible, and indeed easy, to give them some probationary status now in the army and employ them in military hospitals abroad or at home in corresponding capacities. The Central Medical War Committee, at its meeting on November 10th, determined to ask the Director-General of Army Medical Services whether it be possible to offer commissions as second lieutenants or surgeon-probationers to third year medical students.

The first annual report of the Medical Research Committee, for the year 1914-15, has been presented to Parliament. We hope to refer to this important document at length in our next issue.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

The following additional subscriptions have been received:

	£ s. d.		£ s. d.
Dr. G. D. H. Carpenter...	1 0 0	Mr. R. F. Priestley ...	1 0 0
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Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE APPEAL FOR SURGICAL INSTRUMENTS.
Surgical instruments should be sent to the Master of the Society of Apothecaries, Apothecaries' Hall, Blackfriars, E.C. The Master acknowledges gifts from Miss May Rathbone, London, W., and Dr. A. H. Penistan, Cleveleys, near Blackpool.

Medical Notes in Parliament.

The New Taxation.

THE third Finance Bill of the war is making slow progress through the Commons, and as it will apparently be some weeks before it has passed through all the necessary stages and become operative as an Act of Parliament, it may be useful to indicate the progress that has been made and the scope of some of the amendments which the Chancellor has accepted or promised to introduce.

The bill is at present in its Committee stage, and, as was generally anticipated, its framework has not undergone any substantial change, although several alterations have already been made in matters of detail which must have an appreciable effect on the structure as a whole. The scheme for the increase in taxation falls into three main divisions, dealing respectively with the new import duties, the income tax, and the excess profits tax. The first two divisions have been discussed and may reasonably be regarded as practically settled, although one or two minor matters still remain open. The excess profits tax, on the other hand, being novel in its form and heavy in its incidence, has already provoked much discussion, and few if any of its numerous critics show any signs of becoming "gravelled for lack of matter."

We have previously called attention to the fact that the Chancellor has acceded to the request made by the users of motor vans for commercial purposes that such vehicles should be exempted from the new import duties. The case of the professional user of an imported car was again referred to when the section in question was debated in Committee, but no promise was made on behalf of the Government to give further consideration to what is undeniably a new anomaly in British taxation. We hope that the point may not be lost sight of when the bill is before the Commons at a later stage. The old saying that "hard cases make bad laws" is true enough, but the application of that maxim to the whole class of medical practitioners in a bill which recognizes—in connexion with the petrol duty—their right to an analogous relief, savours rather of political or administrative convenience than of a regard for sound and just legislation. If any relief is introduced in respect of the purpose served by the imported vehicle, the discrimination should be based on the essential distinction between pleasure and utility, and on that foundation professional and commercial users of motor vehicles have an equal right to exemption.

It will be remembered that the income tax sections provided for a drastic cutting down of the allowances by way of "abatement," and a reduction of the exemption limit from £160 to £130. Protests against these proposals were not successful. It was stated that the new allowances had been fixed with reference to the average rates of indirect taxation by the classes affected, and after exhaustive inquiry as to the total taxation they could equitably be called upon to bear. Comment on the fact that though equitably the exemption limit was £130 the maximum allowance for abatement was only £120, elicited the explanation that the amounts had been fixed in that manner to avoid the necessity of dealing with a large number of small charges which, from an administrative point of view, might not be worth the cost of their collection.

Under Section 27 it was proposed that interest on bank deposits should be subjected to tax at the source—that is, that the banker should deduct the appropriate tax and account for it to the Revenue. This proposal evoked considerable opposition on the part of the banks, as they apparently feared that it might lead customers to transfer small deposits to the Post Office Savings Bank, where the section would not apply. It was announced that the provision had been inserted under a misapprehension, and that a new clause would be introduced at a later stage in place of that withdrawn.

Another of the income tax sections which was opposed purported to give the Board of Inland Revenue large powers of appointing officials to perform various duties under the proposed system of quarterly collection of income tax from employed persons. These appointments are at present made by the District Commissioners of Income Tax, who appear to be jealous of their prerogatives

in this connexion. The Chancellor explained that the section was not intended to grant such extensive powers as might be gathered from its wording, that he was negotiating with the authorities concerned, and hoped that the matter might be settled by mutual agreement.

As we pointed out in our issue of October 23rd, the Excess Profits Tax does not apply to professions except where substantial capital expenditure is required. Several members spoke strongly in favour of its extension to all professions and employments, but this suggestion was negatived. The discussion on this point threw an interesting light on the view which the Government takes as to the scope and justification of the new tax. When it was first discussed the tax was popularly regarded as being a tax on any increase in income due to the war, and its justification the plea that a cause of so much financial and personal loss to some ought not to be the cause of gain to others. As viewed in the light of recent explanations, it seems to be intended as a tax on that increased yield of capital which is received during the war, even though not directly or indirectly attributable to the special conditions arising out of it. The administrative advantage of the view taken by the Government is sufficiently obvious. It removes the necessity of proving the cause of the increase—a proof not easy to establish where the material is in the possession of the person to be assessed, and at the same time made for simplicity of assessment in that there is no necessity for discriminating between pre-war and ante-war profits. Incidentally it carries one step further the differentiation first introduced into our system of taxation by the Finance Act of 1907—the principle of treating the income derived from earnings more leniently than that arising from invested capital. The Government also take the view that there are few cases where liability would in any case attach to professional profits, and there will not be many medical practitioners prepared to contest that statement. Two alterations were made in the original scheme of the bill. The excess tax payable is to be calculated after £200 is allowed to the taxpayer instead of £100, and the liability is to attach to concerns making up their accounts after August 4th, instead of after August 31st, 1914. It will be seen that this latter alteration is in accordance with the taxation of all increases received after the commencement of the war, irrespective of their periods of accrual.

The amendments summarized above do not in most cases affect the medical profession directly, but proposals for increased taxation can never be of merely academic interest. A tax is an individual contribution, but it is for the expenses of the community, and when any section escapes, by faulty administration or lack of political foresight and courage, from a payment which they can fairly be called upon to make, the remainder of the community must sooner or later make good the loss.

Price of Quinine.—In reply to Commander Bellairs, Mr. Pretyman, Parliamentary Secretary to the Board of Trade, said that the advance in the price of quinine had been under the consideration of the Government; it had recently been decided to prohibit its export, and since that decision became known there had been a sharp fall in price.

Exemption of Dentists from Military Service.—In reply to Mr. Raffan, who asked whether, in view of the dental requirements of the community, practitioners in dentistry would be starred as men to be exempted from military service under Lord Derby's recruiting scheme, Mr. Tennant said that the matter had not escaped the attention of the Army Council. Every case of the kind would, if represented to the proper authority, receive due consideration.

Enlistment of Pharmacists.—Mr. Glyn-Jones asked, on November 9th, whether pharmacists were to be enlisted except to perform duties for which their special technical qualification was needed. Mr. Tennant replied that a pharmacist who wished to join the R.A.M.C. would always be accepted for that arm if a vacancy were available, but if he desired to enlist in some other branch of the army he could not well be refused if a vacancy existed in it.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed.

LIEUTENANT FERDINAND HAY YOUNG, R.A.M.C., was lost in the transport *Marynetta*, torpedoed and sunk in the Aegean Sea on October 23rd. He was the son of Mr. John Young, of Fernbank, Kirkintilloch, and was educated at Glasgow University, where he took the M.A. in 1907, the M.B. and B.Ch. in 1911. After qualifying he went to New Zealand, but returned when the war broke out, and joined the R.A.M.C. as a temporary Lieutenant on January 18th, 1915.

Wounded.

Captain R. V. Morrison, I.M.S., Cameroons.
 Captain J. E. Stacey, R.A.M.C. (temporary), France.
 Captain T. H. Wilkinson, R.A.M.C. (temporary), Dardanelles.
 Lieutenant W. R. Stewart, I.M.S., Dardanelles.
 Lieutenant A. L. E. F. Coleman, R.A.M.C. (temporary), France.
 Lieutenant E. C. MacWilliam, R.A.M.C. (temporary), Dardanelles.
 Lieutenant G. Richardson, R.A.M.C. (temporary), France.
 One item of some interest in the above list is that an officer of the I.M.S. has been wounded in the Cameroons. Probably few were aware that any Indian troops were serving in West Africa. The officer in question, Captain R. V. Morrison, is medical officer of the 5th Bengal Light Infantry, the regiment a part of which mutinied at Singapore last February.

DEATHS AMONG SONS OF MEDICAL MEN.

HUME, William Young, Lance-Corporal 7th Battalion Cameron Highlanders, son of the late Dr. Walker Hume, of Jedburgh, reported wounded and missing in France on September 25th. He was in the employment of Messrs. T. and F. Gregory, dentists, Dundas Street, Edinburgh.
 Warnock, H. A. H., Lieutenant 4th, attached 1st, Battalion Royal Fusiliers, eldest son of the late Dr. Hugh Warnock, of Clogher, county Tyrone, reported wounded and missing in France early in September, now stated to have died of wounds. He was educated at St. Columba's College and at Trinity College, Dublin, and got a commission from the Officers' Training Corps on August 15th, 1914.

Webb, Gerald Vernon Tisdall, Lieutenant Second Battalion Hampshire Regiment, son of the late Captain W. W. Webb, J.M.S., killed before Achi Baba, in the Dardanelles, on August 6th, having been first reported as missing. He was educated at Berkhamshead and Exeter Schools, got his commission as Second Lieutenant in September, 1911, and was promoted to Lieutenant on October 1st, 1914. He had served with his battalion in Mauritius and in India, returned to England in December, 1914, went to the Dardanelles and took part in the first landing on April 24th-25th, was wounded on May 4th, but subsequently returned to duty.

HONOURS.

THE *London Gazette* of November 4th publishes a long list of 100 decorations, 36 D.S.O.'s and 64 Military Crosses, bestowed on officers for good service, chiefly in the fighting which began with the British advance at Loos and Hulluch on September 25th. Of these, six D.S.O.'s and nine Military Crosses go to the medical services, as follows:

D.S.O.

Major Geoffrey Wallace Grainger Hughes, 6th Cavalry Field Ambulance, R.A.M.C. For conspicuous ability and good work in arranging for the care and evacuation of the wounded at Loos on September 26th and 27th, 1915. A large number of wounded infantry were tended and evacuated by the two cavalry field ambulances, in addition to wounded cavalrymen. During the greater part of the time Loos was under heavy bombardment.

Captain Whiteford John Edward Bell, M.B., No. 2 Field Ambulance, R.A.M.C. For conspicuous gallantry and devotion to duty on all occasions, notably near Loos between September 28th and October 1st, 1915, when he visited the advanced bearer post day and night under continuous shell fire, and personally supervised the arrangements for collecting and evacuating the wounded in that area. Captain Bell has commanded a bearer division since August, 1914.

Captain temporary Major John Wilfred Bird, 6th London Field Ambulance, R.A.M.C. (T.P.). For conspicuous devotion to duty during operations at Maroc and Loos, between September 25th and 30th, 1915, in dealing with casualties. On one occasion he worked for twenty-three hours without any cessation in dressing and attending the wounded. He set a fine example, which had far-reaching results.

Temporary Captain Charles Stewart Hamilton, R.A.M.C., attached 2nd Battalion the Buffs (East Kent Regiment). For conspicuous gallantry and devotion to duty from September 27th to 30th, 1915, in France. He dressed the wounded in the firing line, being for hours together under heavy shell fire, and went to points of great danger, often to where bombers were actually fighting.

Captain Frank Robson Kerr, M.B., R.A.M.C. (S.R.). For conspicuous gallantry and splendid devotion to duty at Cninchy on September 25th, 1915. After a successful attack on the enemy's trenches this officer crawled over our own parapet and brought in a wounded man from about a dozen yards outside in full view of the enemy at a range of only 70 yards. He then went out again for 30 yards and rescued a man whose thigh had been broken, being fired at the whole time. During the night of September 25th Captain Kerr was out attending to the wounded for two hours under constant machine-gun and rifle fire, and on the night of September 27th-28th he went to within 25 yards of the enemy's position to rescue a man reported wounded, but found that he was dead. Captain Kerr, M.B., B.S. Melbourne, D.S.O., after a brilliant career at the University of Melbourne, where he graduated M.B., B.S., was appointed Rhodes Scholar for Victoria, Australia. He applied to enter University College, Oxford, and was accepted for admission in October, 1915. His name was given for a vacant post on the staff of the Royal Victoria Hospital, Melbourne, on January, 1914, in order that he might complete his resident appointments at the Melbourne Hospital. He had been two terms at University College when the war began. He at once offered his services and was only recently promoted Captain. He was intending to read for honours in the Final Honour School of Natural Science (Physiology, B.Sc.), and also to carry on a research in the Department of Zoology. It is hoped that he will yet be able to carry out these intentions.

Captain Arthur John Alexander Menzies, M.B., R.A.M.C., attached 1st (Royal) Dragoons. For conspicuous gallantry and devotion to duty from September 26th to 29th, 1915, in Loos. Captain Menzies was unremitting in his attention to the wounded of all units. He was twice seen carrying wounded on a stretcher under rifle fire, and for fifty-five hours he was continuing to expose himself to heavy shell fire while carrying out his duties.

Military Cross.

Captain Frank Percy Freeman, R.A.M.C. (S.R.), attached 23rd Field Ambulance. For conspicuous gallantry and devotion to duty during operations near Hulluch from September 25th to 28th, 1915. He brought in and attended to the wounded during four consecutive days and nights, repeatedly going out unaided to collect the wounded. He was a fine example of his men. (Captain Freeman had his medical education at the Royal Colleges of Physicians and Surgeons in Ireland.)

Captain James Ronald McCurdie, M.B., R.A.M.C. (S.R.), attached No. 2 Field Ambulance. For conspicuous gallantry and devotion to duty from September 25th to 27th, 1915, at Le Kuloite farm, where, although continuously exposed to shell fire, he collected and treated the wounded. By his efforts and organizing power a large number of wounded were collected. Captain McCurdie set a fine example to the officers and men under him in most trying circumstances.

Temporary Captain James Murray McLagan, M.B., R.A.M.C., attached 3rd Battalion, the Royal Fusiliers (City of London Regiment). For conspicuous gallantry and devotion to duty during the operations between September 27th and 30th, 1915, when he attended the wounded in the firing line under very heavy shell and rifle fire. His coolness and skill undoubtedly saved many lives. For three days and four nights he worked incessantly with unflagging energy.

Temporary Captain Charles Joseph O'Reilly, M.D., 21st Field Ambulance, R.A.M.C. For conspicuous gallantry and devotion to duty during operations near Hulluch, from September 25th to 28th, 1915, when he brought in and attended to the wounded for four consecutive days and nights under heavy fire, notably on September 27th, when he voluntarily went out to collect wounded under very heavy shell fire. He has consistently set a splendid example to his men.

Captain Thomas Walker, M.B., R.A.M.C. (S.R.), attached No. 2 Field Ambulance. For conspicuous gallantry and devotion to duty from September 25th to 27th, 1915, when he worked continuously collecting the wounded from the area between Lone Tree and Hulluch road, and beyond. This area was under continuous shell fire, and at first under machine-gun fire also.

Temporary Lieutenant David Carnegie Alexander, M.B., R.A.M.C., attached 5th Battalion the Queen's Own Cameron Highlanders. For conspicuous gallantry and devotion to duty between September 25th and 27th, 1915, near "Fosse 8." He attended to the wounded under very heavy shell and rifle fire, lying in the open under enfilade machine gun fire, and on several occasions at the Manager's House at the Fosse carried out his duties under heavy shell fire.

Temporary Lieutenant John Bruce Baird, No. 1 Field Ambulance, R.A.M.C. For conspicuous gallantry and devotion to duty from September 25th to 27th, 1915, when in charge of different bearer sections he brought in and attended to the wounded between Lone Tree and Hulluch road under shell and machine-gun fire.

Temporary Lieutenant George Rankine, M.B., R.A.M.C., attached Headquarters 9th Divisional Royal Engineers. For conspicuous gallantry and devotion to duty from September 26th to 28th, 1915, at Sully and Vermeilles, when attending to and evacuating the wounded in the area between Lone Tree and Hulluch road under shell and machine-gun fire.

in spite of shell fire and bombing, assisted to get back many wounded. On the return journey many of the bearers were killed and wounded by a shell, and Lieutenant Rankine carried in a wounded man on his back.

Temporary Lieutenant Bernard Score Browne, M.B., R.A.M.C., attached 2nd Battalion the Cheshire Regiment. For conspicuous gallantry and devotion to duty near Vermelles. He spent the whole night of the 2nd and 3rd October searching for and carrying back wounded who were lying between our own and the enemy's lines, which were only 200 yards apart. The enemy were firing and the ground was lit up by flares. After daybreak he carried back three more men under a very heavy fire. At one time he tended the wounded within fifteen yards of the enemy's trenches. By his courage and ceaseless work all the wounded in his area were brought in.

SIR IAN HAMILTON'S DISPATCH.

The *London Gazette* of November 5th publishes a dispatch dated September 22nd, from General Sir Ian Hamilton, Commander-in-Chief of the Mediterranean Expeditionary Force, in which a further large number of officers and men are mentioned for good service. Among them are included the following members of the medical services:

Staff.

Lieutenant-Colonel A. E. C. Keeble, R.A.M.C.,
Captain J. Hare, R.A.M.C.

R.A.M.C.

Lieutenant-Colonel L. Humphrey,
Major E. McDonnell,
Major A. Macdonnell,
Sergeant-Majors H. Underwood and A. F. Robinson;
Sergeants W. T. Mathies, F. H. Mattock, B. T. Colls (dead), and G. A. Scales.

R.A.M.C. T.F.S.

Lieutenant-Colonel J. J. O'Hagan,
Corporal R. P. Privates W. E. Lloyd, G. A. Walton, H. Price, and J. Morris.

Royal Naval Division.

- 1st Field Ambulance:
Staff Surgeon A. F. Fleming, R.N.,
Temporary Surgeon J. Pratt, R.N.,
Corporal J. A. Liney;
2nd Field Ambulance:
Temporary Surgeon H. L. G. Foxell, R.N.,
Sergeant S. Ibbotson; Privates P. Lowes and S. Sterland (killed).
3rd Field Ambulance:
Fleet Surgeon A. J. Finch, R.N.,
Corporal J. N. Ainners; Lance-Corporal H. Bulman,

Australian and New Zealand Forces.

- Staff:
Colonel N. Manders, Army Medical Service (killed).
Australian Army Medical Corps:
Colonel J. L. Beeson,
Lieutenant-Colonel H. W. Bryant,
Captain B. W. Chambers,
Captain H. J. Fry.
Sergeants R. Bryce, W. Gunn, and O. R. Hookway; Corporal H. W. Faulkner; Lance-Corporals B. S. Goode, G. T. Hill; Privates H. H. Collis, F. A. Macrae, G. L. Peel, H. Sawyer, J. Simpson, A. J. Vines, H. T. Watts.
New Zealand Medical Corps:
Lieutenant-Colonel C. M. Begg,
Captain B. S. Finn.

Indian Medical Service.

Captain H. J. M. Cussajee, 14th Sikhs,
Captain T. J. C. Evans.

Captain B. S. Finn, of the New Zealand Medical Corps, had the D.S.O. conferred upon him in the *London Gazette* of October 29th, as stated in the *BRITISH MEDICAL JOURNAL* of November 6th.

NOTES.

MEDICAL OFFICERS WANTED.

21st South-Western Mounted Brigade Field Ambulance.
A vacancy exists in the above unit. Any gentleman desirous of accepting a commission should apply to Major C. W. Edwards, Maresfield Park Camp, Uckfield, Sussex.

26th London Field Ambulance.

There are vacancies for officers in this unit. They must be fully qualified, able to ride, and prepared to go abroad at short notice. The terms now offered compare favourably with those offered to civil surgeons. Apply Major John C. B. Wells, 26th London Field Ambulance, Baintree.

21st South-Midland Mounted Brigade.

Medical officers wanted for the above. Candidates must be willing to take foreign service obligations, and should apply to Major D. M. Spring, R.A.M.C.(T.), Senior Medical Officer, Hampton Green, Falkham.

England and Wales.

UNIVERSITY OF LIVERPOOL.

At a recent meeting of the Court, the University resolved that Latin shall no longer be a compulsory subject in the matriculation examination for those aspiring to degrees in medicine. In this step the university states that it has followed the example of the other northern universities. The resolution was not passed without a certain amount of opposition, but the claims put forward by the Medical Faculty prevailed. Although the General Medical Council has long ago decided that Latin must be one of the subjects in which a candidate must pass an examination before he can be registered as a medical student, registration is not necessary for any student taking his degree at the University of Liverpool. The number of medical students enrolled in the faculty this session is 54. This is by far the largest number of entrants that the university has had since it came into existence; of these 17 are women. It is believed that the Insurance Act has had a considerable influence in attracting men to the study of medicine. The increase in the number of women students is noteworthy.

ROYAL MEDICAL BENEVOLENT FUND.

The annual service for medical men usually held in Liverpool on the Sunday nearest to St. Luke's day, October 18th, was omitted this year. The reason given was the absence of so many men on war service. The Committee of Management greatly regretted the loss of opportunity that the service has afforded of contributing to so worthy a charity as the Royal Medical Benevolent Fund. It has, however, circularized the profession to the effect that any sum sent for that purpose will be gratefully acknowledged by Mr. R. J. Hamilton, 82, Rodney Street, and we should like to draw special attention to the claims of the Royal Medical Benevolent Fund, which is likely to be more called upon than ever in the near future.

CIVIL ECONOMY IN LIVERPOOL.

The city authorities are setting the inhabitants a good example in the matter of thrift. No improvements that can be well postponed, are being undertaken, and expenditure is limited to necessary repairs. It is hoped that some £30,000 a year will be saved. In the matter of street lighting it is estimated that at the end of twelve months some £6,000 will be saved. Nevertheless, Liverpool is by no means in civician darkness. Dr. Hoop has also drawn attention to the importance of economy in the household, and emphasized the value of pulse foods. He praised hotpots, stews, and soups, and shows how important efficient cooking is to obtain the maximum amount of sustenance from articles of diet. The dinner of joint is not only expensive, but it is open to question whether it is as nutritious as many wholesome made-up dishes from so-called inferior cuts.

Scotland.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

At the annual meeting of the Royal Faculty of Physicians and Surgeons of Glasgow on November 1st Dr. Ebenezer Duncan, Langside, was elected President. Mr. J. Walker Downie, Vinton, and the retiring President, Dr. John Barlow, Councillor. Dr. W. G. Dun was re-elected Treasurer, and Dr. Alexander Napier, Honorary Librarian. Mr. D. N. Knox continues to act as representative to the General Medical Council. Before demitting office, Dr. Barlow handed over to the custody of the Royal Faculty a silver-mounted oak mallet stand, presented by Mr. James D. Hedderwick, I.L.D. The inscription on the stand is: "To the Royal Faculty of Physicians and Surgeons, Glasgow, from Jas. D. Hedderwick, I.L.D., Chairman of Glasgow Royal Infirmary 1901-1914: Grown in the Forest of Luss, from the Roof of Glasgow Cathedral about 1237 to 1911." It happens that the mallet itself presented by Dr. W. G. Dun in 1910, is made of wood from the old Glasgow Royal Infirmary, and it is quite fitting and appropriate that the mallet should rest upon wood

taken from its venerable neighbour, the Glasgow Cathedral. At the same meeting the Treasurer intimated a donation from Dr. Barlow, the retiring President, to the Benevolent Fund of the Royal Faculty.

Ireland.

ELECTION OF MASTER OF THE ROTUNDA HOSPITAL.

At the annual charter meeting of the Board of Governors of the Rotunda Hospital held last week to fill a vacancy at present existing in the Mastership, Dr. Henry Jellett was unanimously elected Master on the proposition of Sir William Smyly, M.D., seconded by the Dean of St. Patrick's, and leave of absence was given to him for three months, without prejudice to any further extension he may require. Conditionally the three ex-Masters—Sir William Smyly, M.D., Dr. Purcof, and Dr. Tweedy—have kindly undertaken to carry out the duties of the Master. Dr. Henry Jellett, who was Master of the Rotunda, last December applied to the board for leave of absence for six months to go to France to drive a motor ambulance. Leave of absence was granted, and was renewed for another six months. That he is doing excellent work at the front is shown by the fact that he was mentioned in dispatches.

DUBLIN CASTLE RED CROSS HOSPITAL.

At a meeting of the Committee of Management last week a resolution was passed, on the recommendation of the Medical Committee, appointing the Presidents of the Royal Colleges of Physicians and Surgeons to act in an advisory capacity in rotation as honorary visitor to the hospital. It was reported that there were at present in the hospital 10 officers and 111 men.

The Committee had under consideration the very much increased cost of maintenance by reason of the general rise in prices, including the very serious increase in cost in connexion with the supply of drugs and medical requisites generally. It was resolved to ask the War Office to place this hospital on the same footing as the ten civil hospitals in Dublin and other hospitals in the United Kingdom as regards the capitation grant for wounded soldiers.

Obituary.

BRIAN O'BRIEN, B.A., M.D.(T.C.D.),

MEDICAL INSPECTOR, LOCAL GOVERNMENT BOARD IN IRELAND.

It was with deep grief that the news of the death of Dr. Brian O'Brien was received among the profession and the public in Ulster, and perhaps more especially in Belfast, where he was so well known for many years. Dr. O'Brien was in good health and discharging his duties as medical inspector of the Local Government Board up to October 21st; he fell ill on the following day, and cerebrospinal fever of a very acute and severe form developed on the 23rd. He was removed from his home in Malone Park, Belfast, to the Purdysburn Fever Hospital, under his friend, Dr. Gardner Robb. From the first the attack was of a malignant type, and he succumbed on October 29th. The profession are glad that he was under the care of Dr. Gardner Robb, who since the epidemic of this disease in Belfast some few years ago has had such exceptional experience, and has visited Flexner in New York with regard to the bacteriology and serum treatment.

Dr. Brian O'Brien belonged to a very old Irish family. He was a grandson of William Smith O'Brien, M.P., the leader of the "Young Ireland" movement of many years ago. He was born in 1872. He received his medical education in Trinity College, Dublin, in 1896, and obtained the M.D. degree in 1898. He was appointed dispensary medical officer in Faghlan, co. Derry, and also at Portsalon. Fourteen years ago he settled in private practice in Belfast, and became medical officer of one of the districts of the Royal Irish Constabulary, and assistant surgeon to the Queen Street Hospital for Sick Children. About eight years later he was appointed medical inspector of the Local Government Board for Ulster. His last report to the Board was on the subject of cerebro-spinal meningitis. In it he

says: "Since the beginning of the year 1915 this disease has made its appearance in my district in epidemic form." He had not been, however, knowingly in personal contact with any case for several weeks. His professional ability, skill, tact, and high sense of honour brought him rapidly to the front, and the promise of rapid advance in the service of the Local Government Board was sure to one with so many high qualifications.

Dr. Brian was an athlete. He was a prominent amateur golfer, and won many club trophies; he also rowed for his college, and took his part in most games. Personally he inspired more than liking in those with whom he came in contact. His private friends were innumerable and closely attached, but all claimed him as a friend. He leaves a widow and three young children, with whom much sympathy is felt.

DEPUTY SURGEON-GENERAL WILLIAM FARQUHAR, Madras Medical Service (retired), died at his residence in London on October 15th. He was educated at Marischal College, Aberdeen, where he took the degree of M.B. in 1853 and that of M.D. in 1857, as well as the L.R.C.S.Ed. in 1853. Entering the Indian Medical Service as assistant surgeon on May 28th, 1858, he became surgeon on May 31st, 1870, surgeon-major on July 1st, 1875, brigade-surgeon on May 16th, 1885, and deputy surgeon-general on July 1st, 1885. He retired on July 1st, 1890. The Army List assigns him no war service, though most of his service was spent in military employ in the Madras Presidency, the Straits Settlements, and Burma. In November, 1882, he was appointed to the medical charge of Utakamand, the summer capital of the Madras Government; and from 1885 to 1890 he was administrative medical officer of Belgium and the Western District.

Universities and Colleges.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The annual report of the Council, 1915, contains the report of the annual meeting held on November 14th, 1914, the letter addressed to the Home Secretary by the President of the College on the scarcity of "subjects" for dissection, the Council's reply to the Director of Public Prosecutions respecting the observations of Mr. Justice Avory in his charge to the grand jury at Birmingham on a case in which the question of professional secrecy was raised in respect of clinical abortion, the special regulations during the war, and other minor matters. The President (Sir W. Wilson Cheyne, Bt., C.B.), who holds the rank of Surgeon-General in the Royal Navy, was away from the June meeting, and leave of absence was given to Sir George Makins, K.C.M.G., C.B., Sir Anthony Bowly, K.C.M.G., Sir Berkeley Keynigham, and Mr. F. F. Burghard, C.B., in France, and to Mr. C. J. Symonds, Mr. C. A. Ballance, M.V.O., and Mr. W. Thorburn, at Malta. Mr. R. H. Burne, physiological curator of the museum, is working at Dunkirk, under the French Red Cross, and a large proportion of the servants of the College have enlisted. The obituary of Fellows includes thirty-three names, three of whom lost their lives on active service, and the obituary of Members includes 385 names, thirty-three of whom died on active service, while of the twenty-one Licentiates in Dental Surgery one died on service. The Conservator's annual report is followed by a similar communication from the Librarian, who announces that the great catalogue is now practically completed. The Librarian's request for additions to the library in a previous report has been liberally responded to, and in consequence it is enriched by many works of real value, among which are the late Mr. Edmund Owen's donation of medico-historical works by Asher and Cabanès.

The Services.

EXCHANGES DESIRED.

R.A.M.C.(T.F.) Captain, temporarily invalided, whose unit is now abroad, wishes to effect an exchange into home service unit. Only suitable for surgeon who can perform major operations quickly. Address No. 5490, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Officer in home service field ambulance (T.F.), wishes exchange to casualty clearing station, hospital, hospital ship, etc., either home or abroad. Address Alpha, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

MR. DOUGLAS CRAWFORD CLERK has been awarded a university entrance scholarship, value £50, at King's College, London, for anatomy and physiology.

Medical News.

A SALE in aid of the funds of the Royal Medical Benevolent Fund Guild will, by kind permission of the Earl and Countess of Crowe, be held at Crew House, Curzon Street, London, W., on the afternoon of November 24th.

The Cuban Parliament has voted an allocation of 400,000 pesos for the construction of six maternity hospitals, one in each of the provinces of the Republic.

THE SWINEY Lectures on Geology will be delivered this year by Dr. J. D. Falconer, the subject being "Ice and the Ice Age." The course will be given at the Victoria and Albert Museum on Mondays, Tuesdays, and Saturdays at 3 p.m., beginning on November 13th.

AMONG the medical men who have assumed or resumed office this week are Dr. R. J. Smith, Lord Mayor of Cardiff, and the following Mayors: Dr. James Pearson (Bristol), Dr. A. Macgregor Sinclair (Burnley), Dr. S. R. Alexander (Faversham), Dr. Miles C. Atkinson (Leamington), Dr. Lewis Hunt (Richmond, Surrey), and Dr. J. Parkinson Atkinson (Saffron Walden).

At Nottingham Assizes, on November 5th, William Henry West, described as a physician, and Ernest Townsend, a boot salesman, were convicted of the manslaughter of a girl, who died as the result of an illegal operation performed by West at the other prisoner's request. West was sentenced to seven years' penal servitude and Townsend to three years.

At a meeting of the Society of Public Analysts on November 3rd, Mr. Edward Hinks, F.I.C., stated that the length of time for which hydrogen peroxide persisted in milk depended upon the age and condition of the milk. In one instance 0.2 per cent. peroxide added to a perfectly fresh milk was still present in estimable proportion after the lapse of eighteen months. It was found that within the range of 15 to 37 C., the higher the temperature the longer did the peroxide persist.

IN the ninth annual report of the Norwood Sanatorium, issued to the medical profession only, Dr. Francis Hare has avoided the temptation, to which editors of such reports often fall, of indulging freely in tables and statistics, to the weariness of the average reader. Though figures are, of course, not wanting, the report on the whole is an interesting essay on the treatment of alcoholism and other drug habits by a writer who combines first-hand knowledge of his subject with a facile pen.

THE staffs of the medical and dental schools of Guy's Hospital, at a meeting on November 9th, recorded the unanimous opinion that all schools should endeavour to facilitate the recently expressed official wish that students in their first, second, and third years should place themselves at the disposal of the military authorities, but that in view of the national necessity of a constant influx of newly qualified medical and dental practitioners for the services of the navy and army, representations should be made to the Government that students after enrolment should be required to pursue their technical studies until otherwise instructed by the Admiralty or the War Office. A committee was appointed to consider how effect could best be given to this resolution.

THE Central Midwives Board held a special meeting on October 28th for hearing penal cases. Sir Francis Champneys was in the chair and Mr. Parkington, Professor Briggs, Dr. West, and Miss Paget were present. Of the seven women about whom final and interim reports had been received, one was struck off. Twelve fresh cases were heard, and eight midwives were removed from the roll, two were censured, and two cases were adjourned for judgment in three and six months. Apart from the usual charges of neglect with regard to taking pulse and temperatures, and of want of cleanliness, both personal and in connexion with their appliances, there were various serious cases of neglected puerperal fever, ophthalmia neonatorum, and rupture of the perineum. Two women were charged with insobriety, and another with employing an uncertified person as her substitute.

DR. R. O. MOOR, in his third Chadwick lecture on typhus fever in Serbia, said that the Mussulman population seemed to suffer less than the rest of the inhabitants, owing, as he thought, to their greater personal cleanliness due to the frequent ablutions enjoined by Mohammedan law. Much evidence pointed to the contagion of typhus being carried by lice, and ordinary measures, such as its use for lighting, was an efficient and economical insecticide. He thought, however, that the opinion, formerly held in this country and still maintained by many Serbian doctors of much experience in the disease, that it might be conveyed by direct inhalation, had not been disproved.

Letters, Notes, and Answers.

ATTORNS desiring reprint of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic address of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: EDITOR of the BRITISH MEDICAL JOURNAL, *Antelope, Westland, London*; telephone, 2531, GERRARD. GERALD, 25, Abchurch Lane, and THE SECRETARY, 25, Abchurch Lane, London, E.C. 4. Articulate, Westland, London, telephone, 2620, GERRARD. 93 MEDICAL SECRETARIES, *Mediævera, Westland, London*; telephone, 2654, GERRARD. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

ANSWERS.

EXAMINATION OF RECRUITS.

J. A. C. The medical examination of recruits for the navy and army does not differ in any essential manner from the examination of any man for life insurance of the lesser orders, or for entry into any of the many civil forms of service which nowadays demand such examination. There are differences in point of detail according to the standards set up for the men in the several grades of the services. For example, a seaman for the navy must have perfect eyesight; for the army a soldier need not have such a high standard of vision. The difference of detail and the general scope of the examination can be found in *Recruiting Regulations*, to be obtained at any military bookshop; some parts of the examination are dealt with in the *Regulations of the Army Medical Service*, to be obtained at the same source.

LETTERS, NOTES, ETC.

THE GRIEVANCES OF SHIP'S SURGEONS.

G. M. H. In the course of a contribution to the correspondence on this head, says that the attitude assumed by "Nauticus" must tend to prevent the much-needed reform in the status of ship surgeons. So long as the companies can get men "to take a voyage" they are, he says, not greatly concerned in establishing a regular medical branch in their services, with increased pay and the best ships for the longest-service men. Why, he asks, should they not be a well-organized medical service in the British mercantile marine of equal importance and with equal prospects to the British navy? Both are equally important to the nation. Again, a ship's surgeon has a good deal of authority if only he knows how to use it. With regard to placing a man on the sick list or returning him to work, he has practically absolute power, for nobody dare oppose his orders for fear of trouble under the Compensation Acts. Let "Nauticus" be in charge of a ship, will say, an outbreak of small-pox, and he will soon see how much authority is given to the surgeon. Naturally, no surgeon himself gives orders to the crew, except his own hospital attendants. Such orders go through the executive department. If "Nauticus" maintains that by so doing he loses all "authority," then, of course, the senior medical officer of a flagship has no "authority" which, as Euclid says, "is absurd." Perhaps the cost of an outfit for only one voyage is a little expensive, but it is just the one-trip man who is preventing any improvement in the service. Let me add that I have had over two years' experience as a ship's surgeon, and as such the answer is over 100 per cent. in favour of being "a member of the crew." In the meanwhile I am serving in the navy.

THE GIANT CRICKETER.

DR. CLIPPINGDALE writes: Those who follow family history and hereditary proclivity may be interested to know that the patronymic "Grace" is a transformation of the French "Gros," a sobriquet bestowed originally upon a man of large stature, the first to bear the name being Raymond Fitz-Waller, surnamed "Le Gros," one of the companions in arms of Strongbow. The fine physique of the late Dr. Grace has therefore apparently lasted in his family during eight centuries and approximately through twenty-four generations.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	0	0
Eight to nine lines	0	6	0
A whole column	3	10	0
A page	10	0	0

An average line contains 10 words.

All remittances by Post Office Orders must be made payable to the British Medical Association, 429, Strand, London, W.C. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTES.—It is against the rules of the Post Office to receive *post restante* letters addressed either in initials or numbers.

CLINICAL ASPECTS OF TYPHUS FEVER:

OBSERVATIONS ON SOME 2,000 CASES IN
A PRISON CAMP IN GERMANY.

BY

MAJOR P. C. T. DAVY, M.B.LOND., R.A.M.C.,

AND

CAPTAIN A. J. BROWN, R.A.M.C.(S.R.).

We were captured on August 26th and 27th, 1914, and were kept in various prisons with other British officers, without being employed in our medical capacity, until February 11th. On this date we were sent to Gardelegen, and made our first acquaintance with a *Kriegsgefangenen Lager* for non-commissioned officers and men.

THE CAMP AT GARDELEGEN.

The camp at Gardelegen is situated in an opening amongst pine forests, on a gentle slope facing north-west. The soil is excessively sandy, and is in winter a sea of most appalling mud, and in summer a perfect horror of dust.

When we arrived there was about a foot of snow on the ground, and this continued with scarcely any intermission until the middle of April.

The camp occupies an area of about 350 by 550 yards. It is surrounded by a triple fence of barbed wire about 8 ft. in height. Within, the camp is divided in two equal parts, known as the first and second battalions. Each battalion is again subdivided into four companies. Each company is 230 metres (252 yards) long and 52 metres (57 yards) broad. In each company there are two rows of three barrack rooms, built facing each other. Each room is intended for 300 men. Each company is quite self-contained, with its own administrative staff of officers and under officers. The prisoners of one company can see and even talk to those of another, but they are separated from each other by barbed wire fences, and in normal times do not leave their company. Each of the two battalions has its own cookhouse, where the preparation of the food is done by the prisoners, assisted by some German women.

The total number of prisoners is between 11,000 and 12,000, made up chiefly of Russians and French, the latter slightly predominating; and include about 800 or 1,000 Belgians and 230 British prisoners.

At the upper end of the camp is a hospital which contains 200 beds. It is grossly overcrowded even in ordinary times; and allowing even the minimum cubic space per patient, it should not have contained more than 90 beds. The dimensions of a ward containing 62 beds are: Length, 25 metres (=27½ yards); breadth, 10.5 metres (=11½ yards); height, 2.80 metres (=3 yards).

Conservancy.

Each company has its own latrine and urinal under one roof. These are permanent latrines, built over trenches about 7 ft. deep with boarded sides. They are emptied at irregular intervals by hot air suction pumps into tank carts. The hand system of emptying into carts is also employed as a supplementary measure. The entire supervision and management of these latrines is erratic in the extreme. It is a frequent occurrence for a latrine to overflow and its contents to foul a large area of ground around.

Water Supply.

This is drawn from the main supply of the town. It is pumped to a water tower and distributed by pipes. Wells have also been dug, but are generally out of action for various reasons. We were informed that a bacteriological analysis of the water was made weekly. The water supply is very insufficient even in winter. The supply is cut off most days from 10 a.m. until 3 or 4 p.m. in the hospital, and the supply in the rest of the camp is even more precarious.

Abution.

In each company are one or two stand-pipes leading to troughs used for personal abution, washing of clothes, and washing of eating utensils. There is also one bath-house

for the entire camp, in which are twenty-four shower jets. The number of men who could pass through this place in an ordinary working day is never large, and there are many days on which for some reason or other the apparatus is not working. The men could occasionally get a small handful of soft soap on entering the baths. Inquiries showed that no man could go to the bath unless he was detailed to go, and many men waited for more than one month—some nearly three months—till their turn came round. It is only fair to say that, recognizing the gross inadequacy of the bathing facilities, the Germans hastily erected, towards the end of the epidemic, a second bath-house, with a dry heat disinfecter attached.

Barrack Rooms.

The dimensions of these buildings are: Length, 65 metres (= 71 yards); breadth, 10 metres (= 11 yards); height, 2.80 metres (= 3 yards); giving a cubic space of 1,820 metres. Each barrack accommodates 300 men, giving approximately 6 cubic metres a man (= 21.87 cubic feet a head). The barracks and camp generally were lit by electric light. Ventilation is carried out mainly by doors and windows, and is very defective. The prisoners live in an atmosphere of fetid warmth. Each barrack room is divided up into two parts, and each half is heated by a closed stove. The men sleep on palliasses on the ground in four rows—the palliasses nearly touching. No tables or chairs are provided. Each man gets a small enamelled bowl and a spoon, and a larger bowl for washing purposes, and a towel.

There is a plentiful supply of blankets, and the men do not appear to have suffered from cold in their rooms last winter.

The four nationalities are distributed as far as possible in equal proportion in every room. Very stringent orders were issued to ensure that English and Russian prisoners should always occupy the same rooms together.

Meals are usually as follows:

From 6 to 7 a.m.: A black liquid which claims to be coffee, accompanied by the slice of bread which forms each man's daily allowance.

From 11 to 12 noon: Soup made with meal, barley, potatoes, or preserved vegetables, and a suggestion of meat or fish. Each man gets about two pints of this.

From 4 to 6 p.m.: A soup of watery consistency in similar amounts.

In June the amount of bread was reduced to 250 grams a head a day.

The foregoing brief description of the camp is necessary for a proper understanding and appreciation of the conditions which obtained when the epidemic started.

THE EPIDEMIC.

The earliest cases of typhus which occurred were mild and atypical, and had undoubtedly been unrecognized. There was at this time a large number of cases of scarlet fever and of acute tonsillitis with anomalous rashes. When typical cases occurred, a few days after our arrival in the camp, a commission of German doctors came, to whom our French colleagues and we showed the cases which had aroused our suspicions. These cases were at once pronounced to be typhus. Immediately the camp was declared to be in quarantine, and every German officer, under officer, and man was withdrawn. The locked gates between the various companies were opened, allowing the prisoners to circulate freely anywhere within the camp limits. It will thus be seen that any hope of limiting the outbreak to the companies from which the first cases came was instantly destroyed.

In the hospital the German doctor remained in charge till he contracted typhus a few days later. He quickly succumbed to the disease. All the German hospital orderlies were withdrawn from the onset, and thereafter the sick were nursed by their fellow prisoners.

CLINICAL ASPECTS.

Etiology.

The case against the body louse as the carrier of the disease appears quite clearly established as far as clinical observation can make it. The lice swarmed everywhere in the camp; it is not too much to say that every prisoner in the camp was infested with them. On the other hand, there was a singular immunity from other parasites. We never once saw fleas or bugs. The transference of lice

was facilitated by the gross overcrowding and the lack of facilities for personal cleanliness. The mixing of the nationalities in the rooms of course led to a nearly equal race incidence. The general power of resistance was considerably lowered by malnutrition, confinement, and mental depression. There is some vague but interesting evidence for the influence of mass dose infection, in the heavier incidence and case mortality amongst those most exposed to infection. These were seen in the following order: First, sick attendants; secondly, doctors; thirdly, prison population generally.

Age.

The average age of the population was probably 29. It must be remembered that the prisoners were nearly all reservists in their armies. Apart from a few Belgian civilians there were no persons of the extremes of life. We found, however, that the prognosis was distinctly graver in persons over 40, of whom there were considerable numbers in the camps. Most of the material for statistical purposes was taken by our captors, so we are unable to substantiate this, and many other statements, by figures. They must therefore remain largely the impressions we formed from a study of some 2,000 cases.

There is no evidence that the infective agent is carried by any of the dejecta. The twelve doctors in the camp who contracted typhus were all nursed by the same six orderlies. The period of attendance of these orderlies lasted in all over three months; their personal precautions in the handling the dejecta were of the scantiest, yet none of these attendants contracted the disease. The explanation that occurs to us is that they nursed their patients in separate huts, and they and their patients remained for the whole period lice-free.

The case incidence amongst the orderlies employed in the hospital where lice swarmed was excessively high, as will be seen below. There is further evidence against the infectivity of dejecta in the fact that several patients remained in hospital for long periods, suffering from other diseases, but nursed by the same orderlies as attended the typhus cases, yet these in all cases escaped the disease, as long as they were protected from lice. We found evidence that the infective agent resides in the body for at least three weeks after defervescence. Fresh outbreaks occurred when patients were returned to their companies after the three weeks' period, though they and their clothes were disinfected and were presumably lice-free. When this period of isolation was extended to one month, recrudescence of the epidemic in the companies of these returned patients did not occur.

Incubation Period.

Our observations on this point show it to be extremely variable. From the two fresh outbreaks mentioned above it would seem to be from seven to twelve days. One doctor contracted the disease fourteen days after entering the camp, another sixteen days after, a third twenty-one days after, and this was the longest period which could be accurately fixed.

SYMPTOMS.

The onset is sudden and fairly well defined, but the severity of the initial symptoms is variable. The most constant are general malaise, cold shivers, headache generally confined to the frontal region, and tenderness of the eyeballs. A definite rigor is extremely rare in our experience. Coupled with the above is a sense of lassitude and faintness; our French patients invariably described themselves as "complètement courbaturé." In many cases the patient is suddenly seized with general convulsions which subside into a fairly active delirium; these cases were not by any means always of bad prognosis.

Epistaxis at some time in the course of the disease is extremely characteristic. We were accustomed during the epidemic to regard this as pathognomonic. In more than half the number of cases in which it occurs it is seen in the first three days of the disease and is often very profuse and persistent. In the remainder it occurs between the middle and end of the pyrexial period.

Early Symptoms.

In speaking of the early symptoms, an important practical point is the correlation of the pulse-rate and tempera-

ture. One of us (A. J. B.) kept a careful record of pulse-rates and temperatures of those men who reported sick in their barrack rooms. It was found that at the hour that these men were seen (from 9 to 10 a.m.), many presented for one, two, or even three days the symptoms of headache with rapid and increasing pulse, whilst the temperature was normal, the evening rise of temperature not being observed. It was possible to make a provisional diagnosis and isolate these cases, which, with very few exceptions, proved to be typhus.

Table I gives some cases illustrating this point.

TABLE I.—To illustrate the Correlation of the Pulse-rates and Temperature in the Early Days of the Disease.

	Day of Illness.	Temp. C.	Pulse.	Symptoms.
Patient No. 232	2nd	36.8°	98	"Courbaturé," headache.
	3rd	37.0°	120	As above.
	4th	36.6°	116	"Courbaturé," headache better.
	5th	38.0°	130	Very ill; rash on abdomen.
Patient No. 390	12 hrs.	37.2°	72	General malaise.
	2nd day	36.8°	100	Headache, etc.
	3rd "	37.0°	92	No headache; still "courbaturé."
	4th "	37.2°	110	As above.
	5th "	36.4°	116	Headache, "courbaturé."
	6th "	37.4°	128	Rash, epistaxis, headache.
Patient No. 228	2nd day	36.4	120	"Courbaturé."
	3rd "	37.0°	132	As above.
	4th "	36.8	128	As above.
	5th "	37.2°	140	Rash, "courbaturé," headache.
Patient No. 265	3rd day	37.0°	116	Headache.
	4th "	36.8°	98	Feeling better.
	6th "	37.5	126	Headache, epistaxis, rash.

In the first three or four days of the disease congestion of the conjunctivae and occasionally swelling and redness over the malar eminences are seen. Later, slight nasal discharge with obstruction in the nasal passages is very commonly noticed. Subjectively, a sensation of congestion of all the air sinuses is common.

Temperature.

In most typical cases there is an initial rise with morning remissions and a characteristic saddle-back fall on the third or fourth day; thereafter there is a rise with the onset of the rash to 103° or 104° with very slight remissions till the thirteenth or fourteenth day, when the temperature falls by a not very abrupt crisis (see Fig. 1). Fall by lysis during the eleventh, twelfth, thirteenth, and fourteenth days is also seen (see Fig. 2). In both cases there is often a slight reactionary rise at the beginning of the convalescent period.

Hyperpyrexia was never seen. Cases with a low irregular temperature throughout and marked asthenia were generally of very bad prognosis.

Prodromal Rash.

We saw occasionally what we regarded as a prodromal rash (P.C.T.D.). It appears on the backs of the wrists and exterior surface of the forearms as a vague but definite mottling resembling much the mottled skin of the young infant. It is seen twenty-four hours before the typical rash appears, is very transient, and is often quite gone before the main eruption is seen. It is generally an indication that the subsequent rash will be profuse.

The Eruption.

The typhus eruption appears usually on the fifth day. We saw it rarely as early as the third and as late as the seventh day.

It first appears on the upper abdomen and thence spreads upwards and downwards. Its usual limits are the level of the nipples above and the intertrochanteric line

below. The rash is indeed often well developed in the region of the hip-joints. Very rarely indeed does it appear as high as the neck and down to the calves of the legs. The face always escapes.

The rash is somewhat polymorphic. Degrees of intensity of eruption varying from seven or eight ill-defined macules, and so transitory as almost to pass unnoticed, up to a profuse morbilliform grouping are seen. In every case the macule becomes hæmorrhagic within twenty-four hours of its appearance. Macules vary in size from that of a pin's point to 3 mm. in diameter. We looked in vain for anything in size or colour justifying its ancient appellation, "mulberry." The macules when matured are reddish-coppery colour, and leave a copper stain for from three to five days. A fairly profuse, very fine desquamation is the rule during convalescence.

As the disease progresses a slight cough is present in nearly every case, accompanied by thin mucopurulent expectoration, which is often of fetid odour.

In the multiplicity of smells which pervaded the hospital we were unable to detect any characteristic odour of the disease. The tongue, coated with white fur in the first twenty-four hours, quickly develops a central brown band; later it is wholly brown and dry, and accompanied by

exceeds perception to watch contact. It is apparently of the conductive order. It seldom appears before the eighth or ninth day. It is in no way dependent on the mental state; indeed it is seen in its most marked form in those whose minds remain clear throughout.

It often persists well into the third week of convalescence. It is not dependent on suppurative otitis media (of which we speak later). As far as we could see, the hearing always completely returns.

Delirium occurs at some time in the course of the disease in about 75 per cent. of the cases. It is usually active and often extremely violent. Persistence and violence of delirium is generally of grave prognosis. It may persist after the temperature reaches normal. Real mania is occasionally seen, accompanied by hallucinations of sight and sound. It is of interest to note that hallucinations were often connected with the "fighting line."

Types of the Disease.

It is a disease difficult to classify into types. All degrees were seen, from the very slight larval form to those with initial symptoms of extreme gravity and a fatal termination on the eighth or ninth day.

Cerebral Type.—This is perhaps not happily named, as

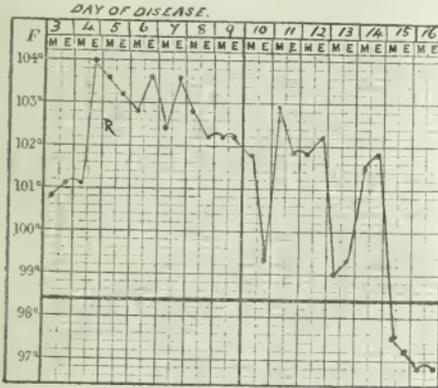


Fig. 1.—n, Itash.

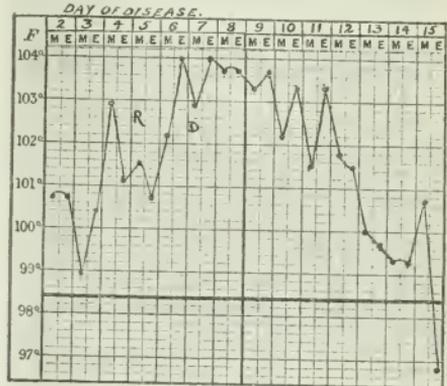


Fig. 2.—n, Rash; D, delirium.

sordes and general oral sepsis in an extreme degree. One of the earliest signs of a favourable turn in the disease is a moistening and cleaning of the tongue.

In a typical case of moderate severity the initial headache grows more intense and persists till the eighth or ninth day, when delirium usually supervenes and the patient does not complain of headache in his lucid intervals. The patient becomes weaker, the tongue is with difficulty protruded, the hands tremulous. With the full development of the rash he is usually in what may be called the "typhus state." The following table contains an attempt to contrast this with the "typhoid state":

Typhus State.

1. Is not commensurate with physical weakness.
2. A condition of mental inebriety and slow cerebration from which the patient can be roused.
3. A vacant stare, tendency to divergent squint, and a condition which is best described by the expressive French word "abrutissement."
4. A delirium more active and often violent.
5. Appears early in the course of the disease and develops quickly.
6. Often accompanied by evidence of cortical irritation, itching, and hyperæsthesia.

Typhoid State.

1. Is commensurate with the physical weakness.
2. Cannot be roused when fully developed.
3. A more profound stupor.
4. Low muttering delirium.
5. Appears later and develops more gradually.
6. Not so.

Deafness is another symptom which we observed in certainly more than 50 per cent. of cases. This very often

the nervous system is affected to a greater or less degree in every case. The cases were of two kinds:

- (a) One with very early delirium and slight convulsions, well marked otitic hyperæsthesia, incontinence of urine and faeces, resentment of examination or disturbance. Prognosis most grave of all.
- (b) With early onset of mild delirium, early prostration, but with absence of other symptoms of (a). Prognosis quite favourable.

High-tension Type.—We have ventured to so name a certain type of case from its clinical appearance. It was not uncommon. It is characterized by absence of grave cerebral symptoms. The temperature is moderate. The headache is generally extreme, violent, and persists throughout the entire pyrexial period. There is a sensation of intense discomfort in the maxillary and frontal sinuses, great tenderness of the eyeballs, and marked photophobia. There is no delirium, but the patient is mentally very irritable. The pulse-rate is relatively very slow throughout, but is very full and bounding. A chart characteristic of this type is shown in Fig. 3.

Abdominal Organs.—Taking the disease as a whole, neither diarrhoea nor constipation are the rule; perhaps the latter was most often seen. The spleen was rarely enlarged to palpation point, and then only in severer cases and in the later stages—that is, the twelfth to the fourteenth day. The liver is occasionally enlarged. A mild degree of jaundice was seen in some three cases—all fatal.

Urine.—Albumin is usually present, but disappears early in convalescence. Retention of urine to a degree needing catheterization is very rarely seen.

COMPLICATIONS AND SEQUELAE.

Respiratory System.—Hypostatic congestion was seen in a considerable number of cases, some of which terminated fatally; yet on the whole the lungs escape in a remarkable manner. As has been mentioned, the majority of patients have some slight cough and expectoration. In some cases there is a profuse secretion of viscid and extremely tenacious mucus. We recall two cases in which such grave obstruction was thus caused that the question of tracheotomy was seriously discussed.

Pyaemia.—One case terminated fatally with pus in the larger joints and multiple superficial abscesses.

Otitis media (suppurative) was extremely common. The intense oral sepsis which most patients exhibited (the result, no doubt, of our limited nursing facilities) is sufficient to account for this.

Suppuration of the parotid was very common for the same reason.

Cardiac System.—There is an extensive degeneration of all muscle tissue, and the heart muscle naturally does not escape. We found evidence of this to a greater or less degree in every case. During convalescence a pulse, intermittent and of persistent rapidity, was extremely common. Dilatation bruits were commonly heard. Syncope attacks frequently occurred, and we saw many sudden deaths in the early days of convalescence.

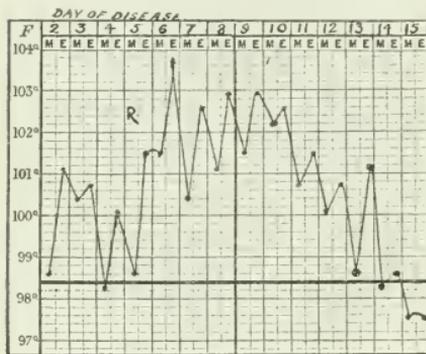


Fig. 3.—R. Rash.

Gangrene of the feet occurred in a few cases, and was invariably a fatal complication.

Bedsore unfortunately were frequent. The lowered vitality of all the tissues renders the patient specially liable to this complication.

Peripheral Neuritis.—A sequela distressing to the patient and difficult to deal with is a condition of peripheral neuritis which manifests itself as extreme painfulness and tenderness of the extremities. It is seen in the first or second week of convalescence. We met this condition very often, but never observed any accompanying trophic or circulatory change. It adds considerably to the discomfort of a patient already helpless from prostration. More rarely sciatica and neuralgia of the fifth nerve is seen as a late sequela.

Scarlet Fever coincident with Typhus.

We saw a few cases, all of which terminated fatally. Several cases of typhus supervening upon scarlet fever were seen, and several of these recovered.

PROGNOSIS.

From this somewhat formidable list the impression may be gained that typhus is a disease of many and grave complications. In our opinion this is not so. The vast majority of cases run an uncomplicated course. Given proper facilities for nursing and supervision, many of these troubles would be avoided or successfully dealt with.

The symptoms of grave prognosis we found to be early violent and persistent delirium, signs of cortical irritation, incontinence of urine and faeces, and well-marked jaundice. The intensity of the eruption was of

no prognostic value. The convalescence in the majority of cases was extraordinarily rapid and complete.

The mortality in our 2,000 cases was 15 per cent. The mortality-rate amongst the French and Belgian prisoners was the highest. Next came the British; there occurred 129 cases amongst the 230 British present in the camp, with a mortality-rate of 6 per cent.

The Russian mortality was the lowest. There is no doubt we were fortunate in having a milder type of the disease in our camp. Since our return we have learnt that in other camps—notably Cassel and Wittenburg—the mortality percentage was far higher.

There were 10 French abbés in the camp, all of whom volunteered their services as nursing orderlies, and displayed devotion and zeal beyond all praise. Of these, 8 (80 per cent.) contracted typhus, and 5 (62 per cent.) died.

There were 16 doctors of different nationalities in the camp. Of these, 12 (75 per cent.) contracted typhus, and 2 (16 per cent.) died.

The British soldiers employed as nursing orderlies numbered 22. Of these, 20 (91 per cent.) contracted typhus, and 2 (10 per cent.) died.

The figures for the French and Russian nursing orderlies we have not got; but they were practically the same as for the English.

TREATMENT.

The secret of the successful treatment of typhus lies (as with enteric fever) in the nursing of the patient. Force of circumstances condemned our patients to starvation diet, and they did well on it. Absolute rest in a recumbent position is essential from the onset; as is also the care of the mouth. Plenty of liquid should be given throughout the disease. Solid diet of the most easily assimilated character should be given as soon as the tongue begins to clean, at which moment a vigorous appetite usually asserts itself. The patient should be kept in bed until the pulse has been normal at least one week. In those cases in which special attention could be paid to the condition of the mouth, the ear and parotid, complications did not occur.

Our energies in the matter of medication were curbed by a scarcity and even lack of all but some four drugs—namely, calomel, aspirin, quinine, and Epsom salts. Generally speaking, two lines of treatment were attempted.

1. *Early and continuous stimulation*, mainly by hypodermic and intramuscular injection of camphorated oil, and to a lesser extent of strychnine and ether.

2. *Purely expectant and symptomatic*, combined with free use of morphine in every case in which it was not obviously contraindicated. Our preference was, and still is, for the second method. We are inclined to regard morphine as a sheet anchor in most cases, and we never had cause to regret its use. At any rate, it satisfies some of the Hippocratic injunctions.

In regard to the first line of treatment the immense crop of abscesses which resulted (in many of which the unabsorbed camphorated oil was evacuated) condemns it at once, in our opinion, in the absence of any perceptible beneficial result. A large number of cases were tried, on the recommendation of the Germans, with a 10 per cent. tincture of iodine t.a.s., increased gradually. No benefit was observed.

Prophylaxis.

As regards personal prophylaxis, a rigorous search of the clothing for parasites was made twice daily by all the hospital staff. As parasitocides, powders containing iodoform, camphorated oil, and various proprietary lotions, were tried, but with disappointing results. An outfit consisting of overalls with trousers tucked into gum boots, and rubber gannet gloves, would, we consider, make for practical immunity.

TRIBUTE TO FELLOW WORKERS.

In conclusion, we feel we must take this opportunity of placing on record our appreciation of the whole-hearted and harmonious co-operation of our Russian and French medical confrères. The work, both of organization and treatment, was divided up amongst us without distinction of nationality, though naturally the confusion of tongues (as far as our Russian fellow prisoners went) sadly hampered our efforts.

Further, the services rendered us by those British soldiers in the camp who volunteered to act as nursing orderlies,

will not soon be forgotten by us, nor by the patients they tended so devotedly. Knowing the risks they ran they were indefatigable in their efforts for their comrades—British, French, and Belgians alike. The toll they paid for their devotion is shown in the figures we give above.

ON THE RECRUDESCENCE OF LOCAL SEPSIS IN COMPLETELY HEALED WOUNDS

AS THE RESULT OF SOME SURGICAL INTERFERENCE OR PASSIVE MOVEMENT.

BY

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(A Report to the Medical Research Committee.)

IN an article published in the BRITISH MEDICAL JOURNAL of September 25th under this heading by Colonel C. J. Bond, R.A.M.C., various questions are raised involving the power of organisms to remain dormant in the tissues, and to become suddenly active after some slight surgical interference. This problem has also impressed us, and in a long series of cases routine bacteriological examination has been undertaken of the tissues surrounding fragments of shell, shrapnel bullets, etc., which have remained imbedded in the body for varying times, but in which the wound of entrance has healed. In such cases it has become necessary to remove the fragment owing to pain or other cause. Two conditions are found:

1. The fragment is enclosed in a cavity lined by a smooth wall, and containing a glairy, mucoid fluid.
2. The fragment is tightly surrounded and adherent to the tissues, with no surrounding fluid.

Bacteriological examination was made from the fluid or from the fragment itself, including pieces of cloth carried in with the fragment. In a case under our care organisms have been obtained in pure cultivation from a piece of cloth carried into the wound, without any signs of surface suppuration.

The routine method of examination in all cases was as follows: Swabs were made from the incision before the foreign body was exposed, and from the cavity after exposure. Any fragment of cloth was removed intact to a sterile tube. Films were made from the material and stained by Gram's method and counterstained, and by Giemsa. Cultivations were made on (1) glucose formate broth; (2) egg broth recently boiled, with a layer of paraffin (anaerobic); (3) stab cultures on gelatin. The cultures obtained were plated out under aerobic and anaerobic conditions, and the organisms subsequently tested.

The aerobic and anaerobic organisms were thus determined, and in some instances anaerobes only were isolated.

The following cases illustrate the fact that organisms may remain for a considerable time in the vicinity of the foreign body without giving rise to constitutional symptoms.

CASE I.

Private W. M. M. was wounded by shell fragments on November 2nd, 1914, one entering just below level of right knee-joint on the outer side of the tubercle of the tibia. The wound healed at once and had never discharged. Several months later the patient began to be conscious of pain on kneeling or upon pressure on the outer side of the knee-joint. Radiographic examination demonstrated a fragment of shell casing embedded in the outer condyle of the tibia, $\frac{1}{2}$ in. from the articular surface. On August 9th, 1915, the fragment was removed by rephrasing the outer condyle of the tibia. There was no pus or fluid around the fragment, but attached to it was a small piece of cloth. This was removed and immediately dropped into a sterile tube. The wound was flushed with saline, and closed by suture; healing occurred by primary union.

Films failed to reveal the presence of any organisms. No growth appeared on any media for forty-eight hours, when gas formation took place in the glucose formate broth, and an organism identified as *B. proteus* was isolated in pure culture. This organism alone was present in the

anaerobic and gelatin cultures. The organism, moreover, agglutinated with the patient's serum in a dilution of 1 in 600. Normal man's serum gave no agglutination in 1 in 50. Culture from the incision was negative.

In cases in which mucoid fluid surrounded the fragment, *B. perfringens* (*B. welchii*), streptococci, and a large Gram-positive diplococcus, etc., have been found.

CASE II.

Lieutenant W. Shrapnel bullet wound of right shoulder, probably ricochet. External wound healed over. Six days after injury deformed bullet removed by incision. Bullet, not in contact with bony surface, was surrounded with mucoid fluid. Films showed numerous cells, mostly mononuclear, but no organisms. The aerobic cultures gave no growth. Anaerobic cultures, on the other hand, gave a growth of Gram-positive, non-motile bacilli conforming to the type of *B. perfringens*. The wound healed without complication.

CASE III.

Lieutenant R. Multiple small shrapnel case fragments in right shoulder. External wound healed. Fragments in closed cavity, surrounded by thick cartilaginous granulation tissue. No pus or fluid. Films showed a few cells of mononuclear type and a few Gram-positive cocci. Aerobic cultures gave no growth after seven days. Anaerobic cultures gave a growth of large Gram-positive cocci only.

These cases serve to show that organisms may remain dormant without causing clinical symptoms, and at the same time explain the lighting up of local inflammation long after the external wound is healed.

The recrudescence of local sepsis in healed wounds is by no means infrequent, and we have observed many instances, of which the following are examples:

CASE IV.

Lieutenant D. Motor accident on June 28th, 1915, when he sustained comminuted fracture of the lower end of the left femur. One sharp spicule pierced the upper pouch of the knee-joint and the skin immediately above the patella. There was also an oblique fracture of the left tibia and a simple fracture of the left radius. The area in front of the knee-joint was well scrubbed with iodine under an anaesthetic. On July 8th all the effusion into the knee-joint had disappeared. On August 12th the fractures were well united, but the patella was fixed to the articular surface of the femur and lateral movement of the patella was begun. On August 14th there was tense effusion of the knee-joint. On August 15th fluid was drawn off into a sterile tube. The fluid separated into three layers—an upper clear yellow fatty, a middle red clear, and a lower purer. Smears from the lowest layer showed numerous streptococci and diplococci, very few of them within the pus cells. The organisms stained well, and showed no signs of plasmolysis. A pure culture of a long-chained streptococcus, growing best under anaerobic conditions, was obtained.

These streptococci had evidently gained entrance to the knee-joint at the time of the fracture, but had remained dormant until lit up to an acute process by the simple expedient of breaking down the adhesions between the patella and the femur.

CASE V.

Private G. A. Severe gunshot wound of lower right arm on May 5th, 1915, with compound fracture of the humerus 12 in. above the lower articular surface. On May 9th the wound was opened under an anaesthetic. It was very septic and foul-smelling; several pieces of bone and cloth were removed. The fracture was comminuted, extension was applied, and the wounds thoroughly drained. Bacteriological examination made at the operation showed the presence of a large number of organisms in the pus: Gram-positive bacilli, a few with spores of clostridial form; Gram-negative bacilli, fine and slender, with oval terminal spores; Gram-negative diplobacilli; and Gram-positive cocci. The aerobic cultures gave *B. proteus*, streptococci, and staphylococci. The anaerobic cultures gave a large number of motile bacilli, Gram-positive, with oval central spores staining irregularly by Gram's method. Many free spores were also present. Gram-positive bacilli, non-motile and capsulated, were also found. In addition, many long-chained streptococci were observed. The bacillus of malignant oedema—*B. perfringens*, and an organism similar to *B. rodella 3*—were isolated anaerobically. The wounds were merely covered with layers of sterile gauze soaked in peroxide, and oxygen passed in with it. On May 31st, as the fragments could not be retained in alignment, a vertical incision was made through the triceps, the ends freshened and wired together. On August 15th, the wounds being entirely healed, there being little movement of the elbow-joint, the elbow was moved under an anaesthetic, which was followed next day by diffuse inflammation about the joint, requiring surgical incision. Again, on August 30th, passive movement in the joint produced intense inflammatory reaction.

CASE VI.

Private K. Wounded November 6th, 1914, in the anterior aspect of the right thigh. Femur fractured. December 5th, on admission, there was a small depressed sinus in middle of thigh discharging foul pus. On December 9th the sinus was opened through wound in front of thigh, and a counter opening made. In thirty-six hours the thigh was much swollen and there was a discharge of thick serous fluid, which contained a large number of sporing bacilli and bubbles of gas. The wound was freely opened, and the muscles in the centre of the sinus were found blackened and semi-digested. A portion of this tissue was examined microscopically. The individual muscle bundles were burst, semi-digested, and large numbers of spore-forming organisms were seen tightly packed between the muscle bundles, and actually passing into and invading the muscle fibres themselves. Surrounding the larger collections of bacteria, the tissue was transparent and hardly took up the stain at all. Practically no pus cells were seen. The sporing organisms were isolated in pure organism of the bacillus of malignant oedema. An culture and identified as the bacillus of malignant oedema. An organism of the *proteus* type was the only other organism isolated, although a few capsulated Gram-positive organisms were observed in the original films. Within three days of the operation the patient's haemoglobin had fallen to 40 per cent., and he was acutely ill, but finally made an excellent recovery. The wounds were treated throughout with hydrogen peroxide, covered by a thin layer of gauze soaked with peroxide, and oxygen constantly passed into the wounds. The limb was ultimately useful, though somewhat shortened.

In this case the bacillus of malignant oedema had apparently lain dormant for nearly five weeks, but was activated by the incision to provide adequate drainage. Bacteriologically this case suggests symbiotic activity between the bacillus of malignant oedema and the *B. proteus* or *B. perfringens*.

Another type of case, such, for instance, as Case IV and possibly Case V, owes its peculiar features to a process analogous to anaphylaxis; the tissues, having originally been subjected to constant doses of bacterial poison, are, after an interval, subjected to an anaphylactic dose of the original poison.

OBSERVATIONS ON

THE TREATMENT OF WOUNDS IN WAR.

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[Translated for the "British Medical Journal" by
Dr. A. S. GUBB, Aix-les-Bains.]

FROM the first I instituted the following treatment: The only dressing employed was the aseptic. The material for dressings—gauze and absorbent cotton—is autoclaved in special tin boxes of limited capacity, which are only opened when required. The ordinary cotton and carded wool for padding splits and the cloths for covering the field of operation are sterilized in the same way. The gauze compresses and cotton bandages are taken out of the boxes with sterilized forceps.

Instruments to be used at operations are sterilized in a Poupinel sterilizer, as are those for use in dressing wounds; the drainage tubes are boiled in a solution of borax. All antiseptic solutions are made with boiled water.

Before being dressed every wound is cleansed by washing with an antiseptic solution: dilute hydrogen peroxide, 1 in 1,000 solution of potassium permanganate, 50 per 1,000 solution of carbolic acid, or a 7 per 1,000 solution of salt. The neighbouring skin is freely painted with tincture of iodine (1 in 20).

It is now many years since I gave up using antiseptic dressings—carbolic or boricated cotton, or iodoform, salolized or mercury perchloride gauze—on account of the drawbacks attending their use: painful erythema round the wounds, excoriations consequent upon outbreaks of medicinal eczema, iodoform poisoning, etc. Injurious to the animal cell, hindering the natural processes of healing and organic defence, antiseptics should only be employed within very narrow limits.

Rapid complete disinfection of the wounds, after free opening up, with antiseptic solutions and a dry aseptic dressing, has been my rule of conduct throughout.

Early and free laying open of all war wounds, more particularly those inflicted by fragments of shell, drainage with simple or perforated tubes, according to their length. In the neighbourhood of vessels as few dressings as possible—these also are rules that have been rigidly adhered to.

As soon as supuration begins to diminish the drains are removed, and directly the sloughing tissues have been eliminated and the wound takes on a healthy aspect, washing with saline solution is substituted for antiseptic solutions.

Tetanus.

During the first few months of the war we had several cases of tetanus, but such cases have become excessively rare since injections of antitetanic serum have been systematically given at the front. I give a second injection eight days after the first.

Gaseous Gangrene.

I have pretty frequently met with cases of gaseous phlegmons which all had a favourable termination after free opening up, and the extraction of projectiles and débris of clothing.

The three following cases, which came from the front in the same train, are of interest in that they exemplify what may be termed the fulminating form of this infection, in contradistinction to the cases in which the decomposition of pus in partially closed cavities or pockets determines a variable amount of subcutaneous emphysema. To put it plainly, all cases of infection, or even gangrene associated with gas formation, are not cases of gaseous gangrene. The latter term should be reserved for instances of deep, rapidly spreading, rapidly fatal infection. Unfortunately the stress of war is such that it is hardly practicable to devote much attention to the bacteriological aspect of the question, but clinically there is every difference between the real cases of gaseous gangrene and the comparatively mild infections in which there may be some gas formation. My experience is that in the grave form no treatment is of any avail, since death follows in from six to twelve hours after the supervention of the earliest characteristic symptoms of the affection.

These three cases all came from the same corner in Champagne (Souain), and, as might be expected, the infection is particularly apt to occur in subjects who from force of circumstances have been left for many hours, or possibly days, on the ground without medical aid. It is not, however, confined to such cases, for there are instances of its occurrence in men whose wounds were attended to promptly.

CASE I.

A. G., a volunteer, received his wound in the grand offensive of September 29th, and was dressed two hours later at the *poste de secours*. He presented an enormous contused wound involving the left calf and popliteal space, in addition to a seton wound of the left shoulder by a fragment of shell. He received an injection of antitetanic serum on September 29th. He came under my care on October 2nd. On the evening of October 3rd the wound showed signs of gangrene. The tissues were swollen, of a dark colour, and on pressure they crackled with subcutaneous emphysema was felt. The limb was at once amputated through healthy tissue, but the disease rapidly spread, and he died on the following afternoon.

CASE II.

This man was a German soldier, wounded in the same fray on September 27th. He was admitted under my care on October 1st. He had a very extensive lacerated wound on the outer aspect of the right arm, with fracture of the humerus; also a contused wound of the left hand, entailing the loss of the index and middle fingers. A gutter had been ploughed in the region of the right olecranon. Resection of the elbow-joint was forthwith performed; within a few hours symptoms of gaseous gangrene set in, and, in spite of extensive incisions and the application of antiseptics, he died thirteen hours later.

CASE III.

C. C., wounded on September 28th, was admitted on October 2nd. As he had fallen in a spot which was constantly swept by the enemy's fire, it was not found possible to bring him in for forty-eight hours. He presented a seton wound by bullet of the left thigh, fracturing the femur, also a deep excoriation of the left hand, there was already some gaseous formation round about the wound, and amputation was performed high up the thigh, through apparently healthy tissue. The gangrene, however, spread upwards, distending the scrotum and penis, and proved fatal within a few hours.

It was noted that these patients, far from feeling depressed or ill, experience a curious impression of comfort and well-being which persists to the moment of death.

In two other cases amputation of the thigh in the first, extensive incisions and injections of hydrogen peroxide, etc., in the second, proved ineffectual. Both patients died in six or eight hours with abdominal distension, intestinal hæmorrhage, and the euphoria peculiar to this affection.

Sepsis and Septicæmia.

Although now and then we do meet with bullet wounds that remain aseptic, the fact remains that almost every wound is infected and that wounds by fragments of shell or bomb contaminated by debris of clothes or soil are the most septic. The practically constant infection of war wounds necessitates as prompt disinfection as possible of such wounds. The fact that nowadays we get vastly fewer cases of major sepsis than at the beginning is no doubt to be explained by the better organization and more rapid access to the surgical services.

Wounds of Joints.

Early arthrotomy, lavage with 50 per 1,000 carbolyzed water, followed by irrigation with saline solution and drainage, has been my rule, and its application has yielded me numerous successes, especially in penetrating wounds of the knee. The most rapid recoveries have been those in which the synovial sac was found to contain a rather turbid blood-stained fluid. In such cases we are justified in anticipating complete restoration of articular functions.

In presence of suppurative of the joint, especially of the elbow, resection of the articular surfaces is indispensable. The same remark applies to the shoulder and wrist. A properly performed resection under these conditions yields a better and more rapid result, with less risk for the patient, than the freest arthrotomy. Amputation is a last resource when the infective complications do not yield. I have been constrained to have recourse thereto several times for suppurating arthritis of the knee, and once in arthritis of the elbow.

Amputations and Disarticulations.

I have only performed a small number of amputations, in every instance on account of grave septic mischief or extensive lacerations. After ligation of the vessels I always employ copious lavage of the raw surfaces with a very hot solution of carbolic acid (50 per 1,000); then I drain and suture the stump.

I have had to deal with numerous cases of open stumps set back from the front. It is difficult to express an opinion on this method, which was brought into practice by Verneuil some forty years ago. Verneuil used to keep the stump under carbolyzed spray. Rapidity of execution, the opening up of all suppurating pockets, and the rapid escape of fluid are the advantages of this method. The drawbacks, on the other hand, are: secondary resection of the stump is often rendered necessary by the projection of bone affected by proliferating osteitis, huge osteophytes, prolonged suppurative, painful cicatrices adherent to the bone, frequent ulceration, and so on. Here I should like to mention, apart from the secondary operations, the excellent results I have obtained by the aid of heliotherapy in hastening the healing of these extensive raw surfaces. It seems to me, moreover, that the scars following heliotherapy are softer and less painful.

As for "sausage amputation," judging from the few cases of the kind that have come under my notice, I hold that it is an unsurgical method, which ought to be abandoned.

Wounds of the Integuments of the Skull.

Every wound of the scalp in war surgery, whether complicated or not, should be incised down to the bone, and the latter must be carefully examined. When exploratory incision of the scalp proves negative the intervention is but trifling, one which, done under aseptic precautions, cannot possibly injure the patient. On the other hand, if we wait for cerebral symptoms to supervene before intervening, it is often too late. Here are a few instances in support of my contention:

CASE I.

L., wounded on July 16th at Eparges, admitted to the hospital on July 30th, after a sojourn in the Verdun Hospital. Apart from left facial paralysis, no cerebral symptom could be detected. His mind was quite clear. On examining the scalp I noticed a small scab in the left occipital region over an almost healed excoriation. An immediate exploratory incision was made. In the lower part of the left occipital bone I slighted upon a small cerebral hernia the size of a pea. There was no radiating fracture. I trephined and evacuated an abscess of the cerebellum, into which I was led by a small track opposite the orifice of entry, containing a teaspoonful of pus. We could not discover the bit of shell.

CASE II.

D., wounded on July 12th, at Eparges, in the left temporal region. When admitted to the hospital on July 16th he presented some incoherence of speech and mental confusion. I operated on July 17th. I came down on a fracture of the left temporal bone. After clearing with the gonge forceps and removing splinters, and following up an intra-cerebral track running obliquely upwards and forwards, I removed three splinters embedded in the cerebral substance and evacuated a small abscess of the left temporal lobe. Radioscopic examination was negative.

CASE III.

S., wounded on July 13th at Eparges. Admitted to the hospital on July 16th, coming from the Verdun Hospital. Independently of other grave sounds, I noticed a small contused wound in the left frontal region unaccompanied by any cerebral symptom. I operated immediately. Underneath the temporal muscle I found a small cerebral hernia the size of a pea. The frontal bone in the upper part of the temporal fossa was perforated, the hole being about the size of a lentil, clean cut. Having removed a piece of bone with the trephine, I followed a small track into an abscess of the frontal lobe, from which escaped a teaspoonful of pus. Drainage to the depth of over an inch was necessary. Radioscopic examination revealed the presence of a small piece of shell situated in the right side of the frontal lobe near the longitudinal sinus.

CASE IV.

This man was wounded on June 28th in the trenches of Calonne, and admitted to hospital on July 7th. There was a contused wound of the left frontal region. After ablation with the gonge forceps of a circle the size of a halfpenny-piece, we found underneath it a tuft of hair squeezed under the inner table, and numerous splinters. An abscess the size of a walnut was opened in the middle of the frontal lobe, and a small fragment of shell found in the centre of the abscess cavity was extracted.

All these patients are in a fair way to recovery. Such instances might easily be multiplied, confirming the formal indication for deliberate exploration of every contused firearm wound of the cranium, whether or not there be cerebral symptoms.

Disruption of Muscles.

Not infrequently a simple seton wound masks extensive muscular disruption, entailing grave functional impotence. Among others, the following instance may serve to illustrate the type: In February a wounded soldier was brought to me presenting a seton wound in the right pectoral region. The aperture of entry was situated below the clavicle, and the aperture of exit at the margin of the pectoralis major. As there was a blood-stained, fairly copious oozing, I joined up the two orifices under anaesthesia, and, on everting the margins, found the pectoralis major cut right through. It was the cut muscle that gave rise to the bleeding *en nappe*. I sutured the muscles, aponeuroses, and skin separately. Recovery rapidly took place, with perfect restoration of the shoulder movements. If suture of the divided muscles be not done, healing takes place with scar tissue and consequent functional impairment.

Secondary Union of Wounds.

More frequently than at the beginning we get wounded men presenting big gutters scored by bullets or by fragments of shell. When only the soft parts are involved, I consider it useful to unite these wounds by secondary union as soon as the sloughs have come away and the wound is looking clean and healthy. After freely reviving the edges I separate the aponeurosis from the skin; then I suture separately muscle, aponeurosis, and skin, leaving a small drain at each corner of the wound. More rapid recovery, a linear cicatrix, and less functional disturbance are the advantages of the method.

Damage of Nerves.

Damage of nerve trunks is of frequent occurrence during the present war. I have had quite a large number of such cases to deal with. Nerve trunks buried in scar tissue, embedded in the callus of a fracture, hypertrophies, often keloids of large size, notches or complete division, central haematoma, are some of the lesions I have met with. On two occasions I found the median nerve strongly adherent to the axillary artery in the armpit. In the first case the attempt to separate the two brought about a wound of the artery, which I was obliged to ligature, fortunately without causing any damage to the limb. In the second case I let the adhesion alone.

The nerve trunk most frequently involved was the radial, a fact which is explained by the frequency, especially during the first few months of the war, of fractures of the humerus.

Neurolysis is a protracted, delicate, tedious operation, lasting from an hour to an hour and a half. In order to discover the nerve it is better to tackle it in healthy tissue, following it up to the seat of damage. The anatomical relations have disappeared, the parts have changed aspect, and the search is often very difficult. I have invariably done my best to spare the smallest nerve fibre, and when the nerve is incompletely divided I join it up partially with every regard for the remaining fibres.

I only did complete suture in two cases of divided sciatic. The first was completely divided and the two ends, swollen and clublike, were 3 cm. apart. The second was three-quarters cut through, only a frail band remaining.

The results are usually long delayed, though they may be more rapid where the nerve is gripped by fibrous tissue; they are very long in becoming manifest when the nerve is completely divided.

Vascular Lesions.

Under the term "diffuse secondary aneurysmal haematoma" I described in the *Presse médicale* for February 11th of this year a special form of haematoma which only makes its appearance from three days to three months after the infliction of the wound. I have been called upon to operate in a fairly large number of these cases of haematoma, the clinical characters of which are: (1) delayed appearance; (2) sharp pain radiating throughout the limb, due to stretching of the nerve trunks; (3) anaemia varying according to the size of the haematoma; (4) apyrexia. The rule I follow is to open the pouch and tie the two ends of the damaged vessel after rapid removal of the clots. But in certain cases of large haematoma the anatomical relations are destroyed, while in others the ends of the vessels are shrivelled and undiscoverable, or, after removal of the clots, the cavity turns out to be very deep, so that it is impossible to apply the ligature. Under these conditions ligature of the artery above the lesion yields the best results.

Extraction of Foreign Bodies.

Among the numerous projectiles that I have been called upon to remove fragments of shell were the commonest, then rifle bullets and the round shrapnel balls. In one instance I removed from the calf a bit of wood 8 cm. long; in another, after opening up a very septic track in the buttock, I lighted upon a square-headed hobnail.

Shrapnel balls, and particularly fragments of shell, invariably cause septic wounds, because they always carry in bits of clothing. It is a common experience, when we are called upon to remove a splinter of shell a long time after the infliction of the wound—by which time the track of the missile has quite healed—to find it encysted in a pouch full of pus of very attenuated virulence. We must therefore proceed very cautiously when called upon to remove bits of shell or shrapnel balls lodged in or near a joint. The breaking down of the protecting adhesions in this case may determine suppuration of the part as a whole.

Bullets sometimes break up, especially when they strike a bone, or ricochet before entering the body. In such case we sometimes find the envelope of the bullet more or less torn open and fragments of lead disseminated in the tissues.

Among the interesting cases of projectiles which I have had to extract I may mention (1) a rifle bullet lodged behind the sternum opposite the third rib; one inside the hip-joint; two in the knee-joint; one in the elbow-joint; another in juxtaposition to the left axillary artery, under the pectoral muscle; (2) a bit of shell in the left pleura; a fragment of shell weighing 350 grams under the fractured left scapula, where it had lain twenty days; another between the two condyles of the femur in front; (3) a shrapnel ball implanted in the small trochanter, one in the knee, etc. I should like to call attention to the method of extracting projectiles under the radioscopic screen devised by Dr. Vullyamoz, which has been of the greatest service to me.

AUSCULTATION OF THE HEART OF THE RECRUIT.

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THE issue by the War Office of a memorandum on the significance of abnormal signs in the heart of the recruit, and the papers on that subject in the BRITISH MEDICAL JOURNAL of October 30th, 1915, suggest that possibly it may be of use to reproduce what I wrote thereon in an article on auscultation of the heart in *A Dictionary of Practical Medicine* in 1899.

I have made no alterations, but have omitted certain sections dealing with conditions unlikely to be met with in the recruit. The italics are in the original.

All murmurs should be timed by the carotid pulse, *not by their relation to the apex beat.*

Cardiac murmurs may be present without structural change in the valves or orifices, especially in anaemia and chlorosis, and when the action of the heart is excited.

Sounds closely resembling those resulting from organic disease of the valves, but really produced outside the heart, are of frequent occurrence, and are termed *false* or *cardio-pulmonary* murmurs.

The various conditions which may give rise to these murmurs may be classified thus:

1. Displacement of, or pressure upon, the heart, the result of disease of the (a) lung, (b) pleura, (c) thorax, or (d) abdomen.
2. Effusion into the pleural cavity.
3. Changes in the pleura of the praecordial area.
4. Changes in the lung overlying the heart.
5. Changes in the pericardium.

4. *Changes in the Lung overlying the Heart.*—... a systolic murmur about the apex of the heart which closely resembles the murmur of mitral regurgitation. The sound is caused by the impact of the heart upon the lung... producing an audible sound by displacement of the air in the bronchi... It is almost always most distinct during expiration, is superficial, high pitched, and disappears when the breath is held after a deep inspiration, and often becomes inaudible when the patient lies down. This murmur may sometimes be heard in the axilla and at the angle of the left scapula.

5. *Changes in the Pericardium.*—False murmurs, when due to chronic changes in that membrane, are frequently heard at one particular spot—namely, the sixth left interspace and over the seventh rib close to the base of the costal cartilage. Here the right ventricle is in contact with the chest wall, and it is on its anterior surface that the "white patch" is most commonly found. The sound produced by the movement upon each other of the pericardial surfaces at this spot is systolic in time, usually short, sharp, localized, and superficial; it seldom acquires a blowing character. In fact, it often resembles more nearly a rough reduplication of the first sound than a murmur. It is, perhaps, doubtful whether the altered sound, which is so commonly heard at this spot, is in all cases due to the presence of a "white patch" on the pericardium. It is especially common in emphysema with downward displacement of the heart. The effect of change of position upon this murmur is variable. It may disappear entirely when the patient is in the recumbent position, as often happens with friction sounds audible elsewhere over the heart, whilst at times it is hardly at all affected by such a change. When the heart is not displaced, a murmur presenting similar characters may often be heard in the fifth left interspace close to the sternum. Thickening of the pericardium of the left auricular appendix occasionally produces a rough systolic murmur in the second left interspace.

The following precautions should be observed in the examination of all cases presenting murmurs. Assuming that the presence or absence of these consecutive changes in the heart, which are almost invariably associated with disease of any given valve, has been noted, if there is still room for doubt, the following points must be observed carefully:

1. The exact period in the cardiac cycle occupied by the murmur. False murmurs are often not exactly synchronous with the commencement of systole or diastole; they may precede or follow the one or the other.

2. The site of maximum intensity and the line of conduction of the murmur. These do not usually coincide with what is found with similar murmurs of organic origin.

3. The condition of the lungs. With doubtful apex murmurs evidence of pulmonary engorgement is strongly in favour of organic valve disease, as that condition is almost invariably absent in the reflux of anæmia.

4. The effect of change of position upon the sound. *It is essential to examine every case of suspected valve disease both in the standing and recumbent position.*

It may be stated with confidence that an opinion given in a doubtful case without observing this precaution is of no value. Functional and false murmurs often disappear when the patient lies down, whilst an organic murmur, especially that of mitral stenosis, may be only audible in that position. A murmur which suddenly and completely disappears when the patient lies down, provided there is not at the same time any marked alteration in the pulse-rate, is almost certainly not due to organic disease of a valve.

5. It is important in all cases to auscultate the trachea. A murmur audible in the trachea may be due either (1) to the conduction of the murmur of aortic stenosis; or (2) to the impulse of an aneurysm; or (3) to the impulse of the heart causing an air wave in the bronchi and trachea, this latter being by far the most common cause of tracheal murmurs. Mitral murmurs are not audible in the trachea.

6. False murmurs often disappear completely when the breath is held.

7. The state of the pulse may at once negative a suspicion of organic disease founded on the presence of a murmur.

I am disposed to add that *it is essential to examine the heart of every recruit both in the standing and recumbent position.*

Experience gained in civil practice is not always applicable to military practice. The civilian, as a rule, stops when he feels that his work is overtaxing his strength; the soldier may be obliged to continue until he is ordered to halt or drops from exhaustion. Compensation which might have lasted for fifty years or more in civil life, may, in a soldier, be quickly destroyed by prolonged over-exertion.

I published many years ago in the *Clinical Society's Transactions* the case of a man with aortic stenosis and regurgitation and mitral regurgitation, changes due to an attack of acute rheumatism with endocarditis, which occurred when he was a boy aged 14, who had worked for fifty-five years as a turner in wood at a treadle lathe, without a day of illness, and in whom compensation was still well maintained. It does not, however, follow that it would have stood the stress of active service, at or about the age of 20, and still have lasted for such a long period.

A personal physical defect of which the soldier is unaware may be of little importance, but it may become of great importance when he has got to know of its existence.

Examiners of recruits who pass defects as of no importance, when all symptoms are absent, must be prepared to support their opinion when, at a later date, the defects are found to be unchanged but accompanied by many subjective symptoms.

TARTAR EMETIC IN KALA-AZAR.

BY

PERCIVAL MACKIE, M.D., M.R.C.P., F.R.C.S.,

MAJOR, I.M.S.; PATHOLOGIST AND SANITARY OFFICER, NO. 12 MEEBEE INDIAN GENERAL HOSPITAL, FRANCE.

My attention has been drawn to a letter on this subject from Lieutenant-Colonel Sir Leonard Rogers, I.M.S., in this *Journal* for July 31st, 1915. I have had a little experience of the antimony treatment of leishmaniasis which I will now briefly refer to.

CASE I.

The first case was that of an officer in the XIIIth Pioneers, who was stationed in Queita. He first noticed the disease when he was in camp at Christmas time, and it began in a deep fissure in the mucous membrane of the lip which had been caused by the cold dry wind then prevailing. It increased rapidly, and when I saw it was the size of a pigeon egg, and was painful, ulcerating, and very unsightly. He had had various kinds of treatment, including the application of CO₂ snow, but

the condition was worse rather than better. He also had a cyst-like swelling deep in the cheek, which had no visible communication with either the mucous or skin surfaces. This was punctured, and yielded *Leishmania* in pure culture, and the exudate from the ulcerating lip also showed these parasites, together with *Staphylococcus albus*. Treatment with intravenous injection of tartar emetic was begun on February 11th, 1915, and six injections were given at intervals of two days or three days, in doses of 4 to 6 c.cm. of a 1 per cent. solution in normal saline. The treatment was very successful so far as the cutaneous and subcutaneous part of the disease was concerned, but the mucous ulceration of the lip also showed some improvement only after several applications of carbon dioxide snow.

The officer was cured and shortly afterwards proceeded on active service.

There are three noteworthy points in this case:

1. The disease began in a fissure in the lip and apart from any exposure to insect infection.
2. The presence of a subcutaneous nodule due to *Leishmania* which had no discernible connexion with the outside surface. (Cases of this sort have been described, I think, in the Sudan.)
3. The good effect of antimony in rapidly sterilizing the cutaneous and subcutaneous lesion and its slower action on the mucous ulceration. (This has been noted by Terra.)

CASE II.

The second case of leishmaniasis which I treated with antimony injections was that of a native officer in the Gurkha Rifles. He seems to have contracted the disease in passing through an infected village in the Nepal Terai where he spent four days in returning from leave at the outbreak of war. It was an acute case of kala-azar with persistent high temperature, irritable heart, darkening of the skin and rapid emaciation. The spleen enlarged very rapidly, doubling its size in three weeks, and posture revealed *Leishmania* in that particular state which indicates rapid division and a high state of vitality.

He was going downhill rapidly, so I commenced intravenous injection of antimony tartrate, and gave him doses increasing from 4 c.cm. to 7.5 c.cm. of a 1 per cent. solution on alternate days. The treatment was begun on May 23rd, 1915, and continued till I left Queita on service about June 10th. The temperature shot up after the first two injections and fell rapidly to normal after the second injection. He had no more fever and the spleen began to recede and the general symptoms to abate. Without going into details as to his condition, I can say that in two and a half years' experience of kala-azar, I have seen no such promising result from any drug or any line of treatment. When I left for Europe he was improving, but I have heard nothing of him since. His blood state, according to Arneht's system of differential counting, was as follows:

	May 22, 1915.	May 25, 1915.	May 29, 1915.	June 2, 1915.	June 8, 1915.
White cells, in thousands ...	0.9	1.0	1.0	1.7	2.7
Basophiles	—	—	—	—	—
Eosinophiles	—	0.5	1.0	—	1.0
Neutrophiles— Myelocytes	—	—	—	—	1.0
Juvenile	2.0	4.5	5.0	2.5	2.5
Rod-nucleate	21.0	17.5	12.0	8.0	12.0
Segmented nucleate	29.0	39.5	36.0	14.0	19.0
Lymphocytes	30.0	29.0	34.0	12.0	38.0
Large mononuclears	18.0	9.0	12.0	113.0	26.0

* Before the first antimony injection.
† Fifty per cent. of decapsulated mononuclears.

The study of the blood bears out the general tendency to improvement which was so marked from the clinical side.

During the last two years tartar emetic has been used successfully in the treatment of leishmaniasis by Machado and G. Vianna (1913), Terra (1913), Cardina (1914), Da Silva (1914), Lapa (1914), Di Cristina and Caronia (1915).

In my opinion the credit for first using antimony tartate in leishmanial infection belongs to the Brazilian workers, Machado and Vianna, who used it in 1913 for cutaneous lesions, and to Di Cristina and Caronia, who, previous to February, 1915, used it in the treatment of Mediterranean kala-azar.

The Director of the Bombay Bacteriological Laboratory kindly arranged to provide me with capsules of 1 per cent. solution of antimony tartate sterilized by filtration, and he would, no doubt, supply it to others on application.

BILHARZIOSIS IN NATAL.

BY

F. G. CAWSTON, M.B., B.C.CANTAB.

ESTIMATES of the extent to which bilharziosis prevails in Natal vary considerably. It occurs both amongst natives and Europeans, and is more common amongst boys than girls. Those boys who learn to swim in the baths and avoid loitering in shallow streams seem to be less liable to be attacked, and since the attention of schoolboys has been directed to the dangers of the shallow rivers the disease has become less prevalent. Decomposing reeds abound in the shallow parts of these rivers, and in many cases these reeds are covered with snails. Acting on my advice the municipality of Pietermaritzburg, Natal, has removed these reeds from its popular bathing pool.

In a typical case the patient complains of a varying amount of blood in the urine, a certain degree of scalding on passing water, general depression, and anaemia. In a chronic case there may be the attendant symptoms of cystitis or calculus of the bladder. Symptoms of calculus are often present when none is to be found.

The miracidia can only live in fresh water. They soon die in water which has urine in it. This seems to disprove the theory of urethral infection by miracidia. The practice of washing out the bladder of uncomplicated cases followed by some practitioners seems to be due to the mistaken idea that the eggs hatched in the bladder, or even that it was the worm and not the miracidium that hatched out of the egg.

I had a patient under treatment for bilharziosis on May 10th, when my attention was drawn to the account of the life-history of *Haematobia japonica* in the BRITISH MEDICAL JOURNAL of January 30th, 1915. I therefore visited a favourite swimming pool and collected a number of snails (*Limnaea natalensis*) which abounded on the decomposing reeds at the shallow part of the pool. Microscopic examination of the snails revealed nothing abnormal in the liver or kidney, though several were infected in the foot with the ova of parasitic mites. Diluted urine was then added to the water in which some of the snails were kept. The water was changed on the following day and as frequently as necessary for the next few weeks. The results of experiments with snails from this bathing pool proved negative; but early in June Dr. Warren, the director of the Natal Government Museum, discovered undoubted cercariae with bifid tails in the liver of a snail (*Physopsis africana*) which is common in South African rivers, and which had been exposed to infection from urine supplied by another patient of mine four weeks previously. The appearance of these cercariae and the sporocyst in which they were contained corresponded to those illustrated in the BRITISH MEDICAL JOURNAL on January 30th, 1915.

Experiments are being conducted to demonstrate the possibility of infection by these cercariae. The evidence against infection by drinking infected water whilst bathing in infected streams is not conclusive. It is common for the small boys who loiter in these bathing places to complain of ulcerated skins, and it is quite possible that their opinion that infection can take place through these sores is well founded.

It is difficult to see what influence such drugs as male fern can have on the course of the disease. Complications may arise and need appropriate treatment; but to wash out the bladder of an uncomplicated case of bilharziosis would seem to be as unnecessary as to wash out the gall bladder; for the worms themselves abound in the vicinity of both. Diuretics are of undoubted service, for they prevent the accumulation of blood, bacteria, and eggs in the bladder and lessen the risks of cystitis or of the formation of stones from phosphatic concretions round the shells of the eggs. Urinary antiseptics are needed, for bacteria are usually present in varying numbers, and the possibility of a monomicrobial infection being converted into a mixed infection during the acute and more susceptible stage contraindicates resort to instrumental measures. Hexamine, being a slight diuretic and a powerful urinary antiseptic, is of particular service in this disease. Then, as the parasites are present in greatest numbers in the blood of the portal vein and in the vesical veins, it would seem that efficient treatment must aim at

destroying them in these places. By experiments carried out at the pharmacological laboratory of the Johns Hopkins Hospital in 1908, S. J. Crowe showed that hexamethylenetetramine was excreted in practically all the body fluids; he showed that in cases of post operative biliary fistulae it appeared in the bile and in the urine almost simultaneously, and that large doses—at least 75 grains daily—inhibited the growth of bacteria in the bile. These observations lead one to suppose that the drug would be of especial service in bilharziosis in averting the dangers of bacterial infection in the regions where the parasites are especially numerous, whilst it might destroy the parasites themselves in the blood stream.

The eggs present in the urine of these cases were all characterized by the presence of a terminal spine. As the presence of bilharziosis in cattle has not been demonstrated in Natal, it is reasonable to suppose that the cercariae found in the snail which had been exposed to infection were associated with the human form of the disease.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE "IRRITABLE HEART" OF SOLDIERS.

NO ONE acquainted with the clinical study of heart disease would doubt the group of cases to which Drs. Cotton, Lewis, and Thiele allude in the BRITISH MEDICAL JOURNAL of November 13th, p. 722. They are generally recognized, are puzzling, and require, no doubt, a broad survey of the possible factors. Identical symptoms, as I have pointed out on several occasions, may occur in children and young adults following a rheumatic infection, which damages the myocardium but spares the valves or pericardium. At first there is dilatation, but long after that has passed away the symptoms described by the writers may remain, and show the characteristic tendency to relapse on imprudent exertion. Looking, as I do, upon rheumatism as a streptococcal disease, this evidence affords some indirect support to their investigations. The difficulty for me is this: May not nerve shock and overstrain, physical and nervous, produce poisons akin to some bacterial poisons? This is a speculation which has arisen before, naturally enough, over the problem of rheumatism, chorea, and nerve shock. When now we look at the clinical side of this "irritable heart of soldiers," we are faced at once by the same possibility. The strongest man after five months in Gallipoli—always under nerve strain, often much exposed to extremes of cold and heat, driven to intense exertion, menaced by numerous infections, and irregularly fed—may break down in this fashion. The pale, not fully grown, high-strung young soldier may collapse far more rapidly; nevertheless, infection may possibly explain both cases. How, on the other hand, can we explain "shell shock"—a nerve insult of the grossest and most abrupt kind? Yet, in my experience, it will produce precisely the same symptoms; and so, too, will burial by a "Jack Johnson." Infection here is again possible, but we must incline to other factors as more probable, yet to me the symptoms are identical. Again, I have had an opportunity of studying the cardiac state of some twenty people victims of a severe railway accident, and at the time noted the symptoms of six who developed cardiac symptoms such as are described by the writers. A young naval cadet came to me in 1913 with all these symptoms, the result, so far as I could judge, of physical over-exertion. After a period of quiet he became and remained well. Two years later he is a midshipman in the Dardanelles engaged in strenuous and exciting work, and he sees, while still a growing boy, stern and terrible sights. His nerves in the general sense do not feel it, but gradually there creep on palpitation, giddiness, and weakness, and at last he drops out. I see him again, and find his heart as before with symptoms of the well-known type.

Another point to be mentioned is illustrated in the treatment. A young soldier who thinks his heart is damaged is much handicapped by that thought. A determined assurance that there is no real injury and a cautious

use of rest, coupled with a judicious admixture of friends to take his mind off himself, have again and again in my experience produced encouraging improvement. Thus, it seems to me, we are faced with the same problem as in rheumatic chorea and fright chorea. May not shock, fright, and strain produce some disturbance akin to that produced by bacterial poisons?

Dr. Paine and I have shown that streptococci of the rheumatic group, and those found in malignant endocarditis which many believe have no connexion with rheumatism, can produce tachycardia and heart failure in rabbits without pericarditis or endocarditis, and it seems very possible that Drs. Cotton, Lewis, and Thiele may produce a similar result with the streptococci they have isolated. Thus I feel they may reach the same dilemmas that I am faced with. Do such results explain the irritable hearts that we are meeting with in this war? If they explain some of them, how can we separate, on the clinical side, this infective group? How can we prove that the essential factor is the infection, in the face of the mass of evidence favouring physical and nervous overstrain, coupled often with immaturity, as the prime causes? If we argue that the latter factors are so frequent, and yet this group of cases so few in comparison, others will argue that insidious infection is ever with us, but this group of cases always appears in numbers under conditions of special strain and nerve shock. I must express my appreciation of the memorandum which is the cause of this note.

LONDON, W.

F. JOHN POYNTON.

HAVING SEEN a large number of cases of hyper- and hypothyroidism in soldiers back from the front I am somewhat interested and rather amused at the apparently serious note under the above heading in the BRITISH MEDICAL JOURNAL of November 13th by Drs. Cotton, Lewis, and Thiele. Having fairly accurately described the symptoms of hyperthyroidism they branch off in the opposite direction, though evidently of opinion that they are dealing with a variety of the same class. "In many subjects there are other evidences of vasomotor instability—coldness and blueness of hands and feet or a prominent *tachicardia*." About 5 grains of thyroid gland thrice daily quickly alter the complexion of the latter cases, while the former are also very amenable to ordinary lines of treatment. Excess and deficiency of function of the thyroid gland are easily recognized without waiting for the development of Graves's disease or myxoedema. There is no doubt that streptococci and staphylococci can be found in some excretion or other, even when not introduced from without, of most individuals, but there is no advantage in unnecessarily calling up their assistance to explain all the ills to which flesh is heir.

LIVERPOOL.

JAMES BARR.

Reports of Societies.

DISCUSSION ON GUNSHOT WOUNDS OF THE HEAD.

A MEETING of the Medical Society of London was held on November 15th, the President, Dr. W. PASTEUR, being in the chair.

Indications and Contraindications for Operation.

Mr. PERCY SARGENT (Temporary Lieutenant-Colonel R.A.M.C.), in opening the discussion, said that in the case of head injuries the need for early operation was not so pressing as in abdominal injuries. Head cases travelled well and did not appear to be adversely affected by the journey. They did not, however, bear transport well immediately after operation, and those operated upon ought to be kept where they were for at least a week. In times of stress this was obviously impracticable near the fighting line. He did not suggest that early and efficient cleansing of head wounds was not important, but procedure directed to this end alone was on quite a different footing from an operation undertaken for the relief of cerebral symptoms, or for the removal of bone fragments and missiles without the aid of x-ray examination. Gunshot wounds were to be regarded from two points of view—first, the neurological, and secondly, that of a compound fracture.

Compound fracture was an almost constant factor; the cerebral injury might be so slight that no evidence of its existence could be detected, or the clinical signs might point to widespread disturbance of function of every sort and degree. In point of severity there was no constant relation between the cranial and the cerebral injury, and cerebral symptoms were not wholly dependent upon the existence of a cranial lesion; the two were co-existent, but not interdependent; once the blow had been struck the relation between the cranial and cerebral injury ceased, and nothing that was done to the wound could influence the cerebral symptoms. So long as the dura was uninjured this rule remained true. When, however, the dura was lacerated so as to open up an avenue for infection, then what was done to the wound, whilst not influencing the initial cerebral lesion, might, by diminishing the chance of intradural infection, prevent or minimize the further destruction of brain tissue. Subdural haemorrhage of such a degree as to cause, of itself, symptoms of any severity, or to require operation, was very rare. In some six cases which had been observed it had manifested itself slowly and had given rise to unmistakable symptoms. Exploratory operations for possible haemorrhage had no place in the treatment of gunshot wounds, especially as such wounds were invariably septic, and as opening the dura in their presence carried with it very great danger of meningeal infection.

If operation were undertaken it should be done to assist the healing of the wound and to minimize the danger of intracranial suppuration, which was the cause of death or of further disablement in nearly all those cases which survived the initial cerebral injury. At the field ambulance and clearing stations many patients arrived with extensive defects in scalp, bone, and dura, from which large masses of brain protruded and from which brain matter, blood, and cerebro-spinal fluid issued. Most of these were either deeply unconscious or very noisy and restless, and the injury was such that they died in a few hours. Clearly such cases were excluded from the scope of operation. In some similar cases, however, careful examination revealed that although the amount of brain matter lost was large, yet the injury was less than seemed at first sight. After a few hours improvement began, the cerebral shock passed off, and recovery was not impossible. In those cases the wound should be cleaned under an anaesthetic, and perhaps its edges excised, but no intracerebral manipulation involving a search for bone fragments or missiles should be undertaken, especially if a radiographic examination could not be made.

Secondly, there was the common case of a tangential wound with cerebral laceration, where the scalp defect took the form either of two wounds separated by a bridge of skin, or an open gutter. These cases generally needed operation.

Thirdly, the single penetrating wounds through which a missile might or might not have entered, determinable only by x-rays, usually required operation.

Fourthly came cases in which a bullet had traversed the cranial cavity from side to side. They showed that at certain ranges, at which the velocity was still sufficiently high to allow the bullet to traverse the cranial cavity and to emerge therefrom, as well as in cases in which the velocity was so low that the bullet was retained within the skull after traversing the brain, no explosive effect could be demonstrated, for patients in both classes often exhibited no symptoms or neurological signs whatever. They rarely required operation, and many recovered by dressing merely.

Fifthly, there was a large group with injuries of the superior longitudinal sinus. Operation upon them had given very bad results, and they should be left alone, unless some other condition was added.

Sixthly were the minor injuries in which a fracture existed without laceration of the dura. Traumatic epilepsy in such cases resulted from the subcranial damage sustained at the time, rather than from the mere presence of the injured bone; consequently, if all such were operated upon, many of the operations would be unnecessary. He operated upon depressed fractures, as a rule, only when they were of considerable extent, and when the broken bone, exposed at the bottom of a septic scalp wound, threatened to become necrosed, and thus indefinitely delay healing.

In discussing the question whether operation should be

performed immediately or after an interval, Mr. Sargent^t said that immediate operation could only be required in the very rare cases in which progressive haemorrhage threatened life from cerebral compression. At a later date progressive neurological symptoms, when due to haemorrhage or suppuration, might call for operative relief, and therefore the question arose whether these later complications could be avoided by earlier operation. Early experience in the war showed that a large proportion so treated died later from meningitis, because of the ease with which the subarachnoid space could be infected, and the tendency to the formation of hernia. Subsequent experience had shown that delay lessened both these dangers. There was some risk in allowing bone fragments to remain buried in the brain, because an infective encephalitis might spread from such a focus and might reach the ventricles. The two dangers, those of meningitis and hernia, attendant upon the earlier operation and that of ventricular infection which beset delay, had to be balanced against one another, but his experience from a large number of cases had shown that the former predominated. The best time for operation was after from two to four days from the date of the wound; during that time the patient could be transferred to the base, an x-ray examination made, the head shaved, and the wound and scalp thoroughly cleansed.

Such evidence as he had obtained seemed to show that bullets and fragments of shell were best left alone unless they were so situated as to be easily removed with the bone fragments, or unless they subsequently caused symptoms directly referable to their presence. The symptoms which existed at first were not due to the mere presence of a foreign body—they depended upon the damage done during its introduction, and its removal would not only fail to effect an improvement, but by causing additional damage, would be more likely to aggravate those symptoms. Such foreign bodies were not always septic. If septic complications occurred later they were more likely to arise in some part of the track of the missile, where hairs and other septic material had been implanted, than to take the form of abscess or diffuse cerebral softening. The question of removal was further influenced by the nature, position, and number of the metallic foreign bodies. Many lay in positions inaccessible to legitimate surgery. More than one patient had died as the direct result of operating for removal of such foreign bodies, and many patients, in whom removal had not been attempted, had been sent to England with good prospects of recovery and had since been progressing favourably, their wounds having completely healed.

In all wounds in which the dura had been torn and the brain lacerated the primary object of any operation was to remove infective material and provide efficient drainage. When the dura was not lacerated, it was an exceedingly dangerous proceeding to incise it, and one which was uncalculated for, except in a very small number of cases. It was unjustifiable unless there were an extensive subdural haemorrhage. When the missile or bone fragments had caused a laceration of the dura, it was similarly dangerous, and almost as unnecessary, to enlarge the dural opening. If these cases exhibited signs of a dangerous degree of intracranial pressure, lumbar puncture or a contralateral decompression operation afforded a much safer and an efficacious mode of relief.

Glancing wounds with laceration of the dura and brain, being commonly produced by rifle bullets, were comparatively clean, and the bony fragments were not driven in to any great depth. On the other hand, when the splintered bone had been removed the dural tear and lacerated brain were often seen to be considerable in extent, and if such an area of damaged brain were left exposed, suppuration was prolonged, and hernia cerebri were likely to follow. He then described the means which had been devised for covering in this damaged brain, whilst providing for free drainage. Briefly, the gap which resulted from excision of the original wound was closed by flaps of muscle or of pericranial or aponeurotic tissue. The operation was modified to suit the case of a penetrating wound in which the dural opening was small but where the cerebral laceration extended relatively deeply and bony fragments had been driven in for a distance of from one to two inches.

Dr. GORDON HOLMES (Temporary Lieutenant-Colonel R.A.M.C.), who had collaborated with Mr. Sargent in his

work in France, said that the main aim had been to establish efficient drainage. Infection was always present by the time the patients could be dealt with. Such remarks as they could make were only of relative value for those working at home, as the conditions and objects were different. It was their object to place the patients in such a condition that they could be safely evacuated to England. They had found it advisable either to leave head cases alone or only to operate in the presence of clear and emphatic indications. Foreign bodies were well left alone. Many head injuries could be dealt with more successfully at home, after the scalp had healed. It was more dangerous to operate with the idea of preventing problematical secondary effects than to refrain from operating.

Nature and Treatment of Microbic Infection.

Professor WILSON and Colonel Sir VICTOR HORSLEY, A.M.S., sent a contribution to the discussion. In their view the principles which should guide the treatment of head injuries in the field practically resolved themselves into those underlying the means, general or special, of preventing the spread of microbial invasion of the brain from the track of the projectile and surfaces of the wound. Such means must depend upon our determination of two points:

- (a) What species of microbe were found in such wounds.
- (b) What was the nature of the lesion they respectively produced.

They had made, with the assistance of Lieutenant G. B. Bartlett, Pathologist to the 21st General Hospital, Alexandria, many observations and determinations of the infections in a number of gunshot injuries of the head in the hospitals at Alexandria. From the cultures obtained from these cases they had carried out a series of experimental subdural inoculations in rabbits. Their conclusions tabularized were briefly as follows:

TABLE I.—Species of Microbe found.

Microbe.	Average Course of Case Clinically.
1. <i>Staphylococcus albus</i> .	Favourable.
2. <i>Staph. aureus</i> , occasionally <i>citreus</i> .	Favourable (in uncomplicated infections).
3. <i>Streptococcus</i> .	Unfavourable.
4. <i>B. cholerae gallinarum</i> .	Variable; 2 cases observed - 1 recovered, 1 died.

In each case the pathogenic activity of the microbe (obtained by aspiration with all precautions from the softened brain beneath the hernia cerebri, etc.) was established experimentally.

The kind of cerebral lesions and the pathological changes observed clinically were reproduced with complete fidelity in the experimental inoculations with the pure cultures and could be tabularized thus:

TABLE II.

Microbe.	Cerebral Lesion.
1. <i>Staphylococcus albus</i> .	Slow localized cerebritis and small hernia cerebri.
2. <i>Staph. aureus</i> , occasionally <i>citreus</i> .	Abscess formation with pyogenic membrane; small or no hernia cerebri.
3. <i>Streptococcus</i> .	Acute cerebritis; progressive oedema of brain, large hernia cerebri; final stage, internal hydrocephalus and epiduralitis.
4. <i>B. cholerae gallinarum</i> .	Acute cerebritis with some abscess formation; small hernia cerebri.

From the facts thus collectively stated it would follow that:

- (a) In all cases of gunshot injuries of the head a bacteriological diagnosis should be made.
- (b) That all cases of gunshot injury of the head should be disinfected actively and completely from the earliest possible moment—that is, by excision of the primary wound, no closure of the wound, and by frequently repeated dressings soaked with antiseptic lotions—and that in any case in which streptococcal infection was found the free use of antistreptococcal serum was essential.

Experience at Home Hospitals.

Mr. L. B. RAWLING (Temporary Major R.A.M.C.) agreed that, as his work was in England, he was speaking from a totally different experience. He deplored the lack of co-operation between the surgeons

abroad and those at home, the absence of notes of the cases which were sent home, and the impossibility of knowing what surgeon had operated previously, and thus of communicating with him. He considered that a certain proportion of those he had seen should have been operated upon earlier. The majority of the scalp incisions and the stitches were suppurating when the patients arrived. The cases with the lesser incisions were apparently more favourable than those in which larger ones had been made, and those in which the wound had been extended in various directions better than those with a large flap. The infectivity of the wound was such that primary excision was unsuitable. Those with smaller osseous defects were better than those with larger. He had found that if the hernia of the brain were shaved off the condition recurred, and that the second protrusion was often worse than the first. The second protrusion generally included a distended horn of the lateral ventricle. He had consequently given up the method and regarded the expectant attitude as the correct one. He had encountered foreign bodies in the hernia, and could not but think that they should have been removed. This often had to be done afterwards, as they kept up the suppuration. He dissented from the opinion of those surgeons who approved of the finger as a means of detecting what lay at the bottom of the wound, and disapproved of the probe. The latter was preferable to the finger. Deeply-seated bodies obviously must be left. He had contented himself with removal of the more superficial, and the results had been favourable. His experience of paralysis following these injuries was that it only improved up to a certain stage. The outlook after cerebral injuries was somewhat gloomy, but excellent results had followed those in the frontal and temporo-sphenoidal regions. Every fracture of the external table was associated with a greater fracture of the internal, injury of the frontal sinus excepted. A common occurrence was for the patient to appear very well, but a small superficial septic wound existed, and a probe showed that a fracture was present. The pulse-rate was slow in proportion to the temperature, the blood pressure raised, headache was present, and the mental condition was not quite sound. It was not possible to tell without exploration how serious the injury was. He was in favour of early operation before the patients arrived in this country.

Mr. WILFRED TROTTER (Temporary Captain R.A.M.C.) said that the point which had struck him most in the opening paper was that it was possible to leave so much of the nature of foreign bodies in the brain. It might be the best practical procedure for a short time, but not for an indefinite period. He had been impressed by the frequency with which serious lesions developed and remained latent in the central nervous system. In view of this it was a mere assumption that patients who appeared well soon after the injury, or who improved some months later, could be regarded as cured. If the slightest evidence of a lesion persisted, it should be dealt with. It was often assumed that hemiplegia was due to loss of brain substance, but probably any extensive hemiplegia denoted some haemorrhage or skull injury.

After Captain SIDNEY SMITH and Major W. PEARSON had spoken, Mr. SARGENT and Dr. GORDON HOLMES briefly replied.

THE WORK OF HUGHLINGS-JACKSON.

At the opening meeting of the Section of Neurology of the Royal Society of Medicine Dr. JAMES TAYLOR delivered his presidential address, taking as his subject "The ophthalmological observations of Hughlings-Jackson, and their bearing on nervous and other diseases."

Dr. TAYLOR said he did not think it could be easy for any one who was not brought intimately into contact with him to understand the reverent affection always entertained, by those who enjoyed that good fortune, for the great personality of Hughlings-Jackson. One of his earliest and most lasting interests was in ophthalmological and ocular conditions, and most of his early writings dealt with these, especially in reference to the symptomatology of intracranial tumours. He was never tired of insisting on the necessity of routine ophthalmological examination in nervous diseases. In his paper, contributed in 1863, dealing with defects of sight in brain disease, he pointed out the occurrence of two kinds of atrophy: One

in which the nerve gradually whitened, the other in which whitening followed certain acute changes, the latter being known as "amaurosis." Emphasis was also laid on ophthalmoscopic examination in hemiplegia, and especially in seeking for evidence of Bright's disease, and in cases brought in comatose; and all the time he insisted on the need for preserving a philosophical balance of mind, so as to ensure that everything was seen in its true perspective. To the ophthalmologist amaurosis was a disease of such great importance, calling for particular action on his part, that he might underrate its significance as a symptom in general conditions of the system. It was when it occurred with other phenomena that the discovery of what it meant was most likely to be made. He held that disease of the cerebellum *per se* did not produce blindness, and that neither did disease of the cerebrum, of itself, but that tumour in either region did so by setting up optic neuritis the result of local encephalitis. Lecturing on optic neuritis in 1871, Hughlings-Jackson said that the intracranial disease most often associated with double optic neuritis was coarse, a lump of something, an adventitious product; and, further, that double optic neuritis did not point to any particular kind of coarse disease, only to some coarse disease. The condition scarcely ever occurred in chronic and general convulsive attacks, a condition of hemiplegia from local softening, etc.; and he pointed out that optic neuritis was not a localizing sign. He insisted on the three following points: (1) That optic neuritis frequently exists when the patient can read the smallest type; (2) that in cases of adventitious products in the cranium the ophthalmoscopic appearances vary greatly, also at different stages in the same case; (3) that the use of the ophthalmoscope should never be omitted when a patient has severe and continued headache. Hughlings-Jackson's *Physician's Notes on Ophthalmology* were a storehouse of interesting record; in them he insisted that intracranial tumour might be present without optic neuritis, that optic neuritis might be observed and yet no tumour be found, and that optic neuritis did not necessarily result in blindness though there was usually great danger of it leading to impairment of sight.

In his annual oration before the Medical Society of London in 1877 he dealt with the importance of the effects which refraction errors might produce. Thus, hypermetropia might cause symptoms simulating those of brain disease, such as headache and squinting; and observation of hypermetropic discs was of the utmost importance, because of the close resemblance they bore to the inflamed disc associated with tumour. He went on to show the inseparable connexion of motor activity with sensory activity in ideation. Whilst the colour—the secondary or dynamical quality of an object—was a sensory affair, its size and shape—its primary or statical quality—was a motor affair. In the light of this, ophthalmological facts became of inestimable value, showing that the estimation of the extension of objects was due to motor activity, and that activity of motor centres would suffice. Optic atrophy often occurred in tabes dorsalis and in general paralysis of the insane, and might occur with or without pupil changes, with or without pain, with or without ataxy. Retinal embolism, revealed by the ophthalmoscope, might be associated with cerebral embolism. The ophthalmoscope might also render visible other tissue change in the fundus, such as that resulting from tubercle, syphilis, or Bright's disease, though the ophthalmoscopic appearances of Bright's disease were often closely simulated by those occurring in intracranial tumour.

At a very interesting discussion in which Hughlings-Jackson participated, reported in the first volume of the *Ophthalmological Society's Transactions*, he stated his belief that there was but one kind of optic neuritis from intracranial disease; also that uniocular optic neuritis rarely occurred in intracranial tumour. He considered it important to distinguish between the development of neuritis and consequent loss of vision from a foreign body, and loss of sight from a destructive lesion. Thus, hemipia was usually the result of a destructive lesion, and in itself implied no change in the fundus. In the ordinary hemipia from haemorrhage or clot fundal changes did not occur.

With regard to the question of the mode of production of optic neuritis, against von Graefe's view that it was caused by raised intracranial pressure inducing venous congestion in the central vessels of the optic nerve, was the fact that a small tumour might cause intense optic neuritis, whereas a large haemorrhage might not be

accompanied by any optic neuritis. He regarded as "the most plausible" Benedict's view of reflex vasomotor action inducing instability in the grey matter and influencing vessels in the optic nerves. A further plea for the early and systematic use of the ophthalmoscope arose from the fact that the best time for treatment of optic atrophy was early in its appearance.

Hughlings-Jackson's Bowman Lecture before the Ophthalmological Society in 1885 was a philosophical treatise on Spencerian lines, but with a practical side. In it he showed the benefit of co-operation of specialized fields of research and knowledge; he also dealt with the complexity of nervous diseases, such as epileptic paroxysms.

It was not easy, Dr. Taylor said, to sum up briefly the outcome of Hughlings-Jackson's teaching, but in addition to the points mentioned, he was much impressed by the educative effect of work carefully and energetically pursued at an ophthalmic hospital. Such work need not lead to a more barren specialism or differentiation; nor had it done so, for in addition to definite increase of knowledge of eye conditions, it had led to discoveries which had been a means of investigation of several important diseases, and had produced co-operation between neurologists and ophthalmic surgeons in the study and treatment of different morbid conditions.

Reviews.

PATHOLOGY AND EPIDEMIOLOGY OF SWINE FEVER.

A PAMPHLET containing the results of a research into the pathology and epidemiology of swine fever, by Dr. J. P. MCGOWAN, Assistant Superintendent of the Royal College of Physicians' Laboratory, Edinburgh, has been issued by the Edinburgh and East of Scotland College of Agriculture.¹ It is in every respect worthy to be placed alongside of the research on *Leaping-ill*, by the same author, to which attention was directed in these pages lately (*JOURNAL*, August 7th, p. 221); indeed, it may be said to surpass it in practical importance, for, according to the latest official reports, 4,356 outbreaks of swine fever occurred in Great Britain alone in the twelve months ending December, 1914, and, as a consequence, 39,277 swine were slaughtered as diseased, or as having been exposed to infection. One of the questions which Dr. McGowan makes an effort to settle is whether this wholesale slaughter of pigs exposed to infection was necessary or justifiable.

The question is of no small economic importance, for the occurrence of a single case—if the present theory of intense infectivity be accepted—will lead to the destruction of perhaps thirty or forty pigs valued at £40 each, and their sale for the price of bacon. Dr. McGowan, however, is doubtful of the validity of the present etiological theory which postulates a filter-passer or ultramicroscopic organism, which prepares the way, by lowering the vitality, for a secondary invasion of the *Bacillus suisepidemicus* or the *Bacillus suispestifer*, or of both. This view was strongly upheld in the recent article (published in 1913) by Uhlenhuth and Haendel in *Kollo und Wassermann's Handbuch der pathogenischen Mikroorganismen*; but Dr. McGowan insists on the great difficulty which exists in diagnosing swine fever owing to differences not only in clinical symptoms but also in pathological findings, and he also criticises the experimental methods of the German investigators, pointing out the apparent impossibility of proving by experimental injection that a multiplying virus filtrate is the cause of swine fever, and drawing attention to the fact that this was practically the only method employed. He further emphasizes the weakness of the conclusions of Uhlenhuth and Haendel due to their neglect of the *Bacillus suisepidemicus* and of the variants of the *Bacillus suispestifer* in their experiments; he thus undermines the deduction (by exclusion) that the cause must be a filter-passer.

His own observations were made on material obtained from three epidemics of swine fever; the main one occurred in March, 1915, at a farm near Edinburgh. It is unnecessary to enter into the technical details on which

Dr. McGowan builds up his conclusion—they are fully stated in the pamphlet—but he enunciates the view that the *Bacillus suispestifer* may vary considerably in its biological reactions, and may even be considered to be a variant of *Bacillus suisepidemicus*; he thinks that it may even turn out that there are both variants of a micro-organism with which may be identified also Gläser's *Bacillus typhi suis* and Gläser's *Bacillus suispestifer* (Voldagsen), which are said to cause in pigs contagious diseases resembling swine fever. From the facts observed in connection with the three outbreaks which came under his notice, Dr. McGowan believes, first, that swine fever may arise in a piggy without any connexion being traceable between the outbreak and a previously existing case of the disease outside; secondly, that in some outbreaks, as in the one in question, the evidence is not sufficient to establish the view that in all cases the disease, once having arisen in a piggy, spreads by contagion to the other animals in the piggy—it may do so, but it is possible in some cases that contagion may be stimulated by some common injurious factor (for example, gross chilling) acting on all the pigs simultaneously, and producing the disease in them at or about the same time. It is not, however, denied that the disease, once having arisen in a piggy, may spread thereafter through the piggy by contagion. The conclusion seems to follow that swine fever is by no means so contagious as it is usually supposed to be; indeed, if it were as intensely contagious as it is necessary to postulate in order to uphold the current theory of spreading, it is hard to see how any pig could have escaped.

Two main conclusions seem to follow upon the researches made by McGowan: the first is that the case for the filter-passer as the cause of swine fever has not been established in an impregnable position, and the second that considerable doubt must be felt as to the intensity of the contagion of the disease. It is obvious that such a conclusion may be of immense economic importance if it leads to a marked reduction of the wholesale slaughtering of suspected animals. In place of the present widespread destruction of animals Dr. McGowan would put, first, attention to diarrhoea in sucklings; secondly, the immediate killing, on the first evidence of the condition being present, of all "wasters" and "piners" of any degree whatever; and, thirdly, the paying of closer attention to the general health of pigs, especially to their protection from sudden exposure to great cold. They ought to be kept in pens in large, airy houses entirely under cover during the winter season. It is interesting to note that in these modern researches into the diseases of animals the old idea of chilling is coming to the front again, not, indeed, as the primary cause of the malady, but as a means of lowering the vitality of the animal, and so permitting micro-organisms not otherwise active to become detrimentally so.

A POPULAR ACCOUNT OF TUBERCULOSIS.

The publication of a general and detailed description of a widespread disease, for the enlightenment of all and sundry, has not usually been regarded with professional favour. But in the case of tuberculosis any such objections would be irrational. The whole success of preventive, as well as of curative, measures must rest largely with the common sense and goodwill of the community, and already the public have been partially instructed by numerous lectures, leaflets, and limelight demonstrations in schoolrooms, concert halls, and travelling caravans throughout the country.

The time would certainly seem to be ripe for the publication of a comprehensive account of the subject, set forth in simple language by an acknowledged expert. In undertaking to present such an account, Dr. JEX BLAKE has set himself a difficult task. The use of descriptive terms, so familiar to the professional reader, but so confusing to the layman, has had to be avoided, and even the simplest anatomical details have of necessity been presented in popular guise.

His book is entitled *Tuberculosis: A General Account of the Disease; its Forms, Treatment, and Prevention*,² and, although arranged in the order usually followed in textbooks, he has managed to instil into many of his chapters

¹ *Some Points in Connection with the Pathology and Epidemiology of Swine Fever.* By J. P. McGowan, M.A., M.D., B.Sc., M.R.C.P. From the Laboratory of the Royal College of Physicians, Edinburgh. William Blackwood and Sons, Edinburgh, July, 1915. (Pp. 40.)

² *Tuberculosis: A General Account of the Disease; its Forms, Treatment, and Prevention.* By A. J. Jex-Blake, M.D., F.R.C.P. London: G. Bell and Sons, Limited, 1915. (Cr. 8vo, pp. 231. 2s. 6d. net.)

a strong flavouring of the clinical experience of everyday happenings which so often tend to influence the success or failure of treatment. To the non-medical reader the conclusions of the expert are of more interest than are the details of evidence upon which they are founded. Statistics may point to heredity as a helpful influence, but in the opinion of many experienced clinicians that influence may tend to benefit the present sufferer rather than the reverse. The possibility of infection by way of tubercularized milk, although by no means to be disregarded, may in like manner be viewed without undue anxiety as tending to protect the infected child from a more serious attack of the disease in later life. Recognition of the possible paths of infection is in itself the first and most important step in the direction of prevention, and in an early chapter these paths will be found to be very closely examined. The lay reader will doubtless be duly impressed with the vast amount of important information that has been obtained by way of direct experiment on animals. Popular notions with regard to consumption are mostly derived from novels. Familiarity with modern works of fiction has enabled Dr. Jex-Blake to point to many of the gentle errors and misleading fancies of certain contemporary writers as texts for his own lay sermons. In describing the oft-quoted familiar symptoms and their significance, he has managed to steer clear of any trespass upon the province of the physician, while giving the non-professional student a clear idea of the usual course of the disease.

Surgical tuberculosis is firmly associated in the lay mind with disease of the hip joint. This idea will be considerably expanded after perusal of the chapter dealing with the clinical features of the disease as it affects other parts than the lungs.

The latter part of the book is mainly devoted to treatment, both curative and preventive. The rational application of the rules, which are now so well established, will be greatly aided by the explanation in plain terms of the facts that have led to their adoption. Tubercular treatment is described and its use is commended as not being likely to do any harm if used in doses which are not strong enough to produce a reaction. The more important element for success—namely, the intelligent use of fresh air—is very carefully and fully discussed. The recognized methods of prevention are in like manner rendered intelligible and interesting to the non-medical mind.

The book as a whole will be found to be instructive and useful to all who may desire to make, or improve, acquaintance with a subject of absorbing interest, as introduced to them by a writer who has combined literary ability of no mean order with ripe professional experience of the disease and those who suffer from it.

SAMUEL GEE.

THE fourth edition of the late Dr. GEE'S *Medical Lectures and Aphorisms*² contains fourteen of the brief lectures or addresses of that most excellent physician, and the 272 aphorisms in which he condensed a vast amount of practical medicine. Two further papers are given in an appendix, and at the end of the volume Dr. Wickham Legg gives a most interesting though sadly incomplete sketch of Dr. Gee's life and habits of thought. Dr. Gee was a man of encyclopaedic knowledge in all matters of medicine, and as his biographer shows, his great knowledge and academic turn of mind were apt to make him intolerant of ignorance or pretension, to paralyse the springs of action, and to give him a pessimistic outlook on the crude and practical world in which, like all of us, he had to live. This is certainly the most complete edition of Dr. Gee's medical writings we have seen, and now that it has been enriched by Dr. Wickham Legg's "Recollections" it may perhaps be regarded as a final edition. It is needless to say that Dr. Gee's *Lectures and Aphorisms* should have been read by every practitioner of medicine for they are among our modern medical classics. The present edition gains greatly in interest by the inclusion of a biography of their talented but retiring author.

² *Medical Lectures and Aphorisms*. By S. Gee, M.D.; with Recollections by J. Wickham Legg. Fourth edition. Oxford Medical Publications, London: H. Frowde, and Hodder and Stoughton, 1915. (Cr. 8vo, pp. 414. 6s. net.)

NOTES ON BOOKS.

The First Medical Report of the Lord Mayor Treloar Cripples' Hospital and College, Alton, Hampshire (London: Horace Marshall and Son, 1915, pp. 60, 1s. net), has been prepared by Mr. H. J. Gauvain, the medical superintendent, whose monograph on the use of celluloid for the treatment of tuberculous disease of the spine was read before the Medical Society, and published, with illustrations, in the *JOURNAL*, vol. 4, 1913, p. 1200. The work of the hospital is in every sense national, admissions having been made from nearly every county in England and a large number from Wales. The compiler has adorned the report with many instructive photogravures, especially a series representing whole batches of youthful patients parading in the open air for sun treatment, and nature study lessons. The preparation and application of plastic splints are also represented pictorially, as well as many children with acute and chronic tuberculous disorders before and after treatment. Another illustration demonstrates the apparatus for artificial heliotherapy which produces ultra-violet rays that cause pigmentation. Thus Mr. Gauvain's pamphlet is a publication of a character, not of a governor's official annual, but rather of a hospital "report" such as is issued by many medical schools in London and the metropolis.

MEDICINE, MAGIC, AND RELIGION.

DR. W. H. RIVERS, in his first FitzPatrick Lecture before the Royal College of Physicians of London, said that medicine, magic, and religion were abstract terms, each of which connoted a large group of social processes by means of which mankind had come to regulate his behaviour towards the world around him. Among ourselves these three groups of processes were more or less sharply marked off from one another, but there were many peoples among whom they were so closely interrelated that the disentanglement of each from the rest was difficult or impossible, while there were yet other peoples among whom the social processes to which we give the name of "medicine" could hardly be said to exist.

In any attempt to study a social institution there were three chief lines of approach and methods of inquiry—the historical, the psychological, and the sociological. A necessary preliminary to any knowledge of the history of medicine must be the study of its relations to those other social processes with which it was associated. This preliminary task would be the object of these lectures, which would deal with certain prolegomena to the early history of medicine rather than with the history of medicine itself. Dr. Rivers said he would limit himself as far as possible to one part of the world, namely, Melanesia and New Guinea, with occasional references to the allied culture of Australia.

He began by defining the three kinds of social process under consideration. Among many peoples it was far from easy to draw any definite line between magic and religion, and a term was needed to include both. He would employ the word "magico-religious," which implied, from our own point of view, an attitude in which phenomena were dealt with by supernatural means. The use of the word "supernatural" implied the existence of the concept of the natural, but this concept, as we had it, was lacking among the people dealt with in these lectures. The essence of medicine, as we now understood it, was that it regarded disease as a phenomenon subject to natural laws. One chief object of the lectures would be to discover what was the nature of the concept of disease among those who failed to distinguish medicine from magic and religion.

Provisionally, for descriptive purposes, by "magic" he would mean a group of processes in which man used rites which depended for their efficacy on his own power or on powers believed to be inherent in, or the attributes of, certain objects and processes which were used in these rites. Religion, on the other hand, dealt with the same condition, but by means of processes the efficacy of which depended upon the will of some higher power, whose intervention was sought by rites of supplication and propitiation. Religion differed from magic in that it involved the belief in some power in the universe greater than that of man himself. "Medicine" was a term for a set of social practices by which man sought to direct and control a

specific group of natural phenomena known as "disease." One of the chief tasks of the lecture would be to ascertain how far this notion of disease existed among the peoples included in the field of study, and this would be done mainly by means of an inquiry into the processes by which man reacts to those phenomena we call "morbid."

One way of approaching the problem would be to inquire how far different groups of mankind had set apart certain members of the community to deal with the morbid. He would use the old English term "leech" to designate such a member. The chief line of inquiry, however, would be an examination of the processes by which man at different stages of culture dealt with disease. Even when there was no clear differentiation of the leech from other members of society, mankind had theories of the causation of disease, carried out proceedings corresponding with those we called diagnosis and prognosis, and, finally, had modes of treatment which might be regarded as making up a definite system of therapeutics.

One element of the concept of disease which also appertained to savage peoples was that it included within its scope the factor of causation. There were usually clear-cut ideas concerning the immediate conditions which led to the appearance of disease. By starting from etiology we should find ourselves led on as naturally to diagnosis and treatment as in the case of our own system of medicine.

According to the belief of mankind in general, the causes of disease might be grouped in three chief classes: (1) Human agency, in which it was believed that disease was directly due to action on the part of some human being; (2) the action of some spiritual or supernatural being, or, more exactly, the action of some agent not human but yet more or less definitely personified; (3) what we ordinarily called natural causes. Among savage or barbarous peoples the beliefs concerning the causation of disease fell in the main into one or other or both of the first two categories. In that lecture he would confine his attention to those cases in which native ideas concerning causation must either be definitely classed with magic or belong more nearly to this category than to that of religion.

The magic of many peoples of rude culture differed from that of the Middle Ages in that disease or injury was, in many cases, ascribed to purely human agency. This mode of causation was not merely brought into play to explain cases of illness which had no obvious antecedent, but also those in which what we should call the natural cause was obvious. Such ideas were not empty beliefs devoid of practical consequences, but acted as the motives for processes of treatment in cases of injury, or for acts of revenge if the magical process should lead to the death of the victim. There were many other cases in which the cause of the disease was ascribed to the action of some non-human being, either under the control of human agency from the beginning or capable of being brought under such control when it was desired to influence the results produced by its action. In such cases the methods of diagnosis and treatment were often indistinguishable from those employed when the condition was ascribed to human agency, supplication and propitiation playing no part.

Three main classes of cases could be distinguished: (1) Those in which some morbid object or substance was projected into the body of the victim; (2) those in which something was abstracted from the body; (3) those in which the sorcerer acted on some part of the body of a person or on some object which had been connected with the body of a person in the belief that thereby he could act on the person as a whole. These classes were then considered in detail. The first could be divided into two groups according as the morbid objects had found their way into the body of the victim by direct human agency or by the action of some non-human agent. Both kinds were of frequent occurrence in Australia, where material objects were believed to be projected into the body either by sorcerers or spiritual beings. In Melanesia, when disease was believed to be due to such projection, it was usually held that some invisible influence—a morbid essence or effluvium—was so projected. The lecturer described the *tamatetkwa*, or ghost-shooter, the instrument by which such an influence

was supposed to be projected, and the procedure called *talumalai*, by which a parcel consisting of a dead man's bone, or part of an arrow which had killed a man, was placed in leaves in the path of the man it was desired to injure. The treatment followed directly from its etiology, its aim being to extract the object or essence from the body. Men and women were believed to have the power of removing objects, usually by sucking some part of the body. In some cases it might be necessary to discover the agent, for which purpose some method of divination was used.

Concerning the second group, the substance which was thought to be abstracted in Australia was the kidney fat or that of the omentum. In New Guinea and Melanesia the people believed in the causation of disease by the abstraction of the soul, or of some part of it, by spiritual agency. The treatment consisted in the recovery of the soul by one called *Gismana*, whose soul left his body in sleep and sought out the soul of the patient. In the *Gazelle Peninsula* of New Britain and *Duke of York Island* it was believed that disease was produced by a *kai*, a being having the tail of a snake and the head of a man, and if any one fell ill in these places a process of divination was employed to determine whether the disease was so caused. The lecturer described the rites carried out.

The third kind of magic, known as "sympathetic" magic, was exemplified by the *Kai*, an inland people of New Guinea. They believed in a soul substance which permeated not only every part of the body, but also extended to anything which had been in contact with the body. When a sorcerer secured part of the body of his proposed victim, or an object which had been in contact with his body, he was believed to be really securing part of the soul of the person; and it was thought that it was by the action of his magical processes upon this isolated portion of the soul that the rites of the sorcerer produced their effect. He described the rites in detail, and those by which they were counteracted, the soul substance being again freed. They were full of acts which showed a belief in the efficacy of imitation—a belief summed up in the phrase, "Like produces like," which found its counterpart in modern medicine.

In his second lecture Dr. W. H. R. Rivers said that definite rites performed for the purpose of diagnosis often had a religious character, even when the treatment appeared to be entirely of a magical order. Thus, in *Murray Island* it was believed that certain men, through their possession of objects called *zogo* and their knowledge of the appropriate rites, had the power of inflicting disease. One *zogo* was believed to make people lean and hungry, and at the same time to produce dysentery, another to produce constipation, and a third insanity. When any one fell ill he might know at once whom he had offended, but often either lie or his friends had recourse to certain men who owned a shrine called *Tomog zogo*, where diagnosis by a process of divination was carried out; it was also consulted for prognosis. In one form of divination the behaviour of lizards provided the data for diagnosis or prognosis; in another, employed also in other islands of the *Torres Straits*, the skulls of relatives were used for this purpose, the ghost to whom the skull belonged in life giving the desired information in a dream. The latter formed part of a religious cult of ancestors, still more definite in Melanesia, where it provided an example of religion of a relatively high order, in which the elements of supplication and propitiation were clearly present.

Methods of prognosis were even more apt to have a purely religious character. It was a matter of interest that the aid of superhuman or divine powers should show itself so definitely in this connexion, and that this difficult and uncertain art should, in such a people as the Melanesians, bring out more clearly than any other aspect of their leechcraft the close dependence of medicine and religion.

The close relation between the practice of medicine and the cult of dead ancestors existed all through Melanesia, but probably the combined rites nowhere reached a greater pitch of elaboration than in the western islands of the *British Solomons*, where the subject had been carefully studied by Mr. A. M. Hocart and himself. In the little island of *Mandegusa* a connexion so intimate was found between the treatment of disease and certain religious

practices, especially that of taboo, that the account of medical practice was at the same time an account of taboo. Nearly every disease was ascribed to the infraction of a taboo on the fruit of certain trees, especially of the coca-nut and betel-vine. A number of rites were learnt which were intended to cure or ameliorate the disease which fell on one who used the fruit from tabooed trees without the performance of the rites which should accompany its removal. The rite used for therapeutic purposes was known as *Sulanga*. With certain exceptions all the rites belonged to the same man, or group of men. Thus, it was only the man who was able to impose or remove the taboo who could treat the disease produced by its infraction, and there was a close resemblance between the rites connected with the process of taboo and those of the more strictly medical kind. Mr. Hocart and he had found about one hundred examples of such conjoined processes of taboo and medicine, and had obtained a complete record of more than sixty. As an example of one of the shorter of these processes, the lecturer described that connected with the taboo called *kirengge*, the infraction of which produced epilepsy and other convulsive seizures. The religious element in these rites was obvious. A note of supplication ran through all the formulas, which could definitely be regarded as prayers to beings who had the power to withhold that for which they were asked. A burnt offering at the end of the proceedings had clearly a propitiatory character and might also be regarded as a thank-offering to the ghostly being or beings through whose intervention the successful treatment had been brought about. The special interest, however, in these proceedings was the intimate blending of the therapeutic process with the institution of taboo, which both in this and other parts of Melanesia had a definite religious character.

The natives of Mandegusu also believed in a number of beings to whom the power of producing disease was ascribed. These beings were personifications of such natural phenomena as thunderbolts, shooting stars, and the rainbow, and most of them had special haunts often associated with shrines. Intrusion into these haunts was one of the causes held accountable for disease, but they were believed to inflict disease apart from any offence on the part of the victim. The most frequent mechanism, however, by which they were believed to produce sickness was through the breaking of a taboo. There was thus a fusion between two different beliefs—one in the production of disease by a personification of a natural phenomenon, and another according to which disease was ascribed to a transgression of the institution of taboo. There were examples, too, in which a similar process of fusion had given a religious character to processes for the production of disease which would otherwise fall into the category of magic. Thus the breaking of one kind of taboo exposed the transgressor to the action of one of a number of men called *njiana*, whose powers closely resembled those ascribed to the evil eye. The infraction of another caused a disease ascribed to the action of a sorcerer called *mba*, who was believed to produce disease by acting on a fragment of food or an object which had been used by the person on whom it was intended to inflict illness. The alliance between medicine and religion was so strong that processes which belonged most clearly to the realm of magic were brought into relation with religion by the assumption that men would not fall victims to the sorcery of their fellows if they had not exposed themselves to this danger by the sin of breaking a taboo. The close connexion between medicine, magic, and religion was also brought out by the procedures employed in the diagnosis and treatment of diseases ascribed to a *mba*.

This close relation between religion and the production and cure of disease was met with throughout Melanesia. Thus, in those islands which possessed the institution of totemism, disease was said to follow any infraction of totemic ordinances, such as killing or eating the totems. Side by side with the religious character of leechcraft, magical practices of the most definite kind were found in many parts of Melanesia. In some these took the most important place in the lives and thoughts of the people; in others, the religious aspect of leechcraft was predominant.

"Minor ailments" were often considered to arise in-

dependently of any action on the part of human beings or of higher powers. They were largely treated without the aid of any specialized practitioners, and by measures which corresponded to our own domestic remedies, a sorcerer being only consulted when ordinary treatment had proved of no avail. The belief in the occurrence of disease independently of human or spiritual agency introduced an element of variety into the leechcraft of savage peoples. Such peoples as the Melaneseans put their faith in many doctors, and were not content with one physician or one remedy.

In Mandegusu (Eldystone Island) a distinct step had been taken towards the differentiation of the leech from the priest. Although the man who bought the knowledge which enabled him to impose a taboo necessarily bought at the same time the knowledge of the process by which to treat the illness which followed its infraction, it did not follow that he used the latter. Certain men of the island had acquired a special reputation for success in the application of remedies—such men, called *tinoni salanga*, clearly presenting the beginning of the differentiation of the leech from the priest. There was another indication that medicine in the strict sense was becoming dissociated in Eldystone Island from the religious attitude. There seemed to be a tendency to diagnose and treat *tayosoro*, a combination of fever, pain, and weakness, as a morbid entity, independently of any belief in the anger of the being who was supposed to cause it or of the transgression of a taboo. This modification might be due to recent European influence, which might also be responsible for the movement towards specialization of the leech.

Specialization of the medical function itself was marked. Such people as the Papan or Melanesian had carried the differentiation of medical function in some respects to a far higher pitch than even we had reached. In Eldystone Island one man would treat rheumatism, another fever, a third epilepsy, and a fourth insanity, although in each case the cure was intimately associated with religious functions. Epidemics were ascribed to the action of sorcerers, but it was supposed that they were produced by the sorcery of members of some other village or island. They were also ascribed to the agency of higher powers, examples of which were beings called *Ave* in the Eldystone Island. When an epidemic attributed to *Ave* visited the island, the people appealed to one who knew the appropriate rites, which the lecturer described.

The intimate relation of medicine, magic, and religion among these peoples carried with it other relations of an economical and juridical kind. The process called *kenje*, for example, was also a means by which certain kinds of property—namely, the fruit of certain trees—was kept for the special use of individuals. The institutions were not inventions in the interests of private property, but the belief in the production of disease as a punishment for theft provided a motive which tended to perpetuate the ideas and practices which brought medicine and religion into such close relation.

The part played by suggestion in the production and cure of disease among such people as the Papuans and Melanesians was evident. There was no doubt about the efficacy of the procedures employed. Doubtless with this real factor of suggestion there was mixed much deception on the part of those to whose special knowledge the production and cure of disease was ascribed. These practitioners were, however, sincere and earnest, and not merely impostors. From the psychological standpoint the difference between the rude arts he had described and much of our own medicine was not one of kind, but only of degree.

The chief lesson to be learnt from the facts brought forward in the lectures was the rationality of the leechcraft of such peoples. Their practices in relation to disease were inspired by definite ideas concerning its causation, and their mode of treatment followed directly from their ideas concerning etiology and pathology. They practised an art of medicine which, in some respects, was more rational than our own, for diagnosis and treatment followed more directly their ideas of causation. There were examples of leechcraft which did not follow so strictly logical and consistent a system. Such were the use of bleeding and massage in New Guinea. This led to another set of problems—namely, the study of the transformations suffered by medical beliefs and practices as the result of the contact and blending of peoples.

THE FIRST YEAR'S WORK OF THE MEDICAL RESEARCH COMMITTEE.

The first annual report of the Medical Research Committee, presented recently to Parliament, necessarily recapitulates much of the information already published in this JOURNAL, and especially in the article which appeared on December 5th, 1914 (p. 972), and that published on May 22nd, 1915 (p. 697).

In presenting a year ago its first list of research schemes, the Committee explained that the beginning of the war had already interfered with the plans previously prepared, and it was stated that the carrying out of many of the recommendations must be contingent upon the requirements of military duties. As the war proceeded the need for medical and scientific assistance increased with the growth of the forces engaged, and consequently the research work done on behalf of the Committee in directions not specially connected with the war has progressively diminished, but it has not been altogether suspended, and researches with regard to tuberculosis, dust and pulmonary disease, anaphylaxis, the hygienic relations of milk, and chronic rheumatoid arthritis, have been continued.

Department of Bacteriology.

It will be remembered that Sir Almroth Wright was placed at the head of the Bacteriological Department of the Committee's work. The whole services of the department have from the beginning of the war been made available for inquiries into matters of military importance.

Since his appointment in September, 1914, to be consulting physician to the forces overseas, Sir Almroth Wright has prosecuted important researches at Boulogne, bearing especially upon the pathology and treatment of infected wounds. In this work he has been assisted by Captain S. R. Douglas, Captain W. Parry Morgan, R.A.M.C., and Lieutenant H. H. Tanner, R.A.M.C. One of the results of these researches was the circulation of a memorandum addressed to medical officers with the forces at home or abroad with regard to their application in practice, and another was the publication of Sir Almroth Wright's address upon the use of hypertonic salt solution and physiological methods of treatment of wounds, before the Royal Society of Medicine last March.¹ In June last the staff of the laboratories was increased by the appointment of Captain W. d'Este Emery, Dr. A. C. Inman, and Captain S. W. Patterson, R.A.M.C. Captain Emery has studied in particular the infections associated with gas production in wounds. The Committee has also maintained three members of Sir Almroth Wright's staff to work under his direction in the inoculation department at St. Mary's Hospital, where 25 beds have been maintained by the Committee for clinical research work.

Department of Applied Physiology.

In the Department of Applied Physiology, temporary accommodation was at first found for the director, Professor Leonard Hill, M.B., F.R.S., and Dr. Martin Flack, in the physiological laboratory of the London Hospital Medical School, and Professor Benjamin Moore, the other member of the staff, was at first allowed by the University of Liverpool to work in the laboratory of bio-chemistry of the university. The Committee was subsequently enabled to rent three suitable rooms from the London Hospital Medical School, where the work of the department has been carried on since January 1st, 1915. In connexion with the investigation of the incidence of phthisis in particular occupations and industries, Dr. Hill and Dr. Moore were appointed members of a Special Investigation Committee, consisting of Dr. Addison (Chairman), Dr. Hill, Dr. Moore, and Dr. Brownlee, of the Committee's scientific staff, and Dr. E. L. Collis, medical inspector of the Factory Department, Home Office. They paid a large number of visits to boot and shoe factories, leather and hide works, and printing shops, and in connexion with these visits experimental work has been done in the laboratory upon questions of ventilation and other physiological conditions of work. The Investigation Committee has at the same time prosecuted statistical

inquiries, and a report upon the boot and shoe industry has already been presented, in which the advantages of a factory sanatorium are pointed out where the patients could continue to carry on their trade with due regard to their condition. A report upon the printing trade is in course of preparation.

Dr. Hill and Drs. Flack and McQueen have published measurements of arterial pressure in man, and an investigation has been carried out, in collaboration with Dr. Fildes, as to the conditions of union between inorganic antiseptics and the serum of a wounded surface. The resources of the department have been made available for certain special inquiries in connexion with the war, including the characters and effects of poison gases. Dr. Hill has visited France to demonstrate the treatment by oxygen inhalation, and apparatus has been devised for giving for long periods of time inhalations of oxygen at higher concentration than those usually obtainable. In addition, Dr. Hill has become a member of the Health of Munition Workers' Committee, and the resources of the department have been placed at the disposal of that committee for such specific experimental inquiries as may be necessary.

Department of Biochemistry and Pharmacology.

In the Department of Biochemistry and Pharmacology, under the direction of Dr. H. H. Dale, F.R.S., a general survey has been made of the alkaloids not generally in use, but giving promise of therapeutic importance, and much time has been given to a systematic examination of the rates of absorption and distribution in the animal tissues of particular synthetic drugs in order to put the standardization of such drugs by biological tests upon a scientific basis. Work done on the nature of the toxic principle found in one of the organisms held responsible for gas gangrene has shown that the effects described previously by others were due to the presence of a large quantity of ammonium salts. The subject of anaphylaxis has also been taken up as a part of a co-ordinated scheme of work; and Dr. G. S. Walpole was last May attached for two years to the department to co-operate in the work, and in particular to deal with the problems in colloidal physics which are fundamental to the general inquiry. The department has also done special work arising out of the war, particularly in connexion with the synthesis of certain drugs.

Statistical Department.

In the Statistical Department, under Dr. John Brownlee, normal research work has been continued, especially in connexion with tuberculosis and measles, and some of it has been published in this JOURNAL in Dr. Brownlee's papers on the curve of the epidemic and on Farr's theory of the epidemic.

The offer of the Medical Research Committee to place its resources at the disposal of the War Office for medical statistical purposes having been accepted, the Statistical Department is now conducting the compilation of the statistics of the sick and wounded from the home and expeditionary forces. For this purpose a house has been hired in Guilford Street, Russell Square, and equipped with the necessary furniture, apparatus, and clerical staff. Card indices are being compiled from the returns provided from official sources, and the sorting and classification of the medical and surgical case-sheets from the military hospitals has also been undertaken. It has been found that this work greatly facilitates the supply of information with regard to the later history of patients in this country sought by medical officers abroad for guidance in the treatment of similar cases at early stages.

Pathological Work at Military Hospitals.

In addition to placing its building at Mount Vernon, Hampstead, at the disposal of the War Office for use as a hospital, the Committee has given assistance in conducting the pathological work of many of the military general hospitals. In some instances special inquiries have been undertaken. Thus special work has been done in the 1st Eastern Hospital at Cambridge in connexion with cerebro-spinal fever; with coliform organisms in wounds, by Dr. Matthew Stewart, at Leeds; with anaerobic wound infections, by Professor H. R. Dean, at Sheffield; and with typhoid infections and cerebro-spinal fever at Manchester, under Professor Dolépine. A number of special inquiries

¹ BRITISH MEDICAL JOURNAL, April 10th, p. 625; April 17th, p. 655; April 24th, p. 720; May 1st, p. 762.

relating to the war have been undertaken in consultation with Colonel Sir William Leishman, Adviser in Pathology to the British Expeditionary Force; among these have been the researches of Sir Ahuroth Wright, already referred to, and those into the value of hypochlorite solution by Professor Lorrain Smith and his colleagues in Edinburgh, and by Dr. Dakin of Compiègne, the results of which have been published in this JOURNAL.

In Professor Delpeire's laboratory in Manchester Dr. Dawson has conducted researches into the diagnosis of typhoid fever in inoculated persons, which was the subject of a paper in the BRITISH MEDICAL JOURNAL of July 24th, 1915, and the same subject has been studied at Oxford by Professor Dreyer and Captains Ainley Walker and Gibson. One result of Professor Dreyer's work was noted in the BRITISH MEDICAL JOURNAL of October 9th (p. 548) in a memorandum on the subject, stating that materials and apparatus for the necessary standardization would be supplied to bacteriologists at military hospitals.

Cholera.

In the autumn of 1914 the Committee sent Dr. John Freeman to Galicia, where, with the co-operation of the Russian authorities, he investigated the various strains of cholera infection. It was considered important that these strains should be available for the preparation of vaccines, and cultures have been placed at the disposal of the inoculation department at St. Mary's Hospital, which has been able already to supply large quantities of anti-cholera vaccines to the Serbian Government and the British forces in the Mediterranean.

Bilharziosis.

In co-operation with the War Office and the London School of Tropical Medicine an expedition, consisting of Dr. Leiper, with two assistants—Dr. Cockin and Dr. J. G. Thomson—was sent to Egypt to apply the results of recent discoveries with regard to the life-history of bilharzia and to ascertain the best prophylactic measures for the protection of the military forces in that country. A full account of the work is appearing in the *Journal of the R.A.M.C.*, showing that Dr. Leiper has succeeded in demonstrating that Egyptian bilharziosis can only be communicated to man through a fresh-water snail, in which its alternate form is parasitic. The expedition was enabled to establish an important fact—that transient collections of water are quite safe after recent contamination, but that all permanent collections of water, such as the Nile, the canals, and the marshes, are always dangerous from the possible presence of the snail as the essential intermediary host. It has also been established that an area may remain infected—at least for many months—through the persistence of intermediate hosts. It appears, therefore, that infected troops cannot reinfect themselves and convey the disease to other parts of the world, except where a local snail can act efficiently as a carrier. The expedition determined the special precautionary measures in regard to the treatment of water which are sufficient to safeguard the military forces for immediate purposes. Colonel Leiper, in collaboration with Dr. Dale, is making experiments in the Committee's biological department with a view to finding therapeutic agents for the treatment of the acquired disease.

Cerebro-spinal Fever.

Dr. Mervyn Gordon was appointed by the Committee to organize and direct bacteriological work with regard to cerebro-spinal fever, and has been supplied with the whole-time assistance of Dr. Macaulay Hino and Dr. E. G. Murray. The Committee has also made grants for work done on behalf of the War Office in this connexion by a number of other workers. The research beds in St. Mary's Hospital have been placed at the disposal of the War Office for a special investigation by Dr. Colebrook and Dr. Tanner into the sterilization of positive contacts. Regarding an outbreak of the disease in the early months of next year as probable, an Advisory Committee has been appointed, consisting of Dr. F. W. Andrewes, F.R.S., Professor R. T. Hewlett, Professor W. Bulloch, F.R.S., and work on chemical factors of bacterial growth in connexion with the infective agent in cerebro-spinal

fever has been begun and is thought likely to develop into a general scheme for chemical research bearing upon manifold problems of bacterial disease.

Neurology.

In the compilation of the medical statistics of the war it has been thought advisable to give special attention to neurological inquiries, and in connexion with workers abroad nearly fifty neurologists in London and various provincial centres are now working upon a common plan; in this connexion the Committee has made grants for part-time work.

"Epidemic Dropsy."

Arrangements have been made for the reception of cases of acute nephritis (epidemic dropsy) in two of the military wards of St. Bartholomew's Hospital, under the care of Captain W. Langdon Brown, the clinical work being correlated with the bacteriological work by Captain F. W. Andrewes. Captain Langdon Brown has recently published a preliminary account of his observations in the *Journal of the R.A.M.C.* Special bacteriological work in connexion with the types of dysentery coming from the Mediterranean Expeditionary Force is being carried out at the London Hospital, St. Mary's Hospital, and in Edinburgh.

Wounds of the Chest.

Professor T. G. Brodie and Professor J. J. Mackenzie, have been detailed by Surgeon-General Carleton-Jones, Canadian Army Medical Corps, for special work upon the structural changes of the lungs and of the breathing capacity supervening upon gunshot wounds of the chest. Captain A. H. Caulfield, C.A.M.C., has also been detailed by Surgeon-General Carleton-Jones for investigating at St. Bartholomew's Hospital particular infections of the pleural cavities. For the laboratory expenses of these inquiries the Medical Research Committee has made grants.

Disorders of Soldier's Heart.

The Committee has arranged, under the direction of Sir James Mackenzie, a scheme of study of cardiac disorders of military importance. Special beds reserved by the War Office at University College Hospital have been placed in charge of Dr. Thomas Lewis, Captain R.A.M.C.(T), and Captain Cotton, C.A.M.C. The apparatus of the cardiographic department of the medical school are at their disposal, and for the investigation of cases in which the cardiac disorders depend upon infective conditions part-time bacteriological assistance by Mrs. Briscoe, M.B., has been provided for work under Dr. Teale's direction. The Committee has also provided Sir James Mackenzie with the assistance of Dr. R. M. Wilson for the examination of military cases elsewhere, and of recruits, and for the organization of work by particular medical officers at provincial centres.

In concluding the report it is pointed out that the existence of the Medical Research Fund has made it possible to bring auxiliary agencies rapidly to the service of Government departments during the war, and especially to that of the Army Medical Department in its varied and vitally important activities. The report is signed by Lord Moulton, Chairman of the Medical Research Committee, and by Dr. W. M. Fletcher, F.R.S., its Secretary.

Excelsior, the quarterly magazine of James Murray's Royal Asylum, Perth, issued its hundredth number in October. Our contemporary protests that it is tired of centenaries because "they are commonly far too expensive for the celebrants, and usually leave nothing behind but a bad headache," but it comforts itself with the reflection that it is a centenarian only in respect of the numbers that have appeared; in years it can only reckon twenty-five. That is still a goodly record, on which we offer our congratulations, coupled with the hope that it may continue to flourish without any nipping of its liveliness by the frost of advancing years. If the local flavour of its jokes necessarily makes them to some extent caviare to the general, one can easily see that they must add to the gaiety of the little nation to which they are addressed. That is the true function of such a periodical, and it is excellently fulfilled by *Excelsior*.

British Medical Journal.

SATURDAY, NOVEMBER 20th, 1915.

NEED FOR RESEARCH IN TIME OF WAR.

Two propositions with regard to the growing importance of pathology in practical affairs have been maintained in this JOURNAL during the last ten years or so. The first is that a laboratory for clinical pathology is an essential part of a modern hospital, and the second that the hospital laboratory must do research work. The battle for the first was easily won. The demand from the clinical staffs of hospitals rapidly grew too insistent for the governing bodies to resist even had they wished to do so; to do them justice, however, they showed no disposition to obstruct, for the more enlightened members were quick to perceive that to complete the armament of a hospital by adding a department which made diagnosis speedier and more certain, which prevented complications in the individual and checked the spread of disease to others, was a scheme worthy of encouragement, since it would diminish alike the sum of suffering and the expenditure of money. The new position was appreciated as quickly by many doctors engaged in private practice, and not a few general practitioners fitted up small laboratories for themselves. The modern student witnessing during his hospital training the constant assistance given by the clinical laboratory, will not willingly be deprived of it afterwards, and asks for it in a military hospital.

But the other proposition was not so readily established. To the layman, to some persons engaged in public health work, and even to some members of the clinical staffs of hospitals, it seemed that the pathologist's sphere should be strictly limited, that he should occupy a very subordinate position, and be content to go on from month to month and from year to year doing routine work on the lines laid down in the textbooks. This is one of those curious mistakes which even able men can make when they forget human nature and the food on which the mind of man thrives. Under such conditions even routine work cannot continue to be well done. If a man is content to sink to it, the very drudgery of it makes him lose interest, so that his daily task is done in a perfunctory way. No man worth his salt could sink to it, because in pathology as in every department of biology, and particularly when a new science is in an early stage, as bacteriology is to-day, the living things dealt with so frequently escape from the textbook, which, as every man who practises medicine or surgery knows, can serve only as a general guide by giving a conspectus of the knowledge of yesterday. The coming of the Medical Research Committee was a turning of the ways. The research penny provided by the Insurance Act might easily have done more harm than good had not the point we are trying to make here been understood. Fortunately the direction of the enterprise was committed to good hands. The Executive Committee consisted for the most part of men of science; it was perhaps too much to expect that in the present stage of political education its

Chairman should be one of them, but in Lord Moulton was found a Chairman who, though not himself a man of science, had during his distinguished career at the bar been brought more closely into contact with the actualities of science than is common among members of his profession, or among politicians. The Committee was fortunate also in obtaining the services of Dr. W. M. Fletcher, F.R.S., as its Secretary. He is a man of science; he was at one time Demonstrator in Physiology in the University of Cambridge, and has made important contributions to knowledge himself. In his new post he has shown himself able not only to understand the good that the judicious expenditure of an annual income for medical research might accomplish, but also the risks of failure were it injudiciously administered on a "cash on delivery" system.

The Committee had barely been got into working order when the war broke out; hence the research scheme it put out about a year ago has necessarily undergone great modifications, because not only were the staffs of the pathological laboratories depleted by the call upon them for military medical service, but the Committee rightly felt that its most urgent duty was to co-operate with the War Office for the benefit directly of the very large proportion of the active male population in the prime of life who enlisted, and directly and indirectly for that of the civilian population to which, sooner or later, they would return. It was certain that the existence of a national medical research fund, if wisely administered, would mark an epoch in British medicine, but it was not altogether a misfortune that it should only just have come into existence at the outset of a world-war, because the immediate practical value of its work quickly became manifest. The executive of the Medical Research Fund has, in fact, formed an intelligence department for the military medical services, and has been able to provide direct and rapid service in organizing inquiries, in obtaining expert advice, and in supplying personal service. That we have "to beat the Germans" is the dominating fact of our national life to-day, but only a fool would use the fact as an argument against the earnest intensive prosecution of research while the war continues. If we are to beat the Germans it must be, as the military authorities and military critics din daily into our ears, by providing big battalions, and it is no use enlisting men, or worse than no use, unless we take every means which science can provide for keeping them in health. Routine work will not do; that has been abundantly proved already. All medical work, from the study of a single case to the investigation of an epidemic, partakes of the nature of research work; within the first few months of war many details of former practice were changed for the better, and many opinions on epidemic disorders were reviewed in the new light thrown on them by study and experience won in the field. The conditions of warfare are such that the study must be intensive and experience quickly pooled, if knowledge essential to success is to be gained quickly and diffused quickly. Neglect to organize inquiry means that action has to be taken in the dark. The results of the inquiries into the causes and treatment of sepsis, of gas gangrene, of the treatment of head injuries and fractures of the lower limbs, of typhoid and paratyphoid and dysentery, are examples at once to hand.

When the general territorial hospitals were being organized the offer made to the War Office by the Committee to help it by making additional provision for pathological work was accepted. It was found

that the needs of various hospitals varied widely in different places, both in character and amount; at some complete arrangements had been made for pathological and bacteriological work, at others none. Owing, perhaps, to the fact that the territorial hospital scheme was worked out some years ago, before it had been fully recognized that clinical pathological laboratories had become a necessary part of every general hospital, the instructions on this head were not precise and much depended upon local circumstances. The lesson that good opportunities and facilities for pathological work of the best and highest kind is a vital necessity has now been learnt probably in every centre, but there seems still to be hesitation in giving proper recognition to the men who are doing it. The head of the pathological department of a big hospital ought to be placed in respect of status and rank on an equality with the heads of the surgical and medical departments. Indeed, if we were logical, which heaven forbid, we should put the general's badge on his shoulder, for is he not the medical strategist concerned with the institutes of medicine and the principles upon which effective treatment must be based?

An article published in another column indicates some of the directions in which the Committee has been able to assist the work of the clinical pathological laboratories of military general hospitals. Its efforts in instituting or encouraging combined researches into particular questions have already yielded results of the greatest value not only to the individual for the alleviation of suffering, but to the country by safeguarding lives and economizing resources both in men and money. Some of the results have been published in detail in original articles in our pages, such as, for instance, the researches of Sir Almoth Wright into the physiological principles underlying the effective treatment of wounds, the experimental inquiries as to the value of hypochlorites as antiseptics, and the researches illustrating the value of systematic bacterioscopic examinations in infectious disorders. War makes experiments on man on a huge scale, horrible to contemplate, but the horror is mitigated when the opportunity is taken to institute inquiries into means of prevention or alleviation; such inquiries serve not only the immediate practical needs of the army by saving the life and health of the troops now engaged, but also the civil population of to-morrow, while hastening the progress of medicine throughout the world.

The schemes of work undertaken under the direction or at the instigation of the Committee for the War Office and other Government departments in connexion with the war are many, and will probably become even more numerous and more important, but the results of what has been done are already so striking that, as has happened before, people who call themselves "practical men" are becoming impressed with the fact that there is nothing so cheap as knowledge, if only you go the right way about gaining it. A research which costs a few hundred pounds may yield results which in their application at once save the country as many millions in money. From the financial side research is truly economical, the saving of life and the saving in long illness and chronic disablement have a value which can be expressed in pounds, shillings, and pence; but we will not with the anti-thises and the anti-thats pretend to put out of mind the saving in suffering to the brave men who of their own free will have come out to fight for their country in its dire need. We wish Mr. Tennant, who seems too ready to suffer fools gladly, or some other

minister who is heckled by these folk in the House of Commons, would some day speak out, dealing boldly with well ascertained facts and principles, and tell the country what experimental medicine and bacteriological research have already done for it in this great crisis.

HUGHLINGS-JACKSON.

It was a happy thought of the editors of *Brain* to bring out a double number¹ devoted to an exposition of the views on aphasia of that very great genius Hughlings-Jackson. A considerable number of his scattered papers on aphasia are here collected and reprinted; and are prefaced by an admirable summary of his views from the pen of Dr. Head. Hughlings-Jackson's methods of publication were curious. He fully recognized that his doctrines were caviare to the general, and he did not seek for them a wide publicity. As soon as he had thought out a section of any subject, he was anxious to publish it, or rather to get it into print. He had great difficulty in expressing himself clearly, not because his ideas were lacking in clearness, but because of their abstruseness and complexity, and he would liken his literary efforts to those of a coachman driving six horses abreast and having to keep all the traces tight. He was punctiliously accurate, and this led him, as Dr. Head reminds us, to pepper every page with explanatory phrases or footnotes, so that the generalization can scarcely be distinguished from its qualifications. So difficult did he find the task of literary composition that he wrote his papers over and over again, and could never get them into a form satisfactory to himself. It was probably his despair of reaching his ideal that led him to publish them as he did. He sent them to be printed in order to get them into permanent form, and to put a stop to the otherwise endless task of revision and rewriting. As long as they were got into print he did not much care where they appeared, and many of his most valuable articles are stored away in the columns of journals that never had any considerable circulation, and that have long been extinct. The task of unearthing them and collecting them must therefore be one of considerable difficulty, and the present generation owes a debt of gratitude to Dr. Head for this collection of those papers that refer to the difficult subject of aphasia.

Hughlings-Jackson's work has of late years been much neglected. It is now known to comparatively few, except in as far as it has permeated and modified methods of thinking about the constitution of the nervous system and the effects of nervous lesions. But a revival of interest in it is inevitable; this must come sooner or later, for he laid down for all time certain fundamental principles which govern the constitution of the nervous system and the working of its processes. His fundamental principle was that the nervous system is the product of evolution; that it has gradually grown up to be what it is through a process of budding, and branching, and growth, and elaboration, in this direction and in that, to meet the requirements of the living acting organism; that it is therefore divisible, more or less arbitrarily, into "evolutionary levels," of which the lowest are the oldest, and most completely and compactly organized; they represent functions that are crude, simple, gross, general, fundamentally necessary to life, and implicate massive movements of visceral and trunk muscles,

¹ London: Macmillan and Co.; New York: The Macmillan Co. Price 8s. or 2 dols. It contains a chronological list of Hughlings-Jackson's papers bearing on affections of speech.

such as the functions of circulation and respiration. On the other hand, however, the newest and most loosely and incompletely organized represent functions that are elaborate, complex, fine, precise, accessory, and implicate delicate movements of peripheral muscles, such as those that move the eyes, the tongue and lips, and the fingers. Disease is, according to Hughlings-Jackson, a process of dissolution, a pulling down of that which evolution has built up, and proceeds in the reverse direction, attacking first and most severely the highest evolutionary level, which is also the last to recover when recovery takes place, and proceeding downwards from level to level until the lowest level of all is the last to be damaged, the least affected, and the first to resume its functions.

A corollary of this doctrine is that quoted by Dr. Head, that destructive lesions never cause positive effects. They can only destroy and abolish. Any positive manifestation, such as convulsion, or mania, or mistakes in words, is not produced, but permitted by the lesion. It is due to the uncontrolled and disorderly action of those lower levels that are permitted to overact by the removal of the control formerly exercised by the higher level that has been destroyed. This is now become a commonplace, but it was a very startling heresy when Hughlings-Jackson first formulated it, and it was long before it made its way and was received and accepted. It has now the appearance of a truism: and his other doctrines, when once the tangled phraseology in which they are expressed is penetrated and their meaning is grasped, captivate the judgement, and appear as much as this in the light of truisms.

Hughlings-Jackson's rank as a pioneer and discoverer in medicine is not inferior to that of Harvey and Lister, and in due time he will take his place among the very brightest of medical luminaries.

THE NOBEL PRIZES.

The awards of the Nobel Prizes for Chemistry and Physics 1914 and 1915 are now made known. The 1914 award for Medicine, as we have already stated, has been made to Bárány, of Vienna, who has observed and formulated certain seemingly constant relations between vestibular vertigo and ataxia and vestibular nystagmus. In 1910 Dr. Bárány was a guest of the British Medical Association when the annual meeting was held in London. In the Section of Otolaryngology he opened a discussion on the "Diagnosis and treatment of infective labyrinthitis," and in the Section of Psychology and Neurology he read a paper on the "Vestibular apparatus and the cerebellum."¹ His work on the peripheral nervous system has also been of great value. He was on duty in a field hospital in Przemyśl during the siege by the Russians. From there he sent his last work, dealing with the treatment of skull lesions, by aërial post. He is now a prisoner of the Russians. The award in Medicine for 1915 is reserved. The awards for Chemistry go respectively to Professor Theodore William Richards, of Harvard, and Professor A. B. Willstätter, of Berlin. The former has devoted himself to experiments on atomic weights, the compressibilities of elements, and electrothermal dynamics. A great deal of his work has been published by the Carnegie Institution. Professor Willstätter holds a chair of chemistry in the University of Berlin and has specialized on alkaloids. The awards for Physics are of special interest, in the first place because one of them comes to this country (for the third time), and in the second, because the work honoured by the one award is in direct sequence with the work honoured by the other.

The prize for 1914 goes to Professor M. von Laue, until recently of Zurich, and now, apparently, of the new university of Frankfurt-on-Main. The prize for 1915 is divided between Professor W. H. Bragg, of London University, and his son, Mr. W. L. Bragg, of Cambridge, who is now serving in France as an officer of the Leicestershire Royal Horse Artillery (Territorials). The investigations both of Laue and of the Braggs relate to the analysis of x rays by means of crystals; taken together their results mark the greatest advance on this side of physics since Roentgen's discovery. Three years ago it occurred to Laue, who believed x rays to be rays of light having wave lengths of an atomic order of magnitude, that the regular groupings of atoms in a crystal should be capable of producing interference effects when a beam of x rays was passed through the crystal structure. His theory was that the repetition of the atoms at certain definite intervals in the crystal might act as a kind of diffraction grating for these rays of short wave length. The theory was put to the test, a parallel beam of x rays being made to traverse a crystal, and some beautifully symmetrical interference patterns were recorded on a photographic plate. This investigation, which demonstrated conclusively that x rays underwent diffraction, was the starting point for fresh researches. In this country the Braggs, father and son, were able to show a little later that x rays were regularly reflected by the cleavage planes of crystals. Laue on the one hand and the Braggs on the other differed, however, in their ideas as to the constitution of the x -ray beam, the former thinking it to be made up of a limited number of independent homogeneous constituents, representing only certain wave lengths, while W. L. Bragg supposed it to be like light, containing every possible wave length over a wide range and capable of forming a continuous spectrum. Experimental investigation has gone to prove the truth of the latter theory, and the Braggs have obtained x -ray spectra with different anticathodes, and by means of a special spectrometer they have been able to measure wave lengths with an accuracy comparable with the spectroscopic analysis of ordinary light. The result has been to demonstrate the nature of x rays. Until recently there was some doubt as to whether the rays might not be the flight of material particles, but with the discovery that they can be diffracted and reflected by crystals, it becomes clear that they are electro-magnetic disturbances of the same nature as light, heat, and electricity, and that their novel properties are due to the shortness of their wave length. The *Proceedings* of the Royal Society for 1913 and 1914 contain full accounts of the investigation. Before occupying the Quain Chair of Physics at London University, Professor Bragg was professor at Leeds for seven years, and previously at Adelaide for twenty-two years. Practically all his scientific writings have been concerned with the problems of radioactivity. His *Studies in Radioactivity*, published three years ago, recites the theoretical reasoning which led him to predict the nature of the absorption of alpha rays by matter—another piece of research with which his name will always be coupled.

MILITARY SERVICE AND LIFE ASSURANCE.

The question of life assurance must still be a matter of anxious thought to those who may temporarily leave civil practice to undertake military service. We have previously mentioned that the majority of life offices are either declining to entertain proposals with such a contingency or are charging, as a war extra, to those who may be ordered for service outside the United Kingdom rates which can only be called prohibitive. Realizing the necessity of assisting medical men who may join His Majesty's forces the Medical Insurance Agency has entered into an agreement with a substantial office whereby life policies are issued at ordinary tabular rates so long as the military service is confined to the United

¹ BRITISH MEDICAL JOURNAL, 1910, vol. II, p. 1215.

Kingdom. Should the assured be ordered abroad, the full value of the policy is maintained, but an additional premium of nine guineas per cent. per annum is required to cover the increased risk. If the assured finds his work abroad does not take him within the actual firing zone, or to within a radius of ten miles of the firing zone, and on his return to civil life is able to show a clean bill of health, the office in question undertakes to refund a sum amounting to at least one-half of the war extra premium. So far as we know, no such favourable conditions are offered generally, and the contract appears to offer equitable terms to the assured. Another point worthy of consideration is that in which, as has often happened one partner has undertaken military service, leaving a partner at home; in such cases the life of the latter is of great financial importance to the other on military duty. As an act of prudence the life of the partner at home should be assured, and for him the ordinary rates prevail. A man on active service unfortunate enough to lose his partner by death would run the risk of serious financial loss. In such a case the protection would be provided by taking a short-period policy on the life of the partner remaining at home, or by a whole-life policy with a surrender value after the second year, or a guaranteed return at the end of five years, in the event of it being no longer necessary to continue the policy. As an example, we may take the case of a man with a partner aged 55 years. A five years policy for £1,000 on his life would cost £24 2s. 6d. per annum, or £120 12s. 6d. for the five years. If, however, an ordinary whole-life policy was preferred, the annual cost would be £45 0s. 10d. In five years a sum of £225 4s. 2d. would have been paid in premiums, but at the end of this period the expediency of maintaining the policy might no longer exist, when the office guarantees the return of a sum of approximately £93, or would issue a fully paid up policy of £166. This contract affords the greater elasticity, and on the whole appears to offer the best protection for the absent partner unfortunate enough to lose by death his colleague at home. Full particulars can be obtained by those interested if they will apply, stating age next birthday of the life it is proposed to insure, to the Medical Insurance Agency, c.o. British Medical Association, 429, Strand, London.

THE NEW HOUSE OF THE GENERAL MEDICAL COUNCIL.

For the last time the General Medical Council has met in the place so long its home, and before Christmas the office and the work of registration will be transferred to Hallam Street. Very soon, too, the familiar front, built originally for the Royal College of Chemistry, will have disappeared, and will be replaced by a more imposing building. But the memory of the Royal College of Chemistry will be preserved by a foundation stone, upon which it is recorded that it was laid by Prince Albert. This Mr. Delissa Joseph, the architect who is going to erect the new buildings on the site, has most kindly presented to the General Medical Council, who will doubtless find a fitting place for its preservation. The completion of the new premises of the Council in Hallam Street has been somewhat delayed by the difficulty of obtaining certain materials for the sanitary and hot water work, but this has been surmounted, and it is now possible to judge of the general effect of the front. It is of stone and has been treated by Mr. Frere, the architect, with a dignified simplicity, the spirit of Greek architecture being kept so far as this is compatible with the amount of window required for the darker London climate. It is to be hoped that whatever is to be erected upon the vacant site next to it may harmonize with it, or at least be no detriment to its appearance. On a plinth over the door are three sculptured panels executed by Mr. Lessore; the one represents Aesculapius as a healer, with Telesphorus bringing a cock for sacrifice; the

middle one has Aesculapius as a judge, and the third is an attempt to represent symbolically the work of registration, one of the figures bearing a scroll. The work of these panels is of high artistic merit, and in the selection of the motives the intimate knowledge of Greek art possessed by Dr. Eaton has been freely drawn upon. The bay windows of the new Council room run through two stories, and the monotony of the long upright mullions has been relieved by forming their upper parts into symbolic figures. It is a difficult matter to treat a figure which is of necessity narrow and elongated, and which has to carry weight, but this difficulty has been very satisfactorily overcome and these figures look very well. The other ornament, sparsely used but sufficient, is excellent both in design and execution. In the interior an office, much larger than the present office, which has proved too small for convenience, is provided. Very much better accommodation is being given for witnesses, solicitors, and counsel who have to attend during the transaction of penal business. A staircase separate from that used by the members of the Council, has been provided for them, as well as lavatory and waiting rooms, in all of which respects the old premises were very inconvenient, many people having had to wait about in the hall. The Council chamber itself is a fine room, but its decoration—to be mainly in the form of oak panelling—has been postponed in order to allow the walls to dry. The domestic offices are, as is now not uncommon, placed at the top of the building instead of in the basement. Hallam Street in the past has not been well known, and at first those who have business with the Council may not know where to find it. It may not be amiss, therefore, to mention that it is parallel to Portland Place and to Great Portland Street, lying between them. As the leases are all falling in almost at once, the rather shabby houses of which it partly consists will be wholly replaced within two or three years by others of quite a different grade, and the character of the street will be entirely changed.

THE HISTORY OF IPECACUANHA IN DYSENTERY. With reference to a note on the history of ipecacuanha which appeared in the BRITISH MEDICAL JOURNAL of November 13th, Sir Dyce Duckworth has called our attention to articles in vols. v and vii (1869 and 1871) of the *Saint Bartholomew's Hospital Reports*, in which he recorded the results of a series of experiments made by him "on the action of ipecacuanha and its alkaloid emetia." In it he gives some information as to the history of the introduction of ipecacuanha into Europe which may usefully supplement our own brief note. He quotes a private letter from Sir Robert Christison in which it is stated that both Maregraf and Piso, who first made the virtues of the drug known in Europe, recommended 1 or 2 drachm doses in dysentery. Christison further says: "How European physicians came to substitute 1, 2, or 3 grains for Maregraf's 1 or 2 drachms I do not know, but the inquiry would be curious could we follow it out well." Sir Dyce Duckworth cites Baglivi, who, in the seventh edition of his treatise on medical practice, published at Lyons in 1714, wrote: "Radix ipecacuanhae est specificum ac ferme infallibile remedium in fluxibus dysentericis." Baglivi adds that he learnt its virtues from a Dr. William Sherard at Rome. Sir Dyce Duckworth conjectures that Sherard was the famous botanist, Fellow of St. John's College, Oxford, who was English Consul at Smyrna, bequeathed his herbarium to his university and founded the chair of botany there in 1731. In his treatise *De Dysenteria Commentarius*, published in 1761, Mark Aken-side, the poet, who was physician to St. Thomas's Hospital, wrote warmly in praise of the drug. In 1831 the Madras Medical Board published a number of reports by different medical officers, showing the efficacy of 5 grain doses given every hour in acute dysentery till frequently hundreds of grains were given in a short period. Sir Dyce Duckworth

adds the testimony of Mr. Alexander Hunter, colonial surgeon at Belize, British Honduras, who informed him that in cases of acute dysentery he began the use of ipecacuanha by giving 1 scruple of the powder. A second dose of 25 grains given after the first had the effect of allaying all the symptoms and altering the character of the discharges: it was seldom necessary to administer more than two or three doses. Sir Dyce Duckworth also quotes Mr. Hulke and others who saw the effects of ipecacuanha in dysentery in the Crimea as bearing witness to its great value. We think it right to state here that an account of the introduction of the drug into France, which differs in certain particulars from that given in our note, is to be found in Flückiger and Hanbury's *Pharmacographia* (second edition, London, 1879). They say that a traveller named Jegras brought a quantity of the root from South America to Paris in 1672; some of this was obtained by Jean Adrien Helvetius, then living in the French capital. The first trials of it were unsuccessful because too large doses were used. In 1680 a merchant of Paris named Garnier became possessed of 150 lb. of ipecacuanha, the valuable properties of which in dysentery he vaunted to his medical attendant Afforty, and to Helvetius. Garnier, on his convalescence, made a present of some of the new drug to Afforty, who attached little importance to it. Helvetius, on the other hand, again used the root, this time with great success. He was so elated by this that he is said to have caused placards to be affixed to the corners of the streets (about the year 1636) announcing his triumphs with the new drug, supplies of which he obtained through Garnier from Spain, and sold as a secret medicine. The fame of the cures effected by Helvetius reached the French Court, and caused some trials of ipecacuanha to be made at the Hôtel-Dieu. These having been successful, Louis XIV. accorded to Helvetius the sole right of vending his remedy. Subsequently several great personages, including the Dauphin of France, having experienced its benefit, the King consulted his physician, Antoine d'Aquin, and the well-known Jesuit, Père François de Lachaise, who had become the King's confessor in 1675. Through them was chiefly negotiated the purchase from Helvetius of his secret for 1,000 louis d'or: it was made public in 1688. The right of Helvetius to this payment was disputed in law by Garnier, but maintained by a decision of the Châtelet of Paris. Flückiger and Hanbury give references in support of these statements which will help any one interested in the history of ipecacuanha to pursue the investigation. There is evidently a sufficient amount of discrepancy among authorities to tempt the critical student. And even when the exact part played by Helvetius is cleared up there will remain the following out of Sir Robert Christison's "curious inquiry" as to the abandonment of the larger doses of Marcgraf and Piso.

ROYAL MEDICAL BENEVOLENT FUND GUILD.

A DRAWING-ROOM sale in aid of the funds of the Royal Medical Benevolent Fund Guild will, by kind permission of the Marquis and Marchioness of Crewe, be held at Crewe House, Curzon Street, W., on Wednesday, November 24th, from 12 to 7 p.m. We take this opportunity of once more calling attention to the excellent work done by the Guild in helping the families of doctors who, owing to the ill-health or the untimely death of the breadwinner, have been left without adequate means of livelihood. The profession has answered the country's call with a self-sacrificing devotion of which it may justly be proud. To the heavy tribute which death and disablement by sickness or wounds have already levied must be added the loss of income caused by absence on active service. It is too likely that in a large number of cases this loss will never be made up, as with the most loyal assistance from those who take the place of the men

who go, it must become increasingly difficult to keep practices that have been laboriously built up from falling to pieces. On no members of the community do the burdens of the war fall more heavily than on the wives and mothers of medical men who have given their husbands and sons to the service of our defenders, and by none are they more uncomplainingly borne. The dependants of the men who are doing so much for the relief of suffering on the battlefield, in the trenches, and in hospitals, have a special claim on the gratitude of the whole people of this country. To the medical profession they will not look in vain, but doctors as a class are not rich. Calls on the resources of the Royal Medical Benevolent Fund Guild are constantly increasing, and must, it is to be feared, continue to increase. We hope, therefore, that the sale now being arranged for the benefit of the Guild will bring a substantial addition to its funds. Among the stall-holders are Lady Barlow, Lady Pearce Gould, Lady Ferrier, Lady Fripp, Mrs. Fred Smith, and Mrs. Donald Armour.

CHOLERA IN AUSTRIA HUNGARY.

CHOLERA has prevailed in Austria and Hungary for the last year or more, but seems to have attained serious epidemic proportions in Galicia only. From December 27th, 1914, to September 18th, 1915, the official statistics in the monthly *Bulletin* of the International Office show 27,591 cases and 15,270 deaths. Of these, 699 cases with 180 deaths occurred among prisoners of war, and only 172 cases with 34 deaths among soldiers. Judging from the statistics for Austria for the period from August 15th to September 18th it would appear that the epidemic has been severe among the civil population, as there were no fewer than 15,175 reported cases and 9,113 deaths, of which only 327 cases with 32 deaths occurred among the troops, and 39 cases with 12 deaths among prisoners of war. The comparative immunity of the army may be due to the use of anticholera vaccine, for it is reported that the Austrian cavalry general v. Ziegler, who died on August 1st of Asiatic cholera, the diagnosis being confirmed by a bacteriological examination, was the only case of cholera either among his staff or among the civil population of the place where he was stationed. The general, it is stated, was the only officer on the staff who, in spite of repeated medical advice, had refused to be vaccinated against cholera.

Medical Notes in Parliament.

The Medical Service of the Army.—On November 11th Mr. Joynson-Hicks asked the Under Secretary of State for War to give the number of doctors in the Royal Army Medical Corps on the active and Special Reserve lists at the present time, and the number in the Territorial Medical Corps; and to indicate the increase in the figures since May 18th last, when Mr. Joynson-Hicks, if he may be remembered, asked a similar question. Mr. Tennant said that the total number of medical officers (regulars, retired officers re-employed, temporary commissioned, Special Reserve, and Territorial Force) was now 9,626. There had been an increase of 2,599 over the figures he gave on May 19th last. The present number of Territorial Force medical officers was 2,474. In the answer given on May 19th (*BRITISH MEDICAL JOURNAL*, May 29th, p. 941) the number of medical officers R.A.M.C. Territorial was given as 2,122.

Red Cross Medical Officers and the R.A.M.C.—On November 9th Sir Philip Magnus asked whether, having regard to the fresh call for doctors for the army, the services with the Red Cross Society of those who had returned home after spending some months in the discharge of medical duties at the seat of war could be recognized; and whether, as an inducement to offering a further term of service, the War Office would take into consideration the time already served toward the reduction of the six

months now required before a lieutenant could be promoted to the rank of a captain. Mr. Tennant said that, as the question pointed out, these gentlemen undertook only a short spell of service and then returned to their civil practices. Without criticizing the course they took, he hardly thought that they could now claim to be treated exactly on the same lines as those who, when they joined the R.A.M.C. of the Special Reserve or the Territorial Force, put themselves at the disposal of the country for the period of the war. He hoped that those medical men who had served with the Red Cross Society would respond to the appeal for more medical officers without asking as a condition for the full recognition of their previous services on the same footing as if the Government had been from the first put in a position to count upon benefiting by it continuously for the whole period of the war.

Hospital Administration Work.—In reply to questions by Mr. James Mason, who asked whether men of military age having experience of hospital administration work could be utilized in similar work for the War Office instead of joining the combatant ranks, and whether many doctors holding commissions in the R.A.M.C. were employed in purely administrative work, Mr. Tennant said that he could not accept the principle which underlay the question. There were no purely administrative appointments in connexion with military hospitals. The work of the administrative officers R.A.M.C. was technical and required special education and experience. The officers in charge of hospitals must be qualified medical men, as their duties necessitated their acting in that capacity. To ascertain the number of R.A.M.C. officers doing administrative work in addition to professional work would entail much labour, and he hoped the point would not be pressed. It might be assumed that the proportion was large and included every commanding officer.

Enlistment of Pharmacists.—On November 11th Mr. Tennant informed Mr. Glyn-Jones that the list of occupations prepared by Lord Lansdowne's Committee did not include pharmacists. Pharmacists indispensable in their civil employment should enlist under the Royal Warrant of October 20th, 1915. They would then be placed in the group appropriate to their age and martial condition, and could return at once to their civil occupation until their group was called up. If a pharmacist or his employer claimed that more time was still necessary, the matter would be one for the local tribunal, which could still further postpone the date of calling up for actual military service.

Income Tax Free Board and Lodging.—Mr. Rendall asked the Chancellor of the Exchequer, on November 11th, whether persons such as medical and other officers of institutions receiving residential, boarding, and laundry allowances as part of their pay are taxed for income tax purposes on the actual salary paid to them, and that these allowances are not treated as part of their income, whilst non-resident officials of the same institutions are taxed on their full salary. Mr. McKenna said: The officers referred to would be liable to income tax in respect of all pecuniary emoluments of their office, but not in respect of allowances in kind not convertible into money. In reply to Sir Charles Henry, on November 15th, the Financial Secretary to the Treasury (Mr. Montagu) said that, in making returns for income tax purposes under the provisions of the Finance (No. 3) Bill, persons who, in addition to the receipt of salary, were lodged and boarded free, should not add the estimated value of either or both these considerations to the amount of the salary.

Highlands and Islands Medical Service Board.—In reply to Mr. Leicester Harmsworth, the Secretary for Scotland said that the Highlands and Islands Medical Service Board would take steps to make public the arrangements made with practitioners in particular areas as soon as the arrangements in each area were sufficiently advanced to enable this to be usefully done. A considerable proportion of the doctors in the Board's area had already entered into formal agreements with it, and the Board was endeavouring to complete arrangements with all the practitioners before the end of the current year.

THE WAR.

TREATMENT OF HEAD INJURIES.

(From a Correspondent in France.)

I HAVE paid a good deal of attention to head injuries out here, but can speak of them solely from the point of view of a listener and onlooker. Subject to these qualifications I should say it was quite true that considerable progress has been made in their treatment since this time last year. There is, for instance, greater uniformity in the technique employed. As a whole this is better suited to the actual needs of the situation; in other words, it is of a kind more likely to keep operative interference within the limits of indubitable desirability and to avoid the risk of extending any existing sepsis more deeply than before.

In respect of general principles and their application to particular cases, there must always be plenty of occasion for differences of opinion, since the injuries of the head seen in this war differ so greatly in their extent and specific importance. Yet there is progress.

Twenty-five years ago the peritoneum was regarded as a resentful god, forming a mysterious cavity which could only be approached on bended knee, and the same kind of feeling prevailed in regard to the brain at the beginning of this war. It was considered that if there were the slightest reason to suppose that it had been in any wise injured atonement must be made by the immediate performance of an operation.

This view is now pretty generally discarded, and more especially by those who have not only been out here a long time, but have had opportunities of going into the matter thoroughly. They hold, as far as I can make out, that whatever may be the consideration to which the brain is entitled so long as it is inside an intact head, quite different considerations arise when a gunshot wound has been inflicted. In that case the brain is to be regarded less as a vital organ than as the seat of possible sepsis. Not all of its parts are equally vital, and if a missile strikes one of the parts that are in fact vital, the patient is either killed on the spot, or is picked up in a practically moribund condition. It is held that, apart from these cases, it is sepsis that accounts for the majority of all deaths from gunshot wounds of the head, and it is to its elimination and avoidance that all efforts should primarily be directed. They must not be diverted from this aim by considerations based upon a belief that the local injury is one which, if unremedied, will interfere with the patient's intellect, or indirectly set up some form of paralysis.

The immediate outcome of this conclusion is a tendency to agree that there is rarely any need for haste in the performance of a formal head operation, and that, in considering the condition of any patient after receiving a gunshot wound in the head, it is to be remembered that many of the initial phenomena are due not to local injury but to general concussion of the brain.

This latter fact has a direct bearing on the question of early operation. Brain concussion always results in temporary cerebral oedema, and if during its continuance any operation which involves increasing the size of an existing opening in the cranium be performed, the prospect of a satisfactory immediate and eventual result is decidedly diminished. The tension created by the oedema causes the brain to bulge out through the opening, and thus increases the surface exposed to the risk of infection, and simultaneously damages the deeper parts of the brain by placing on them a dragging strain such as its finer structures are unable to withstand.

This concussion oedema is perhaps the best proved reason for not being in a hurry to undertake any complete head operation, but it is not the only one. It has been found that healthy brain substance itself possesses considerable power of limiting microbic invasion, and that its soft coverings tend likewise to protect both themselves and it. Observations made at *post-mortem* examinations on cases of penetrating gunshot wounds of the head in which no trepanning operation has been performed show that the opened-up portion of the subdural space is sealed off from the rest with considerable rapidity by exudates from the pia mater and arachnoid membranes.

These two facts, and especially the latter, are considered by some to be a further reason for confining the primary

operation in most cases to a surgical cleansing of the scalp and of any already exposed portion of the skull cap and brain. These natural defences, it is contended, may be destroyed by an early trepanning operation, and are quite certain to be destroyed if the operation approaches a decompression procedure; it is further held that if anything of this kind seems in itself to be indicated by the symptoms, it is much wiser to meet the situation by lumbar puncture.

A further conclusion is that cases that have been trephined travel very badly; they should not be moved for at least a fortnight. Those, on the other hand, still in the concussion stage and on whom no trepanning operation has been performed travel well. They can be sent long distances without any apparent detriment to their condition. Consequently it is held by many that advantage should be taken of this circumstance to send them to hospitals at which their treatment can be considered in the light of x ray and other sources of information, and be undertaken at leisure in an environment wholly favourable to success.

In regard to considerations other than those involved by the question of immediate or deferred operation there is far less agreement.

The question, for instance, of the treatment of depressed portions of the inner table or of free fragments of bone, or of buried bits of shrapnel or shell casing, is one of those on which there is no consensus of view. Hitherto the commoner practice seems to have been to remove such fragments and portions of bone forthwith as a matter of general principle. But this procedure is losing favour, some whose experience in the matter is long having come to the conclusion that it is safer to leave such bodies untouched unless there are symptoms definitely attributable to their presence, or their removal is necessary to secure free drainage.

There may be said, in fact, to be almost two schools of thought on this subject. The one is disposed to engage in a more or less extensive operation in any case in which the cranium is known to have been injured, and inclines to undertake exploratory procedures even when the appearances seem to point to the conclusion that the lesion is nothing more than a scalp wound.

The other school—which is formed, it should be noted, of ex-members, so to speak, of the foregoing—takes a very different view. It is disposed to restrict all interference to absolutely proved needs, and the only need it habitually recognizes as such is the provision of free drainage if the wound is septic.

The reasoning seems to be as follows: Attempts to remove fragments are accompanied by grave risks of extending any existing sepsis, and, however successful, cannot undo the damage already caused to the brain. At the best the latter must result in the formation of scar tissue, and the extent of this is certain to be increased by the procedure adopted in removing the fragments. The evil effects of retained fragments of bone or missiles are, they consider, more or less problematic, and the time to deal with them is when the fears to which they give rise are actually realized. With a scalp wound healed the necessary measures can be undertaken with comparative safety. The case, in fact, will have left the province of military surgery and will be envisaged precisely as is a brain case in civil life, its treatment being the combined expression of both medical and surgical views.

The foregoing is as faithful a description as I can supply of the present position of matters. Which of the two schools is destined to prevail is a matter of pure speculation. Between the operative skill of the protagonists of either there is absolutely nothing to choose. Personally I am more attracted by the second and at present smaller school, for the simple reason that, extremely conservative as are its practices, it represents what seems to me really the more progressive line of thought.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Prisoner and Wounded.

TEMPORARY LIEUTENANT JAMES RICHARDSON SPENSLEY, R.A.M.C., whose death in action was officially reported on October 13th, and of whom an obituary notice was given in the BRITISH MEDICAL JOURNAL of October 16th, has

since been reported as living as late as October 20th, but a prisoner, seriously wounded, in the hospital for officers at Mainz, Germany.

Died on Service.

Assistant Surgeon Archibald Wilfred Cummins, Indian Subordinate Medical Department, is reported as having died in France. He was born on October 4th, 1886, became a fourth class Assistant Surgeon on March 4th, 1907, and was promoted to the third class on March 4th, 1912. His last station in India was Firuzpur.

Captain James Fairburn Fairey, R.A.M.C., is reported in the casualty list published on November 15th to have died in France. He was an Australian, and was educated at the University of Melbourne, where he took the degree of M.B. in 1909, that of B.S. in 1910, and the M.D. in 1912. He took the diploma of F.R.C.S. Eng. in 1914. He joined the R.A.M.C. as a temporary Lieutenant on August 16th, 1914, and was promoted to Captain on completion of a year's service.

Assistant Surgeon Archibald Albert Frenck Hart, of the Indian Subordinate Medical Department, is reported to have died on service at Aden. He was born on December 3rd, 1879, entered the department as a fourth class assistant surgeon on March 3rd, 1899, and reached the second class on April 17th, 1911. Previous to the war he was in civil employment in Burma. He was at first erroneously reported as wounded.

Wounded.

Major C. H. Turner, R.A.M.C., France.
Captain F. B. Bevan-Brown, R.A.M.C. (temporary), France.
Captain G. R. Rickman, R.A.M.C. (temporary), France.
Captain B. Hughes, R.A.M.C. (T.F.).
Captain Henry James Burke, R.A.M.C. (temporary), France.
Lieutenant J. B. Woodrow, R.A.M.C. (temporary), France.
Lieutenant C. J. H. Sharp, R.A.M.C. (temporary), France.
Lieutenant J. M. McLachlan, R.A.M.C. (temporary), France.
Assistant Surgeon P. J. Doran, I.S.M.D., Indian Frontier.
This is the second time Captain Burke's name has appeared in the casualty lists. He was reported as wounded once before, in the list published on August 7th.

Suffering from Gas Poisoning.

Lieutenant G. Redpath, R.A.M.C. (temporary), France.

NURSES IN THE CASUALTY LIST.

The death of Staff Nurse A. G. Hawken, of the New Zealand Nursing Service, in the Mediterranean area of war, was reported in the casualty list published on November 14th. On the same day it was also announced that ten staff nurses of the same service had been lost in the transport *Marquette*, torpedoed in the Aegean Sea on October 23rd. Lieutenant F. H. Young, R.A.M.C., was lost in the same vessel, as stated in the JOURNAL last week. There were in all thirty-six nurses on board, of whom twenty-six were saved. Of the other ten the first nurse M. Rogers, is reported as drowned; the other nine as "missing, believed drowned." The names are: M. Rogers, M. S. Brown, J. Clark, C. A. Fox, M. Gorman, N. M. Hilyard, H. K. Isdell, M. E. Jamieson, M. K. Rae, L. A. Ratray.

DEATHS AMONG SONS OF MEDICAL MEN.

Hall, Bruce, Lieutenant 2nd Battalion South Staffordshire Regiment, twin son of Dr. Hall, of Hodnet, Shropshire, killed in France on September 25th. He was educated at Denstone College, where he was a prefect and was in the O.T.C., and was on the point of going up to Cambridge when the war broke out; he took a commission from August 15th, 1914.

Hammond, G. O. Sergeant 2nd Battalion Border Regiment, son of the late Dr. Hammond, of Penarth, killed in France on September 25th, aged 33.

McGachen, Francis Stewart, Lieutenant-Commander R.N., son of the late William Dobson McGachen, M.D., of Bedford Square, London, W.C., died at Southsea on October 29th, aged 32. He was educated at Rugby and in the training ship *Britannia*, joined H.M.S. *Endymion* as a midshipman, and served in the third China war of 1900, for which he received the medal. He had recently been serving in the Persian Gulf expedition.

Taylor, Charles E., Second Lieutenant 1st Battalion West Yorkshire Regiment, son of Dr. Michael H. Taylor, coroner for the Richmond and Kingston districts of Surrey, killed in France on November 1st, aged 23. He joined the 6th Battalion East Surrey Regiment in 1913, and got a commission in the West Yorks on October 1st, 1914.

Wright, Walter Herbert, Lieutenant-Colonel, reserve, King's Own Yorkshire Light Infantry, last surviving son of the late Dr. T. G. Wright, of Wakefield, died in the Second Northern General Hospital, Beckett's Park, Leeds, on November 8th, aged 67. He retired from the Volunteers some years ago with the honorary rank of Lieutenant-Colonel, and was appointed a Major in the Territorial Force Reserve of the K.O.Y.L.I. on August 12th, 1914.

HONOURS.

THE *Gazette* of November 8th publishes a list of honours conferred for services in the Dardanelles expedition on officers mentioned in Sir Ian Hamilton's last despatch. Among them are the names of three medical officers.

Distinguished Service Cross.

Surgeon J. Pratt, R.N.

C.M.G.

Colonel the Hon. J. L. Beeston, Australian Army Medical Corps.

Lieutenant-Colonel C. M. Begg, New Zealand Medical Corps.

Second Lieutenant C. S. Peddie Black, of the 6th Battalion Highland Light Infantry, who was decorated with the Military Cross on October 29th for gallantry in the Dardanelles, took the M.B. and B.Ch. at Glasgow in 1910. After qualifying he acted as assistant medical officer at Stobhill Hospital, Glasgow, after which he served as surgeon in the British Red Cross Hospital in the Balkan war of 1912-13, and received from King Peter the Serbian order of St. Sava. On his return he became assistant physician to the Glasgow Royal Asylum at Gartnavel, leaving that post to take a combatant commission from September 10th, 1914. He is a native of Dufftown, and the son of Captain Black, superintendent of the Monarch Steamship Company, Glasgow.

Temporary Captain J. M. McLaggan, on whom, as was announced last week, the Military Cross has been conferred, graduated at Aberdeen in the summer of 1913, and shortly afterwards became house-physician at the Aberdeen Royal Infirmary. His term of office had not quite expired when he obtained permission to join the R.A.M.C.

Captain J. R. McCurdie, who, as was announced last week, received the Military Cross for conspicuous gallantry on September 25-27th, graduated at Glasgow in 1912. At Glasgow he was a member of the University O.F.C. After graduation he held the posts of junior and senior house-surgeon to the North Riding Infirmary, Middlesbrough, and at the outbreak of war was house-surgeon to the North Ormesby Hospital in that town.

NOTES.

MEDICAL OFFICERS WANTED.

21st Highland Mounted Brigade's Field Ambulance.

Two medical officers are urgently required to complete the establishment of this field ambulance, now sending drafts overseas. Full particulars regarding pay, duties, etc., will be given on application to the Officer Commanding, 21st Highland Mounted Brigade Field Ambulance, R.A.M.C., 2, Mount Street, Duss, Norfolk.

5th Provisional Field Ambulance.

There is a vacancy for an officer, who need not be physically fit for foreign service, in this unit. Further particulars will be found in our advertising columns.

ambulances have still to be tested and their relative efficiency compared with horse ambulances." In the official publications of the British Red Cross Society it is claimed that the first year of the war evoked the motor ambulance, and that its possibilities had previously passed unnoticed. We understand that Mr. A. F. P. Roger, who has laboured so successfully in organizing the service of the British Red Cross Society, has admitted the inaccuracy of that claim. The history of the motor ambulance is recorded in the Home Office Committee's report in 1909 on the London service, and statutory recognition of "ambulances and other vehicles to be drawn by electric and other mechanical power" was embodied in Sir William Collins's Metropolitan Ambulances Act of the same year. We congratulate the London County Council on their tardy but successful completion of the limited service thus far approved; and we are sure that under Commander Sladen, R.N., of the Fire Brigade, the maintenance and full development of this necessary communal service will be assured.

THE RETRENCHMENTS OF THE LONDON COUNTY COUNCIL.

The financial retrenchment policy of the London County Council includes a reduction of over £2,000 a year in the amount to be expended on the medical inspection of school children. The proposal was that, instead of the present arrangement whereby the whole of the entrants into the schools are subjected to a thorough medical examination, only children specially selected by the teachers and nurses, or judged from their general appearance by the inspecting doctor to require it, should be subjected to detailed examination. It was thought, moreover, that school doctors might be asked to extend the time given to medical inspection with a view to the examination each session of thirty cases instead of twenty-five, except in the case of entrants selected for further examination. The principle of employing both full-time and part-time doctors was maintained. The Chairman of the Education Committee said, in reply to criticisms, that the restriction of medical inspection was not wholly put forward on the ground of economy, but also in order to free a number of doctors to meet the demands of the War Office; the effect of the arrangements would be to enable the Council to release the equivalent of four and a half full-time doctors and four full-time nurses for war service. Dental treatment had been increased to an extraordinary degree during the last four or five years; 57,000 cases were dealt with in thirty-three dental centres, and there was no intention of reducing this number. The saving would be effected in connexion with four new centres. The proposals were carried, as were also proposals negating during the war the provision of additional schools for children suffering from high myopia, and rearranging in the direction of greater economy the schools for the physically and mentally defective. The special committee on war estimates also recommended a saving of £1,450 on the public health services by reducing from 3,000 to 1,200 the number of samples of milk examined.

England and Wales.

THE LONDON MOTOR AMBULANCE SERVICE.

THE London County Council has received a report from its General Purposes Committee, which announced that the tentative scheme for a motor ambulance service, approved by the Council on March 10th, 1914, is at length in full operation. The reference to the Special Committee which had this matter in hand was accordingly discharged, and the duty of maintaining and managing the ambulance service in the future was formally handed over to the Fire Brigade Committee. Thus, after thirteen years, the Council has reverted to the proposal put forward in 1902 by a subcommittee, which, under Sir William Collins's chairmanship, advised the establishment of such service in connexion with the Fire Brigade. At that time the motor ambulance was criticized as a "fad," and its suitability for the London service was hotly contested in official quarters for several years. We have uniformly supported the scheme as originally propounded to the Council, and rejoice to see that it has at last been carried out. The enormous development and high appreciation of the motor ambulance during the war make us apt to forget that even so recently as August 29th, 1914, as was stated in the *JOURNAL*, "in military work the motor

Scotland.

MAIMED SOLDIERS.

A SCHEME has been worked out at the suggestion of the Scottish Veterans' Garden City Association for the establishment in the various areas of Scotland of villages wherein a soldier, whose economic value in the labour market has been reduced on account of loss of a limb or other disability, may find a home for his family, and may be trained in some useful work by which he can supplement his pension. It is proposed to establish committees in each locality, and in Edinburgh, Glasgow, Aberdeen, Perth, Inverness, and Dumfries, such committees have been established or are in process of formation. There is a central council which has had plans prepared showing villages containing thirty-nine houses, three shops, and three workshops, on three acres of ground. The estimated cost of building such a village is £11,000. The intention is to let the houses to suitable men, who will be trained in such work as carving, metal work, basket work, and poultry farming.

OBSTETRICS IN GLASGOW AND THE WEST OF SCOTLAND.

The *Glasgow Herald* published on November 10th a strong appeal for education in mothercraft, in the course of which statistics brought before a conference, recently held in Glasgow, by Dr. Jardine, one of the physicians to the Glasgow Maternity Hospital, and Professor of Midwifery in St. Mungo's College, were quoted. He stated that in one month in this year 127 obstetric cases were dealt with, and that of these 41 were normal and 86 abnormal; he doubted whether there was an institution in the world which could show a similar proportion of abnormal cases that they could. Caesarean section had had to be done thrice in one day within two hours, and on a certain day in the past year it had been performed four times. Maternity hospitals were more than local charities, they were national institutions. The antenatal department in connexion with the Glasgow hospital had been reorganized, and it was hoped soon to have a post-natal one to complete the work. The article concludes with references to the pressing importance of a Midwives Act for Scotland, and to the value of maternity hospitals as training institutions for doctors and nurses. Two days before this article appeared Dr. Samuel Cameron read a paper at the opening meeting of the session of the Queen Margaret College, Glasgow, on "Two famous Lanarkshire obstetricians." These were William Smellie and William Hunter. The life of the former was divided between Lanark, his birthplace, and London, the scene of his work as a lecturer on midwifery. It was almost impossible to estimate the great value of Smellie's services to obstetrics. "By careful observation he placed before the profession valuable clinical facts, which entirely changed the methods of teaching and brought great benefit to humanity." The name of William Hunter was perpetuated in Glasgow by his gift of the Hunterian Museum, which was received by the university in 1807. He was born in 1718—twenty-one years later than Smellie—at Long Calderwood, near East Kilbride, the seventh child of a family of ten. He entered Glasgow University at the age of 13, intending to study divinity, but changed to medicine, with great profit to that science, and especially to the obstetrical part of it. In London, whither Hunter also betook himself, he came into touch with Smellie, and he was joined there by his younger brother John.

Ireland.

IRISH MEDICAL WAR COMMITTEE.

A MEETING of the Irish Medical War Committee was held at the Royal College of Physicians, Dublin, on November 8th, when Dr. MacDowall Cosgrave, President of the Royal College of Physicians, occupied the chair. The other members present were: The Right Hon. M. F. Cox, F.R.C.P., P.C., Dr. J. F. O'Carroll, Vice-President, R.C.P.I., Colonel Heron, R.A.M.C., Dr. T. Hennessy, and Dr. M. R. J. Hayes, Honorary Secretary. A large amount of correspondence was dealt with. The following resolution was unanimously passed and directed to be forwarded to the Local Government Board:

That, in view of the urgent need which exists for doctors to serve in the R.A.M.C., the Irish Medical War Committee strongly urges Boards of Guardians and other corporations to facilitate their medical officers to the fullest extent in volunteering their services. In furtherance of this object, the Committee are of opinion that public bodies should accept the substitutes nominated by their medical officers, provided that the interests of the sick poor are safeguarded to the satisfaction of the Local Government Board.

Dr. T. Hennessy was selected to represent the Irish Medical War Committee on the Central Medical War Committee.

UNIVERSITY COLLEGE, CORK.

The number of students attending the University College, Cork, during the session 1914-15 was 420, as against 407 during the session 1913-14. Of the 420 students 396 were matriculated, 14 were non-matriculated, and 10 were post-graduate. The number of new students was 123. The steady and gratifying rise in the number of matriculated students, as well as the great increase in the number of engineering students, are noteworthy points in the report. The difficulty of carrying on the work of the

college had been increased by the war, no fewer than five members having been withdrawn from the staff; and over 200 former students of the college had taken service in the war. The deaths of Professor Molohan, Professor of Latin as well as Registrar, of Professor Keene (Greek), and of Dr. Cotter, who was a member of the governing body and a prominent surgeon in the city of Cork, and in previous years a teacher in the medical school, had been keenly felt. Consequent on the deaths of the two classical professors, the governing body, after prolonged discussion, and acting on the advice of the Academic Council, decided to abolish the chairs of Latin and Greek, and to constitute in place thereof a professorship and lectureship in Ancient Classics. The reason for this change was that the number of students in Latin was very large, and in Greek comparatively small. Several improvements have been made in the buildings, including the enlargement of both men's and women's clubs, the heating of the observatory, and the construction of a new stand at the athletic grounds.

ULSTER MEDICAL SOCIETY.

At the opening meeting of the session Dr. J. S. Morrow, the outgoing president, took the chair, and, after the reading of the minutes, introduced his successor, Dr. A. Gardner Robb, who before giving his address recalled the deaths of three Fellows during the past year—Dr. John Melroy of Belfast, Dr. J. W. O'Phiers of Downpatrick, and Dr. Brian O'Brien, Local Government Board Inspector—and paid a suitable tribute to each. A resolution expressing the deep regret and sorrow of the society at the recent death of Dr. O'Brien was passed. Dr. Robb in his address dealt with recent experiences of acute poliomyelitis. He said that only in recent years had acute poliomyelitis appeared in epidemic form. The first epidemic was recorded in 1881; since then outbreaks amounting at times to epidemics had appeared in Norway, Sweden, the Continent of Europe generally, and America. Various names had been assigned and varieties had been distinguished; the incubation period was probably five to ten days but might be shorter; its onset was often mistaken for cerebro-spinal meningitis or influenza. Experiment had shown that the virus was transmissible to monkeys, was capable of passing through a porcelain filter and was ultra-microscopic, and that antibodies were produced, but no practical use had yet been made of this knowledge. The disease was probably transmitted by acute and chronic cases and by healthy carriers. The stable fly was not an agent. A hearty vote of thanks to Dr. Morrow for his conduct in the chair during the past year and to Dr. Robb for his address was passed with acclamation, on the motion of Professor Lindsay, seconded by Dr. McCaw.

IRISH WAR HOSPITALS SUPPLY DÉPÔT.

It is proposed to start a central dépôt in Dublin with the object of drawing together the various dépôts and work guilds which are already working throughout Ireland, in making dressings for the war hospitals both at home and at the front. A central committee has been formed, with Lady Waterford as chairman, under the auspices of the city and county branches of the British Red Cross Society and the St. John Ambulance Association, and has received the approval of the joint committee in London. These three organizations are represented on the Central Irish War Hospital Supply Committee by two members each; the Presidents of the Royal College of Physicians and Royal College of Surgeons, as well as several ladies, who are already engaged in war hospital supply work, have also consented to act. It is a necessary part of the scheme that all dressings should be standardized, as far as making and packing are concerned, and that extreme cleanliness should be exercised in their handling. Dépôts are advised not to undertake this work until instruction has first been obtained. Home work is not permitted, as the risk of possible infection must be reduced to a minimum. Several experienced ladies will act as teachers, and arrangements can be made for one of these to instruct classes in the country, wherever a new dépôt is being started. One feature of this scheme will be the utilization of fresh sphagnum moss, the preparation of which and its use as a dressing were described by Mr. Cathcart in the *JOURNAL* of July 24th, p. 137. This moss is to be found in all bogs in

Ireland, and can be easily collected, and there is now a big and growing demand for it from the front, where its utility has been proved. Bandages, swabs, sponges, slings, many-tailed bandages, splints, etc., are also included in the list of supplies to be made, and the intention is that boxes and bales will be sent to hospitals for our own troops, or for those of our allies. Steps are being taken to procure a house in Dublin in a central position, and when the organizers, officers, and managers of departments have been appointed, invitations will be issued to the members of Voluntary Aid Detachments and other ladies to give their services daily. It is also proposed to form a men's committee to assist as packers and to make boxes, splints, etc. Money will be wanted as well as labour to make the Dublin depot worthy of Ireland, and it is hoped that this practical and useful scheme will receive the support that it deserves.

Correspondence.

THE TREATMENT OF GUNSHOT FRACTURES OF THE LEG WITH POSTERIOR WOUNDS.

SIR,—I was glad to see Professor Morton's paper under the above heading in your issue of August 28th, and I welcome his criticisms.

Unfortunately Professor Morton does not appear to have given the splint I described a trial, so that the criticisms lose their value to a great extent. He fears the extension I described would be sufficient for a bad case of comminuted fracture of, say, both bones, and that is so; the remedy is, of course, more slings, for which the upper bar is provided; in most cases extension plus one sling is sufficient, I find, but there is no objection to the use of any number of slings if they are found to be necessary.

Possibly the "extension" might be better described as "fixation," but extension, however carried out, is necessary in the first instance to get the bones into proper position; when this has been accomplished fixation is rather an advantage than otherwise. Whatever it be called, the pull on the straps overcomes the tendency of the muscles to cause overriding of the fragments, and if that "pull" be not fixed in some way, overriding will recur, as has happened in a case now under treatment, in which the upper extension straps slipped, and the patient's leg also slipped downwards, with the result that there was overriding and sagging of the fracture area.

As regards the extension on the ankle, I usually bind the foot evenly on to a foot-piece as well, so that the pressure is distributed evenly, and the foot-piece I make to project below the heel, so that the latter rarely touches the supporting shelf. The extension itself, of course, tends to keep the heel from dropping; so far no case has complained of any pain from the extension apparatus on the ankle. In view of the tendency of the suppurating in bad cases to track up the calf, I think much raising of the foot of the bed for the purpose of extension by the weight of the body inadvisable. Professor Morton's splint would seem to be excellent for simple cases: it is slings without extension, and looks as if it would be comfortable and efficient.—I am, etc.,

C. H. BARBER,
Capt. I.M.S.

Busra, Oct. 6th.

BROMIDES IN EPILEPSY.

SIR.—Considerable interest attaches to the letter of Dr. Humphrey Davy in your issue of November 6th. Dr. Davy states that calcium bromide is effective in diminishing the frequency and intensity of the fits in half the doses of the potassium salt, and not only so, but that under its use (and more especially if the patient has been taking the potassium salt previously) mental activity increases and the general health improves. Now, as regards the dosage, it is to be remembered that a molecule of calcium bromide contains twice the quantity of bromine in a molecule of potassium bromide, and as the molecular weight of KBr is 119.11, and that of CaBr₂ is 200.2, it follows that a half-dose by weight of CaBr₂ is practically equivalent in bromine content to a corresponding whole dose by weight of KBr. As each of these salts may be

assumed to be dissociated freely in the usual quantities of water added, it follows that the benefit observed by Dr. Davy is not associated with any reduction in the bromine ions. It must therefore be due to the calcium. It is interesting to recall, in this connexion, the observation of Loeb that sodium salts, which precipitate calcium, cause irritability of muscle and nerve, and he suggests the administration of calcium as a cure for neuroses and forms of nervous irritability or instability. The same observer pointed out that a bivalent cation (such as Ca or Sr) has what may be termed an "antitoxic" action on a monovalent anion (Br) not possessed by a monovalent cation (K, Na); in other words, it is the magnitude rather than the sign of the charge which is effective.

Some interesting experiments by H. von Wyss showed that large doses of sodium bromide were followed by unfavourable symptoms (paræsis), which were due, not to the bromine, but to a very great reduction in the chlorides of the blood. Such symptoms were very quickly relieved by giving sodium chloride. This suggests the addition of a liberal dose of chloride to bromine mixtures for epileptics. It is at any rate evident from the foregoing considerations that there is some room for investigation.

Dr. Mercier's very low estimate of the percentage of epileptics which are benefited by bromides—"unlikely more than one out of seventeen"—is certainly very different from one's experience of hospital cases. I have had many epileptics from the homes or "colonies" where they received no bromide, get rapidly and permanently well under full doses of the drug.—I am, etc.,

London, W., Nov. 8th.

A. G. AULD.

Universities and Colleges.

UNIVERSITY OF LONDON.

DR. E. P. PORTLON has been recognized as a teacher of medicine at Guy's Hospital Medical School.

It is reported that owing to circumstances connected with the war Mr. J. Sherren has been appointed examiner in surgery, in place of Mr. Warren Low, and Dr. C. H. J. Lockyer in obstetric medicine, in place of Dr. G. F. Blacker.

The Senate has forwarded to the Government a report giving details of the large amount of research work in connexion with the war now being carried out by the staffs of the incorporated colleges of the University.

UNIVERSITY OF GLASGOW.

Professor Ferguson.

At a meeting, on November 11th, of the Glasgow University Court; presided over by Principal Sir Donald MacAlister, an appreciation was submitted of Professor John Ferguson's services on the occasion of his retirement from the Chair of Chemistry (see the JOURNAL for November 6th, p. 694), to which he had been appointed by the Crown in 1874. The appreciation referred to Professor Ferguson's unbroken association with the University as student, assistant, and professor, extending over sixty years, and specially alluded to the goodwill and unselfish devotion to the best interests of the University which had always characterized his counsel and co-operation in connexion with the organization and expansion of the chemistry department both for the purposes of study and of research. Other business before the Court was the consideration of the institution of a degree in the theory, practice, and history of education.

GRADUATION CEREMONY.

A number of degrees in the various Faculties at Glasgow were conferred at a graduation ceremony on Saturday, November 13th. Principal Sir Donald MacAlister presided. The following is a list of the graduates in Medicine (M.D.):

M. Young, E. M. Milne, E. G. Glover, R. M. Macfarlane, F. J. Barber, E. Barr, Jane Reid, Fionnla Ghinnour (Mrs. Shruball), Elizabeth Maud M'Vail, B. M. Walker.

With honours. † With high commendation.
With commendation.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary council was held on November 11th, when Sir William Watson Cheyne, President, was in the chair.

Issue of Diplomas.

Diplomas of Membership were granted to 103 candidates found qualified at the recent examinations. Diplomas of the Licence in Dental Surgery were granted to five candidates recently found qualified.

Addition to Dental Schools.

The Dental Department of the University of Illinois, Chicago, was added to the list of dental schools recognized by the

College, and graduated in medical sciences of the University were exempted from the Preliminary Science Examination for the Licence in Dental Surgery under the conditions of par. 7, Sec. ii of the Regulations.

Graduate Lectures.

The Bradshaw Lecture will be given by Sir Anthony Bowley on Monday, December 20th, at 5 p.m., the subject being "Wounds in war."

Library of the University of Louvain.

The President and Mr. D'Arcy Power were appointed delegates to serve on the British Committee which is being formed to co-operate with the Institute of France with the aim of reconstituting the library of this university.

Medical Students and the O.T.C.

A letter was received from the War Office on the subject of medical students and military training, urging that all senior students who have not already done so should become cadets in the medical units of their University Officers' Training Corps. The Council expressed its concurrence with the course suggested.

CONJOINT BOARD IN ENGLAND.

THE diplomas of L.R.C.P. and M.R.C.S. have been conferred upon the following candidates, who were successful at the final examination in Medicine, Surgery, and Midwifery:

F. W. I. Andrew, G. A. Baek, B. F. Bailey, R. T. Bailey, O. Barkan, E. G. Barker, Mahmud Basani, G. C. Beng, C. F. Bevers, Sohan Lal Bhatia, Batros Bishara, Satish Chandra Biswas, A. Le Bodily, Margaret S. G. Bott, G. K. Bowen, Alice D. Brooks, E. F. Buckler, C. H. C. Byrne, E. L. Caldwell Smith, M. Carrasco, M. Chadwick, V. M. Costes, R. C. Cooke, Euclyptology Comararysamy, S. A. Cornelius, T. R. Davies, E. V. de Souza, D. McEl. Dielsson, E. G. Dingley, Ganapadum Mangalathani, Dominick, T. H. Edes, Nassir Gohari El-Gary, Ahmed Fahmi El-Hakim, H. Elliott, H. H. G. Ellis, H. J. Ellis, G. C. J. Emmerson, Monair Farag, V. Feldman, J. Y. Ferguson, E. Ferret-Paton, Luis H. Garcia, C. Gardner-Hill, P. C. Gilson, G. T. Gillester, B. Graves, E. A. T. Green, A. F. G. Guinness, Honoria J. Haughey, Constance Hart, R. Heaton, G. O. Henpison, F. E. Higgins, P. Hudson, G. W. Higgins, S. C. W. Ireland, Luis G. C. Iturza, E. L. Ivons, F. N. Jaywardene, D. S. Jones, J. P. Jones, C. S. J. Karney, C. H. Kway, T. H. V. King, Yambel Krupenia, A. A. Lee, E. C. Lees, J. K. Leslie, E. M. Littlejohn, M. D. Lovelock, W. B. Lovelock, H. G. Lush, F. K. Marriott, H. N. Morgan, Hannal G. Morland, J. K. Muir, W. G. S. Neely, W. D. Newland, Violet Scrimshere, Kathleen H. Parkinson, J. F. M. Payne, F. Porter-Smith, A. E. A. Poulter, S. H. Prall, E. A. Pritchard-Evans, H. E. R. Robinson, L. C. S. Roche, W. W. S. Savage, E. G. Sherrinford, S. Simons, G. E. Spicer, E. C. Tampion, T. J. Tampion, B. E. Hoon Oo Tha, J. W. T. Thomas, W. Thomas, W. L. Thomas, H. C. C. Vetch, A. D. Vernon-Taylor, G. M. Veyers, H. Vickler, A. R. S. Warden, J. W. Wayne, J. H. Wells, H. Whyte, W. R. Wilson.

* Under the Medical Act, 1876.

APOTHECARIES' HALL OF IRELAND.

THE next examinations for the Licence will begin on the following dates: Primary, December 6th; Intermediate, Part I, December 13th—Part II, December 20th; Final, January 3rd, 1916.

Obituary.

ROBERT BOXALL, M.D., M.B. AND B.C. (ANTAB).

AFTER spending several years in retirement in the country, this distinguished scientific obstetrician suddenly died on November 7th at his residence, Abinger, Surrey. Dr. Boxall was the son of Mr. Henry Boxall, F.R.C.S., and a nephew of the late Mr. Albert Napper, the founder of the cottage hospitals. He was born in 1858, at Wisborough Green, a village near Horsham, in Sussex, and was educated at Epsom College.

Dr. Boxall studied medicine at University College and its hospital. He was known from the first as a very hard-working student, and recognized by his teachers as a first-rate note taker. He took the diplomas of M.R.C.S. in 1882 and L.R.C.P. in the succeeding year, and afterwards was appointed obstetric assistant, first at University College Hospital, and then at the General Lying-in Hospital, where he ultimately became obstetric physician. In 1889 Dr. Boxall was appointed assistant obstetric physician to the Middlesex Hospital. He was made lecturer on practical midwifery in July, 1889, and full lecturer in midwifery in February, 1902, holding the latter chair until his retirement in March, 1903, owing to ill health. From first till last he worked incessantly. When occupied with his duties at the lying-in hospital he took the Brussels degree of M.D. and afterwards the Cambridge M.B., so that his

clinical and scientific labours were complicated by much travelling.

Dr. Boxall, when attached to the General Lying-in Hospital, drew up an important clinical and scientific monograph on scarlatina during pregnancy and in the puerperal state, based on the investigation of 16 cases of undoubted scarlatina amongst 423 patients under his care about the time of the epidemic of that disease in the south of London in 1884. His main conclusions were that the agency of scarlet fever as a cause of puerperal fever had been, at that time, greatly over-rated, and that scarlet fever breeds true in the pregnant and puerperal woman, and produces not puerperal fever but typical scarlet fever, which runs the ordinary course of the disease. Sir John Williams, President of the Obstetrical Society, when the monograph (to be found in the thirtieth volume of the Society's *Transactions*) was read and discussed, remarked, in commending it, that no inferences of any value with regard to the relation of puerperal to scarlet fever could be arrived at save under conditions in which puerperal fever arising from other causes than scarlet fever could be excluded. The main reason why so high a value must be attached to Dr. Boxall's work was that those essential conditions were present when he carried on his work. Dr. Boxall's researches also testified to the priceless value of antiseptics in midwifery, and he contributed a paper on the chemical incompatibility of anti-septic agents to this *JOURNAL* (vol. i, 1888, p. 896). He wrote also a valuable clinical paper on fever in childbed, which is preserved in the thirty-second and thirty-fifth volumes of the Obstetrical Society's *Transactions*. The first part (1890) dealt with general hygiene and antiseptics; the second (1893) treated of the relation of external meteorological conditions to the incidence of febrile illness in childbed. The late Dr. Herman, President of the society when the second part of this second monograph was read, spoke of Boxall's splendid contributions to the knowledge of puerperal diseases. The evidence consisted of statistical tables, the compilation of which must have involved the examination of enormous masses of detail. There was no more painstaking, practical, and scientific obstetrician at that time than Dr. Boxall. He also contributed to the forty-seventh volume of the Obstetrical *Transactions* a third monograph, on mortality in childbed, both in hospital and general practice, read before the society in April, 1905. His general conclusions were: (1) That the total death-rate from childbed had not diminished either in England and Wales, in Scotland, or in Ireland, where it was abnormally high as compared with the other divisions of the kingdom, but had declined considerably in London. (2) That the death-rate from accidents of childbed had declined slightly in each division of the kingdom, but was abnormally high in Ireland, and in London had markedly diminished. (3) That the death-rate from puerperal septic diseases had, if anything, shown a tendency to increase in each division of the kingdom, but in London had been declining for at least a decade.

Dr. Boxall likewise made many minor communications to the *Transactions* of the Obstetrical Society, and wrote an independent work on antiseptics in midwifery. To Allbutt and Playfair's *System of Gynaecology* he contributed an article on diagnosis in gynaecology.

Dr. Boxall practised for several years in Portland Place. A relative having bequeathed to him a considerable sum of money, he retired from the profession and spent a great deal of time in gardening, especially in the rearing of Dutch bulbs. He was likewise a keen fisherman, and for many years used to go to France, where he knew of a good trout stream.

We have received the following appreciation of Dr. Boxall from Sir FRANCIS CHAMBERS: "The Robert Boxall of whom I propose to give a few lines from memoirs was the house-physician of the General Lying-in Hospital, York Road, Lambeth, while I was visiting physician there. He did his medical work there admirably; he was the best taker of notes I ever knew—they were always to the point, accurate, terse, and complete. He was an admirable cross-examiner, and succeeded in gaining information from a reluctant witness in a most unusual manner. In pursuing an investigation for others he was unsparing of his time and trouble, his only object being to

elucidate the problem and to arrive at the truth. It was at this period that he wrote his paper on scariatina and the puerperium—a paper which has let light and common sense into a subject which was till then confused and obscure. I think that this was the best period of his work; and, looking back, I seem to see the shadow of the ill health which affected him in after-life rather early. This was one of the chief causes why the promise of his youth was not fulfilled. In the latter part of his life he transferred the interest which he had formerly devoted to his profession to gardening, on which he was very keen, and which the inheritance of a competence enabled him to pursue."

ALEXANDER MACGREGOR BUCHANAN, A.M.,

M.D. GLASG. AND F.R.F.P.S. GLASG.,

PROFESSOR OF ANATOMY, ANDERSON COLLEGE MEDICAL SCHOOL, GLASGOW.

PROFESSOR BUCHANAN died at his home in Glasgow on November 9th, at the age of 71. He was born at Leith, where his father was a supervisor of Excise. He was educated at the High School and the University of Glasgow, where, after taking the degree of M.A., he graduated M.B. and C.M. in 1868, and obtained the degree of M.D. in 1871. He held for a time the appointment of resident house-physician at the Royal Infirmary, Glasgow. In 1868 he was appointed demonstrator under the late Dr. Allen Thomson, and in 1873 professor of anatomy in the Andersonian University; when the medical faculty of the old institution was separated as Anderson's College Medical School, Dr. Buchanan's services as professor of anatomy were retained. He held the examinership in anatomy both in the Royal Faculty of Physicians and Surgeons of Glasgow and in the University of Glasgow. He contributed several anatomical papers to the *Journal of Anatomy and Physiology*. He also published in 1906 *A Manual of Anatomy, Systematical and Practical, including Embryology*. He chiefly distinguished himself as an able teacher of his science, and was personally very popular with his pupils; his manual gained a high reputation in Glasgow as a students' textbook.

GEORGE COATS, F.R.C.S., M.D. GLAS., M.B., CH.B.

MR. GEORGE COATS died on November 2nd at a nursing home in Edinburgh, at the early age of 39. Born at Paisley, he was the son of the late Mr. Alan Coats, and nephew of Professor Joseph Coats. He entered Glasgow University in 1892, and graduated M.B., CH.B. in 1897 and M.D. in 1901. He held resident appointments in the Glasgow Royal Infirmary, the Western Infirmary, and the Eye Infirmary, and afterwards went abroad to work at eye surgery in Vienna, Munich, Freiburg, and Zürich. He settled in London in 1902, and was appointed pathologist and curator at the Royal London Ophthalmic Hospital; subsequently in 1909 he became assistant surgeon to that hospital, full surgeon in 1914, and also assistant ophthalmic surgeon to St. Mary's Hospital in 1911. He was for a time attached in the same capacity to the Great Ormond Street and Great Northern Central Hospitals. He made many contributions to the literature of eye surgery, beginning with an excellent pathological thesis for the degree of M.D., prepared when he was house-surgeon to the Glasgow Eye Infirmary. In 1910 he filled the appointment of Hunterian Professor at the Royal College of Surgeons, choosing for his subject congenital abnormalities of the eye, including cystic dilatation of the posterior chamber, an abnormality hitherto undescribed.

In 1912 the Nettleship prize and medal of the Ophthalmological Society were awarded to him. He read many papers before the Ophthalmological Society of the United Kingdom, and worked at the comparative anatomy and pathology of the eye. In particular, he studied the structure of the membrane of Bruch and its relation to the formation of colloid excrescences, and published a monograph on the subject in the Royal London Ophthalmic Hospital Reports. An abstract note of another memoir on the membrane of Bruch, read at a meeting of the Ophthalmological Society, was published in the *JOURNAL*, vol. ii, 1910, p. 1345. An article on retinitis hæmorrhagica interna, written in German, appeared in the *Archiv für Ophthalmologie* in 1912, when he had already made public his researches throwing light on diseases of the vessels of

the retina. Mr. Coats translated, in association with Mr. J. H. Parsons, Von Hanke's *Therapie der Augenkrankheiten*. He was also a skilful operator, and careful in clinical work.

DR. DAVIS SANDLER, medical missionary of the Church of Scotland Mission, died suddenly on October 20th at Constantinople. He took the degrees of M.B. and CH.B. at Edinburgh in 1902. He contributed to the *Lancet* in 1906 a paper on the "Causes of Leprosy," and was the author of "The Bride of the Bosphorus" and "Abel."

Public Health AND POOR LAW MEDICAL SERVICES.

RANCID BUTTER FOR COOKING.

ACCORDING to the report of the clerk to the metropolitan borough of Beptonisey, 82 casks of butter were found on June 21st, 1915, by Mr. Ashdown, Wharves and Food Inspector, to be rancid and unfit for human consumption. This opinion was confirmed by the Medical Officer of Health and by Mr. Bolmer, the Public Analyst. A prosecution was instituted, and the case was heard in the Tower Bridge Police Court on August 25th. The defence was that, although the butter might be unsuitable for sale in the ordinary way over the counter, it was quite sound and fit for cooking purposes—that is, for confectionery, etc., and the magistrate, after examining the butter, decided that it was fit for human consumption. No order was therefore made under the regulations, and the butter was released.

According to the report of the Public Analyst the butter contained 3.16 per cent. of free fatty acids, although the amount of these acids in fresh butter is well under 0.5 per cent. This fact, coupled with the butter's rancidity—rendered it, in the opinion of the M.O.H., unsound and unfit for food. It was proved that the rancid taste and smell could not be distinguished in cakes by the ordinary customer, yet when the butter was extracted from the finished article the percentage of fatty acids had increased and the rancidity had not disappeared. It appears from this judgement that, though a vendor or importer can be summoned for having 1 per cent. of water in his butter above the prescribed standard, he may have over 3 per cent. of free fatty acids in his butter with impunity.

Medical News.

THE War Office Memorandum on the Treatment of Injuries in War Based on Experience of the Present Campaign, a full notice of which appeared in the *JOURNAL* of August 21st, p. 305, has now been placed on sale; it can be obtained through any bookseller, price 4d.

THE Prime Minister stated in the House of Commons on November 16th that applications from disabled and partially disabled sailors and soldiers for employment in Government departments would be duly considered; at present the demand for the services of such men exceeded the supply.

THE Naval and Military War Pensions, etc., Act has been printed, and can be purchased through any bookseller, price 1s.

A DISCUSSION on the national and social aspect of the lower birth-rate will be opened by Dr. Louis Parkes at a meeting of the Royal Sanitary Institute, at 90, Buckingham Palace Road, on Tuesday next, at 4.15 p.m. Dr. J. H. Lidgett, Campden, Director of Quarantine, Melbourne, Australia; Dr. J. S. Purdy, Officer of Health, New South Wales; Dr. J. E. Purvis, Cambridge, and Dr. Thomas Orr, Ealing, have been elected Fellows of the Institute.

AT a meeting of the Medico-Psychological Association of Great Britain and Ireland to be held at 11, Chandos Street, London, W., on Tuesday next, at 3 p.m., the President, Lieutenant-Colonel David G. Thomson, M.D., will describe the conversion of a county asylum into a war hospital for 1,050 sick and wounded soldiers.

THE Municipal Council of Bordeaux has voted a sum of £1,600 towards the creation of a "practical and normal" school for the industrial re-education of soldiers mutilated in the war. The General Council and the Chamber of Commerce have also contributed.

WE are glad to learn that the *Journal de Médecine de Bordeaux*, which has been in a state of suspended animation since August, 1914, has come to life again. For the present it will be a monthly publication, but the hope is expressed that it may be possible to arrange for more frequent issues.

THE regulations issued by the Minister of the Interior of France in regard to the sale of alcoholic beverages to the

civilian population are practically identical with those issued by the Minister of War with regard to soldiers and munition workers, but the sale of spirits is altogether prohibited before 11 a.m., or to women and minors at any time.

THE autumn meeting of the Irish Medical Schools' and Graduates' Association will be held at Pagnu's Restaurant, Great Portland Street, on Wednesday, November 24th, at 7 p.m. Afterwards, at 7.30, members and friends will dine together. In the unavoidable absence of the president (Sir Charles Cameron), Dr. W. Douglas will take the chair. Tickets (5s. 6d. each) may be obtained from the honorary secretary, Dr. W. J. Corbett, 18, Weymouth Street, Portland Place, W.

AT the anniversary meeting of the Royal Society on St. Andrew's Day, November 30th, Sir Joseph J. Thomson, Cavendish professor of experimental physics at Cambridge, will be proposed for election as president, and Professor Arthur Schuster, and Mr. William Bate Hardy as secretaries. Among the Fellows to be elected to the Council on the same occasion are Professor J. G. Adams of Montreal, Sir T. Clifford Allbutt, Dr. Henry Head, and Professor E. H. Starling.

THE Council of Epsom College will shortly award a John and Bridget Greycock Pension of £50 a year. Candidates must be legally qualified medical men who have retired from professional work, and who in the opinion of the Council are in need of this pension. There is no limitation as to age, but the Council will give special consideration to the claims of candidates having association with Worcestershire, Lincolnshire, or Carmarthenshire. Forms of application can be obtained from Mr. J. B. Lamb, the secretary of the college, 37, Soho Square, W.

DR. ADDISON, Parliamentary Secretary to the Ministry of Munitions, gave the following particulars in the House of Commons on November 15th with reference to the number of convictions for drunkenness in the London area in the four weeks preceding and following the Order of the Board of Liquor Control. In the four weeks prior to the Order the average number of convictions was 923 (685 men and 237 women); in the four weeks following the Order the number of convictions was 710 (484 men and 226 women).

Letters, Notes, and Answers.

Readers desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 52, Strand, W.C., on receipt of proof.

THE clearest addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR OF THE BRITISH MEDICAL JOURNAL, *Anatomy, Westminster, London*: telephone, 253, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Correspondence, etc.), *Artists, Strand, London*: telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medicoes, Westminster, London*: telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

For queries, answers, and communications relating to subjects of which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

C. D. asks for advice in the treatment of corns on the soles of both feet not relieved by salicylic acid preparations.

INFANT FEEDING.

DR. W. B. DUNMOND (2, Braidburn Terrace, Edinburgh) desires to see specimens of leaflets on infant feeding used for distribution to mothers.

INCOME TAX.

DIMINISHED asks for information as to agencies for the repayment of income tax and refers to a system of calculating the liability of medical practitioners on a basis of one-half the gross receipts.

There are several agencies of the kind referred to by our correspondent; we do not feel able to recommend any particular agency in these columns, but are sending to him the address of one which we believe to be conscientiously and efficiently conducted. We have no information as to the extent to which assessments were in the past based on one-half on the gross receipts, but it is extremely unlikely that that method of calculation would be accepted at the present day. If our correspondent is in a position to state his gross receipts for three years accurately he may be able to prepare his own income tax statement with the assistance he may obtain from the article which appeared in our issue of April 18th, 1914, p. 872.

MAJOR R.A.M.C. (TEMP.) inquires whether he is liable to income tax on a payment of £50—presumably £50 per annum—in lieu of board and lodging in the hospital.

* The payment is a pecuniary emolument, and as such is liable to taxation. The matter was dealt with in an answer by the Home Secretary noted in our parliamentary column this week. His answer was no doubt based on a leading income tax case decided over twenty years ago—*Tennant v. Smith*. The difficulty arising from the absence of any satisfactory criteria for estimating the value of non-pecuniary emoluments is inherent in all systems of income tax, and explains the fact that in this country all income received "in kind" is exempt from tax unless it is capable of being converted into money. An illustration is afforded by the case of a resident assistant; the cost of his board and residence is an admissible deduction in calculating the income of the practitioner, but is not assessable on the assistant inasmuch as the value thereof is not capable of conversion into money.

S. A. F. asks whether he is entitled to deduct, for income tax assessment, the commission paid to a medical agent for securing an appointment.

* To be deductible the expense must be incurred solely, exclusively, and necessarily in the performance of the duties of the appointment. Whether necessary or not, the expense was incurred prior to the performance of the duties, and appears to be outside the scope of the words quoted above.

ANSWERS.

BULGARIA. The author of "The Bulgarian bacillus in the treatment of exanthema and pyelitis with alkaline urine," noted in the EDITORIAL OF THE JOURNAL, No. 97, September 25th, is Dr. Francis R. Hunter, Professor of Genito-urinary Surgery in the George Washington University, Washington, D.C., U.S.A. He does not give any reference to the writings of North, Calkin, and Young in his article. Our correspondent would like to hear some opinions as to the value of the Bulgarian bacillus in a case of chronic catarrhal colitis due to *Bacillus coli*, and as to any special dietary precautions required.

C. E.—In the article by Dr. Risien Russell in Allbutt and Rolleston's *System of Medicine* it is said with regard to convulsive fits, of which salivatory spasm is one, that therapeutic measures are to be resorted to in nearly all cases, but that massage, passive movements, gymnastics, hydrotherapeutic measures, and the like, may be useful adjuncts to general treatment by iron and moral and physical discipline, and that static electricity, when combined with hydrotherapeutic measures and isolation, appears to do good when employed for a long time.

LETTERS, NOTES, ETC.

RESIDENT PATIENTS AND BOOKING FEES.

IT has come to our notice that some of our readers who are willing to accept resident patients are being appealed to by business firms to supply information generally as to what terms they are prepared to accept and at the same time invited to pay a booking fee, varying in amount, for the privilege of being included on the register of those taking resident patients. We venture to warn our readers against falling in with such a proposal. We have no quarrel with the regular agents who keep a register of those willing to accept resident patients, and, when an introduction has resulted in business, expecting a certain commission. This is a method of business to which no exception can be taken, but it should be quite unnecessary to pay a booking fee on the mere chance that business may follow. We hope our readers will make a firm stand to prevent such methods becoming general.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a remittance.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

The Goulstonian Lectures

ON

SPINAL INJURIES OF WARFARE.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

BY GORDON HOLMES, M.D., F.R.C.P.

ASSISTANT PHYSICIAN TO CHARING CROSS HOSPITAL, AND NATIONAL HOSPITAL FOR PARALYSED AND EPILEPTIC, QUEEN SQUARE; LIEUTENANT-COLONEL (TEMPORARY) R.A.M.C.

[WITH SPECIAL PLATE.]

I. THE PATHOLOGY OF ACUTE SPINAL INJURIES.

I MUST first express my appreciation of the honour the College has done me by inviting me to give the Goulstonian Lectures for the year 1915.

It is with much diffidence that I approach the task, more particularly on recalling the list of lecturers who have preceded me, and the valuable contributions they have made to medicine, and especially to that branch of it in which my chief interests lie. The conditions under which I have had to work during the past fourteen months have made me realize that the ambition to attain their high level is scarcely practicable; I can only hope that the number of clinical observations I have the opportunity of presenting to you will in some measure atone for the absence of completeness and detailed analysis you will find in my lectures.

And even what I can offer has been possible only through the co-operation and help I received from the medical officers of the numerous hospitals in France, in which the material was collected. I am more especially indebted to my colleague, Lieutenant-Colonel Sargent, in association with whom the work has been done. In addition to operating on many of the cases he took a coequal part in the necessary clinical investigations, and his name must be consequently associated with mine in any observations of value I can place before you.

The chief interest of our observations lies in the symptoms produced by different types of spinal injury and when different portions of the cord are affected, but in order to interpret and estimate their significance correctly it is first necessary to study the nature of the medullary lesions to which they are due. We have been hitherto able to obtain *post-mortem* examinations in about fifty cases, and the histological changes have been studied in a certain number of these.

The spinal cord may be injured directly by the projectile and either completely or incompletely divided, but more commonly it escapes direct damage by the missile and is injured only by displaced fragments of bone, which either compress or lacerate it; frequently, however, it is not injured directly either by the projectile or by indriven fragments of bone, and the structural changes in such cases can be attributed only to the concussion or commotion effects produced in the cord by a missile which has struck some portion of a vertebra. Spinal concussion is most commonly seen when the projectile has touched either a spinous or transverse process, which it may have fractured or not, but it may be also produced by a bullet which penetrates or perforates the body of a vertebra.

It is obvious that this classification into *direct injury*, *contusion*, and *concussion* cannot be exact, as contusing or compressing fragments of bone frequently lacerate the cord as a missile may, while concussion effects are liable to occur whenever the missile strikes the vertebral column, and whether or not it injures the cord directly or drives fragments of bone on to it.

DIRECT INJURIES.

On examining a case in which the spinal cord has been completely divided, we find as a rule a considerable amount of clot and often pieces of bone between its two ends. A few days after the infliction of the wound these are swollen, irregular, and very soft to touch for at least 1 cm. from the point of division; indeed they may be more or less diffused, and on handling semifluid disintegrated material, frequently stained with blood, which sur-

rounds the cord, and is often found in the South African war, very accurately described as custard-like, may extrude. After hardening these portions still seem swollen, softened, and oedematous; the outlines and details of their cross section are obscured, and there are often minute or larger hæmorrhages within them, chiefly in the grey matter.

Not infrequently the spinal wound is infected, but these appearances are then modified only by the existence of a septic meningitis which may spread rapidly upwards and downwards from the lesion. It occasionally happens, however, that hæmorrhages and early adhesions between the arachnoid and dura, and in the subarachnoid space limit the infection to the wound. Subdural hæmorrhages of considerable size also occur, but they are rarely sufficiently large to compress the spinal cord. In hæmorrhages, which are, however, generally small and insignificant, are more common in the soft meninges.

Microscopical examination always shows that there are severe and relatively extensive changes in the spinal cord immediately above and below the lesion; for the distance of half a segment at least and often further the tissue is completely softened and none of its normal elements are recognizable. Under the microscope only ruptured disintegrating axis cylinders and globules and irregular masses of myelin can be seen; the latter rapidly become smaller and smaller and are absorbed by the numerous scavenger cells which quickly pervade the tissue. Hæmorrhages, generally small but occasionally of considerable size, are usually found in these softened areas, but they are more common and, as a rule, larger in the grey than in the white matter. In many cases, however, hæmorrhages have been rare or very small, and they are evidently not an essential feature of the condition. The blood vessels are always engorged, but they are, as a rule, thrombosed only in the immediate neighbourhood of the primary wound.

The most striking feature in these sections, however, is the presence of large spherical or irregular cells, which are frequently, apart from the blood vessels, the only recognizable tissue elements (Plate, Fig. A).

They have, as a rule, a single round or oval nucleus, larger than that of a lymphocyte but smaller than those of endothelial cells, which is granular and stains darkly, and is usually situated to one side of the cell; two or three nuclei in a cell are not uncommon. The cytoplasm is finely granular and stains deeply in the early stage, but when the cells are fully developed they are usually filled with coarse fatty granules which are derived from the disintegrated myelin. Later they become larger, and more irregular in shape and their cytoplasm frequently contains large vacuoles. The nuclei are now shrunken or deformed, stain more deeply and usually lie immediately on the periphery of the cell. Eventually these cells seem to extrude their nuclei and break up and pour their softened and digested contents into the tissue in which they lie. They are usually smaller and more tightly packed in the grey than in the white matter; when the tissue is severely necrotic they may be found only in the neighbourhood of vessels.

These are obviously compound granule cells, the origin of which has been much discussed; by some they are attributed to connective tissue, endothelial or leucocytic origin, but others believe they are wholly, or in greater part at least, derived from the neuroglia. The study of our specimens certainly supports the latter view, as the rarity of cell infiltrations or proliferations in the neighbourhood of the vessels has been a striking feature in most of our sections, and there has been no evidence that they develop in those regions only in which either connective tissue or endothelial cells are to be found, that is in the vessel walls. On the other hand, one can frequently see in less damaged portions of the tissue that a neuroglial nucleus accumulates cytoplasm around it, which at first takes an irregular or angular shape, but rapidly swells into a spherical element that is identical with an immature granule cell. Further, gradual transitions between neuroglial nuclei and those typical of the granule cells can be frequently seen.

A proliferation of connective tissue elements around the smaller blood vessels also occurs. They take the form of elongated spindle-shaped cells which appear to be engaged in the formation of new capillaries.

These secondary changes, which occur in the neighbourhood of a laceration or division of the cord, evidently produce further destruction of it. They are obviously degenerative rather than inflammatory, and are due to the oedema and circulatory disturbances that occur in the bruised and necrotic tissue on the borders of the injury, spreading into and involving parts which were not directly damaged by the missile. Oedema is the most important factor; it seems to affect the vitality of the neuroglial matrix as well as of the nerve cells and fibres, and combined with circulatory disturbances leads to their disintegration.

Even infection of the wound does not as a rule materially affect these histological changes; leucocytic infiltration is rarely extensive, and when pus cells are found they appear only as an accidental complication in the section. Evidences of infection are always most prominent in the meninges, and it is a striking fact that invasion of even the softened tissues by pus cells which extend along the vascular sheaths is rare.

In addition to these pathological changes in the immediate vicinity of the wound more distant and more irregularly distributed lesions are found in the majority of cases, and often extend over four or five segments in either direction.

Distant Lesions.

Oedema of both grey and white matter with some swelling and softening of the cord is the most constant of these changes. It gradually diminishes away from the wound, and often seems to bear no definite relation to its severity.

Hæmorrhages of various sizes are often associated with it, but these are less constant; they are generally small punctiform extravasations of blood, which give a mottled appearance to the cross section of the cord, but they are frequently larger (Plate, Fig. B); a large central hæmorrhage with a tendency to spread longitudinally in the cord, such as is generally understood by the term "hæmatomyelia," was not present in any of the fifteen cases in which the microscopical examination has been completed. These hæmorrhages are found particularly in the grey matter and about the central canal; one of the most common sites is the dorsal horn, where they can obviously interrupt the reception of afferent impulses. In the grey matter they are liable to break up and destroy the tissue, but when small they produce surprisingly little change in the white columns, the extravasated cells merely tracking along the vessels or between the fibres; occasionally, however, there is some local softening, and later neuroglial proliferation, around larger extravasations.

The extent of these small disseminated intraspinal hæmorrhages is occasionally surprising; in one case they spread over two and a half segments on each side of the wound. They are found with lesions of all regions of the cord, but they are usually most prominent when the cervical region is wounded and probably least so with injuries of the lower dorsal and lumbar segments. Owing to the relatively slight destruction they produce in the tissues their importance in the production of clinical symptoms may be easily over-estimated.

Interesting changes which cannot be directly connected with the trauma or with the occurrence of these small disseminated hæmorrhages are frequently found in the nerve cells and fibres at a considerable distance from the wound. The most striking of these is swelling of the axis cylinders. Frequently all those in a considerable area of the white matter are found slightly swollen in the neighbourhood of the wound where the tissue is oedematous, but a more unexpected condition is the relatively enormous increase in size of either isolated axones or of groups of axones, unassociated with any other obvious changes in the tissue, and often at a considerable

distance from the injury (Plate, Fig. C); in fact, this is usually the most far-spreading lesion recognizable, and may be often seen throughout the four or five segments adjacent to the lesion. The swollen axis cylinders may be in either ascending or descending tracts, and there is no evidence to suggest that the change is related to a secondary degeneration of the fibres. They are most commonly seen in the white columns, but also occur in the grey matter and in the dorsal roots, generally, however, in proximity to the wound. When the increase in size is moderate the swollen fibres appear circular in cross section and either granular or homogeneous, but as soon as they become larger their cross section is often oval or irregular, and not infrequently they contain more darkly staining central cores.

In longitudinal sections the swollen fibres may appear of almost uniform calibre for a certain distance, but they are more commonly moniliform or bead-like; in such fibres Bielschowsky preparations frequently show that the component fibrils of the axis cylinders are separated in the swollen parts by a great increase of the interfibrillar substance (Plate, Fig. D). The most swollen fibres may be frequently seen degenerating and undergoing disintegration; some apparently break up into a granular debris, others become vacuolated and are occasionally invaded by small phagocytic cells (Plate, Fig. E).

In sections stained by hæmatoxylin a thin irregular ring may be generally seen around them, which, when

stained by Weigert's method, is obviously the myeline sheath. This is occasionally ruptured, so that an incomplete ring surrounds the axone, and in longitudinal sections it is often found broken and discontinuous. In other parts, especially when oedematous, the sheaths are swollen and irregular in outline and calibre, and they are frequently disintegrated into globules of myeline, especially in the neighbourhood of the lesion. In more distant regions, however, apart from any other

pathological alteration, the myeline sheaths of isolated or small groups of fibres are found in parenchymatous degeneration.

Two types of change are seen in the nerve cells of the grey matter: in the region of the wound they are often shrunken, stain darkly, and present none of the normal details, or if the tissue is oedematous they may be swollen. Some of them at least break up rapidly, often owing to invasion by neurophages, but when less severe these changes are evidently recoverable. A more common type of change is chromatolysis, with some swelling of the cell body, eccentricity of the nucleus and disappearance of the Nissl bodies, especially from its centre. Bielschowsky preparations often show irregular swelling of the dendrites of these cells.

In addition to these changes in the cells and fibres, irregular focal lesions in which all elements of the tissue may be involved often occur for a considerable distance from the wound, sometimes as far as four or five segments.

Occasionally there are small circumscribed patches of necrosis in which both the fibres and the neuroglial matrix are involved, or in which only the larger strands or neuroglia persist, without any evidence of hæmorrhage of inflammatory reaction around them (Plate, Figs. F, G); there is, in fact, simple uncomplicated necrosis of the tissue, generally accompanied by considerable oedema. The vessels may be slightly engorged, but as they are rarely thrombosed the necrosis cannot be attributed to vascular lesions; further, they are generally in the periphery of the white matter in the region in which its blood supply by the pial vessels is most complete, and neither in distribution or shape are they such as might be expected from vascular lesions.

These focal necroses are generally smaller in the grey matter, and when not complete produce only a rarefaction

DESCRIPTION OF SPECIAL PLATE.

Fig. A.—Granule cells in an area of complete softening. No normal tissue is recognizable in the section.

Fig. B.—Multiple hæmorrhages in both grey and white matter, two segments above a complete division of the cord.

Fig. C.—A cross section of swollen axis cylinders in one lateral column two and a half segments above the level of the maximal damage produced by concussion. There was no other abnormality in the white matter here.

Fig. D.—Swollen axis cylinders in longitudinal section stained by Bielschowsky's method.

Fig. E.—Swollen axis cylinders, lying in round or oval spaces, which are undergoing vacuolation and disintegration.

Fig. F.—Irregular foci of softening and necrosis in the white matter two segments above a complete division of the cord.

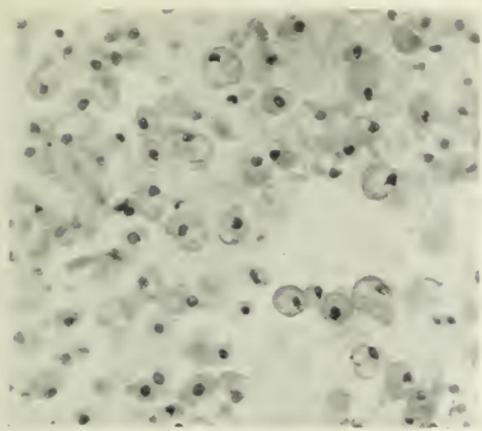


FIG. A.



FIG. B.

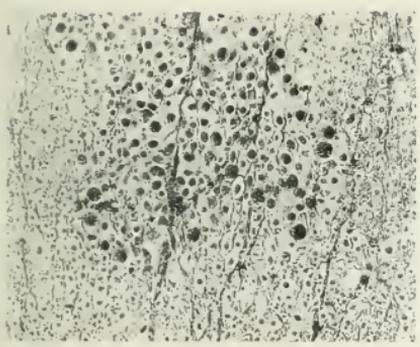


FIG. C.

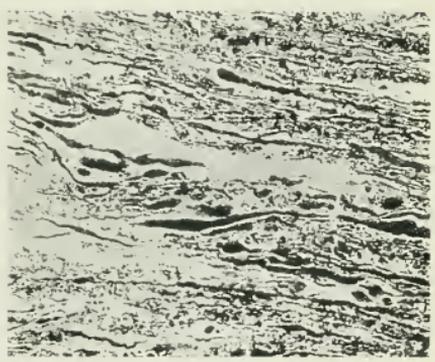


FIG. D.



FIG. E.



FIG. F.

DR. GORDON HOLMES: SPINAL INJURIES OF WARFARE.

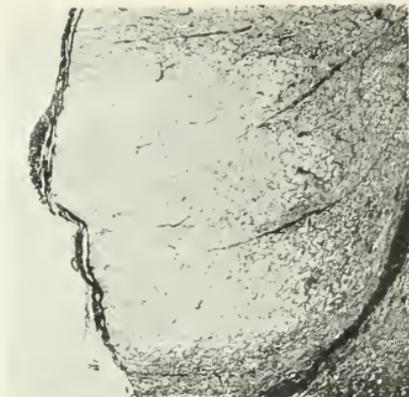


FIG. G.

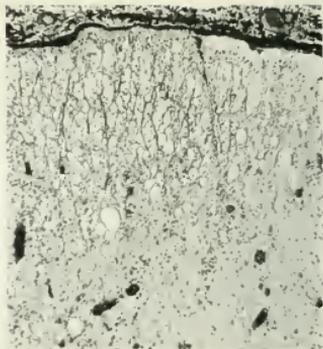


FIG. H.



FIG. J.



FIG. K.



FIG. L.



FIG. M.

of the matrix with severe degenerative changes in the nerve cells. In two cases, however, there was extensive necrosis of the ventral horns and the adjacent parts of the ventral columns, with disappearance of or degenerative changes in the nerve cells and fibres, and invasion of the affected area by granule cells.

Less complete and more irregular lesions of the white matter, in which all fibres are not completely destroyed, are more common, and were, in fact, present in all the cases in which a histological examination has been made.

The periphery of the cord is most frequently involved, and the foci have often an irregular wedge shape, with the base on the periphery and the apex directed centralwards. They are found most frequently in the dorsal and lateral columns, more rarely on the ventral surface, except perhaps in the angle between the ventral periphery and the ventral mesial fissure.

In these affected areas only the coarser neuroglial trabeculae and the dense subpial layer persist, and in section the tissue has consequently a sieve-like or reticular appearance (Plate, Fig. H); in early cases the neuroglia in the process of disintegration may be recognized by its characteristic colour in van tresson preparations. There is usually very little evidence of oedema in or around the foci, and a coagulated transudate can rarely be seen within the meshes. There is never any cellular infiltration, or at the most only an insignificant increase in the number of free cells in the sheaths of the vessels. A considerable neuroglial proliferation is often visible around the foci, and spider cells can be frequently seen here and in the persisting trabeculae.

The majority of the meshes are often empty, but they frequently contain distended or disintegrated myeline sheaths and axis cylinders, which are often enormously swollen. It is, however, a striking fact that relatively normal axis cylinders often persist within them; indeed, these seem to escape more frequently than any other part of the tissue. Other meshes contain large granule cells, which are often loaded with fat and debris.

This change is sometimes more general and diffuse, and may affect the greater part of the periphery of the cord, producing either the appearance of confluent foci or a general sieve-like rarefaction of the tissue. It varies also in degree; in places only the larger glial strands persist with disintegrated detritus between them. Occasionally there are traces of haemorrhage into these areas, but they are rare.

Frequently, however, the only abnormality in a part of the cross section of the cord is the presence of more or less circular vacuoles, either isolated or groups, which may be either empty or contain granule cells or a swollen axis cylinder (Plate, Fig. J). The tissues around generally appear compressed eccentrically from the vacuole, so as to suggest that the latter was produced by some distensive force. Owing to the loose and porous structure of the neuroglia this cannot have been due to an accumulation of fluid within it, and in sections they rarely contain a coagulum. On the other hand, a careful examination of the development of these vacuoles shows that they occupy the site of a single myelinated fibre, and the frequency with which swollen fibres are found within them suggests that they are generally due to the swelling of an axis cylinder or of its sheath. In other instances they are obviously filled by granule cells, but this may be due to secondary invasion.

In a surprisingly large proportion of the cases, in fact in more than half those which have been examined in microscopical sections, and apparently in an equal proportion of those in which only a naked eye examination has yet been made, there were curious cavities, roughly cylindrical or oval in cross section, in the segments of the spinal cord

adjoining the lesion, either in those above or below it, or in both (Plate, Figs. K and L). These often extended a considerable distance, in some cases over four or five segments, and at their ends furthest from the wound they were occasionally the only indication of any abnormality. In three cases they were found on each side of the primary injury, and in four cases only below it. In one cord the cavity lay in and occupied the greater part of one dorsal horn (Plate, Fig. M), but with this exception they were always found in the dorsal columns, generally to one side of the middle line; they did not involve the grey matter or approach the central canal. Their size was always considerable, the greatest diameter usually varying between a quarter and half the dorso-ventral breadth of the dorsal columns. They were consequently distinctly visible to the naked eye when cut across, and generally contained greyish or brownish gelatinous matter, sometimes tinted with blood.

Their contents on microscopical examination are seen to consist of broken up and degenerating fibres and disintegrated neuroglia, which are not, except in cases of long duration, quite necrotic, though shrunken, darkly staining, pyknotic nuclei and degenerating granule cells were generally the only recognizable elements. The latter were usually laden with fat. A certain number of red cells could be seen in many cavities, but excepting that in the dorsal horn none contained much blood.

In some cases this disintegrated matter filled the cavity,

but in most instances, after fixation and the preparations of sections at least, the cavities were partly empty. There can be no doubt that in every case the contents during life existed under pressure, as the unaffected parts around them were compressed, and the dorsal mesial septum was generally displaced towards the opposite side when the cavity lay in one dorsal column only (Plate, Fig. K).

The cavities were, as a rule, very sharply delimited from the tissues around them, which were often quite intact, but in places there was occasionally an irregular softening

on their margins. In certain cavities the degenerating material in them came into direct contact with, or had simply sloughed off from, the normal tissue, but the walls were frequently formed by one or more layers of granule cells, the outer of which remained well developed, while the inner degenerated and added to the disorganized contents.

When a cavity is examined in serial sections it is usually found that it becomes larger away from the lesion and terminates in a rounded or obtuse apex; its other end rarely extends down to the primary lesion, though it is generally connected with this by a haemorrhage or a small track of softening, or in a few instances by an apparently artificial slit, which might be attributed to retraction and shrinkage of the oedematous tissues. There was as a rule very little vascular disturbance around the cavities, apart from the oedema which spreads from the neighbourhood of the injury; haemorrhages were not as a rule found in or around them, and apparently bore no causal relation to their development. In one case a vessel which passed horizontally through a cavity was thrombosed, but this seemed to be a secondary effect, and due to pressure or tension upon it.

Although the cavities contained disintegrated myeline and swollen and disrupted axis cylinders, an examination shows that in relation to their size they involve but little functional tissue; their chief effect must be consequently due to the pressure they exert upon, and the distortion they produce of, the unaffected fibres in the neighbourhood.

Either the dorsal or ventral roots or both are frequently injured by the missile or by displaced fragments of bone, but apart from this considerable changes are often found

DESCRIPTION OF SPECIAL PLATE.

Fig. G.—A patch of complete necrosis in the left lateral column three segments above the level at which the cord was lacerated by a bullet.

Fig. H.—Sieve-like rarefaction and vacuolation of the periphery of one lateral column two segments above the level of the maximal injury produced by concussion.

Fig. J.—A central softening in the cord with small foci of softening in the periphery of the white matter, and extensive vacuolation.

Fig. K.—A cavity filled with necrotic material in the left dorsal column three segments below the level of maximum injury produced by concussion.

Fig. L.—A cavity in the left dorsal column three segments above a direct injury to the cord. It contains only necrotic detritus. There are also a patch of complete necrosis in the left lateral column and areas of partial softening in the rest of the white matter.

Fig. M.—A descending cavity in the left dorsal horn two and a half segments below a complete division of the cord.

in them, and especially in the dorsal roots near their entry into the cord. Their neuroglial portions are usually swollen and oedematous, and their myelino sheaths are distended or partially disintegrated. The proportion of fibres actually broken across is usually insignificant, and the change does not usually extend beyond the line of the glial and connective tissue junction. These changes in the dorsal roots may have some significance in relation to certain clinical phenomena we will describe later.

These spinal changes, associated with a direct injury of the cord, may be illustrated by one typical case:

CASE I.

FIG. C, 198, was wounded by a rifle bullet on November 27th, 1914. He lost power in his legs at once and developed retention of urine. He had haemoptysis at first, but spat up blood-stained sputum only when he was admitted to the base hospital ten days later. He also complained of a stinging girdle pain just above the level of his umbilicus.

The bullet entered 6 cm. to the left of the tenth dorsal spine and made its exit in the fifth right intercostal space in the mid-axillary line. He had a right-sided hemothorax, cystitis, an early bed sore, and trophic blisters on the front of his ankles and on the inner sides of his knees. His legs were flaccid and paralysed, and no reflex movement could be obtained on stimulating his soles. The abdominal muscles were paralysed to midway between the umbilicus and the xiphoid, and the lower four intercostals did not contract on either side. The knee and ankle jerks, as well as the plantar and the lower abdominal reflexes, were absent, and all forms of sensation were completely lost to 8 cm. above the umbilicus.

He died eighteen days after the infliction of the wound. The autopsy was made. A small right-sided haemothorax was found in addition to the spinal injury. The bullet had passed through the arch of the tenth dorsal vertebra, lacerating both the dura mater and the cord; the latter, after hardening in formalin, was found to be completely destroyed between the upper part of the twelfth dorsal and the middle of the third lumbar segment. There was some meningitis both above and below the injury.

Below the Lesion.—In the fourth lumbar segment the dorsal columns were almost completely destroyed, as well as the inner margin of the left dorsal horn, and the tissue around was softened and infiltrated by granule cells (Fig. 1). The grey matter was oedematous, and its nerve cells were in advanced chromatolysis. The greater part of the right lateral column was necrotic and pervaded by haemorrhages, while the rest of the white matter presented a sieve-like appearance, and contained swollen axis cylinders, granule cells, and proliferating spider cells. From the fifth lumbar segment a large cavity, which contained organized fibres and neuroglia as well as granule cells, extended through the dorsal columns downwards into the conus. The remaining portions of the dorsal columns were oedematous and vacuolated or sieve-like in the fifth lumbar, but normal in the sacral segments. The white matter of the ventro-lateral columns was also vacuolated, but showed only a slight loss of fibres below the first sacral segment; while the grey matter was oedematous and all its cells were swollen and in advanced chromatolysis.

Above the Lesion.—As high as the upper part of the eighth dorsal segment there were irregular patches of necrosis and sieve-like rarefaction of the tissue, in which only the coarser neuroglial strands and a certain number of axis cylinders, normal or swollen, persisted (Fig. 1); there was also some infiltration by granule cells and minute haemorrhages. It was chiefly the

peripheral portions of the lateral and dorsal columns that were involved. A small softening, in which there was an apparently artificial slit, extended upwards in the left dorsal column through the eleventh, tenth, and the lower part of the ninth dorsal segments, and in the upper portion of the latter became continuous with a large cavity which reached the upper margin of the eighth segment; it was sharply defined from the surrounding normal tissue and contained disintegrated debris and degenerating granule cells.

It may be noted that, although the clinical symptoms—the reflex changes as well as the motor and sensory paralysis—indicated a lesion of the ninth dorsal segment, the twelfth was the highest segment in which the spinal cord was actually damaged by the wound; the histological examination, however, explains the discrepancy.

As the immediate and more distant effects of a spinal wound have been described, the anatomical changes produced by compression or contusion, and those due to concussion, will require less time, as in both these classes we

again meet the histological lesions which we have already found associated with injuries produced directly by the missile.

CONTUSION OR COMPRESSION OF THE SPINAL CORD.

When a portion of a vertebra or a detached spicule of bone is driven into the spinal canal, it frequently lacerates both the cord and the theca, and causes lesions which may differ only in degree from those produced directly by a projectile. Frequently, however, there is no obvious external injury to the cord and the dura mater is not torn, even though the clinical symptoms indicated a complete transverse lesion. Small haemorrhages into the meninges are, however, common, and on palpation the cord at the level of the contusion is soft, and if the pia mater is incised or pricked semifluid custard-like material may escape.

When the injury is less severe the normal appearance of the cross section is only obscured, and there are frequently minute haemorrhages throughout it. The damaged area and the segments on either side of it are usually swollen by oedema, and the cord may be indented by the indurated bone. When the lesion is examined under the microscope changes are found very similar to those in the parts adjoining a direct injury, but their intensity naturally varies much. The most important is softening and disintegration of the tissues, always greatest in the region which was directly contused. If the injury is severe the whole cross section may be softened, but more commonly there are discontinuous foci in the ventro-lateral and dorsal columns. The grey matter may be also completely destroyed in whole or parts, but it is more usually extremely oedematous and only partly disintegrated, with its nerve cells necrotic or in advanced chromatolysis. Occasionally only a diffuse or focal necrosis is found in which no stainable elements persist. The affected areas are gradually invaded by granule cells, and a considerable proliferation of neuroglial cells is visible around them, but, apart from a pronounced congestion of the vessels and an occasional increase of the

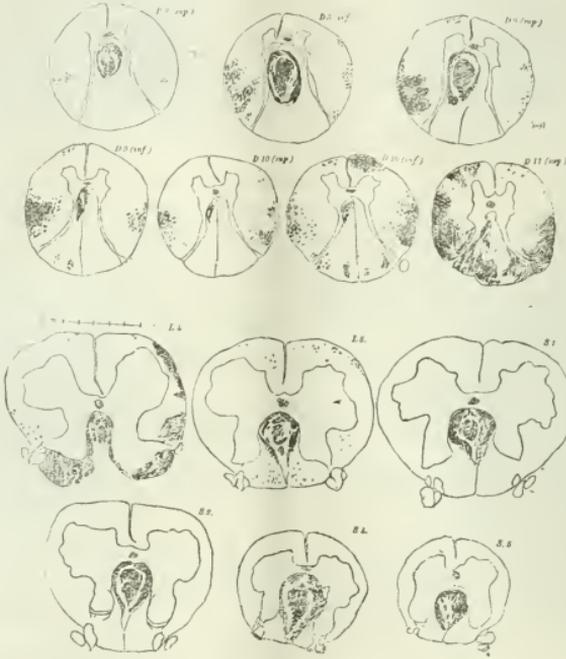


FIG. 1.

cells in their walls, there is no evidence of any inflammatory process. The amount of haemorrhage into the injured region also varies very much.

The distant lesions differ in no respect from those which are so commonly associated with direct spinal injuries. Diffuse foci of necrosis and softening, vacuolation due to falling out of fibres and the sieve-like rarefaction produced by the disappearance of fibres and of the finer glial matrix, as well as minute scattered haemorrhages, are found in the white matter of the adjoining segments, while the grey matter is also oedematous, and contains similar haemorrhages and perhaps foci of softening. The central cylindrical cavities, which have been already described, also occurred in the dorsal columns relatively as frequently as with direct injuries.

CONCUSSION OF THE SPINAL CORD.

In cases of concussion, when the cord is not damaged by the fracture or dislocation of a vertebra, there may be no external signs of injury or only a more or less uniform swelling opposite the site of impact, and even to touch no definite abnormality may be recognizable.

On microscopical examination the vessels are found engorged, and there are generally punctiform haemorrhages, especially in the grey matter. The most striking change, however, is the oedematous swelling of the most affected segments with either diffuse or focal necrosis and softening, which, at least in the cases that have been examined microscopically, has been most pronounced in that part of the cross-section nearest the point of impact. In these areas there may be complete destruction of the functional elements, but more usually only a proportion of the fibres have disappeared, while the myelene sheaths and axis cylinders of others are swollen. Focal softenings also occur in the grey matter, but are usually unrelated to the haemorrhages which this frequently contains. There is, often, however, some softening and disintegration of the tissue, as well as degeneration of the nerve cells, around these haemorrhages.

The distant lesions in cases of concussion are similar to those found associated with direct and contusion injuries, but they are often very marked in relation to the changes found at the site of maximum damage. Scattered haemorrhages, irregular foci of necrosis, and softening and cavity formation occur, but the most pronounced feature is the extensive parenchymatous changes that often extend over four or five segments in either direction. These consist in the swelling of fibres, either isolated or in groups, in the midst of tissue which is otherwise normal or only slightly oedematous; as a rule the axis cylinder is more swollen and the myelene sheath surrounds it as a distended and attenuated ring, but in places the sheaths are more affected, and are often broken up. The disappearance of these swollen fibres and the partial disintegration of the neuroglia leave vacuoles and round or oval cavities in the white matter and give it a reticular or sieve-like appearance. There are also often considerable histological alterations, either degenerative or chromatolytic, of the nerve cells at some distance from the level of the injury, but these are found most commonly where the tissue is oedematous.

If these distant and diffuse lesions are compared with those found at the point of impact it will be seen that they differ from them only in degree, and as they occur whether the cord has been directly injured or not by the projectile or by indirect bone, it is probable that in each case they are due to the same cause, which we must seek in the effects of concussion of the spinal cord produced by a sudden violent impact on the vertebral column.

We must now consider shortly the nature of these changes which have been described, the causes to which they are due, and their significance in the production of the clinical symptoms that characterize these cases. The conclusions and views expressed must not be regarded as final, as there is still much material to be investigated, and the amount of time which could be allotted to the histological preparations which are already available has been necessarily very limited.

Spinal Concussion.

The most important and obscure factor is that which we understand by *concussion*—that is, functional or

anatomical disturbances produced indirectly in the spinal cord by a sudden and violent impact on the vertebral column. The nature of spinal concussion has been much discussed, and it has been, in fact, questioned if spinal lesions, such as those described above, do occur apart from temporary dislocation or fracture of a vertebra, compression by fragments of bone, or an extra or subdural haemorrhage causing direct trauma to the cord.

But many cases in which none of these possible causes existed have been recorded, and we have had the opportunity of observing cases in which they could not be demonstrated. Further, certain of the distant lesions that we have already described, which often extend over several segments on either side of the primary injury, or beyond the level of the impact on the vertebral column, cannot be due solely to a direct trauma, and they are identical in nature to those attributed to concussion. The changes are irregular focal softenings or patches of necrosis, sieve-like vacuolation of the white matter, disseminated haemorrhages and local lesions of the myelinated fibres.

It is in the first place necessary to insist that these changes are not, as oedema may be, continuous with those in the neighbourhood of the spinal wound; the haemorrhages, for instance, are usually discrete and are often only minute extravasations of blood in the Virchow-Robin or perivascular spaces, while the focal necroses and softenings do not, as a rule, spread longitudinally in the cord from the region of the trauma. Further, when a group of fibres is affected, the lesion is usually focal, and it is not necessarily those of one tract only that are involved; it cannot consequently be either a manifestation of a secondary degeneration, or of a pathological change which has spread from the point at which the fibres were directly injured.

The special character of these lesions is, therefore, their diffuse and irregular distribution and their tendency to diminish gradually from the point of maximal disturbance. They are not due to haemorrhages, as these bear no constant relation to them, and as vascular occlusions are also rare these obviously cannot be the main causal factor. On the other hand, as the chief lesions are foci of primary necrosis and parenchymatous change in the cells and nerve fibres, the essential changes may be described as primary disturbances in the vitality of certain portions of the tissue, associated with oedema and frequently with small scattered haemorrhages.

It is difficult to offer a complete and satisfactory explanation of how a blow on the vertebral column can produce these lesions in the cord, protected as it is within the canal. Certain structural alterations found in cerebral concussion are attributed to the violent oscillations produced in the cerebro-spinal fluid, especially in that of the ventricles, but the spinal cord is only surrounded by fluid, and is able to swing to some extent within the dural sac with its oscillations. The waves of pressure thus set up may, however, produce physical effects within the cord, and possibly disturbance of its lymph circulation, but the most probable explanation is that put forward by Fickler, according to which the cord is made to oscillate within the canal by the impact on the vertebral column, and as its movements will obviously not be synchronous with those of the column it may be directly bruised against the walls of the canal, while at the same time the sudden jarring of the cord produces a physical disturbance in its tissues, and especially in the fluid axoplasm of its fibres. There is much in favour of this explanation, and the factors it hypothecates cannot be neglected. The histological changes in the spinal roots may be, in fact, partly due to the strain thrown upon them by the displacement of the cord. But if it is the whole explanation, the structural lesions should be greatest at the position of *centre coup*; we have, however, so far always found them most pronounced immediately under the site of impact. Further, it must be remembered that the spinal roots and the ligamentum denticulatum limit the movement of the cord within the canal, and in many levels at least must make *centre coup* bruising impossible.

Whatever may be the exact mechanism of spinal concussion, it must be admitted that a sudden violent impact on the vertebral column can produce diffuse, irregular, and severe structural changes within the spinal cord. The factors which determine the severity of these lesions must

be the momentum of the projectile, the part and surface area of the vertebra which it strikes, and the region of the spine which is wounded.

Secondary Changes.

Finally, we must consider the secondary changes which may occur in the neighbourhood of the primary injury and in those portions of the cord which have suffered from concussion.

It has occasionally happened that when the wound is not severe the patient was at first able to perform some movements in his legs, but lost the power to do so within the following two or three days. Further, we have seen new symptoms develop or their level alter under observation. This may be due to a secondary hæmorrhage into the affected tissues or to progressive softening, of both of which we found possible evidence in our sections.

But the most striking secondary change was the development of the cylindrical cavities we have described. Their exact pathogenesis is obscure, but certain features they present must be emphasized in attempting an explanation. In the first place, they seem to involve the destruction of very little tissue, but rather separate and compress the fibres around them; their contents must be consequently under much pressure. In the second place they evidently develop away from the lesion, as the material they contain is always less necrotic at their upper or lower end if they are respectively ascending or descending cavities; and finally they do not as a rule extend to the maximal lesion, but are generally connected with this by a track of oedematous or softened tissue, or by a narrow channel of softening or by a fissure (Fig. 1). It seems, therefore, probable that they originate from the accumulation under pressure of transuded fluid and degeneration products in a small projection of the primary lesion, which tracks upwards or downwards along the lines of least resistance through either normal or oedematous parts, destroying only a relatively small amount of tissue but increasing in size probably under the same principles as a retention cyst. The granule cells which frequently line their walls, or are contained within them, must be due to a reactionary proliferation of the neuroglia in the tissue through which they track.

Finally, it must be emphasized that they are not due to infection, as in several cases in which they occurred the theca had not been lacerated, and there was no sign of infection in either the cord or the meninges.

They are obviously not produced by hæmorrhages, though a certain number of red blood cells may be found within them, nor by vascular lesions, as there has been no evidence of these, and the position of the cavities does not correspond with the distribution of any spinal vessel. The frequency with which they occupy the ventral portion of one or both dorsal columns is striking, but its significance is not clear. This region is, however, a watershed area between the distribution of the anterior spinal arteries and of the small arteries that supply the dorsal columns, and as such may have a relatively poorer blood supply than other parts of the cord. In many cases, too, the dorsal columns seem to suffer more severely with oedema and softening than the ventro-lateral columns.

It is obvious that these irregular and diffuse changes which are found in various types of spinal injury must be taken into account in interpreting and estimating the significance of the clinical symptoms that are observed in these cases. The following conclusions at least can be drawn:

1. The structural lesions in the spinal injuries of warfare are rarely sharply limited or circumscribed, and cannot be compared to those produced experimentally in a physiological laboratory. The level of the lesion, as indicated by the clinical symptoms, for instance, often does not correspond with the level of maximal damage.

2. The lesions are so irregular in distribution and severity when the spinal injury is not complete that much care is necessary in drawing conclusions from the clinical symptoms alone on the functions of parts which it may be assumed have been involved.

3. Secondary changes may occur later in the cord which can alter or modify the clinical symptoms.

MALIGNANT TUMOUR OF THE KIDNEY.

AN ANALYSIS OF SOME SYMPTOMS AND SIGNS OF A SERIES OF CASES.

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THIS article, written from rough notes made some time ago, is divided into four portions. Part A contains an analysis of age, sex, side, and the onset symptom. Part B deals with the association of pain, hæmaturia, and a palpable renal tumour to each other during the illness. Part C mentions some complications, and Part D includes illustrative clinical cases. The material is extracted from my own case notes; I am also indebted to my colleagues on the staff of the Royal Victoria Infirmary, Newcastle-on-Tyne, for the use of their records.

A.—AN ANALYSIS OF AGE, SEX, SIDE, AND THE ONSET SYMPTOM.

1. Age.

Ten out of the series occurred in children under the age of 10; in each case the condition was sarcoma. No case occurred between the ages of 10 and 29 inclusive—that is, the second and third decades of life; 31 out of the 59 cases occurred between the ages of 45 and 65; or, if children are excluded, and only the 49 adults reckoned, 31 out of the 49 occurred between these ages—that is, 63.2 per cent.

A curious fact, which may only be a coincidence, is that in the fourth, fifth, sixth, and seventh decades the preponderance of cases occurred in the first half of the decade, for 5 cases were between 30 and 35 years old, 7 of the cases were between 40 and 45, 10 of the 17 cases were between 50 and 55, while 9 of the 12 cases were between 60 and 65.

Of the 49 adult cases, 14 occurred between the ages of 45 and 55, a percentage of 28.5.

TABLE I.

Under 9.	10-19	20-29	30-39	40-49	50-59	60-69	70-79	Not Stated.
10	—	—	5	11	17	12	1	3

Total, 59.

2. Sex.

63.8 per cent. of the series were males, there being 36 against 23 females. Of the 10 children, 6 were boys.

3. Side.

In 31 instances the malignant growth affected the left side and in 26 the right side. In 2 cases the side affected was not stated.

4. Onset Symptom.

In 7 cases of the series the actual onset symptom is not stated; these will therefore not be taken into account in calculating percentages. Of the remaining 52 cases, the commonest initial evidence was painless hæmaturia. This was observed in 14 cases.

In 10 cases the illness was ushered in by acute renal colic, while in 10 other cases a painless swelling found in the flank was the first evidence of anything wrong; 9 cases began with chronic pain in the flank, while 5 patients suffered from cachexia before any sign of malignant growth of the kidney became manifest. In 2 cases there was increased frequency of micturition at onset, another went to his doctor for a varicocele, while the remaining one had "swelling of the bowels."

Therefore the separate symptoms of (1) painless hæmaturia, (2) symptomless flank swelling, (3) acute renal colic, and (4) chronic renal pain, account for the onset symptoms in 43 cases, a percentage of 82 per cent.

Of the 7 children included in the above, in 3 cases a painless tumour was found in the flank, in 2 cases there was painless hæmaturia, in 1 case a chronic aching pain, in 1 case cachexia; while in the 3 further cases there was no statement.

TABLE II.

	Cases.	Per Cent.
Painless haematuria ...	14	26.9
Acute renal colic ...	10	19.2
Painless swelling in side ...	9	17.3
Chronic pain in side ...	5	9.6
Cachexia ...	2	3.8
Increased frequency of micturition	1	1.9
Swelling of bowels ...	1	1.9
Varicocele ...	1	1.9
	52	

B.—THE ASSOCIATION OF PAIN, HAEMATURIA, AND PALPABLE RENAL TUMOUR TO EACH OTHER DURING THE ILLNESS.

TABLE III.—Showing Number of Cases in which Pain, Haematuria, and Palpable Tumour were Present.

	Cases.
Pain, haematuria, and a palpable tumour ...	32
Pain and haematuria ...	3
Pain and a palpable tumour ...	6
Haematuria and a palpable tumour ...	5
Haematuria only ...	1
A palpable tumour only ...	6
Records not sufficiently complete ...	6
	59

1. Pain.

In 11 instances there had never been any pain before the case came under the observation of a doctor. Either painless haematuria or the accidental discovery of a flank swelling, separately or in combination, led the patient to think there was something amiss. This absence of pain bears out the well-known fact that "cancer" anywhere is by no means necessarily associated with pain, especially in the early stages of the condition. Fortunate is the patient with any malignant growth who has pain in the early stages; such pain may be regarded as protective, and is a warning to go to a doctor for investigation, when the chances of a cure after operation would be still greater than they are. Renal pain may be acute or chronic; although both may be present, the causes are different.

Acute renal pain shows itself in the form of colic, which is only present when there is bleeding, but furthermore when the blood becomes clotted in the higher urinary passages. Rarely, it may follow the detachment of a piece of the malignant growth. The colicky pains are due to the muscular contractions of the renal pelvis trying to empty this blood-distended organ, together with similar contractions in the ureter during the downward passage of the blood clot on its way to the bladder. Therefore, although bleeding is the real initial symptom, it may be preceded by acute pain before the haematuria is apparent.

Chronic renal pain is usually present as a localized dull ache referred either to the front or to the back of the affected kidney. Its causes include the stretching of the renal capsule by the increasing size of the tumour, by the dragging weight of the tumour, by involvement of the renal nerves, and by infiltration of the surrounding parts.

Absence of all pain is due to the escaped blood remaining fluid, to lack of tension of the growth owing to a perforation of the renal capsule, through the anchoring of the kidney by local inflammatory adhesions, and to the temperament of the patient.

2. Haematuria.

Apart from the renal sarcomata of children, there are probably few cases which do not present this symptom at some stage.

Haematuria may be painful or painless; this is very often determined by the circumstance whether the blood undergoes clotting or not, especially in the higher urinary passages. It is difficult to say exactly the factor which determines such clotting; it is certainly influenced by the degree of urine concentration.

The bleeding is due to erosion of a blood passage—a normal vessel or one recently formed—by the advancing growth. In one case (mentioned later) the onset of haematuria followed the vigorous massage of a huge malignant kidney. The blood may be either intimately mixed with the urine or in the form of long worm-like casts, due to its coagulation in the lumen of the ureter.

Haematuria is an important link in the chain when making a diagnosis of malignant disease of the kidney; this symptom was definitely present in 24 cases out of 52—that is, in 46 per cent.

3. Tumour.

A renal swelling was present in 49 cases of the series; in 4 cases it was definitely stated that no tumour could be palpated, while in 6 cases the records are incomplete.

The presence of an enlarged kidney greatly facilitates diagnosis of suspected malignancy, but it is the surgeon's aim to make a diagnosis before the organ has attained a palpable size. I have operated upon two cases in which obesity quite prevented a malignant kidney from being palpated even under an anaesthetic; in each case the patient weighed over 18 st. Fortunately special aid is now available for helping the surgeon to arrive at a correct diagnosis in these diagnostic puzzles—that is, pyelography.

4. Cachexia.

The fact that this was an onset symptom in 5 cases emphasizes the urgent need for a thorough general overhaul by the doctor when an adult patient complains to him of the effects of this symptom.

C.—SOME COMPLICATIONS.

1. Varicocele.

In 3 cases of the series it is noted that there was a left-sided varicocele, in addition to a malignant renal tumour on the same side.

The presence of a varicocele, especially on the left side, may of course be only a coincidence. The wise surgeon, however, always satisfies himself that it is a coincidence before he decides to remove a malignant kidney. If the two signs of varicocele and renal tumour are associated, it indicates the spread of the malignant growth along the renal vein towards the inferior vena cava, thereby blocking the exit of the spermatic vein, the resulting back pressure forming the varicocele. Owing to its position the termination of the left spermatic vein is much more readily blocked by growth than the right.

It is almost superfluous to add that it is not justifiable to operate upon either the varicocele or the kidney in such a case. Many of these secondary varicoceles have been operated upon without the malignant kidney condition, the primary cause of that varicocele, having been detected. It is a golden rule to submit no case of varicocele, and especially in a middle-aged man, to operation until the absence of a renal tumour and of haematuria have been established.

2. Clot Retention.

Two of the patients had retention of urine due to clotting following painless haematuria, and in each case the doctor was only called in when the patient had complete retention.

3. Diabetes Mellitus.

One case of sarcoma was complicated by persistent glycosuria; he did well after nephrectomy, but I cannot say what happened to him after he left hospital.

4. Chronic Nephritis.

Several of the cases had this.

D.—REMARKS AND ILLUSTRATIVE CLINICAL CASES.

A routine investigation of the case should include the physical examination, analysis of the urine, cystoscopy, an estimation of the renal function, and pyelography.

Both flanks must be examined for the presence of a renal tumour, and, if there be one, the surgeon must note its consistency; the condition of its surface; if its margins are well defined or not; and its relation to the surrounding structures—that is, if it is fixed or not. A pelvic examination will show any thickening of the palpable lower portion of the ureters, and the existence or not of a varicocele must be verified by examining the spermatic cords.

All urine voided should be carefully collected for three consecutive periods of twenty-four hours. The specific gravity, the estimation of urea output, and a microscopic examination are the most important items of each analysis of the urine.

If the patient has haematuria when the surgeon first sees the case (or on the first sign of such bleeding after it comes under his care), the opportunity must be seized to make a cystoscopic examination immediately. This more especially applies in the case of patients with symptomless haematuria; it may be an isolated bleeding, and the surgeon may not get another opportunity of ascertaining the source of the haemorrhage. Bleeding from a ureteric

urine may be in the form of bright red blood, of smoky urine, or in the form of worm-like clots. I have on many occasions watched one of these bloody urteric casts in process of extrusion from the ureter. So important is this piece of clinical evidence that I always mark the thigh of the same side as the bleeding ureter while the cystoscope is still in the bladder; unless some such routine is carried out, mistakes as to which ureter the blood is coming from can easily be, and have been, made.

An estimation of the renal function is a necessary part of the investigation of the case. To know the amount of work each kidney is capable of performing is to be able to compare the two organs, when it will be usually found that the malignant kidney is capable of doing less work than the sound organ.

The most certain method of collecting a specimen of urine from each kidney is to pass a ureter catheter into each renal pelvis. After the necessary amount of urine has been obtained pyelography can be done, so that the passage of the ureter catheter performs a double purpose. In the routine examination of this urine I place most reliance upon the amount of urea present, the specific gravity—if sufficient urine can be obtained—and the presence or absence of pus cells; the presence of red blood cells I disregard, as it is so easy to get a trace of blood from the mere passage of the ureter catheter.

Theoretically there are many other better tests for the estimation of the renal function, but for practical purposes I consider that a comparison of the percentage of urea excreted from each kidney is a good working guide, especially if the nitrogenous food intake is checked.

The advent of pyelography was a distinct advance as an aid in the diagnosis of a kidney tumour. When the renal pelvis takes part in a general enlargement of the organ, the point can be definitely ascertained by examination of the increased size of the "shadow" of the renal pelvis on the radiogram after the injection of the collargol solution.

Again, other tumours occupy one or other pole of a kidney, and in these cases a study of the radiogram (after collargol injection) will show changes in the normal angle formed by the junction of (a) the line of the lower margin of the renal pelvis, and (b) the line of the ureter. The growth makes that pole heavier than normal, and it tends to rotate upon its central axis. For example, if the growth is in the upper pole, the kidney will tend to rotate downwards and inwards; therefore the angle between (a) and (b) will become more obtuse—that is, it is widened. If, on the other hand, the growth is in the lower pole of the kidney, this rotates upwards and inwards, and the angle between (a) and (b) becomes more acute—that is, it is narrowed. To make an accurate observation collargol must be injected into both sides, so that the sound side can be used as a control; again, the "shadow" of each side should appear on the same negative.

CASE I.—Pain and Haematuria with a Palpable Tumour.

J. M., aged 63, was admitted to the Royal Victoria Infirmary, Newcastle-on-Tyne, two years ago, complaining of (1) attacks of acute left-sided renal pain, which radiated downwards to the left testicle, and which made him vomit; (2) profuse haematuria.

He was very anæmic. He had a large tumour in the left flank, which was rather tender and of hard consistence, irregular surface, well-defined rounded lower margin, and it freely moved upwards and downwards on respiration. On percussion it was dull (except anteriorly, where it was semi-resonant), and the dullness was continuous with the erector spinae dullness. Pressure of the tip of the index finger at the junction of the lower border of the last rib with the outer border of the erector spinae caused a mild edition of the acute pain he had been experiencing. Cystoscopy showed a long worm-like blood clot in process of extrusion from the left urteric orifice; catheterization of the ureters showed that the right kidney was a normal one. A carcinomatous left kidney was removed, but his doctor informed me that he died some months later, probably from a recurrence.

The acute renal colic was due to the blood clotting in the ureter, which resulted in increased tension inside the kidney. After the blood clot had passed the urine became clear; his acute pain then disappeared.

CASE II.—Haematuria with a Palpable Tumour.

J. E. B., aged 60, was referred to me with a history of severe haematuria. For some weeks, his doctor informed me, the patient had not felt quite in his usual health, so he went to a noted London masseur for a course of massage. On the first two days the rubbing was confined to the limbs; on the third day his abdomen was vigorously massaged, and that night he

had a furious haematuria. Twenty-four hours later he had a rigor, followed by a second one at the end of a further twelve hours. He had had some difficulty in urination for a great many years owing to a spinal injury due to a hunting accident.

When I saw him the bladder was distended to the level of the umbilicus. Although he had made constant efforts, he had not micturated for the greater part of the previous six hours. In the left flank was a tumour the size of a child's head; it was hard, nodular, had a well-defined lower margin, and moved upon respiration. The cystoscopy showed a quantity of decomposing blood clot lying on the base of the bladder, also a ball valve intravesical enlargement of the prostate gland. The septum being the dangerous factor of the case, I advised that the blood clot be removed at once. This was done by means of the apparatus used during the operation of litholapaxy—that is, a metal cannula and an indiarubber aspirator bag. The ureters were catheterized and the results showed that the right kidney was normal—moreover, that it was doing the great part of the patient's renal excretion. Three days later I excised a carcinomatous left kidney. He made an uneventful recovery, and three and a half years later he is in excellent health.

CASE III.—Renal Pain with Haematuria.

In August, 1912, I saw H.S., aged 55, in consultation with his doctor. The patient was very stout, and weighed over 18st. He complained of periodical attacks of passing brownish-coloured urine, and on close questioning admitted that he had had some discomfort in the right flank; there had never been any acute pain. No flank tenderness or tumour could be found, but this was not surprising owing to his size. The cystoscopy demonstrated smoky urine flowing through the right urteric orifice. Catheterization of the ureters with collection of the urines showed that the left kidney was a normal one, and that it was doing twice the amount of work that the right one was doing. I excised the right kidney, and there was a large hypernephroma in its lower pole. He is now in excellent health.

The chronic flank discomfort was due to increased tension in the kidney, for the growth was of the variety which has a capsule, and this, to the naked eye at any rate, had not been pierced. There had never been any clotting of the blood, hence the absence of acute colic.

The success of the case, of course, is largely due to the practitioner who was so determined to get to the bottom of the small degree of haematuria, for the patient failed to regard the flank discomfort as anything worth mentioning until I questioned him.

The right renal discomfort, the cystoscopic demonstration of the bleeding from the right ureter, and the information gained by the ureter catheter, gave the diagnosis and the line of treatment to be pursued.

CASE IV.—Haematuria Only.

Miss L., aged 56, was seen in consultation with Professor Rutherford Morrison in 1907. She was an enormously stout woman who complained of periodical attacks of painless haematuria when she passed thick, bright red blood. At first her doctor thought this came from the vagina. No pain or discomfort had ever been experienced, and owing to the huge rolls of abdominal wall fat it was quite impossible to exclude any renal tumour.

Cystoscopy showed a normal bladder and the effluxes of urine through the urteric orifices were clear. As there was no clue whatever to the origin of the bleeding she was instructed to proceed to a private hospital for immediate cystoscopy directly the next attack came on, no matter what the hour was, night or day. The desired opportunity came sometime later, and I was summoned to cystoscope her in the small hours of one morning. Bright red blood was seen to be pouring furiously from the right urteric orifice, but the medium quickly became so turbid I was unable to catheterize the ureters. This was done a few days later when it was found that while the left kidney was functioning normally the right kidney failed to do its full share of the work. Professor Morrison subsequently excised a right hypernephromatous kidney.

This case was entirely dependent upon the cystoscopy for a diagnosis. No blood clots were seen and their absence accounted for the lack of any acute pain.

CONCLUSION.

Excluding children, 63.2 per cent. of the cases occurred between the ages of 45 and 65.

The commonest onset symptom was painless haematuria.

In 32 cases out of 52, pain, haematuria and a palpable renal tumour were associated at some stage during the illness.

In 3 cases a varicocele was a complication, that is, the condition was inoperable when first seen.

Two patients had clot retention of urine.

CAPTAIN ANGUS McNAB, London Scottish, M.B., ophthalmic surgeon to King Edward VII Hospital, Windsor, who was killed in France on November 1st, 1914, left estate valued at £9,242.

AN EASY METHOD OF DETECTING *S. PALLIDA* AND OTHER SPIROCHAETES.

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At the present time three methods are in general use for the detection of *S. pallida*: (1) The examination of fresh cover-glass preparations by means of dark-ground illumination obtained by means of a special oil immersion dark-ground condenser; (2) the examination of dry films stained with Giemsa or other stains; (3) the examination of films made by Burri's Indian ink method.

I have been in the habit of using each of these methods on every case in which I have had to make a diagnosis, but in some cases in which the spirochaetes are present in very small numbers, especially those in which the primary sore has been previously treated with antiseptics, in which healing is taking place, the hunt for a single spirochaete is very trying and requires a considerable expenditure of time.

The following method which I have devised renders the detection of *S. pallida* or any other spirochaete as easy as that of the tubercle bacillus in sputum. It depends on the following principles:

1. That structures which are coloured with a fluorescent dye—for example, eosin, fuchsin, fluorescein, etc.—when examined on a dark ground, stand out very prominently, whilst blue-stained structures are very inconspicuous.

2. That if the medium in which the red stained organisms lie be of very low refractive index, they are exceedingly conspicuous by dark-ground illumination, and can be detected with a comparatively low power, but if mounted in balsam, cedar oil, paroline, or water, they are only seen with the very greatest difficulty. The method briefly consists in examining a film containing spirochaetes, stained in the usual way with Giemsa or Leishman's stain, dry, not mounted in any medium with dark-ground illumination, using a dry lens of medium power. There are, however, some details which considerably simplify this problem.

Method.

It is not necessary to stain with Giemsa, ordinary carbol-fuchsin would answer the purpose, but if the film is subsequently to be examined with the oil immersion $\frac{2}{3}$ objective it is very advisable to stain with Giemsa or its equivalent. Previous fixation of the film with absolute alcohol for ten to fifteen minutes, and subsequent staining with dilute Giemsa as is usually done, requires too much time, and never gives the same intensity of staining as the following:

The stock solution of Giemsa is diluted with an equal part of pure methylic alcohol or acetone.

Films are made from the serum which exudes after cleaning and rubbing or scraping the margins of the primary sore in the usual way. When dry, a few drops of the diluted Giemsa stain are dropped on to the surface of the film, and immediately (the quicker the deeper the staining) ten times as much distilled water is added. This will probably be more than the slide will hold; it is, therefore, advisable to add as much water as will lie on the film, and then flood this off with more water on to the surface of a piece of curved glass plate, and place the slide film downwards in this diluted stain.

Stain for not less than ten to fifteen minutes, then wash off the stain with distilled water; dry, but do not mount.

Dark-ground illumination.—The special dark-ground condensers in use—for example, those of Leitz, Zeiss, Baker, etc.—have two disadvantages for this examination, as, first, they all require to be in oil contact with the under surface of the slide, with the result that one cannot examine a large area of the film without the oil running on to the surface of the stage or its being used up; and, secondly, they do not allow the change from dark-ground to ordinary illumination being made. To overcome these disadvantages, and to do away with the necessity of using oil I use an ordinary achromatic condenser, used dry, without oil, provided with a Travie's expanding stop below it. A simple rod stop, as long as it be of the right size, could be used; but the expanding stop is much more convenient. Any of the microscopic agents would fit either

of these, and, if necessary, explain how a dark ground is obtained. An ordinary paraffin microscopic lamp, used with or without a bull's-eye condenser, is ample illumination.

The objective I use is an 8 mm., or $\frac{1}{2}$ in. of Zeiss and Leitz, and a compensating ocular of 8, 12, or 18, or an ordinary No. 4 or 5 eyepiece. I can see *S. pallida* with a $\frac{2}{3}$ in. objective with 18 ocular, but I could not pick them out with this low power. I find I cannot use a $\frac{1}{2}$ in. objective on an uncovered objective, and its NA is too large to obtain a good dark ground with this method.

The stained film must not be mounted in balsam, oil, water, or any other medium; it must be examined dry in air. The easiest and best result is obtained by examining it without a cover-glass, but if such an uncovered film be examined with a dry lens at the correct tube length of that lens for a covered object, the image will be very imperfect and practically useless, but if the tube of the microscope be lengthened to the right height—this can only be found by trial, but when found will be practically constant for that objective—the definition is perfect.

My Zeiss 8 mm. normally working at a tube length of 160 mm. requires to be lengthened to about 195 mm., and the Leitz 8 mm. objective from 170 mm. to 240 mm. The latter length cannot be obtained on an ordinary short-tube microscope without the addition of a cardboard tube. Of course, the inconvenience of lengthening the tube may be overcome by laying a cover-glass on the film, when the objective will be used at about the normal tube length and the definition will be excellent. This, however, has the disadvantage that if a spirochaete be found by dark-ground illumination, and one wishes to examine it with ordinary illumination by removing the stop under the condenser and turning on the $\frac{2}{3}$ oil immersion lens, the spirochaete will not be seen. On the other hand, if there is no cover-glass, the $\frac{2}{3}$ lens still will enable it to be seen at once.

In a stained film examined on a dark ground without any mounting medium *S. pallida* can be easily detected with such a moderate power as a $\frac{2}{3}$ -in. objective. It stands out as a beautiful golden spiral, which cannot be missed by the merest tyro.

The large field of vision, the ease with which a slide can be thoroughly examined, the absence of any eye strain, and above all the remarkable way in which the spirochaete strikes the eye, have only to be seen to be appreciated.

I have now used this method for some years, and am convinced that I should find no difficulty in finding a spirochaete even if only two or three were present in a film the size of a postage stamp. Can the same be said of any other method now in vogue for the detection of these illusive organisms?

It seems to me that it would be invaluable to those who are searching for *S. pallida* in films from the brain in cases of general paralysis of the insane, etc.

It is, of course, equally serviceable in examining the blood for any of the spirochaetes, provided these are coloured a reddish tint with Giemsa, or if stained with eosin or fuchsin. Blue-stained objects are very inconspicuous.

Some few years ago whilst examining a Giemsa-stained film with the $\frac{2}{3}$ oil immersion lens, I found a spirochaete in the blood of a bat, which I provisionally named *S. vesperuginis*. This spirochaete, very slightly larger than the *S. pallida*, was only present in extremely small numbers. It would have been well-nigh impossible to have found another with the $\frac{2}{3}$ objective, but in the remaining 15 films which were not mounted, I had no difficulty in detecting and marking these spirochaetes by examining the films dry on a dark ground, although in many films there was only a single spirochaete present.

I shall be very pleased to demonstrate the extreme ease with which the method is carried out, or to answer any question thereon.

THE next award of the Alvarenga Prize of the Philadelphia College of Physicians, amounting to about £50, will be made on July 14th, 1916. Essays, which may deal with any subject in medicine, must be received on or before May 1st, 1916, by the Secretary of the College, Dr. Francis R. Packard, 19, South 22nd Street, Philadelphia, Pa., U.S.A., to whom intending competitors should write for full particulars. The Alvarenga Prize for 1915 has been awarded to Dr. J. E. Sweet, Philadelphia, for his essay entitled "The Surgery of the Pancreas."

A SIMPLE METHOD FOR THE CULTIVATION OF ANAEROBIC ORGANISMS.

BY

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THE large number of wounds in the present campaign contaminated with anaerobic organisms has brought into prominence the different methods for the isolation and culture of these organisms.

A simple method for obtaining anaerobic conditions is the following, and I have found that by its employment large numbers of these organisms can be investigated with regard to their cultural characteristics, their carbohydrate reactions, etc., with comparative ease, and the laborious technique involved in carrying out many of the methods in common use avoided.

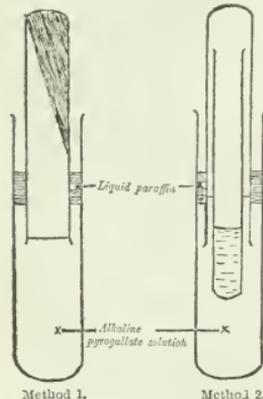
The sole apparatus required are test tubes of two different sizes for cultures on solid media and three different sizes for liquid media.

The diameters of the test tubes which I have found most convenient have been 1.5 and 2.5 cm. for the first method and 1, 1.5, and 2.5 cm. for the second method.

1. For Solid Media.

The test tubes, 1.5 cm. in diameter, are prepared, plugged, and sterilized with the sloped medium, such as glucose agar, in the usual manner. After inoculation of these media, a corresponding number of the 2.5 cm. test tubes are half filled with a solution of pyrogallate acid;

when liq. potassae has been added the plugs of the culture tubes are removed, and they are inserted, with their upper ends downwards, into the alkaline pyrogallate solution contained in the 2.5 cm. tube. The contained air in the tube containing the culture medium prevents the pyrogallate solution from passing up into the tube for more than a few millimetres, and the inverted tube, by virtue of its contained air, floats upon the pyrogallate solution. A few cubic centimetres of liquid paraffin are then poured upon the surface of the pyrogallate solution, thus



preventing it from becoming inert through absorbing the oxygen of the external air.

This method, which I have now used some hundreds of times, has invariably given excellent results. After incubation is completed the culture tube is lifted out of the pyrogallate solution, wiped with sterile wool, and plugged, after which the culture can be investigated in the usual manner.

2. For Liquid Media.

The smaller 1 cm. diameter test tube is prepared with its liquid medium in the usual way. After inoculation it is inserted into the large 2.5 cm. test tube containing alkaline pyrogallate solution, and after removal of its wool plug the 1.5 cm. test tube is inverted over it until its margin dips into the alkaline pyrogallate solution. A few cubic centimetres of sterile liquid are then poured upon the surface of the pyrogallate solution, between the wall of the medium-sized tube and that of the larger tube.

For the investigation of the carbohydrate reactions, gas formation, etc., of anaerobic organisms, I have found this an extremely simple and reliable method.

The diagrams give a general idea of the arrangement of the test tubes in the two methods.

THE TREATMENT OF WOUND INFECTIONS BY ANTISEPTICS.

By CHARLES A. MORTON, F.R.C.S.,
PROFESSOR OF SURGERY IN THE UNIVERSITY OF BRISTOL.

I SHOULD like to be allowed to say something in support of the view that antiseptics are of value in the treatment of infected wounds. Sir Almroth Wright tells us that they are not necessary because the resistance of the tissues is sufficient to deal with the infection, if the wound is kept by the surgeon in a favourable condition, by adequate drainage and other means; and that, although antiseptics have the power to kill micro-organisms in the laboratory, they cannot act efficiently in contact with the tissues of the body. He tells us that, in judging of the value of antiseptics, we must be guided by laboratory methods, and not by clinical experience, because its results are not "brilliantly successful" or the reverse. He considers that because clinical results do not almost invariably prove the utility of antiseptics we are not to be guided by them, but by laboratory experiments. But is this reasonable? If we have evidence from the use of a drug in a sufficiently large number of cases to enable us to really judge of its action, are we to refuse to believe in its efficacy because it is not "brilliantly successful"? Are we not to judge of the value of vaccine treatment by its clinical results? They can hardly be said to have been "brilliantly successful" for all the various morbid conditions for which they have been used. Why should we not refuse to judge of the value of vaccine treatment because it is not always "brilliantly successful," if we are to refuse to judge of the value of antiseptics on such grounds? There is, indeed, no reason why we should replace antiseptics by vaccines in the treatment of infected wounds, as Sir Almroth Wright says we should do.

And are his laboratory experiments really convincing that antiseptics can do no good in infected wounds? He says they cannot do good at the time of infection because they cannot penetrate "the solid barriers of albuminous substance, provided in the early stages of the wound by exposed muscles and connective tissue." But may they not reach the organisms lying outside these barriers, if applied early enough? Cannot millions of microbes be destroyed by the antiseptic before they have begun to penetrate into the tissues? Even if contact with the albuminous material in the wound reduces the power of the antiseptic by the chemical change which it produces, if sufficient antiseptic is used, and if it is frequently changed and used for a prolonged period, it is not likely to be efficient. If the "barrier of albuminous substance" is formed by the exudation on the surface of the wound, bathing the organisms lying there, and then coagulated into an impenetrable layer by the antiseptic, then it would certainly seem impossible for the antiseptic to destroy the organisms. But it seems to me that we ought to require very strong proof that this was what happened before we abandoned the antiseptic treatment of wounds.

Judging by the results of Dr. Alexis Carrel's work at the hospital at Compiègne, it seems to me that the clinical results of the treatment of infected wounds with an antiseptic have been most encouraging, and should certainly lead to a wide adoption of his thorough methods. With the result of Carrel's work before us, I venture to think Sir Almroth Wright is not in the least justified in stating that the antiseptic treatment of wounds has completely broken down. In the instances it has done so this has happened probably because the surgeon had no chance of dealing with the wound for many hours after it was inflicted, or used an antiseptic in an imperfect way—perhaps just douched the wound with it, and then washed it away at once with saline for fear of its supposed injurious action on the tissues. In cases in which the wound has been well cleaned, and the antiseptic of sufficient strength, and freely and for a sufficient time applied, within a few hours of the injury, experience both in civil and military

* See abstract of his paper in BRITISH MEDICAL JOURNAL, October 23rd, 1915, p. 609. The investigations which resulted in the use of sodium hypochlorite as an antiseptic were carried out by Professor Lorrain Smith and others at Edinburgh (BRITISH MEDICAL JOURNAL, July 24th, 1915, p. 129) and by Dr. Dakin in France (BRITISH MEDICAL JOURNAL, August 28th, 1915, p. 338), and were subsidized by the Medical Research Committee of this country.

practice has shown that it has been efficient in preventing sepsis.

I very much doubt if we can rid an infected wound of organisms by douching it out with saline. If we take a mixture of chalk and water and throw it into a wound, and allow it to remain there a short time, we cannot expect to get even such gross particles as the chalk away from the wound by such means, much less millions of microbes. Just as we could only get rid of the deposited chalk by applying to the wound an acid solution, so as to act chemically on the chalk, so we can only get rid of the microbes by killing them with an antiseptic. Carrel truly says we cannot clean a wound of microbes even by a swab, for as well might we expect to clean a greasy bottle by such means. But, if we cannot mechanically remove the organisms, surely the right thing to do is to apply an antiseptic to kill them.

I admit that it does not seem so reasonable to apply antiseptics to an already suppurating wound as to one just infected, because of the difficulty, if not impossibility, of the antiseptic penetrating the living tissues, into which the organisms have already penetrated; and, as Sir Almoth Wright points out, if you by irrigation wash out the pus, why trouble to try and kill the microbes in that pus? But here again the question seems to me to arise, Can we irrigate out all the microbes in the wound (as distinct from those which have penetrated into its walls), and may we not be wise in employing an antiseptic to kill those we cannot? Is it not possible that some antiseptics may have some power of penetrating into the living wall of the wound? Here, again, Carrel's experience in treating suppurating wounds seems to me quite good clinical evidence of the advantage of using hypochlorous acid or hypochlorite of soda in the treatment of suppurating wounds.

Now, Sir Almoth Wright tells us that the question as to the value of antiseptics cannot be answered by clinical observation, yet, all the same, he does seem to attach importance to such evidence when it is the result of the observation of "experienced and very competent observers." But though he now admits that we may judge of the value of therapeutic measures used in connexion with the healing of wounds by clinical evidence, he tries to show that even these "experienced and competent observers" have been deceived, for he says their good results may have been due to using the antiseptic with a "hypertonic menstruum," the washing out of the wound by peroxide of hydrogen, or the use of antiseptics in the form of fomentation. But the use of such things without the antiseptic has probably not been found by those "experienced and very competent observers" to have the same beneficial action on the wound as the particular antiseptic they consider has been of value.

Let me give one striking example of the value of clinical evidence. It does not refer to the beneficial action of antiseptics but to their harmlessness. It has generally been maintained that antiseptics damage the living tissues, possibly because of experimental evidence, but I do not know of it; but perhaps simply because certain antiseptics have caused irritation of the skin. Mr. Bond of Leicester has recently shown¹ that even quite strong antiseptics can be applied to wounds without interfering with their healing. But we have even some laboratory evidence on this matter, which may appeal to those who think clinical evidence unreliable. The late Mr. Lockwood, writing some years ago of the unreasonable dread of the entrance of antiseptics into wounds, said he had made sections of the tissues from wounds to which antiseptics had been applied, and could find no evidence of damage to them.

The sterilization of the infected wounds of war is a matter of such vast importance to us at the present time that I would plead that further attempts on the lines practised and advocated by Carrel should be made, and that we should not rest content to depend on the resistance of the tissues—a resistance which very often completely fails, the failure leading to the most serious condition of sepsis in the wound, and often costing the wounded soldier his life. Nor, I would urge, should we depend on irrigation with saline to rid a recently infected wound of organisms, but should freely apply, for a considerable period, either hypochlorous acid in 0.5 per cent. or hypochlorite of soda solution; and these antiseptics in

a strength potent to kill micro-organisms will do no harm to the tissues.

I think Sir Almoth Wright's suggestion that physicians should now take charge of wounds will be read with some astonishment. Does he think that a surgeon's only business is with the knife? Can it be possible that he thinks they will be too free in making counter openings for drainage? Or does he think that the surgeon will have a greater tendency to do harm by inflicting on the wound a douching with some antiseptic, because he will be less readily converted to his views on the sufficiency of tissue resistance and the value of only using saline? Is it necessary to remind Sir Almoth Wright that even physicians use drugs which they believe to be internal antiseptics, and that the faith some of them have in the good results of vaccine treatment is very feeble, and that he must not trust them too far? But, after all, it is clear from Sir Almoth Wright's last lecture that he does really use antiseptics himself, for if a 5 per cent. salt solution can prevent the growth of pyogenic organisms what is it but a feeble antiseptic? I fear the knowledge that saline solution is an antiseptic will come as a rude shock to "aseptic" surgeons. They will discover that they have really been using a deadly antiseptic in the wounds all the time, even though, in the strength they have used it, too weak to have any antiseptic power. But it may, by accident, have been used as strong as 2 per cent., and then it would undoubtedly be antiseptic.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, vol. i, 1915, p. 405.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TREATMENT OF "FLAGELLATE DIARRHOEA" AND OF KALA-AZAR.

SEVERAL authors have recently called attention in the BRITISH MEDICAL JOURNAL to the presence of flagellates in cases of diarrhoea, and discussed their etiological rôle. When present in a small number such flagellates are probably harmless. In the tropics they are found in the stools of more than 25 per cent. of apparently healthy persons after a saline purge. When present, however, in enormous numbers, as in the two cases which I published in the BRITISH MEDICAL JOURNAL of November 11th, 1905, the probabilities are that they play a part in the causation of the intestinal symptoms.

I can confirm Low, Wenyon, Ledingham, and Penfold's experience that ipecacuanha and emetine have no effect on such parasites. I recommend instead the use of methylene blue. This drug has a powerful effect on flagellates. I may quote a paragraph from my paper on the resistance of the intestinal flagellates to various chemical substances¹:

The action of different chemicals on the parasites was tried repeatedly. Without referring in particular to all the experiments made, I may say that methylene blue solutions are without doubt the most active—much more so for instance than quinine solutions. Mixing one loopful of the stools with one loopful of 1 in 1,000 solution of methylene blue and observing the preparation microscopically, the flagellates (*Trichomonads* and *Cercomonads*) are seen to take up the colour, and stop almost instantly their movements, losing their ordinary shape and becoming globular without exhibiting any flagella or undulating membrane.

I give methylene blue by the mouth, in cachets containing 2 or 3 grains of the drug, three times a day, and also by intestinal irrigation (1 in 5,000 or 1 in 3,000). The patient must be informed that his stools and urine will become blue. The treatment has induced in most of my cases a rapid decrease or complete disappearance of the flagellates within a very few days. In a few obstinate cases the administration of the drug may have to be persisted in for a long period of time. In such a contingency the methylene blue should be discontinued from time to time to prevent the formation of methylene blue concretions in the intestine.

In connexion with Major Mackie's interesting paper on the treatment of kala-azar with tartar emetic, published

¹ BRITISH MEDICAL JOURNAL, November 11th, 1905.

in the last issue of the BRITISH MEDICAL JOURNAL, I would call attention to a case—an imported case from India—I treated in Cochin in 1914, and published in the report to the Advisory Committee for the Tropical Research Fund (second half-year 1914) and also in the *Rivista di Pediatria*, 1915 (fas. 4). The treatment consisted in administering to the patient my tartar emetic-potassium iodide "yaws mixture" as well as tartar emetic given intravenously, and Fowler's solution. The improvement was striking, and I concluded in my papers that the drug to which this was due was tartar emetic, as my previous experience and that of others with arsenic and potassium iodide given alone had not been successful.

The case is of some interest, showing that independently and at the same time tartar emetic was found to be useful by me in a case of kala-azar contracted in the tropics, and by Cristina and Carona in cases of Italian origin.

ALDO CASTELLANI.

Society of Tropical Medicine, London, W.

MAGNESIUM SULPHATE IN NON-AMOEBIIC DYSENTERY.

In February, 1898, when our forces engaged against the Waziris on the North-West Frontier of India were being exhausted by dysentery, you were good enough to publish my experience in South America in the treatment of non-amoebic dysentery by drachm doses of magnesium sulphate every two hours. I found it to be a specific; and the observation was confirmed by correspondents at the front, by the medical officer in charge of the gaoi at Mauritius, and, later, in the South African war, by friends engaged in it. The observation is not new, for a correspondent in Belfast pointed out that it was published at least three hundred years ago. But that need not prevent the younger surgeons at the Dardanelles from giving the treatment a trial, when, I think, if it is the non-amoebic form of dysentery with which they have to deal, they will be astonished at the results.

F. WYATT-SMITH, M.B., B.C. Cantab.

THE "IRRITABLE HEART" OF SOLDIERS.

We are grateful to Dr. Poynton for his reply to our memorandum, recognizing in it the earnest thought of a worker upon closely allied problems. His observations upon acute rheumatism and endocarditis are well known; his views as to their causation claim many fresh adherents; and we are conscious that streptococcal infection may yet come to be regarded as the chief cause of the less serious and the most grave forms of cardiac disability.

The purpose of our memorandum was to record the presence of streptococci in the urine in patients of the class we describe; to express the view that these organisms are derived from an infected blood; and to stimulate further search in this direction. During the past two weeks we have been confirmed in our view, having recovered organisms of the same or closely allied morphological type from the blood in 13 patients. But at present we go no further than to suggest our self-evident working hypothesis that this infection is the cause of the ailment. To an actual conclusion we do not as yet commit ourselves, but believe its discussion neither untimely nor without promise.

The argument which Dr. Poynton advances is very pertinent and one which often forces itself to our consideration. "How can we prove that the essential factor is the infection, in the face of a mass of evidence favouring physical and nervous overstrain . . . as the prime causes?" Now physical overstrain and nervous overstrain are terms which are themselves in measure hypothetical; it has not been proved that a healthy heart may damage itself, or a healthy nervous system suffer injury, by over-exercise; infection is determinate and we believe in this instance demonstrable. Moreover, physical strain and nervous strain are distinct, and we look not for two causes but for a single cause of a well-defined symptom group; it may be we have found it in infection of the blood stream. Again, we consider physical strain and nervous strain separately, and in our group of studied cases we find instances in which we have every reason to believe neither one nor the other was ever present, soldiers who have never been abroad, and men who have been

submitted to no very strenuous work and to no unwanted excitement.

But we do find, as we may now assert, infection in each examined member of the group. That is our chief reason for working still and suggesting work along the lines of this hypothesis of infection, and for discarding the hypothesis of strain as a prime factor.

Many of our patients, it is true, give a distinct history of strain to which they attribute their present symptoms; in some of these, where the strain was unaccustomed, we can nevertheless, by persistent inquiry, trace the symptoms in less aggressive form to a date preceding the unaccustomed effort or shock; in others may be we cannot, but infection is demonstrated in these also, and neither effort nor shock will explain infection.

Dr. Poynton and we may perhaps reach agreement in a tentative view that infection, latent may be for months or years, is the prime factor, but betrays itself in the soldier only when the body, poisoned in mild degree, is called upon to yield up its reserves of energy; or betrays itself in the civilian (for we do not doubt that he may be similarly affected) when a change in his resistance or in the virulence of the organism permits the latter to settle down now in the joints, now in the cardiac tissues. Such a speculation, we confess, appeals to us.

THOMAS COTTON,
THOMAS LEWIS,
F. H. THIELE.

London, W.

Reports of Societies.

DISCUSSIONS ON PARATYPHOID FEVER.

ROYAL SOCIETY OF MEDICINE.

At a meeting of the Section of Medicine of the Royal Society of Medicine, held on November 23rd, Sir WILLIAM OSLER, Past President, being in the chair, the discussion on paratyphoid fever was continued.

The Army.

Colonel Sir WILLIAM LEISHMAN, R.A.M.C., who reopened the discussion, said that his experience related to paratyphoid fever as it was met with in France. The cases had not been many—only 1,200 during the first fifteen and a half months of war. He agreed with Sir Bertrand Dawson that they were not grave as regards danger to life. Eighteen had died, the case mortality being 1.5 per cent. The total number of cases of typhoid and paratyphoid fever combined was less at present than at any previous stage, and numbered only 32. The relative proportions of paratyphoid A and paratyphoid B had not been accurately determined, but the latter composed approximately two-thirds to three-quarters of the paratyphoid infections. Although paratyphoid A was the prevailing type in India, its occurrence in France was not limited to the Indian troops. There had been no such explosive epidemic as could be ascribed to a water-borne infection; carriers were probably the source of the cases. Stringent measures had been taken to limit the spread of the disease. At the clearing stations a blood test was performed on all likely cases. They were then transferred to a general hospital at the base, and afterwards to an isolation hospital, where laboratory accommodation and a competent bacteriologist were available. When a positive diagnosis was made, the medical officer of the unit from which the man had been sent was informed by telegram, and a watch was kept by him for further cases. If any occurred a bacteriologist carried out a thorough investigation. A spot map was kept at head quarters, where such cases as occurred were charted unit by unit. A large proportion of the infection was derived from the native population, especially from the Belgian refugees. House-to-house visiting was carried out; the little farmhouses in which the refugees were living were visited; infected people thus detected were afterwards isolated and treated in hospital. The chance of picking up infection from such sources was very great. For good services rendered in this respect he mentioned with warm approbation the Red Cross unit of the Society of Friends.

He did not agree with Professor Dreyer that many mild cases of the condition were unrecognized in France. This

opinion was founded on Professor Dreyer's method of agglutination, which Sir William Leishman thought contained some fallacies. "Controls" were needed before it could be accepted in its entirety. Diagnosis by agglutination with the low degree of dilution thought by Professor Dreyer to be sufficient was not free from contention. There were many cases of mild fever at the front due to many conditions. It was going too far to say that such belonged to the paratyphoid group. Trench fever, for example, was a definite disease, and gave no agglutination for typhoid or paratyphoid. He thought it was probably mosquito-borne.

He was not satisfied that Professor Castellani's evidence as to the value of mixed vaccines was conclusive. The dosage, he thought, was too small. It was, above all things, undesirable to tamper with the typhoid element of the vaccine, in the preparation of which little things readily made great differences. The incidence of paratyphoid was roughly 1 per 1,000, hence the need for protective vaccination against it was not very urgent.

The Navy.

Fleet-Surgeon P. W. BASSETT-SMITH, R.N., spoke from his experience of the naval cases admitted to the Dreadnought Hospital, Greenwich, and from cases from the Royal Naval Hospital, Haslar, and elsewhere. The greater number had come from the Dardanelles area, the diagnosis having been roughly made, laboratory examinations having been few, and little differentiation having been attempted. About September, 1914, antityphoid vaccination began to be carried out among such men as were likely to be landed with the Expeditionary Force. About the middle of this year paratyphoid cases began to be recognized, and a paratyphoid vaccine was prepared from strains obtained in Gallipoli. In every case of pyrexia a blood culture was made, the excreta were examined for the bacilli of typhoid and paratyphoid and for dysentery organisms, and agglutination was performed, Professor Dreyer's method being used if a sufficient amount of blood was procured. He had come to the conclusion that all cases from the Near East labelled as dysentery should be regarded as probably examples of paratyphoid fever. On bacteriological examination of 70 cases at Plymouth 11 per cent. proved to be typhoid, 40 per cent. paratyphoid A, 20 per cent. paratyphoid B, and 29 per cent. were indefinite. His own results at Greenwich had revealed 12 per cent. typhoid, 14 per cent. paratyphoid A, 36 per cent. paratyphoid B, and 38 per cent. indefinite. Some of the indefinite cases were, no doubt due to infections by *Bacillus coli*. Of 208 cases ascribed to typhoid, 10 had died; of these, 6 had not been inoculated, 1 had probably not been, and 3 had been inoculated. No case of paratyphoid had died. In the navy the view that had been taken was that it was worth while to provide immunity against paratyphoid if it were possible, so that a vaccine had been used with increasing frequency. The typhoid vaccine had been administered first in two doses, and afterwards the paratyphoid in one or two doses. The latter vaccine was polyvalent. More recently a mixed or a triple vaccine had been used in two doses, the first containing 500 million typhoid, 250 million paratyphoid A and 250 million paratyphoid B; the second, 1,000 million typhoid, 500 million paratyphoid A, and 500 million paratyphoid B. No more complaint of disturbance had followed than after the simple antityphoid vaccination and the agglutination values obtained had been good. The amount of true typhoid agglutination had not diminished. He hoped that a full protection had been afforded against typhoid and a moderate protection against the other diseases.

Tropics and Serbia.

Professor A. CASTELLANI spoke of his experience of paratyphoid in the tropics and in Serbia; in Ceylon paratyphoid A was the usual infection; in Serbia, paratyphoid B. In general he agreed that paratyphoid was milder and of shorter duration than true typhoid, but there were many exceptions. He had seen many cases of paratyphoid A ending fatally or lasting for several months. In the tropics the two could not be distinguished clinically, and therefore must be separated bacteriologically. The treatment was on the lines of true typhoid, a liquid diet being given for the whole course of the fever and for some days afterwards. He had known serious results follow the giving of

solid food early in the disease, as was becoming customary in Europe and America. In Ceylon malignant cases were frequently met with and it was better to be on the safe side. He could endorse the view that the fewer the drugs given the better for the patient, but thought that uterotripin had a place in preventing infection of the gall bladder. Vaccines were sometimes beneficial in certain protracted cases. Prophylaxis consisted chiefly in the employment of antityphoid inoculation. In Ceylon he had for some years used mixed vaccines with satisfactory results. He referred to his experiments, by which it had been shown that the immunity conferred by mixed vaccines was equal to that obtained if the vaccines were given independently. The degree of immunity bore no proportionate relation to the amount of vaccine used, provided that the minimum necessary to secure immunity was employed. Those inoculated showed no severe reaction, and could resume their duties within from twenty-four to forty-eight hours. The inoculated individuals produced agglutinating bodies for the three germs in amounts not less than if they had been injected with a monovaccine. There accrued advantages from mixed vaccines. Much time was saved. Paratyphoid A and B were provided against, and they were not rare; nor were mixed infections, and even triple infection occurred. The fear had been expressed that mixed vaccines gave a smaller degree of immunity against true typhoid fever, but that was not so. He could only come to the conclusion that a mixed vaccine should be used as a routine measure, instead of the ordinary monovaccine.

Symptoms.

Dr. HENRY ROBINSON, while agreeing with Sir Bertrand Dawson's description of the disease in the main, alluded to a few striking characteristics. The onset was sometimes acute, slivers being not uncommon. Epistaxis occurred in about 30 per cent. Headache and abdominal pain were the leading symptoms, but backache and vomiting were not rare. There was little abdominal swelling. Although the spleen was not usually palpable, its size, as estimated by percussion, was often increased. Spots often did not appear until the fever had subsided, and were sometimes larger and more lenticular than those of typhoid. The abdominal reflex was frequently absent, though not more often than in typhoid; it was abolished in just under 50 per cent. of the cases of each. Brachycardia was almost the rule during convalescence. The pyrexia varied considerably in duration, lasting from five or six days to two or four months. He did not think that paratyphoid A and B could be differentiated clinically. On clinical evidence, he was of opinion that there were many mild undiagnosed cases. He asked as to which was most reliable, the hanging drop method or that of Professor Dreyer, for estimating agglutination. He had received widely contradictory reports, when the blood withdrawn at the same time had been examined by the two methods, by different competent bacteriologists. He had found that the Widal reaction often disappeared very rapidly after the condition was recovered from.

Bacteriological Examination: Agglutination.

Dr. H. L. TIDY regarded the old and new methods of performing the agglutination test as equally reliable. In a considerable number of the cases of paratyphoid he had obtained no agglutination of the *Bacillus typhosus*, although the men had been inoculated within eight months. Febrile conditions apparently removed the agglutinins to the *Bacillus typhosus* from the blood, and this factor should be taken into consideration by those who were compiling statistics on the persistence of the Widal reaction. A positive Widal reaction was equally valuable in the case of the inoculated and the uninoculated. After having disappeared the agglutinins perhaps returned again, but this was not usual. He thought that the effect of febrile conditions was to convert the agglutinins into agglutinoids. For separating the organisms from the excreta he thought that Carl Browning's "brilliant green" method was preferable to any other, but he had been satisfied with the use of one tube only. He favoured MacConkey's medium for cultural purposes. He had come to the conclusion that Professor Dreyer's arc lamp had no specific value.

Captain KENNY (Canada) gave his experiences of paratyphoid at the Canadian Hospital, Taplow. There were

11 cases probably typhoid, and 22 cases in which the diagnosis of paratyphoid B, and 3 in which the diagnosis of paratyphoid A had been established. Two were cases of mixed infection of paratyphoids A and B. Professor Dreyer's method of testing agglutinating power had proved quite satisfactory. He narrated a case in which at autopsy the lesions both of typhoid and of dysentery were found.

Dr. CARL BROWNING expressed himself as deeply gratified by the favourable expressions which had been used regarding his method of separating the organisms. As modified it had now been reduced to the simplest possible procedure. He agreed with Sir W. Leishman that a careful attitude should be adopted towards small oscillations in the agglutinating power of the blood.

After Dr. SCOTT TEBB and Dr. STOLKING (Moscow) had spoken, Sir WILLIAM OSLER brought the discussion to a close. He stated that paratyphoid was first distinguished by Professor Achard of Paris, and exhibited temperature charts from the original article, and from a case of his own.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

At the first meeting for the session of the Section of Pathology of the Royal Academy of Medicine in Ireland, when Professor McWENNEY took the chair as President for the first time, several interesting cases of infection by *Bacillus paratyphosus B* were related. Professor McWenney described the case of a man, aged 24, who suffered from profuse diarrhoea, severe pains in the stomach, vomiting, and collapse, after eating mackerel at a fried fish shop; there were no other cases in the house or neighbourhood. He was powerless when admitted to hospital, and died within twelve hours of admission after five days' illness. There was suppression of urine, and the patient's aspect was suggestive of the algid stage of Asiatic cholera; the only changes of importance found *post mortem* were in the gastro-intestinal mucosa, which was dark-brown in colour, very rugose, thickened, velvety, and intensely injected. The changes were particularly well marked in the stomach, which contained a little bloody mucus. The intestines were practically empty. There were no ulcers, and the Peyer's patches were not altered. On bacteriological examination, non-lactose fermenting organisms, identical both culturally and serologically with *B. paratyphosus B*, were obtained from the contents of the bowel. The case was important as showing that the pathogenic rôle of *B. paratyphosus B* was not, as generally thought in this country, confined to the production of paratyphoid fever, but that, like the other members of the Gaertner group, it could produce typical food poisoning of the severest type.

Dr. BOXWELL related an instance in which three young men were taken ill after drinking water from a stream grossly contaminated by sewage. In one case admitted to Cork Street Hospital, and diagnosed by Dr. Day as paratyphoid, Dr. SPEARES had no difficulty in recovering the *B. paratyphosus B*. One of the other cases admitted to Meath Hospital suffered a fairly sharp attack which seemed to be typical of typhoid fever, but Dr. SPEARES found the *B. paratyphosus B*. The third man was too ill to be moved to Dublin. Another case Dr. BOXWELL described was that of a woman admitted with a diagnosis of acute gastric ulcer. In this case also *B. paratyphosus B* was found. The symptoms were those of violent gastroenteritis, suggestive of food poisoning, but no such cause could be discovered. At a late stage a few rose spots were seen, and the spleen was enlarged. Professor McWENNEY exhibited the standard agglutination apparatus issued by the Department of Pathology, Oxford, on behalf of the Medical Research Committee. After testing about thirty scrums (mostly from inoculated persons) by the method, he could say that it seemed quite effective; the agglutination effects were very striking and the results easily read. Dr. W. D. O'KELLY, while regarding some standard as absolutely necessary, owing to the number of men who had received protective inoculations, considered that the test should be carefully checked by cultural examinations of the faeces before it came into general use. Dr. McWENNEY said that from recent observations he considered that paratyphoid infections were of much more frequent occurrence than had hitherto been generally supposed.

HYPOTHYROIDISM AND HYPERTHYROIDISM.

In an address on the clinical problems of internal secretions, read for him owing to his absence on military duty by Dr. CLOW, Dr. CRAIG, the President of the Bradford Medico-Chirurgical Society, at the opening of the session, related the following interesting case:

A man, aged 57, had complained of weakness of the legs for several months. He could no longer walk to his work, and had lost 3 st. in weight. Pulse small, 120 to 150; no heart murmurs or signs of dilatation. There was no albumin, blood, or sugar in the urine. No exophthalmos. There were marked tremors in both hands. There was a large bilateral swelling of the thyroid which had been there fourteen years. On its first appearance, by the advice of his medical attendant, he had painted it with iodine, and this had been followed by some reduction in size. Six months prior to consulting me there were indications of the gland again enlarging, and of his own accord he had resorted to painting with tincture of iodine. The history and symptoms led to a diagnosis of hyperthyroidism, induced by the absorption of iodine in an apparently simple goitre. With cessation of painting, rest in bed, liberal diet, and a course of iron, strength and weight were gradually regained. In four months he returned to work weighing 13½ st., and in all respects quite well.

Eight months later he complained of being worried by the consciousness of a missing beat in his pulse. On examination the pulse was 44, feeble, of low tension, and missing a beat at irregular intervals. He remained in bed fourteen days without any improvement. I considered the condition to be one of thyroid exhaustion, but, in view of his previous hyperthyroidism, was afraid of attempting stimulation of the gland by iodine, or of giving thyroid extract. It was decided to try potassium iodide. This was given in 3 grain doses thrice daily. In ten days his appetite had gone, he was losing weight rapidly and his pulse was 125. Rest in bed and an iodine-free diet was ordered, and improvement again set in.

In commenting on the case, Dr. CORNISH said that its most interesting feature was the relation of the symptoms of hyperthyroidism to the administration of iodine. The richness of the thyroid in iodine was well known, and it was impossible altogether to escape from the suspicion that treatment with thyroid preparation may after all only be a mode of treatment with organically combined iodine in an easily assimilable form.

OPHTHALMOLOGY.

At a meeting of the Section of Ophthalmology of the Royal Society of Medicine on November 3rd, Mr. PRIESTLEY SMITH, the President, in the chair, Dr. C. W. DANIELS contributed a paper on *Eye lesions as a point of importance in directing suspicion to possible trypanosome infection*. The common manifestation was an iridocyclitis, while a pronounced oedema of the lower lids was not rare. Choroiditis was less frequent. The incidence of the eye lesions stood in direct relationship with the severity of the infection. Thus, in Rhodesian trypanosomiasis the eyes were affected in 83.3 per cent., in Nigerian cases in 40 per cent., and in cases from Uganda and other parts of tropical Africa in 18.7 per cent. The mortality from the disease in those three regions was respectively 100 per cent., 30 per cent., and 18 per cent. Mr. A. HUGH THOMPSON read a paper on *Late results of the operative treatment of high myopia*. Five years ago he had published notes based on his experience of twenty myopic eyes, the clear lenses of which he had needed with the object of making the refraction approximately emmetropic. The degree most suitable for operation was 16 to 22 dioptres. In young children whose myopia was certainly progressive a limit of 14 D. might well be assigned. With a myopia of more than 22 D. the chance of the eye remaining free from destructive processes was small. He had been able to follow up fourteen cases during periods of five to fifteen years. Only one patient was operated upon in both eyes, and he did not think the advantage justified the double operation. In all the fifteen eyes the result of the operation was good, and the subsequent results he tabulated in detail. Two-thirds of the cases, after an average period of eight years, had materially better vision than before the operation. In not one of them had he to deal with a detachment of the retina as a sequela of the operation. He did not think the operative treatment of high myopia tended to counteract the increase in the long axis of the eyeball, though obviously the removal of the lens had the effect of diminishing the result of the lengthening of the axis of the eyeball on the refraction by about one-half.

SKIN GRAFTING IN MASTOID OPERATIONS.

At the meeting of the Section of Otology of the Royal Society of Medicine on November 19th Mr. H. J. MARRIAGE opened a discussion on skin grafting in mastoid operations. The method mostly worked out by Mr. Charles Ballance (1900) was applicable chiefly to chronic mastoid disease. It resulted in a better healing of the cavity, a shorter convalescence, and prevention of stenosis. The graft took well in 99 per cent. of the cases. All cavities in the bone must be closed, so that no septic pockets remained. The graft must be very thin. A disadvantage was that cerumen and epithelium were liable to accumulate and cause ulceration of the skin, but such collections could easily be removed. He gave particular attention to the posterior meatal wall, removing as far as possible any exposed portion of cartilage, as that seemed responsible for delay in healing when such occurred. Of 39 cases, 29 had improved hearing after the operation, in 8 the hearing was worse than before, while in 2 it was unaltered.

Reviews.

DISEASES OF THE SKIN.

IN the preface to *Occupational Affections of the Skin*¹ Dr. PROSSER WHITE modestly claims to have arranged a useful compilation for the ready use of the English inquirer. The work of compilation has been done well, but the author has also added much valuable information drawn from his own experience. It is now many years since Dr. Prosser White's name became associated with trade diseases. His report on the harmfulness to health arising in the manufacture of nitrons explosives was one of the first of the reports of the Departmental Committee which has done so much to improve industrial legislation in this country. His colleague on that occasion was Sir Hamilton Freer-Smith, then one of H.M. Inspectors of Factories. When it is said that about one-fourth of the cases of eczema which receive hospital treatment are due to occupation, the estimate is certainly not placed too high. Of 1,800 operatives examined by Oppenheim, 400 were found to be suffering from skin diseases due to their employment. Recent advances in industrial chemistry and new processes of manufacture of commercial products, especially those obtained from tar, have increased the number of cases of eczema due to occupation. Dr. Prosser White reminds us that the existence and intensity of trade dermatitis depend upon three factors: (1) The potency of the irritant, (2) the resisting qualities, and (3) the reactive capacity of the skin. The chapter on the resistance of the skin is well written. Attention is directed to the differing resisting qualities of the various layers of the skin. The skin is more profoundly affected by alkalis than by acids. Equally interesting are the author's remarks on idiosyncrasy. Heredity, constitutional and dermal conditions play an important part in the determination of skin eruptions. It is astonishing how, even among the members of one family, one individual is found, for example, to be harmfully influenced by handling certain plants while the brothers and sisters escape. The part played by mechanical pressure and friction in causing the skin to become hardened, also the formation of bursae in the case of miners and labourers, is indicated, as well as the influence of streptococcal infection in the development of certain acute rashes, as in intertrigo. The effects upon the skin of exposure to cold and heat, to x rays, and solar rays are fully dealt with, as well as the burns caused by acids and the destruction of the skin by alkalis; in fact, few trade influences are omitted. The winding of raw silk from cocoons is the occasional cause of a vesico-pustular eruption on the hands and forearms of the workpeople. Such a condition of the skin was seen by the reviewer in a large silk works near Milan. There are some well-known chemical compounds of chrome and arsenical derivation which cause ulceration of the nasal mucous membrane and perforation of the septum of the workpeople who

inhale the dust, the remarkable fact in such people being the absence of symptoms and the comparative harmlessness of the lesion. The dust of arsenical compounds is a frequent source of ulceration of the hands and genitalia of workmen employed in colour mixing. It would hardly be thought that in the occupation of a plasterer there would be anything to cause trouble, and yet during the making of Roman cement, owing to the splashing of slaked lime, the skin may suffer. The new method of preparing leather by the use of chrome compounds is also responsible for a certain amount of occupational skin trouble. Many of us are familiar with the acro and pustular eruptions caused by tar and pitch compounds, as well as with the peculiar warts caused by coal distillates, the termination of which is occasionally cancer. Very appropriately, in dealing with this subject the excellent work done by Ross and Cropper is alluded to. Aniline dyes and dyeing play a useful part in the industrial life of to-day. It has been found that in Eastle cancer is more prevalent among the aniline workmen than among men engaged in other occupations in the town. The book closes with an account of the eruptions caused through the penetration of the skin by larvae, such as occurs in ankylostomiasis. The author is to be congratulated on having supplied an interesting and a helpful book—one which ought to be in the hands of all medical men whose practice brings them into contact with diseases of occupation.

The second edition of Dr. SEQUEIRA'S textbook on *Diseases of the Skin*²—though the moment of its publication may seem inopportune, for dermatology is essentially a peaceful specialty—deserves more than mere passing notice. As is commonly the case with second editions, the present volume is considerably larger than the former. Reduced to cold statistics, the growth of the book may be summarized in the addition of 110 pages of text, four new coloured plates, and sixty new half-tone illustrations. The author has kept well up to date with modern advances in dermatology, which may be traced in the additions made; for example, Sambon's work on the etiology of pellagra is adequately noticed, and several additional diseases due to animal parasites, grain-itch, copra-itch, and ankylostomiasis have been included. There is also a special chapter on exotic spirochaetal diseases. Dr. Sequeira has made full use of the great opportunities at his disposal at the London Hospital, and with a few exceptions all the illustrations are drawn from the cases which he has seen at his own clinic. This is a book of some 600 large pages, in the whole extent of which there is hardly a redundant word, and the consequence is that it is a richly stored mine of information upon all the problems of dermatology; the practitioner will find therein the *pros* and *cons* of almost any question which may present itself to him. An omission which we would like to see remedied is the record of Dr. Sequeira's own individual opinion upon some of these questions; for example, the rival theories on the etiology of pellagra are both quite fairly stated, but without any judicial pronouncement in favour of any one of them. Similarly, the fiercely debated subject of the fatalities following the administration of salvarsan is summed up accurately enough, but judgement is still apparently reserved. It would add to the attractiveness of the volume if this reticence were to some extent discarded. There is one point on which we would disagree with Dr. Sequeira—that is, the effects of x rays on the skin. He states that the hair falls fourteen days after the exposure, and that when attended by erythema epilation is permanent. Most workers who have treated many cases of ringworm can recall instances in which the hair has fallen even so soon as eleven days after the exposure and in which there was some erythema but in which the regrowth of hair has been satisfactory. That, however, is probably about the limit, and a dose so powerful is not to be recommended. On the other hand, in the treatment of lichen simplex chronicus pastille doses at intervals of a fortnight are recommended. Are not telangiectases, with atrophy of the skin, likely to follow such a vigorous bombardment? This edition is more strongly bound than the first, and there are not nearly so many misprints.

¹ *Occupational Affections of the Skin: A Brief Account of the Trade Processes and Agents which give rise to them.* By R. Prosser White, M.D. Edin., M.R.C.S. Lond. London: H. K. Lewis, 1915. (Demy 8vo, pp. 175; 5 plates, 7s. 6d. net.)

² *Diseases of the Skin.* By J. H. Sequeira, M.D. Lond., F.R.C.P. Lond., F.R.C.S. Eng. Second edition. London: J. and A. Churchill, 1915. (Roy. 8vo, pp. 661; 48 plates, 238 figures, 25s. net.)

PHARMACOLOGY AND THERAPEUTICS.

The sixth edition of Professor CUSHBY'S well known *Textbook of Pharmacology and Therapeutics*³ has been thoroughly revised and brought up to date, and deserves all the encomiums that have been earned by its previous editions. After a brief general introduction to the action of drugs, the book is divided into four parts. In the first of these Professor CUSHBY describes the chief drugs characterized by their local action on the tissues, including such substances as bitters, ferments, irritants, purgatives, and antiseptics of all sorts. Part II, in fifty-six sections, forms the bulk of the book, and contains accounts of the substances characterized chiefly by their action after absorption. Part III consists of an account of the pharmaceutical use of the heavy metals among which a chemist will be surprised to find aluminium reckoned. Part IV deals chiefly with cod-liver oil. Professor CUSHBY writes very clearly, generally preferring to summarize the results of observation and experiment rather than to detail them. His book is packed with information serviceable to the medical student and the practitioner; the information is conveyed in less didactic style and less tabulated form than is the case in Professor DIXON'S shorter volume noted below, its rival as an exposition of the aims and tendencies of modern pharmacology. It may be noted that neither of these authorities makes any use of the outstanding principle of drug action advocated by the late Professor Ehrlich in his fundamental tenet, *Corpora non agunt nisi fixata*; both, indeed, expressly condemn it. Professor CUSHBY sees no objection to the use of morphine and opium in Bright's disease (p. 254), and is inclined to attribute sudden death early in chloroform anaesthesia to the onset of ventricular fibrillation (p. 204) rather than to vagal inhibition of the heart. A few misprints may be noted; the pyrrol ring of nicotine is not "hydrated" (p. 304), but "reduced" or "hydrogenated"; "cephalic" and "cephaline" (p. 437), words of four syllables, should not be spelt with a diphthong; "phlorizin" should not be spelt "phloridzin" (p. 504), although this error has obtained a very firm footing in British medical literature. These, however, are but trifling defects in a textbook of proved excellence.

The fourth edition of Professor DIXON'S invaluable *Manual of Pharmacology*⁴ has appeared within ten years of the issue of its first edition. The study of drugs has made so much progress during the last three or four years that the author has found it necessary to rewrite large sections of the book. This is notably the case with the chapters on such important drugs as digitalis, strychnine, and morphine. In addition, the production of the new *British Pharmacopoeia* has necessitated much revision of the pages given to materia medica; as Professor DIXON feelingly remarks, "the dual system of dosage now introduced must be for a time tiresome to us all."⁵ The thirty-two chapters of the text give clear and brief accounts of the most important drugs employed in medicine, with insistence chiefly on the physiology of their actions. The illustrations are drawn mainly from tracings of blood pressures, muscle contractions, the actions of the heart or respiratory muscles made in the pharmacological laboratory. The actions of each drug are clearly and tersely summarized under headings in a way that is most attractive to the student. The chemical aspects of the subject are treated briefly; the author appears to have no sympathy with speculations as to the connexion between chemical constitution and pharmacological action with which the pages of such a book as Fraenkel's *Arzneimittelsynthese* are filled. In his account of the organic compounds of arsenic Professor DIXON stops short with the mention of "606," and does not refer to neo-salvarsan ("914"), introduced in 1912, or to the sodium-salvarsan ("1206 A") of a year later. The book is to be commended warmly to medical students who have examinations to pass and practical pharmacological work to do.

The tenth edition of Dr. MITCHELL BRUCE'S well-known little handbook on *Materia Medica and Therapeutics*⁶ has recently appeared, thirty-one years after the first was issued. The new issue of the *British Pharmacopoeia*, introducing a number of new drugs, omitting others, and making important changes in the composition, strength, and name of many preparations, has made it necessary to submit the manual to thorough revision. In addition the employment of the metric system has been extended, and that of the Imperial system of measurement entailed with a view to its total abolition in the course of time. An entirely new section on practical pharmacy has been introduced: many additions have been made to official and non-official synthetic drugs, and the use of vaccines, serums, iontophoresis and the actions and uses of radium are described. Dr. Mitchell Bruce's book, as everybody who has used it knows, is particularly strong on the therapeutic side, and gives an admirable introduction to the rational use of drugs in the treatment of disease such as few living therapeutists could write. The book may be warmly recommended to medical students and practitioners who wish to know how to prescribe the drugs they use with the greatest advantage.

Potter's *Cyclopaedia of Botanical Drugs and Preparations*⁷ now in its second edition, gives a botanist's account of the chief vegetable remedies employed at the present time. It is written, in the first place, for the benefit of those who handle herbs and drugs in either small or large degree; in the second place, it gives a brief but optimistic summary of the medicinal virtues of the plants described. The distinctive characters of the medicinal parts of each herb are given clearly and in brief by Mr. E. M. HOLMES, affording means for the identification of the crude drugs. The book strikes one in many ways as a labour of love, compact of accurate botanical lore, and so far valuable. How far it is a trustworthy medical guide to the student or practitioner is, perhaps, less certain. Thus we find it stated that an infusion of the bark of the slippery elm "makes a very wholesome and sustaining food for infants," while the coarsely powdered bark is said to form "the finest poultice to be obtained for all inflamed surfaces, ulcers, wounds, burns, boils, skin diseases, purulent ophthalmia, chilblains, etc.," as though Lister had lived in vain.

NOTES ON BOOKS.

SEVERAL books have been written upon medical missions since the time when Dr. Livingstone so arrestingly demonstrated some of the wonderful possibilities of the high calling of healing and preaching; but Dr. HODGKIN'S recent work⁸ stands out apart from almost all of them by reason of a fine elevation of thought and diction, combined with an intimate and practical acquaintance with the difficulties of medical mission work. On the one hand, there is his suggestion that for the adventurous spirits of the future the medical missionary's life may supply that moral equivalent for war which is so sorely needed if the world is ever to turn to the paths of peace; and on the other, is his argument in favour of the provision of a native faculty of medicine for China and his consideration of the efforts which are being made to translate medical textbooks into the language of the country and to provide an Anglo-Chinese medical lexicon. Dr. Hodgkin's book deserves to be read thoughtfully by all who are interested in world-wide medicine, whether they agree with him or no in regard to the missionary aspect of the work.

³ *Materia Medica and Therapeutics*. By J. Mitchell Bruce, M.D., Lond., F.R.C.P., and Walter J. Dillins, M.B., Ch.B., Aberl. Tenth edition, revised to correspond with the *British Pharmacopoeia*, 1914. London: Cassell and Co. 1915. (Pp. 645. 6s. 6d. net.)

⁶ *Potter's Cyclopaedia of Botanical Drugs and Preparations*. By R. C. Wren, F.L.S. With additions by E. M. Holmes, F.L.S. Second edition. London: Potter and Clarke, Limited, 1915. (Cr. 8vo. pp. 379-384. 8d. net.)

⁷ *The Way of the Good Physician*. By H. T. Hodgkin, M.A., M.B., Lond., United Council for Missionary Education, 1915. (Cr. 8vo. pp. 144; illustrated. 1s. net.)

ACCORDING to the *Journal of the American Medical Association*, Dr. William A. Pusey, in an address recently delivered before the Chicago Medical Society, stated that there are about 500 lepers in the United States. Of these, 275 are in Louisiana, 100 in New York City, 50 on the Mexican frontier, and 5 in Chicago.

² *A Textbook of Pharmacology and Therapeutics, or the Action of Drugs in Health and Disease*. By A. R. CUSHBY, M.A., M.D., L.D.S., F.R.S., sixth edition, thoroughly revised. London: J. and A. Churchill, 1915. (Roy. 8vo. pp. 718; 70 figures. 15s. net.)

⁴ *A Manual of Pharmacology*. By W. B. DIXON, F.R.S., M.A., M.D., B.S., B.Sc., D.P.H. Fourth edition, completely revised. London: E. Arnold, 1915. (Demy 8vo. pp. 479; 91 figures. 15s. net.)

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SATURDAY, NOVEMBER 27TH, 1915.

LORD DERBY'S SCHEME AND MEDICAL RECRUITING.

THE Local Government Board, on November 22nd, issued notes and instructions with regard to the formation of local tribunals under Lord Derby's scheme for recruiting. It is now possible for a man either to enlist at once or to join the Army Reserve (Section B) and be placed in a group according to his age, and according to whether he is or is not a married man. Having been attested and placed in his group in the Reserve, he may then return to his civil occupation until his group is called up for service. There are 46 groups—23 for single men (each year of age constitutes a separate group), and 23 similar groups for married men; the first group consists of single men aged 18, the forty-sixth group of married men aged 40. It is proposed to call the men up in the numerical order of the groups, except that men of 18 years will not be called up for service until they have attained the age of 19.

The local tribunals which will be or have been formed by the town and district councils in every area will have the duty of receiving and deciding applications from attested men or their employers, who, for various reasons, wish to have the time at which the men are to be called up for military service deferred. If the recruiting officer, or the local tribunal, is satisfied of the validity of the reasons given, a man may be put back into a later group, provided that the number of groups he is put back on any one claim be not more than ten. When an attested man, or his employer (provided the man is willing to continue in his employment), desires to apply for later grouping, either because the man is indispensable in the industry, or to his employer's business, or because of difficulty in his being released from civil obligations, notice must be sent to the clerk of the local tribunal. If a man is engaged in occupations of importance from the point of view of munition work and is "starred," the case will be referred to the Ministry of Munitions; in the case of men engaged in coal-mining the case will be referred to the Home Office. With regard to men in some branches of railway work and agriculture, and also in what are called "reserved occupations," a long list of which has been drawn up, the local tribunal will investigate the case and report to the Central Appeal Tribunal for decision. Most of the cases mentioned above are those of starred men already provisionally exempted from actual service; but in each case it may be decided later on that it is no longer necessary to retain the man in civil employment.

With regard to the unstarred man, if an application is made to the tribunal, and if the recruiting officer assents to the application, the tribunal notifies the employer that the man has been placed in a later

group. If the military representative does not assent, the local tribunal proceeds to hear and decide the claim. There will be a right of appeal from the decision of the local tribunal to the Central Appeal Tribunal, which consists of Lord Sydenham (chairman) and four other Commissioners. Every man who is attested, in whatever class he may come, will receive an armlet.

With the issue of these instructions on the subject of local tribunals, the decision of Lord Derby to hand over the whole of the recruiting of officers for the R.A.M.C. to the Central Medical War Committee in England and Wales, the Scottish War Emergency Committee, and the Irish Medical War Committee renders it necessary for these committees to undertake at once work of great magnitude and importance. From the outset the policy of the committees has been that every man of military age who is physically fit should either take a commission at once, if circumstances make it easy for him to go, or should enrol himself as willing to do so whenever the Committee tells him that duty requires him to serve. This policy is the basis of Lord Derby's scheme.

Accepting the premise that it is the duty of every fit man of military age to take a commission and serve his country whenever the need arises, and after pressing for the completion of the quota required from each area for immediate service, it becomes necessary to group those who remain in classes according to the ease or difficulty with which they can be set free to join the army. It has been found possible to group medical men under twelve classes, with special arrangements for consultants and specialists. The classification is based on:

- (1) The amount of disturbance in the medical service of the community caused by the removal of practitioners from an area;
- (2) The security of the practices or appointments held by practitioners;
- (3) The question whether a practitioner is married or single.

After the men have been arranged in groups the next duty of each committee will be to find out which men can be spared from each group. Already valuable information on this point has been obtained through the new method of assessing the quota required from each district, and valuable assistance has been given by the Insurance Commissioners. But the ultimate responsibility for assisting the committee in this matter will rest with the local medical war committees.

A matter pertinent to the question of recruiting is the case of medical students in various years of their study. It has recently been announced by the medical authorities of the War Department that "students who at or before the close of the present winter session will be qualified for entry to one of the examinations for the third year students in medicine, and duly enter for the examination for which they are studying, will not be attested until after its conclusion, and if they are successful will be included in the class of fourth year men under Lord Derby's scheme." This decision will go a certain way towards satisfying those critics in the medical profession who had become concerned about the possible shortage of doctors in the future, though it still leaves the younger student, not yet within sight of his intermediate or second professional examination, open to the blandishments of the recruiting sergeant. However, the fact that men in Group I under Lord Derby's scheme will not be called up until they are 19 years of age, may have some effect in reducing the numbers of those who will be taken from their medical studies to serve in combatant capacity.

THE AGE OF RECRUITS.

THE "clastic" age of the recruit is somewhat of a stock joke in the comic papers, but the matter has its serious side, and an attempt is being made to fasten on the medical profession that which does not belong to it.

The attitude of the War Office was defined by Mr. Tennant on November 2nd. After stating that the minimum age at which men are authorized to be taken for service with the colours is at present 19, and that no man is accepted for direct enlistment unless he gives his age on attestation as 19 or over, he said "strict orders have been given to all recruiting officers that unless a recruit evidently has the physique equivalent to his declared age he is not to be enlisted without an examination of his birth certificate. If a recruit enlists who has declared his age to be over 19, but who is actually below that age, the War Office do not consider that to be sufficient cause in itself for discharging him from the army. Under existing arrangements a soldier who is actually below 19 may be sent abroad provided his physique is considered by the medical authorities to be that of a man of 18½. If his physique is below that of a man of 18½ he is retained for training and service at home until he reaches the required standard. In practice, however, the War Office always allow a lad who is under 17 to be discharged provided application is made to his commanding officer whilst he is serving at home. In the case of all soldiers serving overseas the question of discharge or return to this country rests with the Commander-in-Chief, who retains only those who are considered fit for service abroad."

In reply to suggestions that recruiting sergeants should be instructed not to take any boys unless they produced their registration cards, Mr. Tennant said that such a system would take up a very considerable amount of time, and added that he was only aware of two or three cases in which boys as young as 16 had been recruited.

The Honorary Secretary of "National Service" has sent us letters on the subject and a cutting from the press, in which a point which concerns the medical profession is raised. The assertion made is that the whole responsibility for the correct attestation of the age of the recruit rests with the medical officer who examined the recruit, or, in the case of enlisted soldier, with the medical officer of the battalion. He further maintains that the one and only proof that the medical officer should rely upon is the certificate of birth of the recruit. The article he encloses contains the following sentence: "The birth certificate is the best possible preliminary test of a man's fitness to stand the strain of modern war." Put in this blunt and unqualified fashion, the statement cannot be accepted.

In the first place, it must be pointed out that, as Mr. Tennant's statement might have sufficed to show, the doctor is not responsible for the correct attestation of the age of the recruit. The certificate of birth is a document which states that at a certain place and on a certain date a child was born to certain parents, who registered him under a certain name. The certificate may or may not pertain to the bearer of that form. The validity of the application of the document is wholly a legal matter. But the main point is that there is no age at which fitness can be guaranteed. The statement that a recruit is of a certain age does not in any way carry with it a certain indication of growth up to a certain state of physique, and, contrariwise, the known fact that a

given subject has not attained to some marked age does not imply that this subject has not reached a standard of growth and maturity that renders him fit for the most strenuous form of manly service.

The age of 19, as the minimum age for recruits in this country, has been fixed by a process of averaging. It is found on an average that lads of this age are of a certain standard of physical fitness and capable of enduring hard work and severe strain without physical deterioration. Since it is based on an average there are, of course, many above and below this age worse or better than the average.

In the work of selecting recruits the first point that has to be in the mind of the examining medical officer is the likelihood of the man being physically fit for the service which he proposes to undertake. This is made clear by the very form of the attestation paper. Army Form E. 501 is the one in use for recruiting the Territorial Force. On the first page there is a space for questions to be put to the recruit before enlistment—these are purely relating to status; pages 2 and 3 are ruled for data on the training of the recruit and his military history; page 4 is headed "Medical Inspection Report." It is divided into four parts. Of these four spaces the first and the last are the only ones that are pertinent to this matter. In the first space there is a line for entry of name, then one for the entry of the "apparent age," followed by lines for the entry of certain data on height, chest measurement, vision, and physical development. The qualification of the age entry is worthy of note. If it be intended that this space should be filled in by the doctor it is clear that he is there to state the apparent age of the recruit as judged by the only known medical criterion—the judgement of the growth of the recruit. This point would be stronger were it not for a lack of clarity in the military mind, for the "apparent age" of the recruit has to be entered in "years.....months." A medical man of experience may be a fair judge of age in years, but he would be a bold man who would back his opinion on a matter of months. From inquiries at a well-known and central London recruiting station we learn that the age is filled in by the recruit himself, or at his dictation by the military clerks, and that the form so filled in is handed with the recruit to the doctor.

The last major space on this fourth sheet for the medical inspection report is headed "Certificate of Approving Officer." In this the officer certifies "that this attestation of the above-named recruit is correct and properly filled up, and that the required forms appear to have been complied with." There is a note which states that the signature has to be affixed in the presence of the recruit, hence it would seem that this approving officer would be the responsible party in the eyes of the War Office for the declaration of age.

The conclusion is that the medical man who examines recruits has but one duty, that is to discover and certify the fitness or otherwise of the recruit. He is not appointed an amateur detective to question the good faith of the recruit in the statement of his age. He takes that statement for what it is worth. His certificate of fitness is not based upon it, but upon the maturity of flesh and blood before him. To attempt to saddle the doctor with the business of examining birth certificates, which, as has been said, are of doubtful validity in an unsupported state, is ridiculous, and the assertion that such a certificate can establish the fitness or otherwise of a recruit shows a lamentable lack of knowledge on the part of those who put it forward.

SANATORIUM BENEFIT FUNDS.

THE replies in Parliament by Mr. C. Roberts on behalf of the Insurance Commissioners to questions with respect to sanatorium benefit funds are of great importance to panel practitioners. There can be little doubt that a number of Insurance Committees are now engineering attempts to deprive panel practitioners of 6d. out of the 7s. capitation fee. The Ayr County Insurance Committee has passed a resolution to the effect that the 6d. allocated for domiciliary treatment of persons recommended for sanatorium benefit should be discontinued, as it is an unnecessary drain on the sanatorium benefit fund, and that steps should be taken to have the remuneration of practitioners made dependent upon actual attendance and treatment given. This resolution has been sent round to most if not all the Insurance Committees throughout the country with a request that they should pass a similar resolution, which may then be presented to the Government and the Commissioners. It is gratifying to find that many committees have refused to be thus led. In the explanatory letter sent by the Ayr Committee some calculations are made which show a complete ignorance of the true condition of affairs. The calculation takes something like this form in the case of both the Ayr, the Renfrew, and the Kilmarnock Committees: Suppose the 6d. in an area produces £1,000 in a year, and that only ten persons receive domiciliary treatment for tuberculosis, then it is said that the doctors get £100 for each case of tuberculosis treated at home. The specious fallacy of this will undoubtedly captivate many committees and even apparently some members of Parliament, but it is satisfactory to find, as will be seen from our parliamentary report on page 201 of this week's SUPPLEMENT, that Mr. Roberts on behalf of the Commissioners entirely refuses to accept the validity of such calculations. In the first place he quite rightly points out, to quote from the official report, that "the arrangements in respect of the domiciliary treatment of tuberculosis form part of the general terms of remuneration of medical practitioners under the Act." Many committees have considerably over-spent their sanatorium benefit fund, and under Section 17 (2) (3) of the 1911 Act, by the consent of the Treasury and the county council half the deficit will be paid by each of these bodies. This consent must in all cases have been obtained beforehand, and this forms a very salutary restraint on the extravagance of Insurance Committees, which in most cases are only amateurs in dealing with the vast problems of tuberculosis. Accordingly Mr. Roberts also points out that the 6d. specifically allocated to the panel doctors in respect of their responsibility for domiciliary treatment cannot be diverted to meet other expenditure by the committees on tuberculosis. All who are acquainted with the facts know that a very large proportion of insured persons suffering from tuberculosis in its various forms never apply for sanatorium benefit at all, and yet they receive treatment from the panel doctors; and even if they do apply, it is in nearly all cases only after a more or less prolonged course of treatment, and they receive exactly the same treatment so long as they remain at home, though nominally they may not be receiving sanatorium benefit. This being so, it is only right that the sanatorium benefit funds should contribute towards the cost of such treatment. This is attained by the present method, under which, for practical purposes, the 6d. forms part of the general panel fund. The Insurance Committees of Ayr, Renfrew, and Kilmarnock entirely ignore all these facts, and probably it is on this account that Mr. Roberts quite rightly refuses to accept the validity of their calculations. His reply in Parliament is further indirectly supported in the circular of the Commissioners dealing with the commercial tariff, which recognizes in several places that the panel practitioners have a just right to demand that the 7s. capitation fee, which includes the 6d. for domiciliary treatment, shall not be lessened, as would be the case if the contention of the Insurance Committees were granted.

Nevertheless, it is quite evident that the profession will have to present a united front against the attempts to encroach on its remuneration which is now being made by a number of Insurance Committees and indirectly suggested by questions in the House of Commons.

THE ETHNOLOGY OF THE PRUSSIANS.

PROFESSOR J. COSSAR EWALT took for the subject of his presidential address to the Scottish Natural History Society on November 4th the question, "Who are the Prussians?" It was, he said, generally assumed that the Germans were Teutonic, or, in other words, that they belonged to a dolichocephalic race of Aryan origin; but De Quatrefages, who made a special investigation of the origin of the Prussians about forty years ago, came to the conclusion that they were not Germans at all, but were related to the Finns and other primitive races of Western Russia, who ruled by the sword alone. Further, an American anthropologist had stated that, whilst North-Western Germany was distinctly allied to the Swedes, Norwegians, and Danes, the remainder, not excluding Prussia east of the Elbe, was less Teutonic in type, Baden, Wurtemberg, and Bavaria being distinctly brachycephalic; the same authority had affirmed that while Northern Germany had a little more Teutonic blood than Northern France, South Germany was not racially distinct from Central France. Professor Ewart referred to the typical and other characters of the Teutonic and Alpine races, pointing out that the Teutons were reserved and independent, and more interested in military and political than in purely intellectual affairs, and that members of the brachycephalic Alpine race were generally characterized by patience and passivity, making them submit easily to autocrats and despots. In origin, the Teutons might be a blend of the dolichocephalic Cromagnon and Chancelade races which flourished in Europe at the end of the Ice Age; from such a blend the tall, smooth, oval-faced Teutons might easily come. Finally, Professor Cossar Ewart stated that although German writers had consistently maintained the existence of a radical difference of origin between themselves and the Slavs, yet a comprehensive census of stature and head-form would almost certainly show that though a dolichocephalic race dominated Germany, a round-headed race intimately related to the Slavs formed the bulk of the population.

BOVINE TUBERCULOSIS IN MAN.

THE assertion put forward to an astonished congress in 1901 by the late Professor Koch, that man was practically never infected by bovine tuberculosis, has long since been shown to be erroneous. The actual extent to which the human subject is susceptible to the bovine infection is not so easily demonstrated. Drs. Stenhouse Williams and E. H. R. Harries, a research bacteriologist and a tuberculosis physician respectively, have lately republished an interesting inquiry into the question, with additions, in which the most recent investigations have been taken into account. A vast amount of information has accumulated during the last fourteen years, more especially with regard to the forms of tuberculosis affecting other parts than the lungs. For purposes of analysis the evidence has been examined in two groups—experimental and statistical. It has been proved experimentally that the general tuberculosis which can be produced by inoculation in certain young animals presents the same clinical features and the same pathological lesions whether the infecting material be obtained from a human or an animal source. Statistically it has been proved that tuberculous affections of the alimentary canal and its associated glands, especially the tonsils and the mesenteric

¹ *Bovine Tuberculosis in Man*, by R. Stenhouse Williams, M.D., B.Sc., D.P.H., Research Bacteriologist in Dairying, University College, Reading, and E. H. R. Harries, M.D., B.Sc., D.P.H., Tuberculosis Physician, King Edward VII. Welsh National Memorial Association, University Press, Cambridge, 1915. (pp. 13)

glands, are most prevalent in early life and notably so during the years in which milk forms a large part of the diet. Comparing the death-rate from the pulmonary with the general forms of the disease, it appears evident that there has been steady diminution in both during the past seven years, but that the decrease has been most marked in tuberculosis of the lungs. Examination of the figures recorded in Manchester, under the supervision of Professor Delépine, where the milk supply has been subject to careful control, goes to prove that the percentage of tubercle bacilli present in samples of mixed milk has been reduced in ten years from 17.2 to 5.14. A marked reduction in the death-rate has been effected during the period in which control has been exercised, but it is probable that the bovine type of bacillus continues to be responsible for a large number of deaths from general tuberculosis. The need for continuous and increased effort to preserve the rising generation from this danger has been terribly emphasized by the wastage of young adult life during the past fifteen months.

OBSCURE EPIDEMIC FEVER.

In September, 1914, Quincke and Knoblach¹ observed a small epidemic in a hospital in Frankfurt, where, on two successive evenings, ten patients suddenly developed almost exactly similar symptoms. They complained of pain on respiration in the region of the right costal arch, whence the pain radiated to one or other shoulder, usually the left. The patients were exhausted and febrile; the temperature rose suddenly, and usually reached 39° C. The pain in the lower ribs hampered the respiratory movements, and usually lasted from five to six days, becoming less and less acute in this period. The pain in the shoulders usually began simultaneously with the pain in the chest. In no case were any physical signs found to account for these symptoms, and there was no evidence of food poisoning or a "chill." The authors suggest that the symptoms may have been due to the stings of insects in the liver region, but in no case was any sign of such stings found. They do not, however, seem to attach much importance to this negative evidence, and, assuming that their hypothesis is correct, they point out that the poison from the stings might have reached the liver, where it might have provoked small inflammatory foci in the serosa of the liver. The adjacent parietal peritoneum would accordingly have become involved, as well as the neighbouring intercostal muscles. Such acute epidemics of fever ending rapidly in recovery are exceedingly common. In many cases they represent abortive forms of pneumonia, paratyphus, and scarlatina. In other cases their cause is obscure, and though this group of symptoms is frequently referred to in the textbooks, ignorance of its true cause is betrayed by the multiplicity of titles given to it.

PATHOMETRY.

At the meeting of the Royal Society on November 11th Sir Ronald Ross, F.R.S., read an introductory paper indicating the method he proposed to follow in studying the nature of the functions according to which the number of individuals infected with some disease should vary from time to time, on the supposition that the laws governing the rate of transference of the considered disease were already known *a priori*. He stated the fundamental problem under consideration in the following terms: "If a population is divided into two groups, namely, those who are affected by some kind of happening, such as an infectious disease, and those who are not so affected; and if in unit of time a constant or variable proportion of the non-affected become affected, while simultaneously a constant proportion of the affected become non-affected (that is, revert or recover); and if at the same time both the affected and the non-affected are subject to different birth-

rates, death-rates, and rates of immigration and of emigration, so that the whole population may be incessantly varying during the period under consideration; then what will be the number of affected individuals and also the number of new cases at any moment during that period?" In this first paper the problem was presented in mathematical language, with its solution, and a broad analysis of the curves obtained and of some integrals. Only constant rates of happening (applicable to other happenings besides disease), and rates which varied according to the number of individuals already affected (specially applicable to infectious diseases) were considered. In the latter cases the resulting curves were frequently bell-shaped, declining a little more slowly than they rose—that is, generally similar to the curves frequently seen in epidemics—thus suggesting *prima facie* that epidemics might be largely explicable in the terms of the thesis given.

A METHOD OF EXAMINING TUBERCULOUS SERUM.

An interesting account is given by Hekman¹ of some experiments he has made in the investigation of tuberculous serum by a new method, which has given him results as yet inchoate but perhaps promising. It is similar to one already used by Aberhalden, and depends upon the action of serum upon stained fibrin. If fresh fibrin, which has been stained (the found eosin best, but also used methylene blue) and subsequently thoroughly washed free of all removable dye, be added to human serum, it undergoes an alteration which Hekman assumes to be of a digestive character, and in the course of which the stain is liberated into the surrounding medium. This happens with all human serums, the serum of different individuals varying greatly in this respect, and there seems to be no reason to associate great activity or inactivity with any particular disease. Moreover, it is not only upon fibrin that such action is exerted; coagulated egg albumen, lung or kidney tissue may also be used, though less satisfactorily. There seemed some reason to believe that the serum of chronic nephritis acted much more strongly than other serums upon kidney tissue. The addition of a second unstained protein—for example, egg white—to such a serum-fibrin mixture reduces the activity of the serum to a marked extent, taking to itself apparently some of the active ingredients of the serum, and tuberculin also has a markedly reducing power. The interesting observation, however, is that tuberculin has much less reducing power when the serum in the mixture is derived from tuberculous patients than when it is derived from other sources. This failure of the tuberculin action is accentuated if the serum and tuberculin are left in contact for some time before the fibrin is added. Hekman, who does not appear to have tried whether other proteins behave like tuberculin in this regard, conjectures that the tuberculous serum digests the tuberculin protein so rapidly that it is largely removed from competition with the fibrin, and therefore it may be possible to estimate the tuberculin-lytic power of a tuberculous serum by means of this method. Clinically he has cases even in which the reducing power of the tuberculin rose as the patient improved, and cases where it fell as the disease advanced. There are obvious technical difficulties in such a method, and the variability of normal serum is a source of errors, but Hekman is aware of the difficulties, and is guarded in his estimate of the applicability, and it will be interesting to see whether further development will be possible.

INSURANCE AGAINST THE COST OF ILLNESS.

From time to time we have commented on the additional strain thrown upon members of the medical profession at home owing to the conditions brought about by the war. It has always been prudent to make provision against sickness or accident, with the attendant diminution of

¹ *Beri. klin. Woch.*, August 23rd, 1915.

¹ *Nederlandsch Tijdschr. voor Geneeskund.* 1915, p. 218.

income and increase in expenditure. It is more than ever important to do so to-day, when the ranks of the medical profession are depleted so that it is difficult to get help from neighbours, and when the increased pressure on time and energies renders a breakdown perhaps more probable. As to the increased cost at the present time it is necessary only to remember the increased fees which are now commanded by locumtenents; the prudence, therefore, of ensuring adequate financial assistance when laid aside by sickness is obvious. The Medical Sickness and Accident Society offers an attractive policy designed to meet this necessity; full particulars may be had from the secretary, Mr. Bertram Sutton, 300, High Holborn, W.C.

Medical Notes in Parliament.

War.

Army Medical Services (Advisory Board).—On November 22nd Mr. Shirley Benn asked how many members constituted the Advisory Board of the Army Medical Services; what salaries were paid; and how many meetings had been held in 1913, in 1914, and in 1915. Mr. Tennant replied as follows: There are eleven members, seven military and four civilian. The civilian members are paid £200 a year each for their services on the Board. Two military members receive extra pay of £150 a year; five receive nothing for this duty. The number of meetings of the Board was in 1913 ten, in 1914 seven. No formal meetings have been held in 1915, but all the paid members have been constantly consulted and have given very valuable advice throughout the war.

Invalids from the Dardanelles.—In reply to Sir C. Kinloch-Cooke, Mr. Tennant said that a considerable number of officers and men were being sent home from the Dardanelles suffering from dysentery and enteric fever, and that careful attention would be given in each individual case to the question of the advisability of sending men back to the Dardanelles who had suffered from these diseases and as to whether they might not be employed in some other theatre of the war with less risk of a relapse due to want of suitable food. He was making inquiries as to the rations issued to these invalids on the homeward voyage.

Men Unfit for Service.—In reply to Mr. Morrell, Mr. Tennant said that a soldier who was unfit for active service abroad was not necessarily discharged. If he were fit for garrison duty abroad or for home service he was retained accordingly. If unfit for any of these forms of service he was discharged. A certain number of men had been accepted in the past as recruits who had been found after enlistment not to be in all respects fit for service. These men, if unfit for any form of service, had been discharged. Every endeavour was made to secure efficient medical examination of recruits, and the War Office was not aware that there was now any ground for complaint in this respect.

Dental Treatment for Troops.—In reply to Sir Henry Craik, on November 17th, the Financial Secretary to the War Office said that all grades below officers were now receiving free dental treatment, and officers at the front were treated when necessary by the dentists appointed to the forces. Officers who suffered loss or injury to teeth through wounds were also granted necessary expenses of treatment. In reply to another question, he said that, as far as he was aware, the assistance given by the Colonial and British Governments to their respective officers and men was practically on the same lines. In another question Sir Henry Craik suggested that, owing to the lack of opportunity for operations necessary to supply defects, many officers and soldiers had had to give up much of their short period of leave to the supplying of such defects. Mr. Tennant did not admit the truth of the suggestion. Dental surgeons and dental mechanics were, he said, supplied to the troops at the front as demanded by the authorities. The treatment included not only all that was necessary for the relief of pain, but operations also for officers and men, and the provision of artificial dentures to the non-commissioned ranks. Dental surgeons were given commissions on the unattached list, and not in the R.A.M.C.

Army Rations.—Mr. Butcher, on November 18th, asked the Financial Secretary to the War Office a question with regard to a recent Army Order empowering the general officers to entrust the meat ration within their commands when in their judgement the full ration was not required; whether reductions of varying amounts had been made in seven commands or districts, but none in four others. Mr. Forster said that the subject was receiving careful consideration. He also stated, in reply to Mr. Cathcart Wason, that the army ration of preserved meat was $\frac{3}{4}$ lb., and was contained in a tin known in the trade as a nominal 1 lb. He agreed that it was essential that a meat ration should be available for immediate use, and considered that the tins of bully beef complied with this requirement.

Apothecaries' Hall of Ireland.—On November 18th Mr. Byrne asked a long and circumstantial question with regard to the Apothecaries' Hall of Ireland, and inquired whether the Hall had been hindered in its work of qualifying surgeons for the army by the action of the General Medical Council, which had subjected it to a series of visitations, inspections, and inquisitions, thereby frightening away a number of competent candidates who desired to get qualified to serve in the R.A.M.C.; and whether other medical licensing corporations had been subjected to such visitation, inspection, or inquisition by the General Medical Council since the war broke out. Mr. Tennant replied that the Apothecaries' Hall of Ireland had recently made representations to the War Office with regard to the action of the General Medical Council. He had no information as to any effect which the action of the General Medical Council might have had in frightening away candidates who desired to get qualified to serve in the Royal Army Medical Corps, but it was obvious that the Army Council had no authority over a body such as the General Medical Council, which was responsible for the efficiency of civil medical education, and the Army Council had no information at all regarding the number of inspections which the General Medical Council considered it necessary to make of the various medical licensing corporations.

Milk Supply in Agricultural Districts.—Mr. Field, the member for St. Patrick's Division, Dublin, called attention, on November 18th, by a question in the House of Commons, to the difficulty people in rural districts in Ireland had in obtaining an adequate supply of milk, and asked the Chief Secretary whether, considering the matter in conjunction with the Department of Agriculture and the local authorities, he would institute remedial measures. Mr. Birell, while admitting the difficulty, which he observed had been disclosed in evidence before the Viceroyal Commission on the milk supply, said that it was not at present practicable for the Government to take remedial measures; he hoped that creameries and farmers having milk at their disposal would realize their duty to make a portion of their supply available for dwellers in agricultural places, and promised to see what could be done to stimulate creameries and farmers to carry out this recommendation. In reply to Mr. Luodon, Mr. T. W. Russell stated that the estimated value of the total output of butter in Ireland for the twelve months ended June 1st, 1913, was £9,201,000; the corresponding figure for the twelve months ended June 1st, 1908, was £8,879,000.

Grants to Day Nurseries.—In reply to Mr. King, the Parliamentary Secretary to the Board of Education stated, on November 18th, that according to the Board's regulations day nurseries were intended for children under three years of age, but older children might be admitted if proper provision could be made for them. No provision was made by local authorities for children between 3 and 5, except in public elementary schools, but a number of nursery schools for such children had been established by voluntary agencies in different parts of the country; no grant was paid in respect of them.

Midwives (Scotland) Bill.—A bill "to secure the better training of midwives in Scotland and to regulate their practice" was introduced into the House of Commons on November 23rd by the Secretary for Scotland and the Lord Advocate.

THE WAR.

THE EARLY STERILIZATION OF WAR WOUNDS WITH HYPOCHLORITES.

THE views of M. Tuffier, expressed in a recent communication,¹ on the important topic of the sterilization of wounds received in warfare are of special interest, since, in the discharge of his duties as a military medical inspector, he has had unusual opportunities for observing the various methods of treatment followed in ambulances along the whole of the French front, and in the hospitals at the rear. He laid emphasis on the necessity for early sterilization because all wounds in this war are infected, on the localization at first of the infective agents to the neighbourhood of the projectile and other foreign bodies, and on the subsequent spread of infection over the whole surface of the walls of the wound. He pointed out that the necessity for the early treatment of infected wounds was not a new idea, and quoted statistics by Keyser, showing that in the Russo-Turkish war in 1877 the mortality following joint wounds treated in the first twelve hours was 13 per cent., while similar injuries treated at a later stage showed a mortality of 61.5 per cent. After stating that the treatment of wounds in the usual way with ordinary antiseptics was inadequate both scientifically and clinically—a conclusion that has been emphasized recently by Wright and others—Tuffier referred to the treatment of infected wounds by hypertonic saline solution as recommended by Wright. He insisted that the method was inadequate in streptococcal infections, and expressed his own preference for antiseptic treatment based on the use of sodium hypochlorite prepared according to Dakin's formula.² At the *postes de secours* disinfection of the skin is effected with ordinary petrol spirit, the superficial parts of the wound are cleaned, a compress saturated with Dakin's hypochlorite is then applied, and the whole is covered with a layer of cotton kept in position by a loose bandage. He insisted on the importance of getting the wounded to the stationary ambulances or hospitals within the first twelve hours and of ensuring that the services of experienced surgeons were there available for immediate treatment. All cases should, he considered, be kept at these places until their wounds have ceased to be infected. After referring to the inadequacy of present methods of combating shock and the necessity of further research upon this important topic, he said that after the wound had been further cleansed by petrol spirit and with tincture of iodine, carefully protecting the wound proper, the latter was cautiously explored by the surgeon, who should scrupulously observe surgical cleanliness. The wounds should be opened up by moderately free incisions, and only actually dead tissue should be cut away. The mode of dressing the wound was similar to that employed by Carrel and his colleagues, reference to which has already been made in these columns.³

The wound was cleaned mechanically as far as possible and all foreign bodies carefully removed, one or more rubber tubes, 6 mm. in diameter, inserted in the deepest parts of the wound, and a wet dressing soaked in Dakin's hypochlorite solution placed around them. A sheet of ordinary sterile cotton-wool through which the rubber tubes passed was placed around the limb, and the whole was kept in position by a loosely tied bandage. Hypochlorite solution, 5 to 10 c.c.m., according to the dimensions of the wound, was injected every hour, or a constant dropping apparatus was employed. At first a slightly sticky but absolutely clear liquid was secreted from the wound, but there was neither suppuration nor odour. When the temperature had remained normal for several days and the wound was in perfect condition, it might be partially drawn together by adhesive plaster, and union would follow.

The results of this procedure as practised in ambulances of the 11rd, 11th, and 13th French armies successively had, M. Tuffier said, been excellent. In one series of wounds in which the prescribed technique was not adhered to the results were not satisfactory, but a subsequent series of very severe bomb wounds, involving extensive

destruction of muscle and injury to joints, gave results superior to any he had previously seen. Normal temperature and absence of suppuration were the rule. The wounded, who on arrival showed a temperature of 38.5 to 39 C., had a normal temperature after forty-eight hours.

Tuffier concluded by expressing the opinion that this method of antiseptic treatment constitutes an important advance, but that further improvement is desirable. It is not always possible to provide proper surgical treatment for all the wounded within the first twenty-four hours, especially when casualties are very numerous. Occasionally certain gangrenous infections spread so rapidly that antiseptic treatment is too late to be effective. But, given the necessary organization for the rapid transport of the wounded, the hypochlorite method of antiseptic treatment, when properly applied, would prevent a large proportion of the deplorable after-results which are so apt to follow wound infection.

GERMAN EXPERIENCES OF WAR SURGERY.

OPERATIONS ON NERVES.

PAPERS published recently by Steintal, v. Hoffmeister, Heile, and Hezel¹ deal with 64 cases of wounds of the peripheral nerves; most were wounds of the neck and arms inflicted by rifle bullets. It was found that the peripheral nerves were not only subject to direct injury by bullets, but also to indirect injury by the pressure exerted by the wounded soft tissues. The disturbances to the blood supply of the nerves thus provoked often led to the conversion of the structures surrounding the nerves into cicatricial tissue, constricting and limiting the movements of the nerves for a considerable distance. Even in bullet wounds, leaving small wounds of entry and exit, the process of healing was often accompanied by the formation of callous tissue, the amount and distribution of which were frequently a source of great surprise. In this tissue nerve trunks were often found anchored for a considerable distance. To free the nerves from this tissue required much patience and skill. Hoffmeister found the operation greatly facilitated by the endoneural injection of a novocain-suprarenin solution (1 minim of suprarenin to every 10 c.c.m. of a 0.5 per cent. solution of novocain). He also gave this injection after suturing nerves, and found the results very satisfactory and unattended by any ill effects. The injection distended the nerve trunk to double its normal dimensions, and helped to free it from surrounding adhesions, and to break down the endoneural strands of fibrous tissue constricting the constituent parts of the nerve trunk. The injection often brought into prominence hourglass constrictions of the nerve, where the cicatricial tissue had encroached on it. These constrictions were divided so as to give the nerve a uniform cylindrical shape throughout the field of operation. In some cases the injected fluid was arrested at a point where the nerve was apparently healthy, but where an effective constriction had been produced by a little cicatricial tissue. The injection was therefore a useful guide to small constrictions, the freeing of which led to the disappearance of symptoms. A further advantage was the action of the suprarenin, which prevented post-operative capillary haemorrhages, and the consequent development of new adhesions.

In direct wounds of the nerves the authors were repeatedly struck by the frequency with which part of the wounded nerve had escaped injury. In Heile's experience the nerve was only partially severed in four-fifths of his cases. Even when a nerve trunk appeared to be most severely wounded, it was a common experience to find the continuity of substance maintained by a few strands. By the preservation of these strands, and the suture of the divided portion of the nerve by fine catgut ligatures, secured only to the supporting substance of the nerve, good results were obtained. Heile found it advisable, after suture of a nerve, to make longitudinal incisions in the perineurium, so as to secure free drainage for exudate, and thus prevent secondary neuritis. He also made a point of securing the nerve in healthy tissues, which were unlikely to be the seat of post-operative capillary haemorrhage. For this purpose he found the interposition of healthy muscle between the nerve and the injured tissues most satisfactory; when this was not possible, fat or fat could be used to isolate the nerve from the large

¹ *Bull. de l'Acad. de Méd.*, lxxiv, No. 38.

² *BRITISH MEDICAL JOURNAL*, August 28th, p. 318, and October 23rd, p. 609.

³ *BRITISH MEDICAL JOURNAL*, October 23rd, p. 609.

¹ *Beiträge zur klin. Chir.*, vol. xvi, 1915.

bleeding cavity formed by the extirpation of cicatricial tissue. He also employed non-vulcanized rubber tubing to isolate the nerve in cases in which healing by first intention was anticipated. When this was not the case, the use of rubber tubing was contraindicated. Hoffmeister, on the other hand, was sceptical as to the value of isolating the nerve in this manner. Early in the war he had attempted to isolate the nerve in a portion of vein, excised from the same patient, but the results had been disappointing. He had also experimented with fatty tissue as padding for the nerve, again with poor results. He had come to the conclusion that these delicate operations were often rendered superfluous by his method of injecting novocain suprarenin, on which he had learnt to rely more and more. When the nerve was completely divided and extensively imbedded in cicatricial tissue, it was often difficult or impossible to unite the two ends by direct suture after the necessarily extensive resection had been made. But by various devices, including free dissection of both ends of the nerve, and by putting up the limb in a position of extreme flexion, Heile had succeeded in bridging a gap as wide as 6 cm. between the two ends of the nerve. Union of the ends of the nerve by Assaky's suture à distance or by Vaclair's tubulization received little praise; and after a review of the literature of these two methods, Steintal came to the conclusion that the results hitherto published were discouraging.

DOUBLE NERVE GRAFTING.

With a view to overcoming the difficulties caused by extensive destruction of nerves and of the surrounding soft tissues, Hoffmeister had elaborated a procedure aiming at securing a bridge between the two ends of the nerve, which should facilitate early healing and the growth of new nerve fibres. His method was based on Duppe's single nerve grafting, which was first attempted when a divided median nerve was grafted on to a healthy ulnar nerve. This operation has also been performed for paralysis of the facial nerve, which has been grafted on to the spinal accessory or hypoglossal nerve. By grafting the peripheral end of the divided nerve on to the healthy trunk of a motor nerve the growth of fibres from this nerve down to the muscle supplied by the divided nerve was effected. The nerve supply of this muscle was henceforth linked up with the motor centre of the healthy nerve. Hoffmeister had modified the method by using the healthy nerve merely as a conductor between the two ends of the divided nerve. He anticipated that the axis cylinders of the divided nerve would find their way to each other along the trunk of the healthy nerve, and that thus the union of a muscle with a foreign nerve centre, as occurred in single nerve grafting, would be avoided. By this method of double grafting he was independent of the nature of the healthy nerve trunk employed, for it was immaterial whether it were sensory or motor, healthy or paralysed. It was also possible to perform almost an unlimited number of double grafts, provided only one nerve trunk in the limb were healthy. These operations were performed at a considerable distance from the site of the injury, and the ends of the nerve were freely dissected out so that after grafting there should be no pull on them. The ends were often carried through tunnels formed by muscles or behind bones. When a nerve was only partially divided, the divided portion was dissected out from the rest of the nerve for a considerable distance, and then was grafted into the side of this nerve.

Altogether Hoffmeister had performed twenty-two double or multiple nerve grafts, the results of which were promising, although the permanent results were uncertain in many cases. The first operation of this kind was performed on a patient whose upper arm had been wounded by a bullet which had completely divided the ulnar, median, and the cutaneous antibrachii medialis nerves. Three months later, when the wound had healed, extensive cicatricial tissue in the depth of the wound was excised. This operation involved resection of 10 cm. of the ulnar nerve and 12 cm. of the median. The median head of the triceps muscle was detached from the humerus over a small area, the two ends of the ulnar nerve were grafted on to the radial nerve, the two ends of the median nerve were grafted on to the ulnar nerve, and, finally, the cutaneous nerve was grafted on to the median nerve. Thus, the ulnar nerve was bridged by the radial nerve alone, while the median nerve was bridged by the

radial nerve and two portions of the ulnar nerve. The cutaneous nerve was bridged by the radial nerve, two portions of the ulnar nerve, and two portions of the median nerve. Four weeks later there were signs of motor innervation of the area supplied by the ulnar nerve, and six weeks later of the area supplied by the median nerve.

Both Hoffmeister and Heile performed their operations as far as possible under general anaesthesia, although a single operation sometimes took over six hours. The greatest care was taken to prevent haemorrhage, including capillary haemorrhage, and the subsequent formation of adhesions. Heile frequently gave endoneural injections of saline solution during the operation in order to facilitate the liberation of nerve bundles from cicatricial tissue. By this device he was enabled, to isolate nerves which would otherwise have been too securely pinned down by adhesions to be freed. Hoffmeister made considerable use of an antiseptic bipolar electrode, with which he ascertained the distribution of uninjured nerve fibres in cases of partial division of a nerve trunk. The electrode was also useful in slowing to what nerve trunk a given "nerve bridge" belonged, and in testing its functional capacity during the various phases of the operation, without necessitating extensive dissection of the parts involved. As a rule, these operations were not undertaken till the wounded nerve trunks had been given about three months in which to reunite by themselves.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Wounded.

Lieutenant L. J. J. Nye, R.A.M.C. (temporary), Flanders.
Lieutenant A. G. Whitfield, R.A.M.C. (T.F.), Flanders.

DEATHS AMONG SONS OF MEDICAL MEN.

FRASER, Donald Reginald, Sergeant 5th (Locheil's) Battalion Cameron Highlanders, younger son of Dr. A. Duncan Fraser, Strathcree, Falkirk, killed in France on September 25th. He was educated at Blair Lodge, enlisted at the beginning of the war, and had been previously wounded on June 5th. His elder brother, Major A. W. Fraser, R.A.M.C., is serving in Egypt.

TRESIDDER, Percy Hugh, trumpeter, Wellington Mounted Rifles, eldest son of Dr. Harry Junis Tresidder, of Onehanga, Auckland, New Zealand, killed in the Dardanelles on or about August 27th. He left New Zealand in February, with the third reinforcement.

SLOAN, Geoffrey, Captain Scottish Horse, third surviving son of Dr. Samuel Sloan, of Somerset Place, Edinburgh, died of wounds in France, aged 37. He served with the Scots Greys in the South African war. When the present war broke out he was in Vancouver, where he commanded the Frontiersmen; he returned to Scotland, and was appointed captain in the Scottish Horse from November 14th, 1914. His two brothers are also serving—Colonel Sloan, D.S.O., R.A.M.C., and Captain S. Sloan, Scottish Horse.

HONOURS.

THE VICTORIA CROSS.

THE *London Gazette* of November 18th announced that the Victoria Cross had been conferred on temporary Lieutenant George Allan Maling, M.B., R.A.M.C., "for most conspicuous bravery and devotion to duty during the heavy fighting near Fauquissart on September 25th, 1915. Lieutenant Maling worked incessantly with mtriring energy from 6.15 a.m. on the 25th till 8 a.m. on the 26th, collecting and treating in the open under heavy shell fire more than 300 men. At about 11 a.m. on the 25th he was flung down and temporarily stunned by the bursting of a large high-explosive shell which wounded his only assistant and killed several of his patients. A second shell soon after covered him and his instruments with debris, but his high courage and zeal never failed him, and he continued his gallant work single-handed."

Lieutenant Maling is the youngest son of Dr. E. A. Maling of Blackwell Hall, Darlington; he is 27 years of age, and was educated at Uppingham, Oxford, and St. Thomas's Hospital, London. He graduated B.M., B.Ch. Oxford last year, and took also the diplomas of M.R.C.S. and L.R.C.P.Lond. He received his commission as temporary Lieutenant, R.A.M.C., on January 18th, 1915. He went to France in June, and was attached to the 12th Rifle Brigade.

Military Cross.

The Military Cross has been conferred upon the two following officers for the services specified in the official notes appended to their names.

Captain Maurice Holdsworth Barton, R.A.M.C.(T.F.), attached 5th Leicester Regiment. For conspicuous gallantry and devotion to duty at Hohenzollern redoubt on October 13th, 1915, in tending and bringing in wounded under fire. He also rallied and sent forward men who had become scattered. This is not the first time that Captain Barton's bravery and good work have been brought to notice.

Captain Samuel Russell Foster, M.B., 2nd North Midland Field Ambulance, R.A.M.C.(T.F.). For conspicuous gallantry and devotion to duty at Hohenzollern redoubt on October 16th, 1915. He went to the relief of an officer and some wounded men who were lying in a trench between the firing lines, passing over a considerable space of open ground in broad daylight under heavy shell, machine-gun, and rifle fire. He spent eight hours in this trench tending severely wounded men.

Captain Barton took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1914, and was assistant house-surgeon at the Leicester Royal Infirmary. He received his commission as Lieutenant R.A.M.C.(T.F.) on January 10th, 1915. Captain Foster graduated M.B., B.Ch. Queen's University, Belfast, in 1912. He was in practice at Blaina, Monmouthshire, and received his commission as Lieutenant R.A.M.C.(T.F.) on November 27th, 1914.

Distinguished Conduct Medal.

The *Gazette* of November 16th also announced the grant of the Distinguished Conduct Medal to 203 non-commissioned officers and men for "acts of gallantry and devotion to duty." Among them were the following men of the medical services:

Franklin, B. S., Lance-Corporal R.A.M.C., 2nd Field Ambulance.
Halford, R. E., Quartermaster-Sergeant R.A.M.C., 21st Field Ambulance.
Hancock, J. W., Sergeant R.A.M.C.(T.F.), 4th Loudon Field Ambulance.
Holmes, J., Private A.S.C., attached 23rd Field Ambulance.
Forsey, G. F., Quartermaster-Sergeant R.A.M.C., 2nd Field Ambulance.
Sweeney, J., Lance-Corporal R.A.M.C., 42nd Field Ambulance.
Veitch, G. T., Private R.A.M.C., 39th Field Ambulance.

Foreign Orders.

The *London Gazette* announces that the King had granted authority to the recipients permission to wear the following foreign orders:

Lt. (Ralph) Peget, the Grand Cross of the Order of St. Sava, conferred by the King of Serbia for services connected with the British Red Cross hospitals in that country.

Sir St. Clair Thomson, M.D., Commander of the Order of Leopold of Belgium for services in Flanders and England.

Major Herman Stedman, late R.A.M.C.(T.F.), Chevalier of the Order of Leopold of Belgium.

Surgeon E. B. A. Merewether, M.B., R.N., Order of St. Sava, 4th class (conferred by the King of Serbia).

To certain officers of H.M.S. *Jupiter* to wear decorations conferred upon them by the Emperor of Russia. Among them were three medical officers:—

Order of St. Anne, third class: Surgeon W. I. Gerard, R.N.V.R.; Surgeon (temporary) W. G. Biggar, R.N.

Order of St. Stanislas, second class: Fleet Surgeon H. R. Gardner, R.N.

HOSPITAL SHIPS.**Preparatory Falsehoods.**

A wireless message from Berlin, on November 21st, stated that "seventy British transports have passed Gibraltar, heavily laden, and painted like hospital ships, on their way to Greek waters." A German Admiralty official further stated that "in the past few days our U boats have wireless that, when British ships reach the submarine danger zone, they drop Red Cross flags over a white space painted on the vessel's side," and that seventy vessels passing Gibraltar, ostensibly hospital ships, "carried heavy cargoes, for they were swimming deep. . . . All these ships carried to the limit of their capacity. Surely England is not sending seventy hospital ships to Greece within a few days with wounded or with hospital supplies? Undoubtedly they are carrying troops and munitions which are being protected by a ruse."

The British Admiralty issued the following announcement on November 23rd:

The constant repetition in the German Wireless Press Messages of falsehoods concerning British hospital ships necessitates a further categorical denial.

There are forty-two British hospital ships working to and from the Mediterranean—not seventy, as stated.

No hospital ship has carried other than sick and wounded, nurses and medical staff, and medical stores.

All are fully ballasted to secure safety and comfort, but are not deeply laden. On the contrary, they are generally some feet higher than deep draught.

All are permanently painted as required by Geneva Convention, and duly notified to belligerents. No temporary arrangements, such as those suggested, exist.

The whole report and its insinuation is absolutely false. Great Britain has strictly adhered to the Geneva and Hague Conventions.

Previous experience suggests that this series of falsehoods foreshadows attacks on British hospital ships by German submarines.

MEDICAL OFFICERS WANTED.**3rd 1100e Counties Field Ambulance (T.F.).**

There are a few vacancies for officers in the above unit. Candidates must be fully qualified medical practitioners, and willing to undertake foreign service obligation. Apply, Officer Commanding, Halton Park West Camp, near Tring, Herts.

57th H.C. Field Ambulance, R.A.M.C. (T.F.).

Medical officers are urgently required for the 57th Home Counties Field Ambulance for foreign service only. For particulars apply to the O.C., 31st Home Counties Field Ambulance, Royal Army Medical Corps (T.F.), Halton Camp West, Tring, Herts.

Ireland.**THE INSURANCE COMMISSIONERS, THE PROFESSION IN IRELAND, AND SERVICE WITH THE TROOPS.**

At last it would seem that the prolonged differences between the medical profession in Ireland and the Insurance Commissioners on the vexed question of certification were on the point of being settled. This has been stated so often before that one is inclined to be sceptical; however, this time it really seems as if a serious effort had been made on the part of the Commissioners to meet the reasonable demands of the doctors. These proposals provide that certification for the purpose of enabling insured persons to apply to their societies for sickness benefit should be carried out by the medical attendants, the amount of money allotted being based on the number of insured persons in each certification area, and the density, or, on the other hand, the scattered nature of the insured population. It is also proposed that a certain check on certification in the nature of a second medical opinion should be available for the approved societies where they had reasonable doubt as to the degree of care with which medical certificates were given in any area. This would have meant the appointment of a certain number of salaried appointments, but owing to the present needs of the military medical services, it was thought that the hope of obtaining these appointments might hinder suitable candidates from offering themselves for the army. The Insurance Commissioners have therefore come to the conclusion that, while it is practicable to proceed with that part of their scheme which provides for certification, it is desirable to defer the part relating to second opinions until the war is over. This necessitates the abolition of the arrangements at present existing for certification, and the Commissioners propose to hold conferences at an early date for the purpose of discussing the matter with representatives of the various interests affected. They desire that eligible candidates for the Army Medical Service may know at the earliest possible date that certain proposed appointments are now definitely suspended until the termination of the war, and that acceptance of service under the Army Council will entail no disability as regards the appointments in question, but on the contrary, will entitle applications to favourable consideration when such appointments are eventually made. As the medical profession in the country districts of Ireland consists very largely of those engaged in Poor Law work, this notice is of chief importance to them. Already considerable numbers of them have obtained temporary commissions, and the chief hindrance to others is not so much the hope of future appointments as the difficulty of arranging for substitutes to undertake their duties. If, therefore, boards of guardians would make a serious

effort to reduce as far as possible the demands on the time and services of their medical officers, and also allow, where possible, the amalgamation, for the time being, of neighbouring districts, and grant leave of absence, without prejudice, to the medical officers whom it was found possible to spare, a large number of medical men could be set free, who would have no hesitation in offering themselves to the War Office for military service.

DUBLIN UNIVERSITY SCHOOL'S RECORD IN THE WAR.

On Saturday evening, November 20th, the inaugural meeting of the Dublin University Biological Association was held in the Graduates' Memorial Hall, Trinity College. Dr. J. T. Wigham presided and Dr. Charles Benson, the incoming President, delivered an address on "War: its effects upon the medical profession." He expressed the opinion that there would be a great shortage of medical men after the war. Professor Dixon, Registrar of the School of Physic, Trinity College, stated that, of the students who had matriculated during 1909 and 1910 in the Dublin University School of Medicine, 69 had qualified, and of these 65 were known to have taken commissions in the R.A.M.C.; 24 had not waited to qualify, but had joined fighting units either as commissioned officers or as privates; only 19 were left in the school, and they were preparing for their final examinations. Of the students who matriculated in 1911 and 1912, none were yet entitled to enter for their final examinations, but of these, 58 had already joined the regular army. The total number of the medical students of the school on active service was 120.

BOARDS OF GUARDIANS AND POOR LAW MEDICAL OFFICERS' HOLIDAYS.

The relations between the Carrickmacross (co. Monaghan) Board of Guardians and their medical officers have not been of a satisfactory character for some time past. For this undesirable state of affairs their unreasonable attitude as regards leave of absence of their medical officers going on holidays and joining the R.A.M.C. is mainly if not entirely responsible. The custom throughout Ireland is for the boards of guardians to appoint as locumtenent the doctor nominated by the medical officer going on leave, so long as the arrangements impose no hardship on the sick poor—a condition closely inquired into by the Irish Local Government Board before sanctioning the leave of absence. The Carrickmacross Board of Guardians, instead of following the usual custom of boards in Ireland, ignore the locumtenent nominated by the medical officer seeking leave, and appoint one particular doctor to do duty for all their medical officers, who are expected to take their holidays, not to suit their own convenience and private arrangements, but to accommodate the convenience of the locumtenent selected by the board of guardians. That a similar state of affairs to that now existing in the Carrickmacross Union does not arise to a greater extent in other localities in Ireland is due rather to the doctors in these areas observing the ethical rule that no doctor should accept a locumtenent appointment without either the invitation or the approval of the doctor going on leave, than any desire on the part of certain boards of guardians to oblige their medical officers. The Carrickmacross Board of Guardians on a recent occasion also refused to pay any portion of the salary of the locumtenent nominated by their medical officer, Dr. D'Arcy, who intended joining the R.A.M.C.

Scotland.

TUBERCULOSIS SANATORIUMS IN WAR-TIME.

EVERY curative institution throughout the country is feeling the lack of qualified medical men for resident posts. The sanatoriums for the treatment of tuberculosis may perhaps be said to feel the shortage in somewhat less degree than the general hospitals; nevertheless they must needs be hampered in their disciplinary work to a considerable extent when left in the willing but inexperienced hands of substitutes. From the seventh annual report of the Ayrshire Sanatorium, however, it appears that the general average of usefulness has not suffered any decline on this account. The numbers of tuberculous persons treated during the year 1914 show

a steady increase over previous years, and additional accommodation has had to be provided. As in his reports for some years past, the Medical Superintendent finds it necessary to call attention to the prevalent custom in the county (as in many others) of recommending cases for admission at an advanced stage of the disease, many of them coming thus under treatment for the first time. He rightly emphasizes the mischief that must be wrought by such cases, who for many months, and perhaps years, have been scattering the seeds of disease broadcast in the homes or the workshops. Too often the patient refuses to consult a doctor until too weak to carry on his work, and no power exists by which inspection can be carried out to detect and isolate the patient before his disease has advanced beyond the curable limit. The actual death-rate from tuberculosis varies remarkably in different parts of Scotland, but the general tendency to decrease is quite evident. Cases of tuberculosis in soldiers returning from the war are not uncommon. The idea is naturally prevalent that the unrestricted spitting and the general conditions of the life in the trenches is to be held responsible for the infection. It would appear probable, however, that in most cases the seeds of disease were already sown and that the hardships had only served to stimulate afresh the activity of dormant bacilli. Contrary to experience in many kindred institutions, the Ayrshire Sanatorium has not suffered financially during the war. A reduced medical staff and enforced economy in artificial light during the winter months may be held to account for this.

EDINBURGH OBSTETRICAL SOCIETY.

At a meeting of the Edinburgh Obstetrical Society on November 17th, at which the president, Sir Halliday Croom, was in the chair, the treasurer, Dr. John McGibbon, presented the annual financial statement, which showed a balance in bank of £49 ls. 5d., and invested funds which cost £505 6s. 6d. A vote of thanks was heartily accorded. The President then submitted the following motion by the Council:

That meantime, owing to the continuance of the war, no meetings of the society be held until further notice; and that during the period of suspension no subscriptions be called for, and the present office-bearers and council continue in office.

This motion was agreed to unanimously, and it was further decided that notices of the temporary cessation of the society's meetings, of the subscriptions, and of the annual volume of *Transactions*, should be sent to the Fellows of the society. It was also agreed that contributions made by the Fellows to medical journals during the continuance of the war should be considered thereafter by the Council with a view to their possible inclusion in the next volume of the society's *Transactions*.

England and Wales.

THE MIDWIVES ACT IN MANCHESTER.

PROBABLY nowhere is the Midwives Act more carefully carried out than in Manchester, and the Medical Officer of Health gives in his annual report for 1914 an interesting account of special work done for pregnant and nursing women which has arisen owing to the war. The number of midwives in practice during 1914 was 161, of whom over 80 per cent. were certificated. The total births registered numbered 18,697—a rate of 25.3. This is a slight reduction on the previous year, when the number was 19,052, or a rate of 25.64, and, with the exception of the year 1912, when the rate was only 25.09, the rate for 1914 was the lowest on record. Of the 18,697 births, 9,409, or just over 50 per cent., were attended by midwives. This is a considerable drop, as in 1913 the midwives attended 12,251, or 64.3 per cent., while in 1912 they attended 58.6 per cent. No explanation is given of this reduction, though it is probable that since the Insurance Act began to provide maternity benefit many women who formerly had to be content with a midwife have been able to afford to engage a doctor.

During the year 105 cases of puerperal fever were notified; of these, 20 occurred after abortion or premature labour, in 25 cases forceps had been used, and in 22 a

perineal tear was stated to be present. It may be noted, too, that though in the majority of the last ten years puerperal fever occurred more frequently among cases where doctors attended at the birth, on the contrary in 1914 the doctors had a lower proportion of cases of puerperal fever than the midwives. On the other hand, the death-rate among the doctors' cases has been rather persistently higher than among the midwives' cases. The case mortality for puerperal fever was 21.9 per cent. Doctors were summoned to the assistance of midwives in accordance with the rules of the Central Midwives Board in 2,606 cases, by far the greatest number being for tedious labour or rupture of perineum or for inflammation of the eyes in the newborn. Under the Manchester arrangement, by which the Midwives Supervising Committee pays fees in needy cases to doctors summoned to the assistance of midwives, 757 applications for such fees were made. Inquiry was made into every case, and 654 fees were actually paid amounting to £568 14s.; the remaining cases did not fulfil the conditions on which fees are paid. At the beginning of December, 1914, the committee also arranged to pay fees to midwives for attending at confinements of the wives or widows of soldiers or sailors and of other women in need of assistance as a result of the war, the fees payable being 15s. for a first confinement and 12s. 6d. for subsequent confinements. During the month of December 34 fees amounting to £21 15s. were thus paid to midwives, the payments being conditional on the income of the family not being in excess of the same scale as that under which medical practitioners are paid when summoned to the assistance of midwives.

The total number of stillbirths of which there is any record was 638; of these, 406 occurred in the practice of doctors and 232 in that of midwives; 21 of the children who were stillborn were known to be illegitimate. In 1911 two special nurses were appointed, one being for septic work, and visits and investigations have been made with a view to checking the practice of midwifery by uncertified women. When the war broke out it was feared that much hardship and suffering might be entailed on poor pregnant and lying-in women, and the Relief Committee arranged for free meals for a period of two months prior to confinement and during the nursing period, and also for the provision of suitable clothing. The medical officer of health was authorized to administer this relief, and the executive medical officer of the Supervising Committee was entrusted with the arrangements. All the midwives were invited to a meeting to discuss the procedure, and they agreed voluntarily to notify suitable cases. Inquiry into all cases thus notified was made, and those found to be eligible were provided with tickets, which they could present at one of eleven feeding centres which were organized. The food was provided by a large caterer in the city, and delivered daily by the motor bus belonging to the Sanitary Committee; to cases unable to attend at the centres a quart of milk was supplied daily through the nearest dairy, the cost of this being largely borne by the midwives, who combined to provide funds for the purpose. Clothing was received through many agencies, and was distributed direct from the office. In this way relief was given to 2,375 cases, and there can be little doubt that this arrangement, together with the scheme of the committee for the payment of fees to midwives, will have proved extremely beneficial.

Correspondence.

THE SACRIFICES OF CANADIAN PRACTITIONERS.

SIR,—I have just read a very interesting article in your issue of October 9th upon the "Position of general practitioners taking commissions," and in view of the details which are therein given with regard to the "arrangements made by a country practitioner who has recently responded to the call of duty, and taken a commission in the R.A.M.C.," I feel that a statement should be made with reference to the conditions under which, in response to the call of duty, commissions are taken by Canadian practitioners, either in the Canadian A.M.C. or in the R.A.M.C.

Whereas, in the counting of the cost, your correspondent

has been able to work out his financial details so as to reduce the loss anticipated in running his practice during his absence to £8 a year, the practitioner in this Dominion who accepts a commission in either of the above services is unable to make any such arrangement. The conditions of practice in the Dominion make it impossible for a practitioner to receive any remuneration for the loss of his practice, because such a practice is unsaleable, and he who sells commits a fraud, and he who purchases purchases that which is naught. In this Dominion a practice is a purely personal affair, and is worth nothing as a matter of sale, either by himself or by his estate, for patients exercise, and rightly, absolute liberty with reference to their choice of physician, and hold themselves under no obligation, given or understood, to return to any practitioner for a second or third visit. Therefore, when one of the practitioners of this Dominion applies for a commission, he does so in the full knowledge that during his absence nothing will be received by his family in the way of revenue from any practitioner to whom the families which he has professionally attended may resort, and, moreover, upon the end of the war and the return of the practitioner to his former location, should he be fortunate enough to survive, he must look forward to beginning his practice anew, and must not expect, as a right, that any of his old patients seek his aid.

In the hospitals recently sent forth by the universities of Canada, of which I have the more intimate knowledge, the gentlemen who comprised their staffs have with few exceptions abandoned more or less lucrative practices, and only in a few cases are there any others than those who have been for some time in general or special practice, and in most instances these members are teaching members of the university faculties. The senior officers are specialists, professors, or associate professors of the universities, receiving from their private practices incomes varying from £1,000 per annum upwards. These gentlemen left their families dependent upon the insecure revenue derivable from what investments they had been able to make, the separation allowance afforded them by the Government, and whatever portion of their pay they could spare. Their salaries were, of course, continued by the universities, but these are honoraria, and of inconsiderable amount.

From my knowledge of the composition of the units, not one of the staffs regrets for one moment the step he took in volunteering his services, but it is only fair that the facts involved should be made known, and the self-sacrifice acknowledged.

The whole position of the Canadian practitioner who has volunteered for service abroad, as compared with the gentleman mentioned in the article above quoted, who could figure down his actual monetary loss to £8 per annum, makes the self-sacrifice involved in the case of the latter almost a negligible item.—I am, etc.,

D. J. GIBB WISHART, B.A., M.D., C.M.,

Toronto, Nov. 3rd.

L.R.C.P.Lond., F.R.C.S.

IPÉCACUANHA AND ITS ALKALOIDS.

SIR,—The note under this heading, which appeared in your issue of November 13th, gives an account of our knowledge of the chemistry of these alkaloids at the time when Henry's work, *The Vegetable Alkaloids* (1913), was published. Since then, however, the results of several new investigations on the subject have been published, and necessitate some corrections of the earlier statements. The alkaloids of ipecacuanha have been studied in detail in these and the associated laboratories, and the investigation, which is at present suspended owing to pressure of other work, will be resumed here later. In these circumstances, I shall be glad if you will permit me to correct your account in the following particulars:

1. In 1894 Paul and Cownley (*Pharm. Journ.*, 1894 (iii), 25, 111, 373, 690) attributed to emetine and cephaeline the formulae $C_{20}H_{30}O_2N_2$ and $C_{20}H_{30}O_2N_2$ respectively, but shortly afterwards Hesse (*Pharm. Journ.*, 1898 (iv), 7, 98) suggested that the composition of the substances would be better expressed by the formulae $C_{20}H_{28}O_2N_2$ and $C_{20}H_{28}O_2N_2$. The recent investigations, both by Hesse (*Annalen der Chem.*, 1914, 405, 1) and by ourselves (*Proc. Chem. Soc.*, 1915, 29, 226; *Trans. Chem. Soc.*, 1914, 105, 159), confirm Hesse's formula for cephaeline, which may now be regarded as established. We also showed that emetine is the mono-methyl ether of cephaeline, and has, therefore, the formula $C_{20}H_{29}O_2N_2$ which we have confirmed by analyses of the base and several of its salts and derivatives. Hesse has

withdrawn his previous formula for emetine, $C_{20}H_{40}O_2N_2$, and proposed for it the formula $C_{20}H_{40}O_2N_2$, but in view of our work, and in particular of the proved relationship of emetine to cephaeline, this formula cannot be upheld.

2. Emetine sulphate has been prepared in a crystalline form.
3. Whilst the constitution of emetine is still unknown, some progress has been made with its elucidation, and we have shown definitely that this alkaloid is a derivative of isoquinoline; the work of Windaus and Hermans (*Ber. deutsch. chem. Gesell.*, 1914, 47, 1470) leads to the same conclusion.

—I am, etc.,

FRANK LEE PYMAN, D.Sc., Ph.D.,
Director, Wellcome Chemical Research
Laboratories, London.

London, E.C., Nov. 16th.

A COMBINED PHYSICAL TREATMENT FOR DISABLED SOLDIERS.

SIR,—During the last ten months a novel combination of physical methods of treatment has been in operation at the Hôpital Complémentaire at the Grand Palais in Paris.

One of the new features is a hyperthermal *eau courante* bath, which is applied locally to the affected limbs, more especially as a preparation for massage and mechanical treatment. It is found that the *eau courante* bath greatly facilitates both massage and mobilization. This combined treatment is now very extensively employed, both in Paris and in the country in hospitals set apart for it.

According to the latest information several hundred men disabled in their limbs were in October alone returned from the Grand Palais fit for military service, with an estimated saving to the French Government of upwards of £50,000 on account of pensions.

If in Paris why not in London? In England many similarly disabled men are to be seen in the hospitals, and sometimes in the streets. It is claimed that the treatment referred to holds out a fair prospect of recovery in many otherwise hopeless cases. It is recommended, therefore, alike by humanity and by considerations of prudent war economy.

A full account of the results obtained by these combined physical methods in military cases will shortly be published on behalf of a committee of the Royal Society of Medicine (Section of Balneology).—We are, etc.,

R. FORTESCUE FOX,
J. CAMPBELL McCLURE,

Honorary Secretaries to the Committee.

London, W.,
Nov. 22nd.

Obituary.

HENRY CHARLTON BASTIAN, M.A., M.D.LOND.,
F.R.C.P., F.R.S.,

EMERITUS PROFESSOR OF MEDICINE AND CLINICAL MEDICINE,
UNIVERSITY COLLEGE, LONDON.

DR. CHARLTON BASTIAN died on November 17th at his residence, Cheham Bois, Bucks. He was born at Truro, Cornwall, in April, 1837. He received his education at University College, and graduated M.A. at the University of London in 1861, and M.D. in 1866. Shortly afterwards he was elected assistant physician to St. Mary's Hospital, and lecturer on pathology in its medical school; he held these appointments until 1867, when he became professor of pathological anatomy in University College, and assistant physician to its hospital. Later he was professor of medicine and clinical medicine. For thirty years he held first the junior and then the full physician's appointment, resigning in 1897. He was also physician to the National Hospital for the Paralyzed and Epileptic, being appointed to the junior office in 1862, and becoming senior physician in December, 1887. He resigned the latter appointment in April, 1902, at the age of 65, but by special resolution was allowed to retain ten beds until he finally retired, having attained the age of 75, in 1912.

The activities of Dr. Bastian's long life were sharply divided into two parts—the one, which occupied his chief energies in the earlier and the closing years of his life, was concerned with the controversy as to the origin of life and heterogenesis; the other was the clinical study of neurology, in which he was chiefly interested during the whole of the middle period of his life, when he was actively engaged as a teacher and physician in London. His friends knew, however, that throughout the whole of

this middle period he never for a moment lost his interest in the other subject, and as soon as circumstances permitted he gave up practice and devoted himself again to experimental investigations with regard to the origin of life and the transformation of organisms. There was, however, another short period of his early life during which it seemed that he would devote himself to pure science. It was during this time that he made researches in parasitology and published (1864) his monograph on the Anguillulidae or free nematodes, in which he described a hundred new species; another work on their anatomy and physiology was published in the following year. It was these researches which led to his election to be F.R.S. when only 31 years of age.

As a physician and teacher he early directed his attention almost exclusively to neurology. As a teacher he attracted a small but select class, who highly appreciated the precision of his methods of diagnosis, the acuteness of his intellect, and his wide acquaintance with neurological literature. He was himself a prolific contributor to it. *The Brain as an Organ of the Mind*, published in 1880, he probably himself considered his most important work in medicine. It was translated into French and German, reached a fifth edition in this country, and was at one time a great deal used as a textbook by men reading for the higher examinations. In 1875 he published his book, *Paralysis from Brain Disease*, being a series of excellent clinical lectures delivered in the previous year at University College Hospital. It was the forerunner of a larger and yet more important clinical and pathological work, *Paralyses: Cerebral, Bulbar, and Spinal*, published in 1886 avowedly as a manual of diagnosis for students and practitioners.

Another clinical work which excited great interest when it appeared in 1895 was entitled *Various Forms of Hysterical or Functional Paralysis*; it was the product of long study in the author's wards at University College Hospital and at the National Hospital for the Paralyzed and Epileptic, in conjunction with his house-physicians and clinical clerks, who drew up full reports of the cases recorded. The most important passage in this treatise contained observations on the nature of hysteria which were well worthy of study, though they did not altogether succeed in dissipating the obscurity which surrounded the subject. Dr. Bastian strongly condemned the practice of using the term "hysterical" as though it were synonymous with "functional." For him, hysterical cases were a special type of functional cases; he urged that if, with Briquet and Charcot, we defined hysteria as a neurosis due to perversion of brain functions, then all the cases of functional spinal paralysis must be placed in some other category.

In the spring of 1897 he delivered the Lumlain Lectures on some problems in connexion with aphasia and other speech defects before the Royal College of Physicians. The lectures were a remarkable analytical contribution to a difficult subject. He held that aphasia depended either upon damage to one or other of the four centres in the cerebral cortex, which, he believed, were concerned in the production of spoken and written language, or to interruption of the commissures connecting them. These lectures, with the addition of a great deal more matter of importance, were published in *Aphasia and other Speech Defects*, issued in 1898. This treatise was dispassionate, scientific work, and in the literature of the subject assumed at once the position of a classic. He contributed many articles on neurological subjects to *Quain's Dictionary of Medicine*, and, in fact, took a considerable part in the production of that work of reference, which revived a method of publication popular a generation earlier, and produced a very considerable effect on the trend of medical opinion in this country by presenting in a convenient form the latest views of acknowledged authorities.

When he finally retired from University College he was appointed Emeritus Professor of Medicine, and shortly afterwards gave up practice in order to resume the studies which had interested his scientific youth. The story is a remarkable example of moral courage and scientific enthusiasm, facing odds which appeared hopeless. Those whose memories go back to the first International Congress of Medicine in London in 1881 will remember the courage with which he faced the meeting presided over by Lord Lister and in which as a speaker he was immediately

followed by Pasteur; afterwards he retired from the field overwhelmed but not defeated, and, as has been said, devoted himself to the practice of neurology. As soon as he had retired, however, he immediately resumed his experiments.

Contrary to generally accepted views—views which seemed to be settled once and for all in the middle of last century by the work of Pasteur and Tyndall on the sterilization of fluids by heat—Bastian denied that life always develops from pre-existing life; for him the aphorism *Omne vivum ex vivo* was not true, and he maintained that not only in the distant past did some fortuitous concourse of atoms presumably give rise to the first beginning of living matter, but that this process has continued ever since, and is continuing at the present day. He held, in fact, the doctrine of spontaneous generation, or, as he preferred to term it, "archebiosis," and carried out a number of laborious investigations in support of his views. Liquids composed of (a) ammonium phosphate, phosphoric acid, and sodium silicate; (b) ferrous sulphate and potassium ferrocyanide; (c) ferrous sulphate, potassium ferrocyanide, and sodium silicate were employed. These were enclosed in sealed glass tubes, sterilized at various temperatures, maintained under certain conditions of light and warmth, and examined after a lapse of months. In a certain number of the tubes micro-organisms—bacteria, torulae, and even moulds—seemed to make their appearance in small numbers. The experiments were laborious and the possible fallacies obviously numerous, but Bastian attempted to meet every criticism and maintained to the last the correctness of his observations. Few have attempted to repeat his experiments, and those who have done so have not had the time at their disposal to study the subject with anything like the minuteness with which Bastian did, for he devoted the last years of his life almost entirely to it. Undoubtedly, in Bastian's tubes, structures were occasionally observed which had all the characters of torulae, except that it seemed impossible to grow them. The MM. Mary in Paris and a correspondent writing in last week's *English Mechanic* claim to have obtained the same results in tubes prepared by themselves, and the MM. Mary state that they have been able to obtain subcultures in media containing lactate of iron. Dr. Bastian was ever attempting to improve his methods and to make use of any new means which might help towards this end. Thus in the spring of this year he published a paper in the *Proceedings of the Royal Society of Medicine* in which he stated that when the organisms had made their appearance in the tubes the addition of tyrosin brought about an enormous multiplication (see also *BRITISH MEDICAL JOURNAL*, January 23rd, 1915, p. 183). His latest results were published in *The Origin of Life*, second edition, 1914, and in *Nature*, January 22nd, 1914, p. 581, and December 24th, 1914, p. 466. Dr. Bastian also held that one kind of organism might suddenly appear as the offspring of another and quite different form. Thus ciliates and flagellates might, he believed, succeed amoebae which themselves appeared out of a bacterial zoogeal mass. This process he termed "heterogenesis," and his observations on this subject were published in a large volume entitled *Studies in Heterogenesis*. All these books were illustrated by photographs taken by himself.

Dr. Bastian was a friend of Herbert Spencer, and one of the trustees under his will, by which he left the bulk of his property in trust for carrying on the publication of *Descriptive Sociology*; as trustee Dr. Bastian was joint editor of Spencer's autobiography. Dr. Bastian received many honours from academic bodies. He was honorary M.D. of the Royal University of Ireland, corresponding member of many foreign scientific societies, and had served as censor of the Royal College of Physicians. He leaves a daughter and three sons, one of whom is in the Royal Naval Medical Service.

In some of the notices which have appeared since his death it has been said that there was something pathetic in the persistence with which he defended and sought to establish the doctrine of abiogenesis and the related hypothesis of heterogenesis. But for himself there was nothing of pathos in his position; he deeply resented, as was natural, the indifference or ridicule which his opinions encountered, but he never for a moment indulged in self-pity. His intellect burned with too clear a flame.

ROBERT MAGUIRE, M.D. LOND., B.Sc. VICT., F.R.C.P.

CONSULTING PHYSICIAN, HOSPITAL FOR CONSUMPTION BROMPTON.
Dr. R. MAGUIRE died on Friday, November 12th, aged 58, in Cadogan Street, S.W. He was the son of the late Mr. John Maguire of Manchester and Drummalla, co. Fermanagh, and was educated at the Manchester Grammar School and the Owens College. He graduated M.B. Lond. in 1881, taking the university scholarship and gold medal in medicine, and the gold medals in obstetrics and forensic medicine. He took the M.D. degree in the following year, taking the gold medal. He was for a time physician to the Manchester Southern Hospital, pathologist to the Manchester Royal Infirmary, and assistant lecturer on pathology in Owens College. He afterwards settled in London, and joined the staffs of the St. Mary's and the Brompton Hospitals. As a physician he turned his attention mainly to disorders of the respiratory tract. In the autumn of 1900 he delivered the Harveian Lectures before the Harveian Society of London, which he eventually published in a volume, entitled, *The Prognosis and Treatment of Pulmonary Tuberculosis*. They were reported in the *JOURNAL*, and represented valuable observations made at the Brompton Hospital, and also at St. Mary's, where he was then physician to out-patients. Dr. Maguire advocated asepsis of the lung by intravenous injections of formic aldehyde; he admitted that the procedure was neither easy nor free from danger, yet he found that a solution of formic aldehyde of considerable strength might be introduced into the circulation. He advocated this method for ensuring asepsis because inhalations of vapours could not be of sufficient strength to attack germs in the lung if they were weak enough to pass the glottis, and even if they passed it they would probably go no further than the bifurcation of the bronchi. Subcutaneous injections of germicides were so diluted before they reached the lungs as to be powerless, whilst germicides taken by the mouth were likewise made useless before they could reach the lungs by dilution in the stomach and decomposition in their passage through the liver.

Dr. Maguire contributed to *Quain's Dictionary of Medicine*, and to *Fowler's Dictionary of Practical Medicine*, and published several papers in medical periodical publications. He became a member of the Royal College of Physicians of London in 1883, and was elected a Fellow in 1889. He was honorary physician to the Royal Society of Musicians and to the Benenden Sanatorium.

WE regret to announce the sudden death on November 12th of Dr. J. WRIGHT GRANT at Edinburgh. He was born at Grantown-on-Spey in 1860, and was educated at Grantown, at Aberdeen, and later at the University of Edinburgh, where he graduated M.B., C.M. in 1886. Shortly afterwards he settled in Woburn Sands, and soon had a large practice in that place and in the surrounding district. He wrote the article, *Woburn Sands and Neighbourhood as a Health Resort*, in the *Climates and Baths of Great Britain*. He was physician to the Daneswood Sanatorium and the London Boarded-out Children. After some fifteen years increasing deafness caused him reluctantly to give up his practice, but he still continued to take a great interest in his profession. He was a man of marked social gifts, and had a keen sense of humour. His sudden death from angina pectoris at the comparatively early age of 55 is a matter of extreme regret to many.

DR. WILLIAM MELVILLE-DAVISON, Medical Superintendent to the Booth Line, died on October 9th at the age of 46. He studied medicine at Newcastle-on-Tyne, and took the degrees of M.B. and B.S. at Durham in 1890. He practised in Durham for several years, but owing to a failure in health he carried on his profession on the seas for no less than fourteen years, in Chinese emigrant ships, pilgrim ships, and Holt and Booth liners. He also served as a prison doctor in South Africa. When appointed medical superintendent of the Booth Line he wrote his *New and Interesting Points in Ships' Hygiene*. He was one of the pioneers of the mosquito-screening of ships, communicating a memoir on that subject to the Yellow Fever Bureau *Bulletin* in 1911. Dr. Melville-Davison was a total abstainer, and published a work on

Alcoholism, its Cause and Cure, originally a paper read before the Liverpool Council of Voluntary Aid. The Booth Line could not relieve him from his duties in order that he might join in the Red Cross work in France or in England, but he afforded invaluable assistance in fitting out and managing a private hospital. He was much beloved, deservedly popular, and always ready to afford professional or, if necessary, pecuniary aid to those in trouble.

By the death of Dr. GEORGE MILLER STERNBERG, of Washington, which occurred on November 3rd, the scientific world has lost one of the foremost authorities on bacteriology and epidemiology. He was born in Otsego County, in the State of New York, in June, 1838, and was therefore in his 78th year. He graduated at the College of Physicians and Surgeons (Columbia University) in 1860, entered the United States army as assistant surgeon in 1861, and retired with the rank of brigadier general in 1902. He served throughout the Civil War and had command of the American Medical Service in the war with Spain in 1898. He was on special service through several epidemics of cholera and yellow fever, and he was secretary of the Havana Yellow Fever Commission in 1879. To him was due the appointment of the Yellow Fever Commission of 1900 of which Major Reed and Drs. Carroll, Lazear, and Agramonte were members; their work marks an epoch in the history of preventive medicine. General Sternberg also established the Army Medical School at Washington, which has proved itself of signal usefulness to the service. He was the author of *Photomicrographs and How to Make Them*, of a *Manual of Bacteriology*, a treatise on malaria, a work on immunity protective inoculations and serum-therapy, and many reports presented to the Government.

PROFESSOR CARL ANTON EWALD of Berlin, who died on September 20th, after several months' illness, in his sixty-ninth year, was a recognized authority on diseases of the stomach. He took his doctor's degree at Berlin in 1870, and qualified as *Privatdozent* in 1874. He was appointed extraordinary professor in 1882, and later became an honorary ordinary professor. He was the head of the Augusta Hospital and editor of the *Berliner klinische Wochenschrift* from 1881 to 1907, being associated in the later part of this period with Professor C. Posner. He was the author of several books and numerous papers on digestion, diseases of the thyroid, myxoedema, and many other subjects. He was also an authority on forestry. He was librarian to the *Berliner medizinische Gesellschaft* for twenty-five years. He was the financial secretary of the Society for Children's Sea-Coast Hospitals and of the Society for Home Hygiene.

WILLIAM OMAND SCLATER, B.Sc.Edin. 1904, M.B., Ch.B. (1st class honours) 1906, formerly house-surgeon to the Edinburgh Royal Infirmary and to the Palmer Memorial Hospital, Jarrow, died suddenly on October 29th at Ipoh, Perak, in the Federated Malay States.

MAJOR W. M. JENNINGS, T.D., M.R.C.S., died suddenly on November 5th, at the age of 58. He had practised in Jarrow-on-Tyne for over thirty years and was very popular and deeply respected in that town. He began professional life as assistant to Dr. Huntley and at once interested himself in the ambulance movement which was then developing. He was an enthusiastic officer of the Durham Royal Engineers (Volunteers); when the corps became Fortress Companies under the Territorial scheme, Captain Jennings became Major and was commanding officer until about three years ago, when he retired, time expired. Subsequently he became commandant of the Jarrow and Hebburn Detachment of the National Reserve, and did much to bring this body into useful service in connexion with the war. His eldest son, Lieutenant Jennings, R.E., is at present at the Dardanelles. The funeral of Major W. M. Jennings, which took place on November 10th at Jarrow cemetery, was attended by the military and civilian authorities and by a large number of the people of Jarrow, where he was so much beloved. The coffin was

covered with the Union Jack and borne by six non-commissioned officers of the National Reserve.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. Albert Malherbe, honorary director of the Medical School of Nantes, in which he was for many years professor of pathological anatomy and histology, corresponding member of the French Academy of Medicine, aged 70; Dr. Oui, formerly professor of clinical obstetrics in the University of Lille, and since the German occupation inspector of military hospitals at Bordeaux; Dr. Johan Ulrik Teodor Quensel, professor of pathological anatomy in the University of Upsala, aged 70; Dr. J. E. Sheppard, clinical professor of diseases of the ear at the Long Island College, Brooklyn, New York, aged 56; and Dr. S. K. Spalding, neurologist to the Omaha General Hospital and professor of nervous and mental diseases in the John A. Creighton Medical College of that city, aged 68.

Medico-Legal.

DUTIES OF GUARDIANS TO ENFORCE VACCINATION IN IRELAND.

THE Lord Chief Justice, Mr. Justice Madden, and Mr. Justice Boyd have given judgement in the King's Bench Division, Dublin, in favour of the plaintiffs in a case brought by the Local Government Board against the Letterkenny guardians for an absolute order for a writ of mandamus compelling the guardians to enforce compliance with the Vaccination Acts within their district.

The Lord Chief Justice, in giving judgement, said the subject of compulsory vaccination first came formally before the guardians on June 23rd, 1913, when a resolution was adopted that the matter should be left open, and that no prosecution should be instituted. To this course the guardians adhered except for a short period during the present year. The guardians had been informed that they were the final and ultimate tribunal to decide as to the enforcement of the provisions of the Vaccination Acts within their union; and the question for the court to decide was whether this was correct. The matter was regulated by the Vaccination Amendment (Ireland) Act, 1877. Section 7 provided for a penalty being recovered from parents having the custody of children who neglected to have them vaccinated. Section 10 provided that the guardians of any union in Ireland might direct proceedings to be instituted for the purpose of enforcing obedience to the provisions of the Vaccination (Ireland) Acts, and that the medical officers of each dispensary district should attend such proceedings, and be entitled to remuneration on a fixed scale for doing so. These provisions were put in force by nearly all boards of guardians in Ireland. The first question for the court was whether Section 10 was or was not mandatory in its operation. It provided, it was true, that the guardians "may" direct proceedings to be instituted, and the guardians contended that this language gave them a discretion in the matter. But it was settled law that provisions in a statute merely of a permissive character might impose a duty. His lordship cited some cases in support of this construction with the view to showing that it was well established and could not now be questioned. With reference to the present case, it was clear to his lordship that when the Legislature enacted that the guardians might take certain proceedings, and when it at the same time provided for the expense of the proceedings being paid out of the rates, it means to cast the duty upon the guardians of enforcing the provisions of the Acts in all proper cases. There was no one else to act in the matter, and if the guardians did not do so the Acts would become a dead letter. For these reasons the court was of opinion that the Lord Justice of the Act of 1877 was mandatory in its character, and that it was the clear duty of the guardians—a duty which could be enforced by mandamus—to take steps to enforce the compulsory provisions of the Vaccination Acts within their district. The powers of control and supervision vested in the Local Government Board over the guardians as regarded their duties under the Poor Law Acts might very reasonably be held to extend to the duty of enforcing the Vaccination Acts. He was of opinion that the Local Government Board had a *locus standi* to interfere where the guardians were not carrying out their duties under the Vaccination Acts, and was a proper relator in these proceedings. The conditional order for a writ of mandamus should therefore, in his opinion, be made absolute. As this was the first occasion upon which it had been decided in Ireland that the duty of enforcing the Vaccination Acts was mandatory upon boards of guardians, and as the Letterkenny Board of Guardians appeared to have adopted the course they did in the bona fide belief that they legally had a discretion in the matter, he did not think that they ought to be required to pay the costs personally. But he would like it to be understood that for the future, if the order of the court in the present case stood, guardians who persistently refused

Medical News.

It is announced that the uniform of V.A.D. nurses of the British Red Cross Society and the Order of St. John of Jerusalem will be registered; initiation will be an offence under the Defence of the Realm Act.

The Long Fox Lecture will be delivered by Dr. F. Richardson Cross at the University of Bristol on Wednesday, December 1st. The subject is "The Evolution of the Sense of Sight." All medical men and students are invited to attend.

At a clinical meeting of the West London Medical-Chirurgical Society a number of cases were shown, and Dr. Alastair MacGregor described the Simpson light apparatus, and gave records of some cases treated by this method.

The American Twilight Sleep Association is said to be planning the establishment of a hospital in New York where the method will be applied by experts, and where medical practitioners may obtain instruction in its administration.

The Minister of Commerce in France announces that preference will be given to soldiers maintained in the war in the selection of letter carriers, and that men who have lost an arm may be employed in the proportion of 10 per cent. of all letter carriers in a district.

In a recent case the First Division of the Court of Session, Edinburgh, decided that the duty to make provision for the food, clothing, and lodging of mentally defective children rested upon the parish council and not upon the school board.

The *Times* reports that at Bow Street Police Court on November 22nd Mrs. J. E. M. Walter, of Defoe Road, Totting, was fined £40 with 10 guineas costs for attending women in childbirth otherwise than under the direction of a qualified medical practitioner, she not being certified in pursuance of the Midwives Act, and for failing to give notice to the county council that she had undertaken for reward the maintenance of a child under the age of 7. It was further reported that there was no doubt that the defendant had been carrying on a baby farm. The infants were sent away when they were only a few days old and farmed out to a confederate, to whom the defendant paid a small sum.

It is proposed to raise a memorial fund to perpetuate the memory of Dr. John H. Dauber, who lost his life in the sinking of the transport *Royal Edward* on the way to the Dardanelles in August, 1915. Dr. Dauber was for upwards of twenty years a member of the honorary medical staff of the Soho Hospital for Women, and for many years lecturer to the nursing staff, the theoretical training of the nurses being entirely in his hands. It is hoped to raise about £250 to institute a fund to be called the "Dr. Dauber Memorial Nurses' Prize Fund," and to use the income for prizes to members of the nursing staff for meritorious work in the wards and at examinations. Donations may be sent to the Secretary, Alfred Hayward, Esq., Hospital for Women, Soho Square, London, W.

The National Health Society holds training courses for women desiring to present themselves for the examination of the Sanitary Inspectors' Examination Board and for those who desire to obtain the diploma of the society, which is intended for health visitors, and is recognized by the Local Government Board under the Health Visitors (London) Act. The secretary of the society points out that hundreds of women trained by the National Health Society are already filling posts as sanitary inspectors and health visitors, but the demand for trained women is becoming daily more urgent. The society only desires to receive applications from well educated women, but the question of fees and the cost of living in London often stands in their way. The fees are 12 guineas for the inspectors' course and 15 guineas for the diploma course. An appeal is made for the establishment of scholarships tenable by candidates during their period of training, and also for funds to maintain a hostel. The society is undoubtedly doing good work, and great pains are taken to ensure that the training shall be thorough and practical.

At the meeting of the Central Midwives Board on November 18th it was resolved in reply to a suggestion from the Swansea District Nursing Association that during the war the number of personal deliveries incumbent on candidates for examination should be reduced on account of the decline in the birth rate, to state that the Privy Council had approved the Board's scheme for prolonging the training of pupil midwives to six months, which it was hoped would solve the difficulty. In reply to an inquiry from the M.O.H. Leicester, the Board

stated that according to Rule E.6 a midwife must (after a doctor has been sent for) "await his arrival and faithfully carry out his instructions," and according to Rule E.5 could not attend any other maternity patient without adequate disinfection; but for the doctor to dismiss the midwife because the patient was believed to have puerperal fever, and in the absence of proved neglect, was nowhere sanctioned by the rules. Generally speaking, it was other patients who had to be safeguarded from puerperal fever rather than the patient in question.

MUCH of the military work of the colony of Singapore is carried out by volunteers whose numbers were augmented after the declaration of war, but as the Government did not consider the response adequate, it passed a bill which required every British-born person to train as a soldier, allowing exemptions to be made in certain cases. We are informed that this exemption was not extended to medical men, who were required to drill with the others. We are also given to understand that there is a considerable shortage of British medical men at Singapore; many have joined the R.A.M.C., most of those who remain are doing extra work, and the Government has pointed out that they can best serve by sticking to their posts. The members of the profession had assumed that they would be asked to serve in the Volunteer Medical Corps, and seem to have been disappointed that they were expected to attend ordinary drills.

In a recent Chadwick Lecture, Mr. A. Saxon Snell, F.R.I.B.A., pointed out the desirability of putting a layer of concrete over the whole surface of the ground of the building of a temporary military hospital, otherwise in enclosed wards the ground air was bound to find its way upwards. The necessity was less if the building was raised a few feet above the ground, so as to provide a clear sweep for the air. He stated that the War Office model plan, which provides for a framing of timber, lined on the inside with plaster slabs and on the outside with corrugated iron, with roofs of the same material, was estimated to cost between £60 and £70 a bed. The cost of the open-air hospital at Cambridge and of the Canadian and Glasgow hospitals was about £25 a bed; the cost at Leicester, where the walls are of brick and the floors of concrete, was estimated at £15 10s. a bed for the ward blocks only.

POPE says that:

Index learning turns no student pale,
Yet holds the eel of science by the tail.

The "index learning" sneered at by the author of the Dunciad has with the advance of human knowledge in every direction become almost the only learning possible. As Salomon Reinach has said—a learned man nowadays is not so much one who knows many things as one who knows where to find information about them. The growth of periodical literature in which the fruits of new thought and research and new discoveries are first made known, and in which they are subjected to the fiery test of criticism, has been so vast, that not even a specialist can keep pace with the expansion of his chosen province without the help of the index maker. In this age of omnivorous reading the most methodical and industrious can scarcely note down references to everything he reads, and nothing is more annoying than to remember that one has seen an article containing something that would be useful for work in hand without being able to catch the elusive "eel" of fact, or date, or idea that is wanted. Therefore, we hail the index maker not as the "harmless drudge" Johnson would have called him, but as a recording angel. All serious students will welcome the announcement that the *Athenaeum* has undertaken, at the request of the Council of the Library Association, to issue a subject index to periodicals. The *Index for 1915* will comprise not less than 10,000 entries selected from nearly 400 periodicals, mostly of British origin. Nearly the whole of the indexing and editorial work is being done by the voluntary aid of British librarians: Its appearance will be preceded by the publication of a series of twelve class lists dealing with various subjects of general interest, among which we are pleased to note that preventive medicine and hygiene find a place. These lists will be issued as quickly as possible before February, 1916, when, with additional matter, they will be consolidated in one alphabet to form the *Annual Subject Index*. Annotations will be introduced wherever the titles of articles do not seem adequately to indicate the nature of the contents. The publication of monthly indexes will be begun in 1916. Both the class lists and the annual volume will be provided with brief name indexes and lists of periodicals cited. Terms of subscriptions and all further information may be obtained from the Manager, *The Athenaeum*, Bream's Buildings, Chancery Lane, London, E.C.

Letters, Notes, and Answers.

Authors desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL, are: (1) EDITOR OF THE BRITISH MEDICAL JOURNAL, *Medical, Bradford, London*; telephone, 2631. GEORGE (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements), *Articulate, Westrand, London*; telephone, 2630. HERRARD. (3) MEDICAL SECRETARY, *Mediscera, Westrand, London*; telephone, 2631. GEORGE. The address of the British office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

An officer recently serving in France, who has been much troubled by rias in billets and trenches, asks what effectual steps are practically possible to get rid of them. If any reader has practical experience of the use of a virus, or can suggest a good poison containing phosphorus or other ingredient, we shall be glad to hear from him.

Dr. ARTHUR KING (Winchester) raises the question whether, when after trophing a plainly palisating area covered only by sculp is left, a man should be advised that he is capable of undertaking ordinary duties. Does not this deficiency of bone, he asks, expose the individual to extra risks to life, or to failure in a sudden emergency?

INTERMISSION OF ASTHMA DURING PREGNANCY.

Dr. WESLEY WILSON (Hanley) writes: A chronic asthmatic—a woman, aged 35—had been in the habit of having continuous weekly treatment for this disease under the Insurance Act till about a year ago. On her reappearance last week she said: "I have been pregnant, and all the time I was carrying I was perfectly free from attacks; now they have begun again." Is this unusual?

WORK OF A SCHOOL MEDICAL OFFICER.

C. asks for advice on (1) the choice of a book on the duties of a medical officer attached to such schools as a large preparatory or public school; (2) the drafting of a case book suitable for the record of the routine medical examination of children in an orphanage.

(1) We know of no book that deals specifically and solely with the duties of a medical officer to a school. But there are many that deal with the whole subject of school hygiene, and of these there is the well-known book *Health at School*, by Dr. Clement Dukes (Livingtons, London, 1905), which deals particularly with the public school of the type that we are familiar with in England. The study of this book will show any careful medical reader the way his work should lie in the oversight and medical examination of children in such schools. It would be advisable also for the medical officer to join such a society as the Medical Officers of Schools Association (11, Chandos Street, Cavendish Square, London, W.). More than half the members of this society are engaged in public school work, and the journal issued by the society (*School Hygiene*) would prove of great value in his work. The back numbers are worthy of study.

(2) For the record of children's health in an orphanage some such schedule as that used by the London County Council Education Committee (L.C.C. School Medical Officer, 2, Savoy Hill, W.C.) would give a good basis on which to found a case book. Possibly the school medical officer of the county in which our correspondent resides uses a similar form, in which case it would be of interest to follow this scheme, so as to permit of correlation of the work in and out of the orphanage. If the inquirer is particularly desirous of correlating physical and mental characters he might take as his guide the schedule published by the Medical Officer of the Board of Education (Annual Report for 1913, page 321; Wyman and Sons, Fetter Lane, E.C., 1914). General experience goes to show that a card system is preferable to a case book.

ANSWERS.

TREATMENT OF CORNS.

E. G. R. writes to recommend a soft felt zinc oxide plaster now made by most of the plaster makers. It stretched across the sole of the foot it remains so comfortably for some days, and supplies a cushioning often lacking in these cases.

Dr. F. A. BRODIEB writes, in reply to "C. D.," to recommend the following treatment for corns: Soak the feet in hot water till sodden; then cut away all the hard skin till the base of the

corn is fully exposed, taking care not to make the corn bleed. Then rub in a little cocaine and thoroughly destroy the base of the corn with a caustic point. If this treatment is efficiently done the corn does not grow again.

LETTERS, NOTES, ETC.

TEN MINUTE TALKS TO MOTHERS.

In a pamphlet of twenty pages Dr. H. Cameron Kidd, the medical officer of health for Bromsgrove, has reprinted summaries of his lectures under the title of *Ten Minute Talks*, which he delivered in October, 1914, to a class of mothers, conducted under the organization of Lady Chavasse and Mrs. Paterson, and published in the *Bromsgrove Messenger*. The mothers must have benefited, for the advice given is practical and simple and easy of assimilation, and is drawn from the accumulated and large experience of twenty-seven years of general practice. All medical men may not, however, be found to agree with Dr. Kidd when he recommends the "daily painting of the nipples with spirit" for pregnant women in the last two months of gestation; some believe that such attentions rather increase than lessen the tendency of the nipples to crack later on. Should the author be tempted to make a hole in the back of his head, he will strengthen it by dealing a little more in detail with the expectant as well as the nursing mother.

FOREIGN PROPRIETARY DRUGS.

MR. HERBERT H. LONG (London, W.) writes: At the present time, when so many medical men are serving their country in the field, might I appeal to you to use your influence so that their fellow practitioners at home may be urged to second their patriotic efforts, if only in a small degree? As a West End pharmacist I am every day called on to dispense or supply glyco-thymoline, dioxigen, Phillips's magnesia, listerin, and a dozen other American or "foreign" proprietary orders or recommended by British medical men of repute. As a patriot I object—especially at this crisis—to contribute to the coffers of foreign manufacturers, more particularly as some of the "Americans" are probably of the hychenated variety. As a pharmacist of experience I fail to see any necessity for the majority of these alien proprietary. If British equivalents are available, either in the *British Pharmacopoeia* Code or elsewhere, what excuse is there for not making use of them? On the other hand, if the existing formulæ do not satisfy the prescribers, is it not in their province to publish others which do? It is useless for English manufacturing chemists to attempt to popularize "all-British" goods when the opposite policy is so consistently fostered by the medical profession, individual members of which would probably be the last to admit that they are grossly unpatriotic.

RARE BOOKS.

A MEDICAL man who is disposing of his library thinks it may interest some readers to know that among the contents are the following rare books: 1. *Lusus in Venereis*, by Joannes Secundus of the Hague, Ramusio de Rimini, and others. Paris. M.DCCCXCI. 2. *Martial's Epigrams*, with a comment by James Elphinston, London. MDCLXXXII. One cover loose. 3. *Suetonius's Works with Commentary*, by Samuel Pitseus, and indexes of editions, authors and subjects, portraits of Roman Emperors, and historical illustrations from ancient monuments. Second edition. Leuwarden. (C) 15 CCXIV. Two volumes, vellum. Good condition. 4. *Horace's Works*. Poetical Translation by Philip Francis. Seventh edition, four volumes. London. MDCCCLV. Vellum; good condition. 5. *Lucian's Works*. Greek Text, with Latin translation by Tiberius Hemsterhuis and Johann Matthias Gesner; scholia and notes by several commentators. Amsterdam. (C) 15 CCXLIII. Three volumes and separate index. Binding not in very good condition. 6. *Terence's Comedies*. Spanish translation by Pedro Simon Abril. Two volumes. Valencia. M.DCC.LXII. We understand that the vendor is open to an offer for these as separate books, or for the whole in one lot.

CHILDREAN.

LIEUTENANT COLONEL G. H. YORSE, F.R.C.S.I., R.A.M.C., writes to say that he has found the application of phenol ointment (B.P.) a most efficacious remedy in cases of chilblain where the skin has broken.

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An Address ON GAS POISONING.

READ BEFORE THE MEDICAL SOCIETY OF LONDON,

BY

LEONARD HILL, M.B., F.R.S.,

DIRECTOR, DEPARTMENT OF APPLIED PHYSIOLOGY AND HYGIENE,
MILITARY RESEARCH COMMITTEE.

THE reputation of the use of poison gases by the Germans in war does not lie so much in their actual use as in the fact that the German Government broke, in this as in so many other respects, their word, and secretly prepared before the war this method of offence.

All the propellants now in use set free enormous volumes of gases. The late Professor Vivian Lewes calculated that one of the 15in. guns on a super-dreadnought, with its charge of 400 lb. of cordite, gives off about 2,500 cubic feet of carbon monoxide gas each time the big gun is fired. In every battle hundreds of thousands of cubic feet of this gas must be produced, and yet so great is the diffusive power of the atmosphere that no poisoning from it can be traced. Nevertheless, carbon monoxide is a gas so poisonous that the breathing of 1 per cent. quickly renders a man unconscious. The high explosive nitre compounds such as picric acid and tri-nitro-tolul set free, when exploded, not only carbon monoxide but nitric oxide gas, and the latter when breathed has an irritative effect on the lungs closely comparable to that of chlorine.

The fumes of high explosives set free in close spaces, such as cellars and the interior of warships, where the ventilating power of the atmosphere is absent, may poison those who are not actually put out of action by explosive violence.

Gas poisoning, then, to a limited extent, occurred in modern warfare before drift gases and asphyxiating shells were introduced by the Germans. Much has been said of the suffering produced by gas poisoning, and truly dreadful to behold is the sight for breath of the strong man poisoned by chlorine; but we cannot suppose that the sum of suffering produced by gas is greater than that inflicted by shell wounds with the attendant sepsis, lockjaw, and permanent maiming of individuals.

There are poison gases which kill by cutting off the supply of oxygen—for example, nitrogen, hydrogen; these dilute the atmospheric oxygen below a viable amount—and carbon monoxide, which by combining with haemoglobin prevents the carriage of oxygen to the tissues. There are other gases like cyanogen, hydrogen sulphide, and hydrocyanic acid, which when breathed become absorbed into the blood and paralyse the respiratory centre. There is still another set of poison gases which acutely irritate the respiratory passages, causing exudation of lymph therein, which drowns the subject. This last set of gases the Germans have made use of, and for two reasons—first, because they put a man out of action when breathed for a shorter time and in greater dilution than any other poison gas; secondly, because they are heavier than air, and so suitable for drifting with the wind.

DIFFUSION IN THE AIR.

The molecules of gases, unrestrained by cohesion, are able to intermingle freely, and this diffusive process is very greatly quickened by convection currents set up by differences between the soil and air temperature, by currents due to evaporation of moisture, and still more so by winds and the eddies produced by the friction of wind against the soil. Owing to the immense ventilating power of the atmosphere, and the concentration of the poison gas required, the problem of effective use is very difficult. The drift gas must be considerably heavier than air, or diffusion will disperse it—gases intermingle at a rate which is inversely proportional to the square roots of their densities; it must not be too heavy or it will sink to the foot level; the wind must be of the right strength and direction; the gas must poison in a concentration of at least 1 in 10,000, or the quantities required will be unmanageable. It must be borne in mind that a man can hold his breath for at least half a minute, and that the poison gas cloud must therefore last long enough to

enforce breathing, and this breathing must continue long enough to put the man out of action. Owing fortunately to the enormous ventilating power of the atmosphere there is no reason to fear that Zeppelins will drop poison bombs on London. The German High Staff know perfectly well that no real frightfulness can be effected in this way. The scare about poison bombs which was prevalent in London some months back was unreasonable, and the public ought to have been warned against the purchase of respirators constructed to be worse than useless in a real emergency.

GERMAN EXPERIMENTS BEFORE THE WAR.

EXAMINATION of the back volumes of the *Archiv für Hygiene* shows that poison gases were investigated in Germany for years by Lehmann and his pupils from the ostensible point of view of making safe dangerous trades. From a critical survey of these papers the conclusion is inevitable that if any gases were used in warfare they would be chlorine or bromine. They alone come up to the requirements, namely: (1) that a 1 in 10,000 concentration rapidly puts a man out of action—by asphyxiating him, owing to its intense irritative property; (2) they are much heavier than air; (3) they are manufactured in huge quantities in trade processes; (4) they are easily compressible into cylinders for convenience of transport and handling. Moreover, a respirator is easily contrivable to protect the person who manipulates the brigade gas attack. It is obvious that no drift gas can be used offensively from which the users are unprotected. The density of the various asphyxiating gases which at first were suspected of being used are: sulphur dioxide, 2.21 times heavier than air; nitrogen peroxide, 3.17; chlorine, 2.45; phosgene, 3.49; bromine vapour, 5.53. The power of liquefying a gas by cold or pressure, or a combination of the two, enables the chemist to get into a convenient form large quantities of these asphyxiating gases, but the turning of these liquids back into gases may be troublesome because the heat withdrawn during volatilization may be so great as to freeze the nozzle and stop the outflow.

Special devices are required to produce the expulsion of the gas some distance in front of the trench and to prevent the retardation of flow by freezing. Sulphur dioxide irritates the eyes and air tubes in concentrations of 1 in 2,500; it is liquefied by a pressure of three atmospheres, chlorine by six atmospheres. Of the two, chlorine is a far more powerful asphyxiant, being unbearable in a concentration of 1 in 10,000. Nitrogen peroxide can be liquefied below 26° C. In comparison with chlorine, used in weak concentrations, it has a delayed irritative action on the lungs, and therefore, owing to its want of stopping power, is far less suitable for use. Firemen are sometimes exposed to fumes of nitric acid—for example, after the bursting of carbonyls; they are unaffected at the time but develop a fatal inflammation of the lungs during the next twelve hours. As the oxides of nitrogen play so important a part in the manufacture of explosives, it is unlikely that the peroxide should be used as a drift poison gas.

BROMINE.

Bromine vaporizes at atmospheric pressures and boils at 59° C. It is far heavier than air and as powerful an asphyxiant as chlorine. Germany produces almost the whole of the European supply. It has been said that certain bromine organic compounds have been extensively used by the Germans in asphyxiating and lacrimating shells. The vapours of these substances in concentration as little as one part in several millions of air are said to put a man out of effective action by causing watering of the eyes and inability to open the eyes, so specifically irritating are they to the conjunctiva. They are said also to cause in greater concentrations irritation of the respiratory mucous membrane.

CHLORINE.

Chlorine can be made very easily by heating a mixture of hydrochloric acid and black oxide of manganese, or by electrolytic processes. It can be stored in lead-lined cylinders. The gas above the liquid chlorine exerts a pressure of at least 90 lb. per square inch, so that all that the Germans required to project chlorine was a long tube projecting in front of the trench parapet and a valve. The spray turns into a yellowish-green vapour, and owing to its weight drifts with the wind along the ground. Any one who has watched smoke from a weed bonfire drift over a

could well see how far the chlorine vapour may be carried in poisonous concentration. It will sink into trenches, shell-pits, mine-craters, cellars, and dug-outs. To produce a concentration extending 10 ft. up of 1 in 10,000 during a period of ten minutes in a wind moving uniformly four miles an hour, over 1,000 cubic feet of gas are required for each hundred yards of front. This is leaving out of account diffusion and the ventilating power of the atmosphere. It is clear, then, how large a volume of gas is required for an attack, and how any gas which does not come up to the 1 in 10,000 standard must be ruled out.

LETHAL DOSES.

To estimate the lethal dose of chlorine or bromine special methods have to be devised because these gases combine very readily with the hair of an animal, turning this into a gummy substance. My fellow worker, Dr. Benjamin Moore, found that hair dissolved in bromine into a gummy red-black mass, from which the bromine could be washed away, leaving a white friable substance. This bromo-protein compound gave an intense violet biuret reaction, and on addition of strong nitric acid yielded up its bromine. The effect of 1 in 10,000 chlorine is such that no man would endure breathing it who could escape from its influence. The eyes and the mucous membranes of the respiratory tract are intensely irritated and a watery exudation takes place, the inevitable effort which the living tissues make to dilute so irritant a poison.

Effect on the Lung Structure.

Just as lymph is poured out after a superficial burn of the skin, or the application of a blistering fluid, or in a septic wound under the influence of bacterial toxins or antiseptics, so does chlorine produce an exudation of lymph in the lungs. The epithelial lining, both that of the mucous membrane and of the capillary wall, is damaged by the poison. The osmotic pressure of the damaged tissue is raised—the colloidal lining complex becoming killed and disintegrated with the setting free of crystalloidal substance. This fluid is pulled out by osmotic forces, while through the damaged capillary wall, too, the plasma may actually leak away. The classical first symptoms of inflammation thus appear, ending in stasis of the corpuscles in the capillaries owing to exudation of the plasma. In the earliest stage the salivary glands in the mouth and the mucous glands in the air tubes are stimulated to secrete, just as the tear glands flood the eyes. It is this pouring out of the fluid in a vain effort to ward off the poison which causes the asphyxial symptoms of chlorine poisoning and finally drowns the man. He is as surely drowned by the exudation as he is when he breathes water into his air tubes. The mucous membranes of the nose and mouth, wet with secretion, at first act as a protective respirator, catching much of the poison and preventing it entering the lungs. That this is so is seen by the greater celerity with which serious symptoms arise in an animal when chlorine is administered through a tracheal cannula instead of through the nose and mouth. It is a remarkable fact that while 1 in 10,000 is unbearable to breathe, and 1 in 100,000 is distinctly irritative, yet we find it takes a concentration of as much as 1 in 5,000 of chlorine dissolved in water to stop the movement of the cilia in a preparation of ciliated epithelium observed microscopically. Chlorine is much more toxic when it comes in contact with the moist living membrane in a gaseous state than when in watery solution.

Sir Edward Schäfer¹ has drawn attention to this. "From the chemical nature of chlorine," he writes, "it seems evident that its immediate action must be local. For it is scarcely possible to imagine that it can exist in the free state in such a fluid as blood, which contains many bodies with which it would immediately combine, and which would—unless it were introduced in immense quantities—at once render it innocuous." When 10 c.c.m. of Ringler's solution saturated with the gas were injected by Schäfer into the jugular vein of a rabbit, in a period of 20 seconds there occurred a quite temporary fall of blood pressure and increased depth of respiration. Only in one case when the same amount was injected rapidly and with, therefore, less perfect admixture of blood, did oedema of the lungs and congestion result in the pulmonary vessels, producing a fatal result. The irritative effect of the dissolved chlorine is spent on the blood, or the lung, the first tissue it comes in contact with. When inhaled the

chlorine spends its effect on the air passages and lungs, and we have no evidence that free chlorine or any poisonous chloro-protein complex is formed, which, conveyed by the blood poisons other tissues. Major Walter Broadbent,² in a note concerning nephritis following chlorine poisoning, says: "It looks as if in some cases the chlorine or bromine damages the lung epithelium so severely that it does not allow absorption into the general circulation, while in others the gas passes through the lungs without affecting them permanently, but then sets up an acute nephritis."

It is not possible to uphold this theory. Chlorine gas in every case expands its fury on the lungs. The nephritis, I believe, is due to the intense and prolonged dyspnoea and the struggles for breath. Albuminuria is a common result of the very temporary dyspnoea which athletes suffer in a race. It results in such case from the want of oxygen in the kidney, just as it does when the renal artery is temporarily occluded. It is, I believe, the want of oxygen which produces the increased acidity of the blood observed by Mr. Barcroft in a few cases of chlorine poisoning, including a dog experimentally poisoned by us. No doubt the products of the damaged pulmonary tissue, absorbed during the days subsequent to the poisoning, have a toxic effect, particularly as the damaged lung becomes infected.

SYMPTOMS.

We are told³ that a typical case on admission is cold with a subnormal temperature, conscious but restless, with pulse slow and full (except in the collapsed cases). The face is cyanosed, intensely so in many cases, and the expression strained and anxious. The posture varies. In some cases the patient sits propped up, with head thrown back, gasping for breath; in others, he lies on his side, with his head over the edge of the stretcher in an attempt to aid expectoration. The respirations are jerky and hurried, often numbering 40 a minute, and are associated with a choking cough, accompanied by a varying amount of frothy expectoration. With each inspiration the chest is expanded to its fullest, all the auxiliary muscles being brought into play just as in an asthmatical paroxysm.

This is the first or asphyxial stage, which, if the patient survives, gradually passes off after some thirty-six hours. Can we wonder that such long-lasting intense dyspnoea should produce nephritis, accompanied as it is with convulsive breathing which just maintains the cerebral circulation within viable conditions at the expense of the abdominal circulation? Major Broadbent records a case in which he believes a cusp of the aortic valve was ruptured in the struggles for breath.

"After the first stage the patient falls into a sleep, and awakes feeling much better. But after a few hours of comparative quiet symptoms of bronchitis begin to manifest themselves. In the majority of cases these are not severe"—because, no doubt, nearly all the severe cases die in the first stage. "In the cases which are kept alive with difficulty there is a frothy gaseous stage followed by intense bronchitis. The frothing gives place to greenish mucopurulent expectoration, consciousness to delirium, the temperature rises from subnormal up to 104° F., the pulse becomes of small volume, with its rate increased perhaps to 160, the respirations are less choking but more shallow, and number up to 70 per minute before death."

PATHOLOGY.

Post-mortem examination in the acute cases shows an intense congestion of the mucosa of the trachea and larger bronchi. These tubes are filled with a thin, light yellow frothy secretion, some of which escapes from the mouth and nose when the cases are first laid on the table. The fluid is highly albuminous, solidifying on heating. The larger bronchi only can be traced, the smaller being lost in a condition of intense congestion and oedema which affects the lungs as a whole. The lungs do not collapse in these acute cases, but appear like a solid cast of the thoracic cavity, and are greatly increased in weight. On incision, the lung tissue appears of a deep maroon red colour, and the exudation flows from the cut surfaces in abundance. Light grey patches are to be seen on the surface of the lungs amidst the congested areas. They were found to be due to emphysema. So intense is the obstruction to the entry of air, and so violent the efforts of respiration, that emphysema is produced in these least poisoned parts where air can still enter. We can picture how the violence

of the respiratory efforts, brought to bear on a relatively few small parts of the lungs, distends and breaks down the walls of the alveoli, expelling the blood into surrounding congested areas.

The parts of the lung tissue not affected by emphysema show the intense congestion of the capillaries, and many of the alveoli are seen filled with exudate which takes on the eosin stain. Into some alveoli red corpuscles escape; larger patches of haemorrhage may occur. The heart in these acute cases is congested, particularly on the right side. The stomach shows a condition of catarrh, the mucosa being covered with a thick yellowish mucus and haemorrhages being visible in the submucosa. These changes may conceivably be due to the swallowing of saliva and exudate from the nose and expectorated fluid in which chlorine is dissolved. The venous congestion of the stomach and other abdominal organs and of the brain is due to the asphyxial character of the death.

Experiments made on animals make quite clear the stages of toxic effect. Using bromine in concentration of 1 in 1,000 approximately we find that the mucous membrane of the windpipe, killed by the poison, may be stripped off by the violence of the respiratory efforts, so that drawn down into the large bronchi it forms a tree-like cast therein, suffocating the animal. Chlorine, in our experience, causes a greater exudation of fluid than bromine. Chlorine (1 in 1,000) breathed through a tracheal cannula may shortly cause in a cat such an exudation of fluid that it fills up the trachea. By compressing the chest many cubic centimetres of the fluid can be squeezed out of the lungs into a basin. It is a clear, serous liquid, containing plenty of coagulable protein. That this fluid drowns the animal may be seen by the relief which is given after squeezing it out.

Professor Schafer, experimenting with very high concentrations of chlorine gas—for example, 1 to 2 per cent.—has concluded that death is brought about by stasis in the pulmonary vessels. If this be so for the high concentrations used by Sir Edward, it is not so in the case of the weaker concentrations, such as are breathed on the battlefield.

We have put the matter to the test in two ways: (1) We manipulated the animal so that we could artificially respire one lung with pure air, the other with air containing chlorine. Recording the blood pressure we first of all proved that artificial respiration of either lung sufficed to maintain the circulation in undiminished vigour. We then gave air plus chlorine to the one lung, and observed the gradual production of congestion, oedema, and lessened expansion of that lung, leading to symptoms of asphyxia and failure of the circulation. On carrying out the respiration of the other lung with pure air we observed the complete and immediate recovery of the circulation. On now squeezing the fluid out of the first lung and changing the respiration to that we see that the circulation may continue, the asphyxia no longer being complete.

In the other set of experiments we had the co-operation of Dr. Kuno, of the Physiological Institute, University College, one skilled in the particular technique required. The circulation was confined by Dr. Kuno to the heart and lung preparation and the technical arrangements made so that the output of the heart could be measured at any period of the experiment. The thorax was widely open and the lungs exposed to view. On giving chlorine the first and immediate effect was a very evident diminished expansion, due, we thought, to contraction of the bronchial tubes. Congestion and oedema followed, appearing first in patches on the surface and then spreading; as these grew marked the blood became more and more venous; the output, it is true, was then diminished, but whatever stasis there was in the pulmonary vessels did not markedly affect it.

It is well known that a very large part of the pulmonary vessels can be ligatured and yet an adequate circulation be maintained through the remainder. A very small portion of lung suffices, too, to keep up the oxygen supply to the heart.

These experiments made clear to us how artificial respiration keeps alive the gas-poisoned animal. If fluid be forcibly squeezed out of the lungs of a chlorinated cat, struggling for breath, its condition is greatly improved.

If air is forced by artificial respiration into the lungs emphysema in places may be produced, but the heart is kept going.

SYMPTOMS AND LESIONS OF THE LUNGS IN EXPERIMENTAL ANIMALS.

Animals exposed to chlorine exhibit first of all profuse watering of the eyes and salivation; they make efforts to escape, and if the chlorine in the chamber is not mixed by a fan but sinks to the lower parts, they hold up their heads as high as possible to escape breathing the more concentrated lower stratum. The respiration soon becomes quickened, and then, as the oedema of the lungs and exhalation into the air tubes increases, the respiration becomes slower and laboured. The obstruction to the entry of air becomes great, and in consequence the lower ribs are drawn in with each inspiratory gasp. The mouth gapes open and a frothy secretion hangs round the orifices of nose and mouth. The whole effect of the animal is given up to breathing; finally, it falls over exhausted, the breathing becomes rarer and shallower, and it dies. If in the stage of laboured breathing the animal be removed from the poison, it generally dies during the next twenty-four hours, but may live longer to die within the next few days. One of our animals died as late as a fortnight after the exposure.

Examination of the lungs of those which die in the first twenty-four hours shows an intense congestion of the lungs; they are dark red in colour; a more or less solid oedema prevents their collapse on opening the thorax. The air tubes contain frothy exudation which, on cutting the lungs, exudes in large quantities. When the lung of a rat was kept in a covered dish it shrank like a blood clot, exuding serous fluid, till it floated in it.

The animals which die in the later days show more or less extensive patches of red hepatisation. Those parts of the lungs which were least poisoned appear relatively normal, but are more rosy in colour.

Microscopic examination was carried out on the animals poisoned by us by Professor William Bulloch. The sections show intense congestion and small haemorrhages in places, and an oedema which fills the hardened alveoli with an eosin-stained homogeneous coagulum, reminding one of the appearance of the thyroid alveoli filled with colloidal secretion. The coats of the arteries are enormously distended with exudate, giving a most remarkable picture. The epithelium of the air tubes is in many places detached. The animals die in the early stages from asphyxia, and in the later stages from pneumonia with consequent absorption of toxins and exhaustion.

In those animals which are less severely poisoned the laboured breathing gradually passes away; those that recover appear quite normal at the end of a fortnight. Their fur, which was made sticky, and looked, so to speak, burnt at the ends, becomes glossy again, the damaged hairs being shed. These animals, if killed during the process of recovery, generally show small pneumonic patches. The lungs seem very sensitive to further injury during the period of recovery; inhalation of chloroform may cause acute oedema, and drown the animal.

There seems no reason why recovery of the lungs should be any less perfect after chlorine poisoning than it is after bronchopneumonia. The damaged and shed epithelium of the air tubes can be replaced, and the pneumonic patches resolved by the absorptive action of the phagocytes, until repair is complete.

I have no evidence to offer as to the state of the lungs at any long period after the poisoning.

Irregular Distribution of Lesions.

The remarkable fact that some parts of the lungs are far more severely damaged than others requires an explanation. When chlorine of, say, 1 in 1,000 is driven into the lungs by artificial respiration, and the lungs are exposed and observed from the start, it is evident that the poison reaches and severely damages certain parts in the surface, while other points remain normal. In these experiments the current of air from the pump was driven through chlorine water and then passed into the windpipe. We must suppose either that the chlorine does not uniformly mix with the air, or that certain air tubes are shut up by contraction of the bronchial muscles, and so prevent the poison reaching the alveoli they supply.

There is no doubt that the first effect of concentration such as 1 in 1,000 is to cause contraction of the bronchial muscles and diminish the expansion of the lungs. Using enormously strong concentrations, Sir Edward Schäfer finds no evidence of such contraction—probably the concentrations he used rapidly killed the lining membrane of the air tubes, including the muscle. Some experiments conducted by F. J. Twort and myself on the oxygenation of the blood, in subjects breathing in a shallow way, suggested to us that parts of the lungs may then not be expanded, nor the blood oxygenated in these parts, and that the bronchial muscles may regulate to which part of the lungs the air goes on each inspiration. The results of our chlorine experiments seem to confirm this view.

TREATMENT.

Expulsion of Fluid.

For the severe cases of chlorine poisoning the one object of treatment must be that of getting rid of the exudation in the air tubes which is drowning the victims. Experiments on animals show that the frothy fluid can be easily squeezed out of the lungs and trachea by rhythmic compression of the thorax, and that the dyspnoea which is threatening life can be greatly, if only temporarily, eased by this means. Artificial respiration is reported to have given good results in several of the cases on which it was tried. It must be repeated as often as the dyspnoea becomes excessive. The case is recorded of one man, almost moribund, who was treated in this way on four successive occasions, and ultimately recovered. After squeezing out the fluid, air may be blown into the lungs by mouth to mouth artificial respiration to overcome the resistance of the froth in the smaller tubes and expand enough lung to keep the patient alive. It is true that emphysema may be caused by so doing, but if it is a question of just carrying a man through the threatened asphyxia, one cannot hesitate to get air into the lungs by these means.

I took over to Flanders an apparatus constructed by Messrs. Siebe Gorman called the "Vivator," in which there is a foot-pump which feeds a face-mask through a flexible tube. By each downstroke a measured volume of air or oxygen is pumped into the lungs, by each upstroke a valve is opened which allows the air to escape from the lungs by the elastic recoil of the thorax and lungs. With this apparatus respiration can be kept going in the collapsed or unconscious cases, the fluid now and again being evacuated by squeezing the thorax and by posture.

The inverted posture will help to drain out the fluid. I was told that several of the patients of themselves hung their heads down over the side of the stretcher or table, in order to aid their expectoration.

Emetics.

Emetics have proved very useful in giving relief to the less critical cases. Half a pint of salt and water or 8 grains of copper sulphate, followed by large draughts of lukewarm water, are recommended. A brush or the patient's finger put to the back of the throat will initiate the vomiting without delay. The act of vomiting is reported to cause the expulsion of a large quantity of the frothy liquid.

Oxygen.

Administration of oxygen relieves the cyanosis and improves the condition of the subjects.

Not only does the percentage of carbonic acid in the blood rise in the suffocative condition, but other acids such as lactic acid increase in quantity owing to the lack of oxygen. When the blood is oxygenated by breathing of oxygen these other acids do not appear, and the acid intoxication is therefore so far eliminated. Tests of the power to hold the breath show that a higher percentage of carbon dioxide can be borne when oxygen rather than air fills the lungs. To give oxygen to a man who is struggling for breath and needing to expectorate is no easy matter. It is difficult to get any kind of close-fitting face-mask tolerated. The ordinary clinical method of administering oxygen through an open funnel held near the mouth and nose is of relatively small value; nearly all the oxygen is wasted by escaping into the atmosphere; just at the period of inspiration the stream which reaches the

mouth and nose is not enough, so that the air drawn into the lungs is very slightly enriched. I have found the oxygen in my alveolar air increased by only 1 or 2 per cent. when oxygen was administered to me by a sister in a London hospital. If a loose kind of face-mask be made out of a towel, and the oxygen tube led under that, and the oxygen sent in sufficient stream to blow away the exhaled carbon dioxide, then 70 per cent. of oxygen can easily be obtained in the alveolar air. Down Bros. have made a transparent face-mask to my design, fitted with a curtain which drapes the face, by which oxygen can be effectively given on this plan, but not economically. A 20 ft. cylinder is soon blown away by these methods. To give oxygen economically a well-fitting face-mask, breathing bag, and cartridge for absorbing the exhaled carbon dioxide must be used. The subject breathes through the cartridge in and out of the breathing-bag, which is filled with oxygen from the cylinder as required. The cartridge is loosely packed with small pieces of caustic soda-coke: to prepare these the coke pieces are heated red-hot and dipped into strong caustic soda. They offer a splendid absorbing surface and no appreciable resistance to the breathing. The apparatus—made by Messrs. Siebe Gorman—I took over for use in Flanders. The difficulty in using such lies in keeping the mask over the face of a man who wants to struggle and expectorate. Oxygen breathed between the periods of expectation will undoubtedly give him relief, and with the above apparatus a 20 ft. cylinder will give a supply lasting many hours.

Compressed Air.

Experiments on animals have shown us that compressed air relieves the dyspnoea to the same extent as oxygen does. On placing a patient in a medical air-lock, such as is used in compressed-air tunnel works, and compressing him to two atmospheres, he would breathe double the concentration of oxygen and at the same time would be able to expectorate and struggle as he pleased. The compression of the air when first applied would halve the size of the air bubbles in the frothy liquid which obstructs the air tubes, and this should give relief by lessening obstruction. Artificial respiration could be applied in the compressed-air chamber and the subject be kept in it for several hours, and then slowly decompressed. The medical locks are fitted with air-locks, through which the medical officer can enter or leave. The difficulty, of course, lies in the provision of such medical locks—heavy cylindrical boiler-like structures, each of which would hold only four or five patients, with the necessary oil-driven compressor engine. A small medical lock and engine would go on a 3-ton lorry, but it is a serious thing to hamper the transport of the army with such a provision. There is another way in which oxygen might be administered without the use of a mask, and that is by drawing over the stretcher containing the patient a cylindrical balloon, say 10 ft. by 4 ft., tying up the end, and then distending the balloon with oxygen.

Verapine, etc.

The giving of atropine has been extolled on the theory that it lessens secretion of fluid and dilates the bronchial tubes. In severe cases of poisoning we have not found it of the least service.

It is claimed that the inhalation of stramonium vapour from cigarettes relaxes the bronchial muscles; this may afford relief in the mild cases, which recover whether so treated or not.

CONCLUSION.

The chlorine poisoning of the lungs is comparable to extensive burns of the skin, and the same general treatment to support strength and lessen shock is required. Just as septic infection of the skin is the sequel of the burn, so pneumonia and bronchitis follow chlorine poisoning. In our experimental animals severe poisoning has in every case had this end, and we know of no means of preventing it. Warmth and good nursing might pull a man through these conditions are difficult to apply to animals.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, MARCH 14TH 1915. ² BRITISH MEDICAL JOURNAL, 2 Black, Glenn, McCon, BRITISH MEDICAL JOURNAL, July 31st 1915.

THE TREATMENT OF GUNSHOT WOUNDS OF THE ABDOMEN.

BY

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From June to the end of October, while serving in the Dardanelles, it has fallen to my lot to see a very large number of gunshot wounds inflicted by bullets, shells, shrapnel, and bombs, a considerable number being abdominal.

The greater part of my time was spent on various hospital ships anchored from half a mile to a mile from the various landings, my duty being to change from one ship to another as each in turn filled with wounded and steamed off to some base. Many of the cases—such as the efficiency of the R.A.M.C. service ashore—landed on the hospital ship within from two to four hours of being wounded.

At first we were influenced by the experiences of the South African war, which seemed to prove conclusively that opium, starvation, and rest in the Fowler position yielded better results in gunshot injuries of the abdomen than treatment by operation.

In my first six months spent in a base military hospital in London I could not but feel impressed by the absence of abdominal cases in our wards; the explanation is, of course, quite clear—the cases seldom, if ever, reached the base hospitals, as the wholesale expectant treatment was a failure.

In the beginning of this year, while serving with the French army in the Argoonne, I had the opportunity of seeing the treatment of these cases at the front in the field ambulances and hospitals. Owing to the Germans shelling the motor ambulances in the daytime, it was impracticable to collect the wounded until night, so that nearly all the abdominal injuries had been lying out in the cold and wet, sometimes in the snow, for several hours before they could be attended to, and I was told by the surgeons in the various hospitals that nearly all, whether treated expectantly or by operation, had given disappointing results.

It will be seen that at the Dardanelles we were much more favourably placed for the treatment of abdominal injuries, seeing that the cases as a rule were admitted early, and could be treated in theatres equipped for dealing with serious surgical cases. On shore the flies and dust and the general unrest were unfavourable factors; yet success attended operation in quite a number of cases otherwise hopeless.

After some little experience of the course of cases treated by opium, starvation, and rest, I soon came to the conclusion that we might be able to do more for these patients, since a very large proportion, especially of the shrapnel and shell wounds, ended badly. Judgement must be exercised as to the class of cases in which it is wise to operate; for instance, a clean bullet wound through the abdomen, with small wounds of entry and exit, and without evidences of internal hæmorrhage or extravasation, may, if favourably situated, be treated expectantly; whereas a bullet wound with large openings of entry and exit, or with signs of internal hæmorrhage or extravasation, and with absence of liver dullness, should be operated on as soon as possible if seen early and if the general condition is favourable.

As nearly all shrapnel, shell, and bomb wounds are septic and produce great visceral injury, operation will give a better chance of success than expectant treatment if the patient is in a fit condition to bear it and the case is seen early. If the case is seen late and peritonitis has already set in, a small incision above the pubes large enough for the insertion of a drainage tube down to the bottom of the pelvis, and the Fowler position, will give the patient a chance of recovery.

This treatment, by the way, is the best for typhoid perforation; I learnt this in France, where, in the large typhoid hospitals, a good proportion of cases are being saved.

As there are competent surgeons both on the hospital ships and in the hospitals ashore, it naturally follows that the greater number of cases are treated by them, the

opinion of the consultant being asked as to whether operative or expectant treatment is advisable.

The following cases, which, at the special wish of the operating surgeons, I personally operated on, will give some idea of the conditions for which operations may be required:

1. *Shell wound of abdomen* seen between two and three hours after injury; it had occurred shortly after the mid-day meal, the man having been summoned to repel an attack by the enemy as he was finishing his dinner. The wound was in the mid-line between the umbilicus and ensiform cartilage. On opening the abdomen the stomach, which was full of food, was seen to have a rent in its front wall of $\frac{3}{4}$ in., the posterior wall being uninjured. The gastric wound was closed with silk and the abdomen was wiped out with pads soaked in normal saline solution and then closed. The wound through the abdominal wall should have been excised, as it was ruptured and gave rise to some trouble, but the ultimate recovery was quite satisfactory.

2. *Penetrating wound of right side of abdomen with collapse owing to internal hæmorrhage.* The patient was seen within six hours of the injury. On opening the abdomen much free blood was evacuated and a large vessel in the mesentery was ligatured. The abdomen was closed after being wiped out with pads soaked in normal saline solution. The patient recovered.

3. *Shrapnel wound* low down in the caecal region, bleeding freely on admission, about four hours after injury. On opening the abdomen, a large wound was found in the caecum; the spermatic cord was divided and bleeding freely, and the bullet had passed through the bony pelvis into the buttock. The caecum, which was full of faeces, was cut off and the cord was used continuously in two layers, the cord was ligatured, the right testis removed, and a tube passed through the opening into the buttock. The abdomen was wiped out with swabs dipped in normal saline solution and closed around the drainage tube. The patient recovered.

4. *Bullet wound* through right side of abdomen below the costal margin. Liver dullness was absent and there was no effusion in the right loin when the patient was seen, four hours after injury. The abdomen was opened and visceral wounds in colon and duodenum closed by purse-string sutures. The right side of the abdomen was wiped out with pads soaked in normal saline solution and the wound closed. The patient recovered.

5. *Shrapnel wound* beneath left costal margin, free internal bleeding, and collapse. The patient was seen three hours after injury, on opening the abdomen blood gushed out and free bleeding was continuing from wounds of vessels in the meso colon, mesentery, and pancreas; all of these were immediately ligatured, and openings in the colon and in three loops of small intestine were rapidly closed by silk purse-string sutures, and after wiping out the abdomen with normal saline solution the wound was closed. Despite transfusion and saline injections, the patient died of shock, collapse a few hours later.

6. *Bullet wound* in epigastrium, passing through the abdomen and out near the spine. This case was seen about four hours after injury with free blood in the abdomen. On opening the abdomen the bullet was found to have passed through the liver, stomach, and pancreas, and the latter was bleeding freely. The vessels in the pancreas were ligatured, the openings in the stomach were closed with purse-string sutures, the liver bleeding having stopped from pressure with a pad of gauze. The abdomen was wiped out with normal saline solution and the abdomen was closed. He made an uninterrupted recovery.

7. *Bullet wound* through right side of abdomen and bladder. The abdomen was opened. No visceral wound was found except that of the bladder, which was drained above the pubes. The remainder of the wound was closed. The patient recovered.

The above cases are, I think, sufficient to establish the views I have advocated: that operation in gunshot injuries of the abdomen is well worthy of consideration if the case is seen early and if the patient is in a fit condition to bear it and in fit surroundings.

Besides the cases I have related, there are many others in which I have assisted or advised in operations on gunshot abdominal injuries, but I prefer to limit my observations to those cases for which I was personally responsible.

Besides gunshot abdominal injuries, I also operated on several acute appendix cases, in two of which there was general peritonitis, and in a case of peritonitis due to rupture of a large liver abscess. These cases recovered, showing that the means for treatment and subsequent nursing on the hospital ships is so satisfactory that I feel every confidence in advocating a more frequent resort to abdominal section in the class of cases such as those I have briefly reported.

The late Dr. Dudley P. Allen, formerly professor of surgery in the Western Reserve University, has bequeathed the sum of £40,000 as a permanent endowment fund for the Cleveland Medical Library.

FIELD AMBULANCE WORK AT ANZAC.

BY
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It may be of interest to your readers to have a short note on the special difficulties and dangers which beset field ambulance work in the duties such a unit has to perform at Anzac.

The facts that all work had to be carried out under continuous shell and rifle fire, that the country is exceptionally rough and precipitous, and that no roads, and consequently no transport except hand carriage, is possible, render the role of the field ambulance uniquely difficult and dangerous.

We soon found that the protection afforded by the barricades of equipment was illusory, as shrapnel bullets came freely through the roof, and finally a shell came through a stationary box and burst inside the dressing station. We then built up the walls with sandbags to the height of about 7 ft., and by breaking up the shattered boats of the first landing party we got enough wood to cover in part of the roof; over this we heaped earth to the depth of about 9 in., and so made a dressing station that was proof against shrapnel bullets but, of course, useless against a direct hit.

We built in the same way other shelters, and after a lot of hard work and improvisation succeeded in making fairly safe cover for sixty stretcher cases. As the cases usually arrived at the beach within an hour or two of being wounded, and as the naval service for evacuating to the hospital ships was so good, no operations, except for the arrest of hæmorrhage, were done on the beach at this time. About fourteen days later, however, on making inquiries at the hospital ships, we found that the results in abdominal wounds were extremely bad. Whether the cases were treated by operation or otherwise seemed to make very little difference. At this time, also, the weather became rougher, and it was often impossible to get the wounded off to the ships at all without considerable delay and knocking about. In these circumstances we determined to erect an operating tent on the beach and try treatment ashore unless the conditions for evacuation were very favourable. From this time till June 16th we operated on almost all cases of penetrating abdominal wound, and kept the patients on shore from twenty-four hours to four days afterwards. The conditions for operating were good, except for shrapnel fire, to which the operating tent was quite exposed. The beach in front was shingly, so there was very little dust.

We found in about 60 per cent. of the cases operated on that the condition was almost hopeless, whether the wound was caused by bullet, shrapnel, or shell fragment. As a rule, the gut was perforated or torn in from seven to twenty places, and several of the mesenteric arterial branches were usually torn across. With shrapnel there was nearly always extensive destruction of tissue round the perforations, so much so that it was usually necessary to resect portions of gut. Most of these cases died in a short time, but a few of them we sent off to the ship some days later in a surprisingly good condition. About 25 per cent. of cases gave good hopes of a favourable result. In these—almost all bullet wounds—two or three clean perforations of the small intestine or stomach were found. These were easily and quickly closed and promised to do well when evacuated. In a few of them no wound of the viscera could be found, though the missile had certainly traversed the peritoneal cavity, usually from side to side. The remainder of these abdominal cases arrived in such a hopeless condition that nothing was done.

We operated on a considerable number of head injuries, principally depressed fractures and ruptured middle meningeal arteries. Of these last we saw a good number, one of which was especially interesting.

A private was brought in showing typical signs of compression of the brain. No wound could be discovered on the head till after it had been shaved. A small spot on the left side of the scalp, over the site of the middle meningeal, was all that could be found. A probe could be passed into this down to the bone, so we decided to turn down a flap and examine the skull. There was a tiny perforation of the skull, and on removing a disc of bone

we found a large clot pressing on the brain and hæmorrhage from the middle meningeal artery. Lying embedded in the dura was a small fragment of steel about half the size of a grain of rice. Speaking afterwards to the man who was beside him in the trench, I discovered that his bayonet had been struck by a bullet and shattered. Evidently a small piece had struck him on the head, but one would hardly have expected such a small fragment to have had sufficient momentum to do so much damage.

The immediate results of operation in these types of head injury are good, and most of them will recover. What the after-results are to be time will show. Most of the head wounds received in the trenches were inflicted at short range, and were very severe. In a large number the whole calvarium and contents were blown right off just as if they had been removed by a saw.

In nearly all cases of long range bullet wounds, which the bullet lodged it was completely reversed—that is, the point was towards the wound of entrance. Some clips of Turkish cartridges were discovered with the bullets reversed, but in the majority of cases the bullet apparently turned over immediately on striking. The nickel coating of the bullet is very thin, and sometimes it bursts and is found two or three inches nearer the wound of entrance than the lead.

Owing to the position of the operating tent, and to the fact that a very large number of men were wounded on the beach within a few yards of it, we were often able to have a man on the table within a minute of the time he was hit. In this way we saved, by ligation of vessels, a good many who otherwise must inevitably have died. One man, struck by a shrapnel bullet near the door of the operating tent, had his jaw broken on the left side, the bullet passed the base of his tongue, and lay under the skin over the sterno-mastoid on the right side. A hæmatoma immediately commenced to form on the right side of the neck, and continued swelling rapidly, just like a toy balloon being blown up. We cut down immediately on the carotid, and found both the facial and lingual arteries cut close to their origin. These were ligated, and he made a speedy recovery. Dyspnoea had been very urgent, and but for immediate assistance he must have died from suffocation.

After cases left the shore it was impossible to get any news as to their progress. They were distributed through the hospitals of Egypt, Malta, and Britain, and could only be traced by a persevering search of the records. Some way by which the results of a particular line of treatment could be traced, and the information made use of, would be the greatest assistance to the medical officers who have the responsibility of early treatment.

The conclusions we draw from our experience of abdominal wounds are:

1. Early operation if conditions are favourable and the operator is experienced in abdominal surgery. By early operation is meant any time up to six hours.
2. Rest at the place of operation for three or four days afterwards.

If these conditions are not available operation is contra-indicated, and ordinary medical treatment must be adopted. In this event, however, our experience would indicate that with Turkish bullets, shrapnel, or shell wounds the results are extremely bad.

By June 26th the operating tent was riddled with bullets and a number of the orderlies and patients had been hit, so we came to the conclusion that cases, and incidentally ourselves, ran so much risk of further injury that operative procedures in the tent were unjustifiable. We set to work to excavate a room underground, as timber was now available, and by the evening of June 26th had an operating room fitted up and lighted with acetylene gas. We considered this comparatively safe, but at 5 a.m. the next morning a 4.7 high-explosive shell penetrated and wrecked it. The beach being inflated from both ends, we decided we would have to seek safer quarters for the patients, so we moved up as close as possible to the Turkish trenches. We found a suitable spot protected from bullets by a fold of the ground. It was too close to the Turkish lines to be shelled from long range, and the only discomforts were an occasional sprinkling of shrapnel from a premature burst and a few lumps of iron from high explosives dropping on the cliff

above. Here operations were out of the question owing to the dust and flies. The mules were quartered in a gully close by, and the plague of flies was quite beyond description.

As very many of the men had artificial teeth, and these were constantly getting broken or lost, it was necessary that some steps should be taken to stop the wastage of men from this cause. We had a dentist attached to the ambulance, so we sent to Egypt and got a complete outfit for making dentures. In a small dug-out beside the dressing station the dental officer, with two mechanics, kept the teeth of the whole division in repair, and also made new dentures for those who required them, either from loss or breakage of teeth. The biscuit was so hard that artificial, or sometimes even natural, teeth were liable to injury.

In conclusion, I would like to make quite clear that, so far as we could see, the Turks did not deliberately fire at the medical personnel. The position we occupied on the beach was such that we could not expect to be spared. Indeed, for the greater part of the time we flew no flag, being of opinion that to do so was unjustifiable owing to the proximity of various points of military importance.

The tons of wounded going off to the hospital ships and the hospital ships themselves were never shelled. Only once to my knowledge was a tow of wounded fired on, and that was by a machine gun which was presumably manned by Germans. This incident occurred immediately after a successful attack in which the Turks had lost very heavily and it was not repeated.

THE RECRUIT'S HEART.

BY

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After the outbreak of war numbers of young men were sent to me for my opinion, as they had been rejected for the army because of some affection of the heart. Most of them were perfectly healthy, and their rejection was due to the presence of some manifestations, physiological in character, which the medical examiner had taken for a sign of disease. I drew up a memorandum embodying the more prominent signs which were liable to be misunderstood, and giving in brief compass simple methods for differentiating the manifestations of a healthy heart from those due to disease. As I was desirous, like every other man, of contributing what little my special knowledge might help the common cause, I submitted this memorandum to the head of the medical staff at the War Office, scarcely daring to hope that any notice would be taken of it. It came, therefore, as a surprise when Sir Alfred Keogh suggested the issuing of the memorandum to the medical examiners of recruits.

In the memorandum I had endeavoured to give, in clear and concise language, the results of long years of careful investigation, because in the circumstances any more elaborate statement would not be likely to receive much attention. Many people have told me that they have found this memorandum of the greatest service, but others have criticized, and in doing so have contrived to muddle up that which I tried to make clear. Under ordinary circumstances I should not have taken notice of these criticisms, because it was evident that the critics neither understood the grounds on which the statements in the memorandum were made, nor appreciated their practical significance. But in the *JOURNAL* of November 20th (p. 744) Sir James Fowler has felt called upon to muddle up things still more, and as he occupies an official position connected with the War Office, and it seems that doubtful heart cases are referred to him, his remarks call for notice.

In dealing with his comments I must go outside the subject under immediate discussion, and show that Sir James Fowler's views are not based on observations that really bring the essential facts to light.

The manner in which I acquired the information which is summarized in the memorandum was as follows: When I entered general practice in 1879, I did so with the airy confidence of the young man fresh from the medical school imagining that I was well equipped for my work.

In a very short time I realized that I was ignorant of the very essentials of my work. In heart work, like other young men, I flattered myself on my cleverness with the stethoscope in detecting and naming all sorts of murmurs, but when it came to telling their significance, I was completely at fault. I turned to my books for instruction, to find that this very essential knowledge had been ignored. Realizing my ignorance of the meaning of the simplest symptoms, I set myself the task of finding them out.

To do this, I took careful note of my patients who presented any abnormal sign. I carefully differentiated each phenomenon from allied conditions. I noted all associated phenomena. I kept a large number of people under observation, watching them for a great many years, noting how they bore themselves through the strain and stress of life, in their labours and in their illnesses. As years went on, I found it necessary to seek other methods of investigation, and had to devise them. In this work I followed a large number of individuals for ten, fifteen, twenty, or even thirty years to find out the significance of some sign.

I was continually analysing my results and testing my conclusions, so that, at last, out of all this work, some clear issues were perceived. I was able to recognize why certain people with murmurs and irregularities enjoyed perfect health and lived laborious days with no sign of weakness; I was able to recognize also why others drifted to death or lived in a state of impaired health; in other words, I was able, in a great many cases, to make good that deficiency in my education, and was able to estimate the value of many signs and symptoms. I am still engaged in this work, for every day I realize my ignorance.

I want each reader who is capable of reasoning to consider the meaning of the methods I pursued. Knowledge in medicine is not limited to the perception of an abnormal sign, nor to the detection of its cause, but should include the knowledge of what effect the cause of an abnormal sign has on the individual's future life. Every reasonable person must accept that as a prime necessity in a physician. By what other means than that which I adopted could this necessary knowledge be acquired? It is because physicians do not adopt these methods that the profession is absolutely ignorant of the prognostic significance of any sign that may be present for a long period of years.

Compare the method I adopted to acquire a knowledge of the meaning of symptoms with that of Sir James Fowler, as recorded in his article in the *JOURNAL*. At the time he wrote this article (twenty-five years ago) he was placing on record the basis of a belief which has apparently been his guide up to the present. The article itself is characteristic of the writings of that period—vague, immature, insisting on the immaterial, and neglecting entirely the essential. It is evident from the fact that Sir James Fowler now quotes this article that he is aware of the great advance that has been made during the last twenty-five years in affections of the heart.

To bring clearly before the reader the futility of Sir James Fowler's conception, let him consider what is the essential question which the doctor has to answer when the individual presents himself for examination—the recruit for instance. A great many people do not realize what this essential is. If a murmur is detected, the essential question is, What bearing has the cause of this murmur on the recruit's future? Or, more precisely, Does this murmur indicate heart failure or does its presence foreshadow its occurrence? These are really the imperative questions (directly asked or implied) demanded from every medical examiner.

If the reader will turn to Sir James Fowler's article and take that portion written in his youth, or the whole matter with the comments added in his maturer years, he will find that he can get no suggestion of help to answer these essential questions, nor is there the slightest indication how the value of a murmur should be estimated.

As illustrating how firmly established is the superstition that a heart to be normal must be free from murmurs and irregularity, I cite two recent cases, not by any means exceptional.

In August, 1914, a lad of 19 was sent to me by his doctor with the statement that he had been rejected for the

army because of valvular disease of the heart. I examined him, found his response to effort good, the heart normal in size, and a well-marked systolic murmur at the apex. I gave him a certificate saying that the heart was perfectly healthy, and that the murmur was physiological, indicative neither of disease nor impairment. I told him to take this certificate to some other recruiting centre than that at which he had been rejected. This he did, was accepted, joined the army, went through his training, carrying his pack and enjoying his route marches. In course of time he was in Gallipoli in the trenches leading a strenuous life and feeling fit. One day in Maya shell exploded near him and he was blown over and became unconscious; he was picked up and taken into hospital. After he recovered consciousness he felt quite fit, but, unluckily a medical officer auscultated his heart, detected a murmur, and at once diagnosed valvular disease of the heart. He was kept on his back for a considerable time, shifted from hospital to hospital, repeatedly examined by medical men, and given treatment, till finally he was examined by a Board in August, 1915, and invalided out of the service because of valvular disease of the heart. He called to see me a few weeks later: the heart was exactly in the same condition as it was a year before, normal in size, with a physiological murmur, as sound a heart as there is in the British army.

A short time ago a highly placed medical official brought his son to see me, as the lad suffered from irregular heart which was resistant to treatment. I found the irregularity to be of the youthful type, and I explained very minutely to the medical official that the irregularity was purely physiological, and I demonstrated to him by what means I separated this form of irregularity from all others, and told him how it was frequently present in the most healthy hearts. A week later he wrote asking me if I could not give him some drug, such as digitalis or strophanthus, to remove the irregularity, as it still persisted. I again wrote, clearly explaining that the condition was a purely physiological one. Nevertheless, he replied that he himself had given the lad a tonic which he hoped might "cure" the irregularity.

NOTE ON

A SUPPOSED SOLUBLE TOXIN, PRODUCED IN ARTIFICIAL CULTURE BY THE BACILLUS OF MALIGNANT OEDEMA.

BY

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SOME months ago we made some experiments on the nature of a toxic substance occurring in the filtrates from cultures of the bacillus of malignant oedema, an organism which has acquired special importance during the war, as being one of the spore-bearing anaerobic bacteria concerned in the production of gas gangrene from soil-infected wounds.

Our observations were limited to the cultural filtrate from one particular strain, for the culture of which, as well as for a quantity of the reputed toxin, with which many of our experiments were made, we are indebted to Mr. J. B. Burton, F.R.C.V.S. The strain was originally obtained from a case of gas gangrene, and its correspondence in all diagnostic points with the true bacillus of malignant oedema has been confirmed by several bacteriologists. From the muscles and areolar tissue of guinea-pigs dying of infection with an organism of this type Roux and Chamberland expressed a juice which, after sterilization by filtration, killed other guinea-pigs with acute convulsant symptoms. Besson prepared a similarly toxic filtrate by growing the organism on sterilized meat, which the digestive activity of the organism rapidly liquefies. The filtered juice of a five or six days culture kills the normal sized guinea-pigs with acute symptoms in a dose of 3 to 5 c.c.m. given hypodermically. It is a juice of this kind which has been regarded by Besson and others as containing a characteristic toxin produced by the organism, and attempts have been made to prepare an antitoxic

serum by immunizing animals against it. A broth culture of the organism, however abundant the growth, will not yield a filtrate of such potency.

The material used by us was obtained by growing the organism for five to six days at 37° C. on minced ox-heart, previously sterilized in the autoclave. The culture was started in hydrogen and provision made for the escape of gases, which the culture soon produced in abundance, by a tube leading from the cultural jar into a trap filled with sulphuric acid. The semifluid, evil-smelling product was filtered first through paper-pulp, and then through a Berkefeld candle. A nearly clear brown filtrate was obtained.

This filtrate produced the acute intoxication described by Besson when injected into guinea-pigs, the fatal dose for an animal weighing about 300 grams varying from 3 to 5 c.c.m. with different preparations. It was at once evident, however, that its toxic constituent had none of the characteristics of a true bacterial toxin. The relatively large volume of the filtrate required for the production of general symptoms and the almost immediate onset of the symptoms, when the dose was sufficient to produce them at all, suggested rather the non-specific action of some product of putrefactive digestion, and the necessity of using solid meat as a culture medium was suggestive in the same direction. The suggestion was confirmed by the observation that the toxicity of the product was but little affected by brief boiling. Dr. Walpole filtered the fluid under pressure through a collodion film, which was impervious to diphtheria toxin, and the filtrate showed the full toxicity of the preparation.

The symptoms produced are both local and general. Locally a large, oedematous, haemorrhagic infiltration is produced in the subcutaneous tissue and underlying muscle, in a considerable area surrounding the site of injection. With a non-fatal dose this local effect may be the only one, except for a vague malaise. To the general intoxication small guinea-pigs are much more susceptible than larger ones. Thus 3 c.c.m. may cause the death of a guinea-pig weighing 200 grams in 10 to 15 minutes, while 6 c.c.m. of the same preparation may cause little more than a local infiltration in a guinea-pig weighing 400 grams. The general symptoms comprise tremors, weakness, and excitability, rapidly passing into extensor convulsions, which usually terminate in death within fifteen minutes of the injection. *Post mortem* the lungs are found to be oedematous, with areas of haemorrhagic consolidation, and the trachea contains a blood-stained froth.

Though the toxic principle resisted brief boiling, it was rapidly lost if boiling was prolonged, and no concentration of the activity could be effected by evaporation, even at a low temperature and under diminished pressure. The toxic substance was evidently very unstable, or highly volatile. Omitting experimental details, we may say at once that we found that the toxic substance could be distilled readily from the fluid if the latter was made alkaline, and could be collected in acid; but that it was held back if the fluid was made acid to Congo red with sulphuric acid. We were dealing, therefore, with a volatile base. We accordingly made a quantity of the "toxin" alkaline with excess of potash and distilled into normal sulphuric acid. The quantity of volatile bases obtained was surprisingly large. From 150 c.c.m. of collodion-filtered "toxin" we obtained volatile bases neutralizing 113.2 c.c.m. of normal sulphuric acid. The mixed sulphates, obtained by evaporation of the distillate, were exhausted with absolute alcohol, in which ammonium sulphate is even less soluble than ammonium chloride. From the part insoluble in alcohol, consisting of ammonium sulphate, we obtained ammonia equivalent to 96 c.c.m. of normal H₂SO₄; the organic bases, with sulphates soluble in alcohol, were therefore equivalent to 17.2 c.c.m. of normal acid. The "toxin" was therefore 0.64 N. in respect of ammonia, and 0.115 N. in respect of other volatile bases. The alkaline residue left after distillation contained large amounts of soaps, and from these, by acidifying and distilling with steam, we obtained volatile fatty acids in quantity corresponding to a normality of 0.75 in the original fluid. This accords with the observation that the "toxin" has but a feebly alkaline reaction.

The question of practical interest was the identification, among the volatile basic constituents, of the toxic principle.

A few experiments showed that the ammonia fraction was entirely responsible for the symptoms produced, and that pure ammonium salts, in dose and concentration equivalent to those of the ammonium salts in the "toxin," produced all the effects described, both local and general, in perfectly characteristic manner. Young guinea-pigs showed, in proportion to their weight, the same excessive sensitiveness to the general, convulsant action of ammonium salts as to those of the toxic culture-filtrate. Neither the organic bases, in the proportion present, nor the fatty acids contributed materially to the effect.

There seems, then, to be no ground for supposing that the bacillus of malignant oedema, in an artificial culture of the type described, produces anything in the nature of a specific toxin. The production by it of a toxic solution from meat depends on its intense proteolytic and desaminating action. The proteins are rapidly broken down to amino-acids, and from these the amino-groupings are then split off, yielding ammonium salts of fatty acids, which accumulate in surprising concentration. To these must be attributed at least the greater part of the acute symptoms produced by the culture-filtrate in the guinea-pig; though doubtless intermediate products of proteolysis may play some part, especially in the delayed death which sometimes follows recovery from the immediate acute symptoms.

The chief interest of the observation seems to us to be the hint it furnishes as to one of the factors favouring spread of infection with the bacillus, in the tissues of an animal in which it has once obtained a hold. It is well known that with washed spores, or even with a broth culture of this organism, it is practically impossible to produce an experimental infection. Some local tissue injury is needed to give the infection a chance of success. This may be mechanical injury, as by contusion of tissue, or irritation by soil particles; or chemical injury, as by lactic or acetic acid. Among such chemical injuries we may now, with some reason, include the effect of the toxic juice formed by the bacillus from meat, which is essentially that of a strong solution of ammonium salts. Given injured tissues in which the growth may start, it is evident that the localized production of ammonium salts will soon be sufficient to create in the neighbouring tissues conditions favouring the spread of the growth, which may then go on indefinitely.

As to how far the production and absorption of ammonium salts, from a large area of infected tissue, may play a part in the general symptoms attending such an infection, we are not in a position to express any opinion. Nor have we studied the production of ammonia in culture by other members of the group.

We hope that these points may receive attention from those who are studying the effects of this group of organisms in the laboratory or at the bedside, and that this publication of observations, so unexpectedly simple in their outcome, may at least save others the trouble of a similar investigation. Our conclusion should, further, make clear the futility of attempting to obtain an antitoxin to the products of the organism with which our observations deal.

Lister Institute of Preventive Medicine, November, 1915.

THE ANTISEPTIC ACTION OF HYPOCHLORITES:

THE ANCIENT HISTORY OF THE "NEW ANTISEPTIC."

BY

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The "new antiseptic" announced in the *Times* of August 8th, and subsequently by many other newspapers, was discovered in 1788 by the French chemist, Berthollet.¹ He obtained a liquid with bleaching and disinfecting properties by the action of chlorine upon aqueous alkalis. The composition of the mixture was obscure, but Berthollet presumed that additive compounds were formed between the halogen and alkali—for example, Na_2OCl_2 .

Berzelius in 1808 expressed the view that the product formed was a mixture of a salt of an unknown acid of chlorine with sodium chloride. The discovery of this acid

—hypochlorous acid—in 1834 by Balard² definitely settled the composition of Berthollet's fluid as a mixture of sodium chloride and sodium hypochlorite.

Four years after Berthollet's discovery—that is to say, in 1792—the corresponding potassium salts were made commercially by Percy at the Javel works near Paris by passing chlorine into crude potashes. The product was sold as *eau de Javel*,³ and its use as a disinfectant was advocated by Berthollet and by Guyton de Morsveau.

In 1820 Labarraque⁴ prepared a fluid similar to Berthollet's by the action of chlorine (1 mol.) on an aqueous solution of sodium carbonate (2 mols.). This preparation containing much free alkali became known as "*Liquueur de Labarraque*," or "*Labarraque's disinfecting fluid*." It is related that Labarraque, who was pharmacist first to the Emperor and subsequently to Louis XVIII, achieved great renown on the death of the latter monarch, for, thanks to the disinfecting and deodorizing value of his "*liqueur*," he was able to proceed with the embalming of the royal body, which was so profoundly decomposed that no one was able to approach it until after the application of the hypochlorite solution.

At a later date solutions of the hypochlorites of sodium and potassium were largely replaced by the more stable solid "chloride of lime," a combination of calcium chloride and calcium hypochlorite. It is interesting to note that it was with this substance that Seumelweis in 1846 succeeded in eradicating endemic puerperal fever from his clinic.

Subsequently the *liqueur de Labarraque* and *eau de Javel*, as well as the *liq. sodae chlorinatæ* of the *Pharmacopœias*, were generally prepared by the decomposition of chloride of lime with the carbonates or sulphates of the alkali metals, and this simple process has been the subject of innumerable patents applied for long after the process was well established in common practice.⁵

In 1859 Charles Watt discovered that sodium hypochlorite could be formed by the electrolysis of sodium chloride solution, and a similar electrolytic process was patented by Andrews in 1890. Since then scores of different modifications for the electrolytic preparation of hypochlorites have been advocated.

Other hypochlorite preparations, such as "*extrait eau de Javel*," "*esprit de Javel*," "*essence de Boulogne*," "*chlorozone*," "*hermitine*," "*chloros*," etc., need not be referred to in detail, since they represent hypochlorite preparations of varying purity and stability.

Meanwhile the hypochlorites, and by implication hypochlorous acid—for the latter is liberated from its salts by the carbon dioxide of the atmosphere—were finding an ever-extending application as general disinfectants. They were also employed for the sterilization of polluted supplies of potable water, and to a lesser extent for surgical dressings and for oral antiseptics. I am informed that "*Liquor sodæ chlorinatæ*" has been used at St. Thomas's Hospital as a dressing for amputation stumps as long as sixty years ago. In more recent times weak hypochlorite solutions have been used with more or less success for removing sloughs and for controlling the smell of offensive wounds. As a skin disinfectant for use in pathological laboratories hypochlorite solutions have been used by Professor Delépine for a generation past.

The great drawback to the more general use of hypochlorites as antiseptics has been the strongly irritating character of the commercial solutions. In the early part of the present war some French surgeons made use of the ordinary "*eau de Javel*," but there were many accidents owing to its caustic action. It was for this reason, therefore, that it seemed worth while to try and obtain a solution of hypochlorite with fewer objectionable qualities. This was done in January of the present year, and after the solution had been in constant use for many months a short communication written by me was presented at the French Academy of Sciences. The essential parts of the communication are the following:

"*Parmi les antiseptiques qui ont déjà été étudiés dans le traitement des plaies infectées, les hypochlorites surtout remplissent les conditions qui viennent d'être énumérées. Mais malheureusement les hypochlorites du commerce ont une composition très inconstante et contiennent généralement de l'alcali libre ou du chlorure libre.*

¹ At the present time in France the term "*eau de Javel*" refers usually to sodium hypochlorite solution and not the potassium salt.

De telles solutions sont irritantes. Quand on s'en sert, même sous une concentration modérée, elles peuvent produire des résultats peu favorables... Il était donc utile de trouver le moyen de préparer un hypochlorite de composition constante qui possède une grande activité bactéricide et une faible action toxique et irritante sur les tissus. Ce résultat a été obtenu par la méthode suivante :

The method of preparation already published in this JOURNAL is then described. The principle of the process being the decomposition of chloride of lime with a slight excess of sodium carbonate solution, filtering off the solution of sodium hypochlorite, which is then neutralized with boric acid in such a fashion that the resulting solution reacts acid to phenolphthalein but alkaline to litmus. "On a trouvé que cette solution est un antiseptique très utile dans le traitement des plaies infectées, lorsqu'elle est appliquée suivant la méthode étudiée et employée par le Dr. Carrel."

It will be seen that no suggestion of a claim for novelty in the employment of hypochlorites or hypochlorous acid is made, but distinctly the reverse, as indicated in the first sentence quoted above.

Following this communication of mine to the Academy, the *Times* on August 8th, 1915, announced in the most sensational fashion the discovery of "the new antiseptic" just 127 years after the preparation of sodium hypochlorite by Berthollet.

It might have been thought and hoped that the absurd and extravagant statements made in the lay press would have sunk into oblivion. But this was not the case. The press which had directed so much unwelcome attention to my communication made in Paris had ignored a valuable paper published shortly before by Lorrain Smith and his colleagues,⁶ which also dealt with the antiseptic action of hypochlorites. The *Times* now published a letter from Professor Harvey Littlejohn, Dean of the Medical Faculty of the University of Edinburgh, who, without waiting to read my communication in print, stated that "it was only due to certain members of the university to state that five months ago they recommended for surgical purposes the employment of what appears to be the same antiseptic." The surmise as regards identity of composition was quite incorrect save for the fact that the hundred years old hypochlorites and boric acid were constituents of both solutions. The *Lancet* apparently obtained its information from the daily papers and devoted more than a column of space to the new antiseptic.⁷ Almost the whole of the statements made relative to the solution referred to in the Paris communication are incorrect and misleading. The article ended with the statement that the result of the Edinburgh workers was to confirm the conclusion of various investigators that hypochlorous acid is the most powerful antiseptic known! It is perhaps worth pointing out that such a statement without qualification as to the conditions under which the antiseptic acts is devoid of meaning. Disinfection is a chemical reaction in which the reactive agent acts not only on bacteria but upon the media in which they are found. A large number of antiseptics are known which will kill many microorganisms suspended in water or blood serum at much lower concentration than will hypochlorites and hypochlorous acid. No statement of the relative power of antiseptics is possible except under absolutely comparable conditions. An antiseptic which shows a high relative activity under one set of conditions will often show a low one when conditions are changed.

In France the interesting results of Vincent and Lumière on the use of hypochlorites for surgical dressings were referred to in the lay press, while, as a climax, the announcement was solemnly made in the *New York Times* by Dr. Jenkins, former Medical Officer of Health for New York City, that it was Mr. A. E. Wolff of that city who discovered, some twenty years ago, the application of hypochlorites as deodorants, antiseptics, and germicides.

It would seem as if the time was fitting for a statement to the effect that what we have all been striving for is to find the best means of preparing, preserving, and applying

the powerful antiseptics, hypochlorites and hypochlorous acid, the main properties of which substances were discovered by distinguished French chemists many generations ago.

Lorrain Smith and his co-workers have aimed at a more or less complete liberation of free hypochlorous acid from chloride of lime by the addition of an equal weight of boric acid. Lumière, on the other hand, employed three parts of boric acid to one of chloride of lime with satisfactory results. On the other hand, my own experiments aimed at the preparation of a sodium hypochlorite solution with a low OII ion concentration, sufficiently stable, and containing a balanced mixture of polyborates so that approximate neutrality might be preserved under all circumstances. The amount of free hypochlorous acid in my mixture is much smaller than in Lorrain Smith's or Lumière's preparations. The concentration of available chlorine is less, and it can be more freely and continuously applied.

Recently I have been interested to find that Dr. Heitz-Boyer and the staff of the French hospital ship *Charles Roux* have been making extensive use for surgical purposes of a hypochlorite solution prepared by the electrolysis of sea water in a simple cell using carbon electrodes. The hypochlorite concentration employed varied from 2 to 4 grams of hypochlorite per litre, the lower dilution being used for constant irrigation. The electrolytic hypochlorite is peculiarly unstable.

When suitably applied there seems no doubt that all of these hypochlorite preparations are of genuine value in the treatment of infected wounds.

There is one point concerning the mode of action of hypochlorites that I would like to refer to before closing. It has been repeatedly stated that the antiseptic action of hypochlorous acid is due to its decomposition in the presence of organic matter with liberation of oxygen. I have been unable to find any evidence to support this statement. If it were true that the antiseptic action of hypochlorous acid was due to the liberation of oxygen, it is surprising that many other substances capable of furnishing nascent oxygen should have an antiseptic action far inferior to that of the hypochlorites. Moreover, I know of no evidence pointing to an accelerated liberation of oxygen from hypochlorous acid in the presence of organic matter. The ordinary decomposition of hypochlorous acid with liberation of oxygen is a relatively slow reaction. Furthermore, when strong hypochlorite solutions are added to animal tissues, an evolution of chlorine rather than oxygen occurs.

It appears that when hypochlorous acid or hypochlorites act upon organic matter of bacterial or other origin some of the (NH) groups of the proteins are converted into (NC) groups. The products thus formed—belonging to the group of chloramines—I have found to possess approximately the same antiseptic action as the original hypochlorite, and it appears more probable that the antiseptic action of the hypochlorites is conditioned by the formation of these chloramines rather than by any decomposition with liberation of oxygen. It should be noted that the hypochlorites act upon free ammonia to yield the simplest chloramine NH₂Cl, as first shown by Raschig. The probable formation of this substance during the sterilization of sewage with hypochlorite has already been indicated by Rideal and others.⁸ The chloramines formed from proteins when wounds are treated with hypochlorites are naturally of a much more complicated character.

REFERENCES.

- ¹ *Statique chimique*, 2, p. 783. ² *Annales de chimie*, 57, p. 225. ³ *Jour. chimie médicale*, Paris, 2, p. 165. ⁴ *Conf. Controllés Français Patents of 1875*. ⁵ *British Medical Journal*, August 25th, 1915. ⁶ *Ibid.*, July 24th, 1915, p. 129. ⁷ *Lancet*, August 14th, 1915, p. 348. ⁸ *Jour. Roy. San. Inst.*, 1910, xxxi, p. 54.

DR. JOSEPH GOLDBERGER, of the United States Public Health Service, who has been investigating the cause of pellagra, which caused the death of more than 11,000 persons in Mississippi alone last year, has, says the *Medical Record*, been helped in his work by prisoners in the prisons of that State who have voluntarily submitted to experiments. Out of eleven prisoners who were observed, six have developed the disease. The men have all been pardoned, and will be released as soon as a course of treatment on the prison farm has restored them to health.

A. A matter of fact, my communication to the Academy did contain references to some genuinely new antiseptics of the chloramine type, but no comment on these substances was made in the lay press.

A SPLINT FOR COMPOUND FRACTURES OF THE ARM.

By **GEORGE M. GILES, M.B., F.R.C.S.,**
 LIEUTENANT-COLONEL I.M.S., RET'D., ABERDEEN.

The treatment of the ordinary simple fractures of the humerus is a matter of little difficulty, and, in peace, compound fractures of the upper arm are rare. The fractures, however, met with in military practice are compound, and the damage to both soft and hard parts so great that it is difficult to bandage any splints with adequate firmness, and well-nigh impossible to get any proximal point of fixation by means of any of the splints in ordinary use.

These difficulties were brought prominently to my notice in the case of a man nearly recovered from a gunshot fracture of the humerus about 5 in. above the elbow, who, when running up stairs, fell and refractured the arm, at the same time tearing open the well-nigh closed flesh wound on the front of the arm. He was an exceptionally powerfully made man, who had gained high distinctions as a wrestler, in the pursuance of which

sport the arm had been broken six times, so that the present is the eighth fracture. The bone is naturally extremely irregular and a good deal shortened.

Finding I could not get the ends in position with any of the ordinary splints I devised the appliance here described, which can easily be made in less than an hour by any one who is amateur mechanic enough to bend stout wire and clip into shape some scraps of tin.

The essential point of the contrivance is the long narrow extension, which is brought up and bent over the acromion and fixed there in position, directly over the head of the humerus, by means of a pair of body straps. Its form and method of application can easily be understood from the accompanying drawings.

To make the splint the following measurements of the patient's sound arm are required:

- A-B, length from knuckles to olecranon.
- B-C, length from olecranon to acromion, \pm 2 in. for tall and $\frac{1}{2}$ in. for short men.
- D-E, length from anterior axillary fold to the insertion of the biceps, with the elbow flexed to right angles.
- E-F = A-B minus about 4 in., the diameter of the upper arm, allowing for padding.
- G-D, in a direct line, is about 6 in., but as the wire forms a double curve, dropping below the axillary folds vertically, and wrapping round the arm horizontally, about a couple of inches more must be allowed.

All transverse measurements vary with the muscularity of the patient, and the table is merely given as a suggestion for sizes to be kept in stock.

Height of Patient.	A-F	A-B	B-C	D-E	E-F	G-D
	inches.	inches.	inches.	inches.	inches.	inches.
About 6 ft. ...	3 $\frac{1}{2}$	16 $\frac{1}{2}$	17 $\frac{1}{2}$	5 $\frac{1}{2}$	12	3 $\frac{1}{2}$
" 5 ft. 10 in. ...	3 $\frac{1}{2}$	16	17	5 $\frac{1}{2}$	11 $\frac{1}{2}$	3 $\frac{1}{2}$
" 5 ft. 8 in. ...	3 $\frac{1}{2}$	15 $\frac{1}{2}$	16 $\frac{1}{2}$	5	11 $\frac{1}{2}$	3 $\frac{1}{2}$
" 5 ft. 6 in. ...	3 $\frac{1}{2}$	15	16	5	11	3 $\frac{1}{2}$
" 5 ft. 5 in. ...	3	14 $\frac{1}{2}$	15 $\frac{1}{2}$	5	10 $\frac{1}{2}$	3
" 5 ft. 4 in. ...	3	14 $\frac{1}{2}$	15	4	10 $\frac{1}{2}$	3
" 5 ft. 3 in. ...	3	14	15	4	10	3

The short ends A-F and F-A are bound together with binding wire, preferably strengthened with solder.

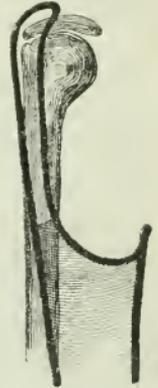
Some stiff tool, such as a screwdriver, is passed through the loop c and twisted—against the clock for the right arm,

and with it for the left; so that the plane of the loop is turned through rather more than a quarter circle. The frame is then placed in position upon the arm of a person of appropriate stature, with the joint A held in the hollow of the hand, and the loop c bent and manipulated so that it forms an open spiral upwards and forwards, round the back of the arm, and comes to lie against the acromion, projecting from 1 $\frac{1}{2}$ in. to 2 in. above it; this projecting part is bent sharply with a pair of pliers, so as to hook over the top of the shoulder-joint.

The angle E is then twisted forward, so as to lie above the insertion of the biceps with the arm bent, and finally the frame is filled in with a couple of pieces of tin cut to the required shape and bent to fit the arm. These pieces are easily secured in position by bending the edges of the tin round the wire frame; but an even better job can be made by running a little solder into these bent-over edges.

The position and size of the pieces of tin can be varied to suit the position of the wounds, or fenestra may be cut in any required position. A couple of long pieces of bandage, or what is better, lamp-wick, are passed through the loops c and d, and the splint is carefully padded and covered with jaconet, special attention being given to covering the angle E, as this forms the lower point of fixation. The loop c, which, of course, is also padded,

is secured in place over the acromion by means of the lengths of lamp-wick, additional support being gained from the wick looped through d. If these be properly secured, it will be found that a very small amount of bandaging of the upper arm will suffice to keep the bones in position, and that the patient may be allowed to get up and about at a very early stage, as the weight of the arm is a most efficient aid in keeping up extension; it is a



Tracing of radiograph to illustrate relation of acromial loop to the bony parts.



point of much importance, in order to secure this, so to arrange the arm sling as not to support the weight of the elbow too much.

In the figure the lamp-wicks are shown secured to a sort of waistcoat of stout calico, which is a good plan to

prevent the straps from pinching the opposite axilla, but it is quite easy to secure the straps from c and d by crossing them under the opposite axilla and over the shoulder.

If a number of splints are to be made, it is well worth while making a templet arm consisting of 18 in. of 4 in. round pole, into which a piece of inch plank to represent the forearm is mortised. By making the mortise 7 in. deep the templet can be adjusted to suit any stature from 5 ft. 3 in. to 6 ft. 2 in.

AN ADJUSTABLE AND STANDARDIZED SPLINT FOR THE TREATMENT OF FRACTURES.

By W. B. HAYES, M.D., M.Ch.,
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CURRENT literature, and the large variety of apparatus exhibited at the recent exhibition at the Royal Society of Medicine, impress on one the need for improvement in the methods of overcoming the difficulties encountered in war in the treatment of compound fractures of the limbs. These difficulties have taxed the ingenuity of surgeons.

Three things have to be considered in the circumstances—the immediate treatment at the seat of war, the transport to the base hospitals, and the treatment at these hospitals.

The greatest difficulties seem to have been in connexion with the treatment of compound fractures of the lower limbs. Several essentials are required for a splint for this purpose. Simplicity and efficiency are the first requisites. The perfect splint must be capable of maintaining the limb in a fixed extension and immobilization, and it must be a skeleton splint, to facilitate dressings without disturbing the position of the splint. If to the above requirements are added adjustability, adaptability, and standardization, and the quality of being rapidly fixed, all the needs of an ideal splint are satisfied.

The Thomas splint, as advised by Mr. Robert Jones, is the simplest and most efficient that has yet been thought of, but the more elaborate and complicated the modifications of this splint, the more they are removed from simplicity and efficiency. Observation of Mr. Jones's hospital practice impresses two things on one—first, the remarkably successful results attained, and secondly, the great simplicity of the appliances used by him for that end, all elaborate and complicated apparatus being conspicuous by their absence.

I have found that the splint which I am about to describe fulfils all the requirements of a complete splint. Its ready applicability to any particular case by a simple adjustment gives it a special value under all conditions. It is practically the Thomas splint, which is made completely adaptable. It is adjustable to any size limb and can be adapted to either the right or the left side. Being made from one pattern and in one size, it is therefore standardizable. The ease of application of the splint, which takes a few minutes, is a most important matter for the consideration of the hard-worked surgeon who is obliged to cope with a rush of work. The wounded can be transported with the greatest possible comfort and safety under the circumstances. A great difficulty in the immediate treatment, and transport, of these cases is overcome by the application of this splint.

The illustrations of the splint explain its construction, and no elaborate description is needed.



The truss ring is made of malleable iron, open in front, so that by bringing the open ends together, or separating them, it can be adjusted to the required size. Two tubes are attached to the ring with sufficient play so that the ring can be altered to any angle required to suit the right

or the left side. The lower portion of the splint consists of bent rod iron; the arms of the bent iron are inserted into the corresponding tubes, and by simple telescoping can be fixed by a screw in any position required to suit the



length of the limb. Attached to the lower end of the splint there is a rest, which when turned down raises the limb to any angle required; it will be an advantage in transport, and when not required may be folded up, for it has the shape of the limb and does not interfere with the dressing.

The splint which I have attempted to describe in this short article has been examined by Mr. Robert Jones, who has been good enough to allow me to mention the fact that he personally approves of it.

A NOTE ON THE ELECTRICAL TREATMENT OF DISABILITIES DUE TO WOUNDS.

BY
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It is a truism to say that electricity has a very distinct and useful place in the treatment of those disabilities which follow wounds involving joints, muscles, tendons, and nerves, but it is not sufficiently recognized that the correct application of the kind of current best suited to the condition to be treated is of essential importance. It cannot, of course, be expected that surgeons, in addition to the mastery of their highly technical work, should have all the details of so rapidly advancing an art as electrotherapeutics at their finger-tips, but if the aim of electrical treatment in these injuries be kept in view, it will not be difficult to indicate to the patient the nature of the treatment he requires.

I am moved to write this owing to the considerable number of patients I have seen who have been given electric baths for local injuries to the limbs. How the passage of the constant current or the uninterrupted sinusoidal through a patient could influence such conditions for good or ill I am at a loss to imagine. Such currents often have a good general effect on metabolism. That is all. Some local effect on the molecules traversed by the current there may be; indeed, so far as the galvanic current is concerned, there is undoubtedly some effect, but while we see the results in some cases—for example, of neuralgia—we cannot say to what they are due.

When we come to consider the interrupted currents we are on much surer ground, and there is no difficulty whatever in seeing how their effects are produced.

Whether the injury has affected joints, muscles, ligaments, nerves, or all together, as is perhaps most frequently the case, the object sought is to increase the blood supply to the part, and having done that, or whilst doing it, to contract the muscles of the part so as to drive this increased supply through all the tissues. If this object be thoroughly attained, pain and stiffness will decrease, muscles which have partially lost their function will regain it, torn tendons and ligaments will heal, and the best result obtainable will be achieved in the minimum of time.

To attain these ends we have a considerable number of means at our disposal. We can bake the limb in an electric or gas oven, first wrapping it carefully in towelling to absorb the sweat which would quickly scald the skin if allowed to remain on it, or we can use the high candle-power lamp, or diathermy. As a matter of convenience I use as a rule a 3,000 candle-power lamp, giving an

exposure of twenty minutes or so. In the treatment of joints, however, I prefer diathermy. It seems on the whole to do a little better, and as the greatest heat is developed midway between the electrodes, it should theoretically be more efficient. After twenty minutes, then, of either radiant heat or diathermy a rhythmically interrupted electric current is applied. Of the rhythmically interrupted currents we have—

The faradic as used in the Bergonié apparatus.

The sinuoidal, interrupted by such a device as the Lewis Jones interrupter.

The static wave current.

The static induced current.

The Bergonié apparatus produces very efficient muscular contractions. It is a little troublesome to adjust. The interrupted sinuoidal is a very useful and efficient current. The static induced current penetrates very deeply and gives rise to strong contractions. Any static machine will give them of sufficient penetration for the purpose. The static wave current requires a machine of high efficiency. As a rule, ten minutes of the static induced or twenty minutes of any of the other currents is given at a sitting.

Usually there is very definite and early improvement; my experience is that during the first week of daily treatment the patient is able to detect it, and the increased confidence inspired doubtless helps to increase the effects. I append notes of a few cases:

CASE I.

A man wounded in the shoulder in April last. On July 13th the wound was healed, but he could not use the arm owing to pain and stiffness. There was wasting of shoulder muscles chiefly, but extending also to the arm and in less degree to the forearm. The static wave current was applied to the muscles of the shoulder for ten minutes and to the biceps for other ten. He had fifteen treatments. Improvement was marked from the first. He discontinued treatment to enter a munitions factory, having then complete, but of course not perfect, use of his arm.

CASE II.

An officer, wounded in the right foot in September, 1914, had treatment by massage and electric baths without improvement. The condition on April 19th, 1915, was as follows: Wasting of right calf, 1½ in. less as compared with left. Pain in instep and great toe on walking with two sticks. Bad limp. On walking, great toe dorsally flexed and patient cannot then bend it. The treatment was light to the foot for twenty minutes; static sparks to the sole of the foot for fifteen minutes; and static sparks to the joint and muscles of leg. He had twenty treatments, and discontinued to rejoin his regiment; he walked much better without a stick, but still limped. There was no pain, but the limb was weak. The great toe behaved normally.

CASE III.

A private, wounded at the back of the arm, at the junction of the lower and middle thirds. He was operated on, but afterwards could not extend the third, fourth, or fifth digits, nor flex them when extended. There was wasting of the interosseal and hypotenar eminences. When the hand was forcibly opened there was a dragging sensation along the ninar flexors. He had been treated by electricity (a portable faradic coil?). The treatment instituted was static wave current to the scar, and static vacuum tube discharge to the muscles. After eleven treatments there was marked improvement, and the patient returned home.

CASE IV.

A bombardier wounded on September 27th, 1914, two inches above the elbow-joint, through the soft parts anterior to the humerus. When seen on February 16th, 1915, he could not bend the index and middle fingers beyond a right angle with the palm, and there was numbness of thumb palmar surface and the first and second digits, and loss of tactile sensation. Treatment was by static wave current over the wound, and static vacuum tube discharge to muscles and skin. After eight treatments he was very much better, could flex the fingers fully, and had increased power in the hand, but sensation was not improved.

These cases are samples of a moderate number treated. Some fail quite unaccountably to benefit, but they are the exception.

An officer was wounded on the outside of the thigh. There was loss of sensation on the outside of the leg and foot, most on the dorsum of the foot. When seen he had deep-seated pain in the front and the outer side of the thigh and leg. Pressure on the scar caused local pain. I expected that this case would do well, but failed to afford any permanent relief.

TYPHUS IN SERBIA.

BY

B. WHITCHURCH HOWELL, F.R.C.S.,

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As a sequel to Dr. Maitland's notes on the epidemic in Uskub, reported in the BRITISH MEDICAL JOURNAL of August 21st, the following observations, gleaned from a much more limited experience of the disease at Vrnjatchka Banja, may be of interest.

Admission of Patients.

It was found essential that the hair of the head and pubic region should be cut short (and in some cases shaved) and then treated with paraffin oil or unguentum hydrargyri. Even then fresh broods of lice made their appearance. The patients were washed in bed, being in various stages of collapse. At the time I was in Vrnjatchka Banja the typhus barracks had no bathroom accommodation.

The Disease.

The majority of patients were Austrians, and, as Professor Morrison pointed out recently, the mortality amongst them was noticeably greater than among the Serbs, owing probably to their being prisoners, of poor physique, and not accustomed, like the Serbians, to live on "pork and beans."

I thought on the whole that the more intense the rash the graver the prognosis—generally the malignant type of case. I noticed also that the rash appeared fairly commonly on the palms of the hands—a fact not often alluded to in the textbooks—generally in the form of faint discrete macules. It seemed to bear no relation to the gravity of the disease.

As a rule the fever fell by lysis, as Dr. Maitland remarked, with, occasionally, "kicks" on the temperature chart; this is contrary to the usual teaching. Some of us thought that the pulse was slowed out of proportion to the temperature. Although I noticed this from time to time it did not seem to be a general rule.

The initial symptoms may be like influenza, as in the case of two of our nurses who contracted the disease; they had aches and pains all over, frontal headache, and pain behind the eyes. The drunken look about the eyes is very characteristic; hence the diagnosis could often be fairly safely made before the appearance of the rash.

When we first took over the fever *Baraque*s pulmonary complications were common, several of the cases dying of a rapid form of bronchopneumonia. Later, as the difficulties in nursing were surmounted, the infections of the lung and parotid gland became less and less frequent. It seemed to me at one time as if the typhus pneumoniae were contagious, as I had side by side, not in the same stage of the fever, three cases in whom the lungs were simultaneously affected.

Deafness was frequently present, and one nurse suffered from it for a long time after she returned to work.

I had only one case of melanuria, in a nurse well over 40; this occurred about the twelfth day, and caused some anxiety, especially as the liver was much enlarged. She rallied, however, and about the sixteenth day it had completely disappeared, and the temperature and pulse were normal.

I saw one case of hemiplegia in the sister of a Serbian general; it came on suddenly during the disease, and lasted some days. The patient recovered from the typhus and from the hemiplegia.

Treatment.

This varied in detail only; in general it was, of course, stimulating. As Dr. Maitland states, the Serbians were not in favour of alcohol; we, on the other hand, used it a good deal in ½ oz. doses, increasing it steadily as the pulse got weaker, especially about the eighth to twelfth day. The most critical period was during and after the lysis.

Digitalis was given by the mouth and hypodermically—we had no digitalin—by the mouth in 20 to 40 minim doses every four hours; subcutaneously in 10 to 20 minim doses. Strychnine also was given hypodermically. I sometimes

prescribed other in 10 to 20 minim doses subcutaneously in very severe cases, generally alternating with strychnine. The other injection sometimes gave rise to local necrosis of the skin, but this was of small moment, as I am sure the patient occasionally rallied as the result when all else had failed.

A CASE OF LEPROSY DIAGNOSED BY X RAYS.

By MAJOR A. NEVE, F.R.C.S.E.,
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THE following case is of considerable interest, as the disease was so atypical as to remain in doubt, even when examined by experts, until the x rays showed clearly the well-marked osseous lesions of leprosy.

Jenadar M. S. was invalided in April, 1915, with the diagnosis of rheumatism. He had served through the winter campaign, and had latterly complained of headache and other ill-defined pains. He also had a widespread papular rash, with some pigmentation in the face; this, he states, has been of many years' duration. His left eye was operated upon four years ago for pterygium, and there is a slight opacity of the cornea in that eye, with injection of the conjunctiva. There is a slight stare, not due to exophthalmos. He has occasional pains in the back, and also in the feet, of a burning character. When he arrived the feet were swollen; this was attributed to exposure in the trenches. From the history it seemed that he might have had syphilis, as potassium iodide had been prescribed years ago with benefit.

The points that raised a suggestion of leprosy were (a) a little clubbing of the fingers, of which the terminal joints were not quite straight and symmetrical; (b) the toes appeared slightly shortened, and one of them was crooked.

He was carefully examined for certain signs, which were all negative:

1. There were no maculae on the back or extensor surfaces of the limbs.
2. No tubercles on eyebrows, ears, or elsewhere.
3. No anaesthetic patches on feet, hands, or body.
4. No thickening of the ulnar nerve.
5. No naso-pharyngeal ulceration or tubercle, and no laryngeal symptoms.
6. No paresis of the lower eyelids.

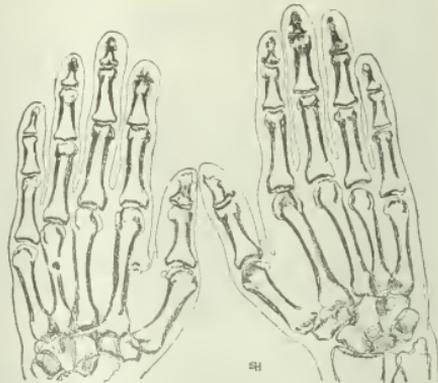


A radiogram was taken on July 11th by Captain Gale; it showed entire disappearance of the terminal phalanges of most of the toes. The proximal phalanges have also become greatly decalcified; in the right foot the second phalange only is intact and in the left foot the third, while

the big toe of the left foot is only represented by a triangular piece of bone three-quarters of an inch long, and the fifth phalange has quite disappeared.

The distal portions of all the metatarsal bones are extraordinarily thinned.

In the fingers slight changes are perceptible in all the terminal phalanges on both sides. Those of the thumbs



are peculiarly crooked and shaped like pollarded willow trunks, and the terminal phalange of the index finger is a mere stump.

In leprosy it is the osseous framework of the phalanges which first becomes irregularly absorbed. At a later period the metatarsus or metacarpus; the former is more affected, perhaps on account of traumatism, and sepsis spreading from trophic ulcers of the sole of the foot, which also affects the tarsal bones, and spreads to the ankle-joint. Amputation is then resorted to, and it is found that the bones of the foot are so softened as to be readily cut by a knife. It is seldom that a case with slight and doubtful general symptoms shows such extensive osseous changes as to make them the decisive diagnostic factor. Hence the value of the Roentgen rays in this case was peculiar.

I am indebted to Colonel Sir Bruce Seton for permission to publish this case.

DR. HENROT gave recently to the Académie de Médecine an account of the bombardment of the hospital at Rheims. The bombardment did great damage. A breach of about 10 metres was made in the hospital, causing the falling of the façade and the roof. The patients' beds were seen suspended to the walls. The maternity department, situated in a separate wing, by some happy chance was not touched, but by way of precaution the patients were moved to the cellars, as the bombardment was continued every day during half an hour in the morning and half an hour in the afternoon. One night 2,000 shells fell on the town between 9 p.m. and 5 a.m. In the cellars the patients lay on mattresses or on the ground; they were so close together that it was difficult to reach any one. The women pupils, who stuck to their posts, had to give the necessary injections and enemata on their knees. Such was their care and devotion that in spite of privation, fatigue, and mental distress the sanitary condition of the women remained good. During the months of August, September, October, and November (1914) no case of infectious disease occurred. Only two women died—one of eclampsia, the other owing to faulty insertion of the placenta. Some poor women died on their way to the hospital of exposure or want in railway stations, in the train, or in the street. Most of the women were more or less exhausted but they bore their sufferings cheerfully. M. Henrot relates a remarkable case. One day a fine child was presented to him. When he asked for the mother he was told that a fragment of shell had torn open the abdomen and the uterus, and the child had simply to be extracted. As M. Henrot says—this is a form of the Caesarean operation of which there is no previous record.

The Goulstonian Lectures

ON

SPINAL INJURIES OF WARFARE.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS
OF LONDON.

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II. THE CLINICAL SYMPTOMS OF GUNSHOT INJURIES OF THE SPINE.

During the past thirteen months we have been able to observe several hundred cases of spinal injury, and at present have clinical notes on over 300; these will form the basis of the remarks and conclusions which will be put forward in the next two lectures.

But even this material is so large and the variety of symptoms is so great that it will be necessary to select only the most striking and special symptoms for consideration. We have found every segment of the cord from the second cervical to the conus affected, but in the cases that have reached the base hospitals the injury has been most common in the middle and lower dorsal segments and in the cervical enlargement; the fourth, the fifth, or sixth cervical segment was damaged, for instance, in 51 cases, while in 65 the lesion lay between the sixth and ninth dorsal segments. It is not proposed to deal at present with injuries of the cauda equina, of which a large number came under observation.

Even an ordinary transverse lesion of a dorsal segment produced directly or indirectly by a bullet, piece of shrapnel or shell casing, presents striking symptoms.

When the patient is seen a day or two after the infliction of the wound, there is usually complete flaccid paralysis of the lower limbs and of the trunk muscles to a level varying with that of the lesion, sensory loss to the corresponding level, absence of all reflexes in the lower limbs, except, perhaps, of the flexor withdrawal reflex in incomplete lesions, and retention of urine.

LOCALIZATION OF THE LESION.

The segmental level of the lesion can be usually recognized as accurately by the extent of the motor paralysis as by the upper border of the sensory disturbance; and since the evidence it gives is less equivocal and as easily interpreted in both military and civil practice, some emphasis may be laid on its importance. The segmental innervation of most of the muscles of the upper and lower limbs is now known, and this knowledge has been applied in clinical work. A paralysis of all the movements of the wrist and fingers as well as of the triceps while the biceps remains strong or only slightly weakened is usually, for instance, taken as an indication of a lesion in the seventh cervical segment, but hitherto little attention has been given to the evidence of the level afforded by the palsy of the trunk muscles. When, however, one of the lower six dorsal segments is involved, the part and the extent of the muscles of the anterior abdominal wall which are paralysed form an easy and certain guide to the segment in which the lesion lies. If, for instance, the eleventh is involved the whole rectus abdominis contracts when the patient raises his head, attempts to sit up, or coughs, but the iliac regions bulge owing to paralysis of the lower portion of the obliqui abdominis, and their failure to contract can be easily recognized by the observer's fingers. Similarly if the ninth segment is injured, it is obvious to the finger that the recti abdominis downwards from about 1 in. above the umbilicus do not contract, but are, in fact, passively stretched by the tension produced on them by the shortening of the upper segments. Owing to the same fact the umbilicus, as Beever first pointed out, rises towards the xiphoid. The state of the intercostals is an equally reliable guide to the level of the injury, and permits a local diagnosis in the upper as well as in the lower dorsal segments. If the fingers are firmly placed in series on the intercostal spaces the unaffected muscles are felt contracting on each deep inspiration, and form a firm shallow floor to the space, while in paralysed spaces no contraction can be felt, and

on deep inspiration the finger sinks deeper between the ribs; in lean subjects this may be, in fact, visible to the eye. As the intercostal muscles have only unsegmental innervation, and as each receives its nerve supply from the correspondingly numbered dorsal root, the highest space which is paralysed indicates the level of the spinal injury.

The upper limit of disturbance of sensation is the means most commonly used in civil practice to determine the segmental level of the spinal lesion, and if proper care is taken the evidence it gives is reliable, but, as we shall see later, in incomplete lesions, and more especially in those which are wholly or chiefly unilateral, errors may easily occur, and an exact local diagnosis may not be always possible from even an accurate sensory chart; this is due to the oblique course of the decussating sensory fibres in the cord. In a complete or very severe lesion, light contacts are usually felt a short distance below the limit of complete analgesia, but there is frequently some disturbance in tactile sensibility above the level of the latter. The appreciation of moderate temperature is often lost slightly higher than that of painful stimuli.

The disturbance in the appreciation of vibration may be also a valuable indication of the level of the injury, especially in incomplete cases in which the dorsal columns only are damaged and sensibility to touch and pain is unaffected, since the vibrations of a heavy tuning-fork cannot then be recognized below the corresponding segmental area. This can be determined by drawing the base of the vibrating fork upwards over the soft parts. This method is particularly valuable on the trunk when the state of the other elements of sensation conducted through the dorsal columns cannot be investigated; the base of the fork may be simply drawn over the anterior abdominal wall till the level is reached at which the patient feels the vibrations, but, as the thorax can act as a sounding box and transmit the vibration widely over it, it is necessary to apply the fork here only to folds of skin raised gently between the observer's fingers and thumb.

When one of the lower abdominal segments is involved, the level of the lesion may be also accurately determined by observing the segment below which the abdominal cutaneous reflexes cannot be obtained.

It must be remembered, however, that the lesions produced directly or indirectly in the spinal cord by a gunshot wound are often very extensive, and that a clinical examination can, as a rule, indicate only their oral limit.

REFLEXES AND REFLEX TONE.

In all severe lesions the lower limbs are found flaccid at least as early as one day after the infliction of the wound, and within three or four days their muscles become toneless and flabby; if the lesion is complete or almost so they remain flaccid and waste gradually; later the atrophied muscles, especially those of the calf and the flexors of the toes, undergo fibrous contracture. In less severe cases the muscles regain tone and the limbs become slightly rigid, generally within fourteen to twenty days. In one case, however, we observed slight rigidity in a limb five days after the wound was inflicted, but in another spasticity appeared only after eighty-four days. In slight cases there may be no obvious defect of muscle tone, or, if diminished, as it frequently is at first, it rapidly recovers.

In those cases in which some rigidity develops early reflex spasms of the legs of the flexor type are apt to occur; they are, as a rule, seen only a few days after the limbs have become somewhat spastic, but we have observed them occasionally as early as the sixth to tenth day, when the tone of the muscles was not yet exaggerated.

In one interesting group in which pains due to higher spinal lesions occur in the legs, these limbs are often held stiff and rigid, but careful examination shows that there is no true spasticity, and reflex spasms do not occur; in these cases the spinal lesion is not severe, and voluntary movement is either not lost or has recovered rapidly.

The state of the reflexes in the affected parts presents interesting problems. Except when the spinal lesion is slight the knee and ankle jerks are almost invariably lost at first, and in severer cases remain absent during the period in which we have been able to observe them—that is, in some instances, for as long as six to ten weeks. The teaching of Dr. Charlton Bastian that these reflexes are

permanently abolished in total transverse lesions of the cord is generally accepted now, and our experience seems to confirm it, though in one case in which a fragment of shell-casing lacerated the cord in the lower part of the fourth dorsal segment and passed downwards through the next three lower segments, apparently destroying them completely, feeble knee-jerks could be obtained from the fifteenth day onwards; whether or not there was a total transverse lesion has not yet been determined by microscopical examination.

In less severe injuries the knee-jerks return, but generally not earlier than within two or three weeks; the re-appearance of the ankle jerks is always later than of the knee-jerks, but occasionally ankle-clonus could be obtained while the knee-jerks were still absent or much depressed. In a few cases in which paraplegia in flexion developed after the return of the knee-jerks we saw these again disappear as the flexion rigidity increased. In lesions of the upper four cervical segments the arm-jerks are usually lost at first, independently of the severity of the injury, and seem to recover less early than the knee jerks.

Not only are both knee and ankle jerks absent for a considerable time in transverse spinal injuries, but with unilateral lesions of the cervical or dorsal segments neither can usually be obtained in the paretic leg for some days, or they are at least much diminished on this side compared with the normal. The paretic leg is also usually flaccid. In these cases, however, the reflexes return earlier than in transverse lesions of the same degree of severity, but usually not till at least ten to twelve days after the infliction of the wound; in one patient with a unilateral cervical lesion we could elicit only a very feeble reflex after thirty-five days, and it was almost two months after the injury that the jerks of the homolateral limb were as brisk as normal.

On turning to the superficial reflexes we find the abdominal and cremasteric more easily abolished than the tendon-jerks; in fact, when the lesion lies above the mid-dorsal level, both remain permanently absent as long as there is any obvious motor weakness of the lower limbs.

In spinal injuries above the lumbo-sacral enlargement we would expect, on stimulating the sole, to obtain constantly the abnormal type of plantar response originally described by Babinski. When the lesion is complete or particularly severe, however, no movement of the toes may result, and there may be no reflex contraction of the hamstrings or of other muscles; and this holds not merely for the first few days when extensive functional disturbances might be attributed to "shock," but the condition may persist for several weeks at least.

In some cases, however, probably when the transverse lesion is not total, stimulation of the sole produces only a simple flexion of the great toe, often associated with slight flexion and adduction of the smaller toes; this flexion of the great toe can be produced when the outer border of the sole only is stimulated, and consequently it cannot be attributed to direct mechanical irritation or stretching of the small flexor muscles of the sole. The movement differs from the normal flexor response in that it is slower and smaller in range, and in that it is chiefly a flexion at the metatarsophalangeal joint. Occasionally the only effect is contraction of the inner hamstrings, but as a rule this is associated with slight flexion of the toes.

In less severe injuries stimulation of the sole still evokes flexion of the great toe with contraction of the hamstrings, while, if the lesion is still less serious, a withdrawal reflex of the whole limb, in which the hamstrings, tensor fasciae, flexors of the hip, and the dorsiflexors of the ankle are concerned, may be obtained, but still with flexion of the great toe. In many cases, however, an extensor response can be elicited from the sole, but clinical experience and *post-mortem* examinations tend to show that during the first week or ten days at least Babinski's sign occurs only with transverse lesions, which are not complete. We have repeatedly seen a flexor movement of the toes give place to an extensor between the seventh and the twentieth day after the injury, and in certain cases this has been a precursor to improvement. Even in one case in which a unilateral lesion of the fifth cervical segment produced a flaccid paralysis of the limbs of the same side the plantar reflex was absent, or only a slight slow flexion of the great toe could be obtained during the

first two weeks, after which it gave way to a pure extensor response.

SPINAL SHOCK.

This state of the reflexes, more especially the abolition of the tendon-jerks and the absence of Babinski's sign, in severe but not necessarily complete anatomical lesions raises many points of interest. Even if we accept Dr. Bastian's doctrine, we must be surprised to find the tendon-jerks absent, for a time at least, in such a large proportion of incomplete injuries. This differs from what we find in ordinary civil experience, except in cases of fracture dislocation of the vertebral column, and in this condition the medullary injury resembles that produced by gunshot wounds of the spine. The nature of the lesion cannot, however, explain it, and as the reflexes disappear even when the highest spinal segments are injured their absence cannot be attributed to the distant disturbances that have been described in the first lecture. The most obvious common factor is the sudden severance of a portion of the cord from the influence of more orally situated centres by an abrupt section or by a physiological block. This produces the condition which is generally known as "spinal shock." It is recognized in the experimental laboratory, as high transection even in the frog leaves all four limbs flaccid and inactive to stimuli for half an hour or so, and the higher the animal stands in the scale the more pronounced and persistent are the symptoms of shock. In man, in whom the spinal mechanism is most subordinated to the higher centres, the effects of shock are naturally most pronounced, and the caudal portion of the cord is least capable of acting alone as an effective central organ. Our observations, therefore, only extend and confirm the experiences of physiologists, and show that the sudden isolation of a portion of the cord from the rest of the central nervous system leaves it incapable, for a time at least, of subserving even the simplest reflex.

The unilateral absence or depression of the tendon-jerks in cases of unilateral lesion is interesting, as it shows that their abolition is not due to a state of general shock, or to a sudden gross traumatic injury of the cord, but that it must be attributed to an interruption of impulses that descend through the homolateral half of the cord, which produces a functional depression on this side only.

We have not yet had the opportunity of determining whether, in cases in which the structural lesion is not complete, the absent reflexes eventually return, at what date they reappear, and with what other symptoms of recovery their reappearance is associated. We have, however, seen the knee and ankle jerks absent during the first and second week in cases which have recovered sufficiently to stand, and absent for longer periods in patients who later regained some power of movement while under observation.

The inability to elicit reflex movements from the sole in cases of complete transverse lesions must be also attributed to the functional depression, either temporary or permanent, of the isolated segments of the cord. It has been pointed out that in less severe cases only flexion of the toes, or this associated with contraction of the hamstrings, is obtained, and that only in less severe or longer standing injuries can the complete flexor reflex be evoked. This we might expect, for when the activities of the isolated portion of the cord are depressed by shock the relatively complex mechanisms of commissural and intersegmental association naturally suffer more than the simpler and more rudimentary unisegmental functions. And as the sole, from which the reflex is most easily evoked, lies within the sensory distribution of the first sacral root, and the flexors of the toes and the hamstrings are innervated chiefly by the ventral root of the same segment, the contraction of these muscles on stimulation of the sole can be regarded as a unisegmental reflex; additional segments would be concerned in flexion of the hip and knee and the contraction of the tensor fasciae femoris and adductors, which are included in the full flexor reflex. Further, in these cases the receptive field of the reflex is much narrowed, and is in fact almost invariably limited to the sole, where the threshold of effective stimulation is normally lowest.

It might be expected that the effects of shock on the lumbo-sacral enlargement would be more pronounced the lower the lesion lay in the cord, but we find little to

support this view; the lower limbs have been flaccid and toneless in cases of high cervical injury as when the lower dorsal segments were damaged, and when the lesions have been probably of equal severity there has been no evidence of less shock or of earlier recovery when it lay high rather than low in the cord. This would support the conclusion drawn from the observation of unilateral lesions that shock is not a direct mechanical disturbance of functional activity, but that its effects depend on the interruption of the neuronic impulses that normally flow continuously from the higher to the lower levels of the central nervous system.

Sherrington has pointed out that the effects of spinal shock are seen in experimental animals only in the aboral direction, and it is obvious that in man they are limited to segments distal to the lesion, as in even the rudest transverse lesion no symptoms are found above its level which are attributable to shock.

"AUTOMATIC" MOVEMENTS.

But, though the shock effect of these severe spinal traumas almost invariably abolishes or depresses seriously the functions of the isolated segments, in a group of four cases in which the lowest dorsal or highest lumbar segments were involved, "automatic" movements, such as are observed in certain spinal animals, occurred, and their occurrence can be interpreted only as the result of a reflex over-activity of the isolated segments. In one of these cases the lesion involved the first and the upper part of the second lumbar segment; in another it extended from the lower part of the twelfth dorsal to the middle of the second lumbar segment; in a third it reached as high as the eleventh dorsal segment and probably extended some distance downwards, while in the fourth it was probably limited to the third lumbar segment. In these cases the lesions were severe or total, and as the involuntary movements were identical or very similar in all four, their nature can be best conveyed by describing one case in detail.

CASE II.

Pt. D., 7687, who was first seen on January 6th, 1915, was wounded two days previously by shrapnel while crouching. He fell back and lost power in both legs at once and had some retention of urine. There was a small dry scabbed wound one inch to the left of the tenth dorsal spine.

His legs were flaccid and no voluntary movements of them were possible, but their muscles were not quite toneless. The trunk muscles were unaffected. Sensation was completely lost to the level of Forster's ligament on the right side and to a slightly lower level—that is, to the lower margin of the first lumbar root area—on the left. His knees and ankles jerks were absent; an indefinite extensor response was obtained on the right side, but only flexion of the great toe on the left. (In the other three cases only flexion of the toes could be elicited.)

There were constant involuntary rhythmical movements of both lower limbs, which apparently occurred apart from any peripheral stimulation. At first they occurred every four to seven seconds, but their rate later became somewhat slower. They consisted in alternate but not quite regular rhythmical flexion of the knees, with dorsiflexion of the feet, extension of the great toes, and slight flexion and outward rotation at the hips, followed by active extension of all segments of the limb. They were usually more marked in the right than in the left limb and were often grouped—that is, the movements of left and right limbs of the right side alternately. They were not influenced by the position of his limbs, and occurred equally whether these were flexed or straightened out, and whether he lay on his back or side. Stroking or pricking either sole produced a fairly brisk withdrawal reflex; it did not interrupt the sequence of the movements, however, but delayed them when the sole of the limb in which they were next due to appear was stimulated; stimulation of the sole of the limb in which the movements had just occurred had no effect. On the other hand, striking the great toe with a percussion hammer immediately excited the movements, but only when they had last occurred in the opposite limb—in fact, in each limb the movements were followed by a refractory phase, during which they could not be again obtained till they had occurred in the opposite limb; their sequence could not be altered by any movement that was tried, but their rhythm was accelerated for a time by pricking the inner sides of the thighs or the perineum.

Perussion of the patellar ligament did not give a knee-jerk, but was followed immediately by contraction of the hamstrings.

Four days after the infliction of the wound Lieutenant-Colonel Sargent performed a laminectomy. It was noted that the movements of the legs ceased when the chloroform anaesthesia became sufficiently deep to arrest consciousness.

The left side of the eleventh dorsal arch was found fractured, and a small sharp-edged fragment of the articular cartilage,

which measured 1 by 0.5 cm., had penetrated the dura and lacerated the cord at the level of the upper margin of the eleventh dorsal vertebra.

The patient recovered rapidly from the operation, but died fifteen days after receiving the wound. The rhythmical movements and his other symptoms persisted unaltered till death.

On post-mortem examination a laceration was found on the left side of the dorsal surface of the cord in the upper part of the second lumbar segment, and a piece of shell casing, which measured 3 by 4 by 7 mm., was removed from its right side at this level; it had passed through and destroyed the dorsal half of the cord, but a part of its ventral surface seemed little injured. On microscopic examination the dorsal columns were found destroyed in the lower part of the first and the upper part of the second lumbar segment, as well as the dorsal part of the left lateral column. The right lateral column was less extensively injured, but was softened; the ventral columns were not directly affected. There were practically no pathological changes in either the grey or the white matter below the second or above the first lumbar segment.

In another of the cases in which a post-mortem examination was made, it was also only the ventral columns that had escaped total destruction in the lower part of the twelfth dorsal and the upper two lumbar segments.

These alternate flexion and extension movements of the lower limbs obviously represent the rudiments of the lower physiological mechanism of gait, and are very similar to the "mark time" or progressive movements seen in the "spinal" dog; their nature must be the same as these reflex movements which Sherrington has described in the spinal animal.

It is interesting, however, that we have seen such involuntary reflex movements only when the lesion involved the upper lumbar segments of the cord, and that they occurred in a considerable proportion of all serious injuries at this level. In the only two cases in which the spinal cord has been examined there was exceptionally little distant disturbance, and the lower lumbar and the sacral segments were in both almost intact. It is also surprising that they should occur at least as early as the second day. Further observations will be necessary to determine the significance of the absence of direct structural damage in the ventral columns in the two cases which came to autopsy.

We have not observed any "automatic" movements of the limbs when the higher cervical segments were injured; in fact, these are always then flaccid and toneless, and their muscles usually wasted early. We have, however, obtained a reflex—which, as far as we know, has not been yet described—in cases in which the lesion lay in or above the fifth cervical segment, and produced paralysis of the upper limbs. Pricking, pinching, or firm stroking on the inner side of the arm then evoked, generally after a short latent period, a sudden and strong inward rotation and adduction of the arm on the same side, the inward rotation being apparently the prime and chief movement. We obtained this reflex in most of the cases of severe cervical lesions in which we examined for it, provided there was not an atrophic palsy of the arm.

CERVICAL SOFTENING.

Injuries in different portions of the cord naturally produce clinical symptoms differing not only in the extent, but also in nature of the paralysis. One of the most striking types is that which results from an incomplete lesion of the cervical enlargement. Since haemorrhages and secondary changes undoubtedly occur as a result of concussion more readily in this than in any other region of the cord, and since they are more liable to damage the grey than the white matter, the arms are frequently seriously paralysed, though there is fair or unaffected power of movement in the lower limbs. Not infrequently the paralysis, especially that of the arms, develops some time after the infliction of the wound, but, on the other hand, it is not uncommon to meet patients with gunshot wounds of the neck in whom all four limbs were at first paralysed, who had regained power within a week or so, the arms recovering almost invariably later than the legs.

The following case illustrates the chief clinical features of such an injury.

CASE III.

Lance-Corporal G., 11060, was wounded by fragments of a high explosive shell on September 15th, 1914. He found immediately that he had no power of movement in his right arm, but the left was unaffected; he was able to pick up his tobacco pouch with it and put it in his pocket. He walked thirty yards or so, stumbling and faint though his legs seemed quite strong, till he reached shelter. There he lost consciousness, and on

regaining it, twenty-four hours later, found both upper limbs completely paralysed and both legs weak. He had no sphincter trouble, and neither delay or difficulty in passing urine.

He was first seen by us five weeks later. Then there were three small scars on the right side of his neck opposite the spines of the third, fourth, and fifth vertebrae, and an x-ray examination revealed a fragment of shell casing at the level of the body of the seventh cervical vertebra.

Both arms were wasted, the left more than the right, and the only movement possible in the latter was feeble adduction at the shoulder. Practically no movement at the left shoulder or elbow was possible, and flexion of the wrist and of the fingers was very feeble, but the power of extension, adduction, and abduction of the fingers was fair. The trunk movements, as well as those of the right leg, were unaffected, but the left lower limb was somewhat rigid, and its distal movements were slightly feebler than those of the right. He was able to stand and walk easily, and his gait was almost normal.

The right arm-jerks were absent; the left knee and ankle jerks were increased, and stimulation of the left sole gave an extensor response. There was slight loss in the appreciation of pain and light tactile contacts on the left side up to the upper margin of the fourth cervical root area, and complete loss of recognition of posture, passive movement, form, and the compass points in the left arm. The knowledge of position and the discrimination of compass points were only diminished in the left lower limb and unimpaired in the right.

In this case a secondary haemorrhage or softening had obviously occurred in the cervical enlargement as a result of concussion, and the greater affection of the grey thal of the white matter had produced an atrophic palsy of the upper limbs, which is probably permanent, while the weakness of his lower limbs had gradually diminished.

Lesions of certain regions of the cord also produce special local symptoms. We have, for instance, repeatedly seen unilateral paralysis of the diaphragm, and in two cases at least bilateral palsy, due to lesions at the level of the fourth or fifth cervical segment; unilateral palsy of the diaphragm also occurred in two cases in which the main lesion was to the second cervical segment, but it was not observed in any patient in whom it lay lower than the fifth. The occurrence of nystagmus has also been described as a result of lesions in the higher cervical region, but we have observed it in only 3 of the 63 cases in which the cervical segments were injured, in lesions of the second, fifth, and seventh segments. It was slight and ill-sustained in all three, and disappeared rapidly, save in one patient, in whom it persisted at least fifteen days; but as in this case the exit wound was in the neighbourhood of the tip of the mastoid labyrinthine concussion cannot be here excluded.

PARALYSIS OF THE CERVICAL SYMPATHETIC.

Disturbances of the functions of the cervical sympathetic occurred with lesions of all segments between the second cervical and the second dorsal included; they are referred to in our notes on 36 cases, and in the great majority at least of these injury of the sympathetic fibres in the neck could be excluded. The most common and prominent symptom was miosis, or, in unilateral lesions, inequality of the pupils, the smaller being on the side of the lesion, and this, as a rule, failed to dilate, or dilated less rapidly and less completely on shading the eyes. A narrowing of the palpebral fissures in one or both eyes and some enophthalmos was also pronounced in most of the cases. Ptosis was also frequently observed, especially with lesions of the lower cervical and the first dorsal segments.

Disturbances in sweating on the affected side were also present in most of the cases; as a rule, the skin of the face, neck, and shoulders, as well as the hair of the head on the side of the spinal injury, was merely drier and less greasy than on the opposite side; but during the warm weather of the late summer, or in any condition that induced sweating, there was a very obvious difference, for the skin of the face, neck, and shoulder to the level of the second rib remained dry on the one side, while it was moist and covered with beads of sweat on the other. In certain unilateral lesions, too, a diminution of tear secretion was observed on the affected side, the eye being obviously drier and presenting a more staring and glassy appearance than the normal; a few patients even complained of this eye being "stuck" or difficult to open in the morning owing to the lids being adherent as a result of the drying of the undiluted conjunctival secretion.

Definite vasomotor disturbances associated with paralysis of the cervical sympathetic were less common, but

in several cases the face was more flushed and highly coloured on the affected side, especially after shaving.

It is known that the cilio-spinal centre lies in the lowest cervical and first dorsal segments, while the spinal centre of the other components of the cervical sympathetic is found in the two upper dorsal segments, and that these are influenced or controlled by efferent bulbar fibres which descend uncrossed through the cervical cord. It must be to disturbance of the latter that the symptoms just described are due when the lesion lies above the eighth cervical segment, while the spinal centres themselves are injured when the lesion lies below this. It is an interesting question if the symptoms due to lesions in these two sites differ. We have not, however, observed any essential or obvious difference, though both the ocular and secretory disturbances seemed to be on the whole more prominent and permanent when the spinal sympathetic centres were damaged than when the bulbar efferent fibres were involved; in fact, in the latter case the symptoms usually subsided quickly, and often disappeared under observation.

Symptoms of irritation of the cervical sympathetic did not occur in any case in which the spinal cord only was injured.

HYPOTHERMIA.

One of the most interesting types we have observed was due to injury of the lower part of the cervical enlargement, and was characterized by subnormal temperature, slow pulse, low blood pressure, and scanty secretion of urine. All the 10 patients in whom these symptoms occurred died within eight days after the infliction of the wound, and in all the lesion lay in approximately the same region.

On admission to a base hospital, generally one or two days after the injury, the most striking feature was the cold, collapsed condition of the patient. The skin was generally dry and remarkably cold even to touch, and it was noted in some that the superficial temperature on exposed parts, as the face or hands, was apparently no lower than that of covered parts. When the temperature was very low, a touch reminded one forcibly of the coldness of death—this was especially so in a man seen at a casualty clearing station soon after he received the wound. The skin was also generally cyanosed, and the face of a curious slate colour. The temperature varied in different cases, and as unfortunately a special thermometer to register it was not always available, in four of the ten cases we can only say that it was lower than could be registered in a clinical thermometer (that is, 36° C. = 95° F.). In one of the other six it sank to 78.8° F. (26° C.) in the rectum, and did not rise above 80° F. during the twenty-four hours he lived under observation, but in most of those in which accurate observations were made the lowest recorded lay between 80° and 84° F. In a few it rose suddenly before death to above the normal, and in one case which has been already recorded by Lieutenants Oliver and Winfield, actually rose from 80.4° to 105.6° F., that is, 25° F., in twenty-six hours (Fig. 2); in others it remained low till the patient ceased to live. In one case the patient lived at least three days with a temperature not rising above 90° F., and in two it did not exceed 85° F. for twenty-four hours, but as these cases usually did not come under our observation

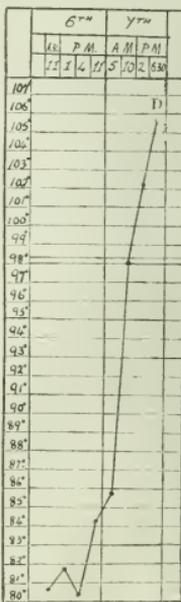


Fig. 2.—D. Death.

in others it remained low till the patient ceased to live. In one case the patient lived at least three days with a temperature not rising above 90° F., and in two it did not exceed 85° F. for twenty-four hours, but as these cases usually did not come under our observation

increased the pulse and respiratory rates, while at the same time the patient, who had been very dull and lethargic, became temporarily bright and intelligent.

The interpretation of these observations cannot be attempted here; they might be taken as evidence of the existence of a heat regulating centre in the lower part of the cervical enlargement, as Dr. Hale White has assumed, or, on the other hand, the fall of temperature might be attributed to diminished heat production consequent on muscular inactivity; a similar fall occurs in curarized animals. Probably the most important factors are deficient thermogenesis and a visceral vasomotor palsy produced by shock in the sympathetic system. Captain Shorten,¹ however, in a short comment on the case published by Lieutenants Oliver and Winfield, suggested that the symptoms may be due to the interruption of descending fibres in the cord which control and regulate the activity of the adrenals, and Professor Harvey Cushing, who kindly saw one of our cases, had suggested previously to us that a cervical sympathetic palsy may disturb the functions of the pituitary and that this may interfere with the correlated activity of the suprarenals. If Captain Shorten's hypothesis is correct we could expect to find hypothermia and its associated symptoms more commonly in cervical and bulbar lesions, and its absence after section of the cervical sympathetics argues against Dr. Harvey Cushing's suggestion. The adrenals appeared normal to the naked eye in one of our cases.

CERVICAL PYREXIA.

Benjamin Brodie, Chossat, and others have described a rise of temperature in animals after injury of the cervical cord, and Sir Jonathan Hutchinson,² Sir Hermann Weber,³ and numerous other clinical observers have observed pyrexia with similar injuries in man. As in most of our patients there were septic wounds associated with the spinal lesion, and as in several cystitis coexisted, particular care is necessary in interpreting our observations on this point, but some are unequivocal. In one patient, for instance, with symptoms of a partial lesion in the fourth cervical segment and a small clean entry wound of a rifle bullet just below the tip of the right mastoid, in which there were no signs of infection, the temperature on several occasions rose to 104° F. and quickly fell again to

injury lies in the middle of the dorsal cord, especially between the fifth and eighth dorsal segments. From one patient with a total transverse lesion between the seventh and eighth dorsal segments an average of 145 oz. was drawn off by catheter during the first six days he was under observation, even 215 oz. in one day. During the next six days and till death the average daily amount secreted was 90 oz. In another patient with a severe lesion of the fifth dorsal segment the average amount drawn off during the first eighteen days was 80 oz.; and in a third, who had sustained a complete destruction of the eighth dorsal segment, the daily average during the first three weeks was 125 oz., but fell during the next three weeks to a daily average of 66 oz. In fact, in the majority of patients with injuries to this region of the cord in whom observations were made, an excessive amount of urine was secreted. Unfortunately, we have not yet obtained a complete analysis of the urine when it is in great excess.

This polyuria is probably due to paralysis of the sympathetic fibres, and especially of the vaso-constrictors, to the kidney. Claude Bernard and Sir John Rose Bradford, it will be remembered, produced it by section of the splanchnics and of the lower dorsal roots.

PULSE-RATE.

While a slow pulse-rate has been one of the characteristic symptoms of severe lesions of the lower part of the cervical enlargement, a marked and persistent acceleration of its rate was often present in partial lesions of this region, especially when the upper two dorsal segments were involved. In one case of partial destruction of the second dorsal segment, for instance, it rarely fell below 100 per minute and was frequently 120, and this independently of any rise of temperature or other obvious cause. In another severe injury of the same segment it ranged between 72 and 140 per minute, and in a third it never fell below 120 per minute. But the most striking alterations are perhaps seen with partial injuries of the four lower cervical segments in which the patient seems in perfect health apart from his spinal injury. In one such patient, who remained three months under observation with an originally slight injury of the fourth cervical segment which later progressed, the pulse-rate constantly

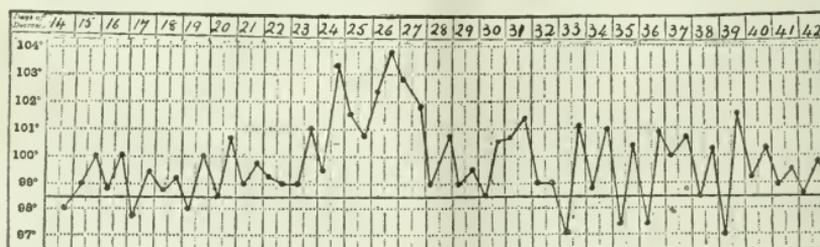


Fig. 5.

normal (Fig. 5). In this and in other patients the pyrexia was not associated with any signs of illness or discomfort, and the pulse-rate did not vary as the temperature rose. In several other patients with partial or unilateral lesions between the third and sixth cervical segments, whom we were able to keep under observation for several weeks, the temperature was frequently above normal, and often reached 102° F. to 103° F. without any apparent cause.

Another interesting observation was persistent shivering of the shoulders, neck, and face without any rise of temperature or disturbance of the pulse-rate, and without any subjective feeling of coldness associated with lesions of the lowest cervical and upper three dorsal segments. This occurred only in severe injuries of this region, and persisted over several days.

POLYURIA.

We have described diminished secretion of urine with lesions of the lower part of the cervical enlargement, but the daily quantity is frequently much increased when the

lay between 100 and 120, and only occasionally in the latter part of this period fell to 90 per minute, and in a similar uncomplicated case of injury to the fifth cervical segment the rate varied between 96

and 130 per minute. It was always regular, however, in these cases and of good volume and fair tension.

VOMITING.

When the mid-dorsal region is severely injured the abdomen is frequently tense and blown out and the patient presents the symptoms of paralytic distension of the intestines. But a more striking symptom which is sometimes associated with it, but which often occurs without any objective symptoms of abdominal disturbance, is vomiting. In the larger proportion of the cases in which it was observed the lesion lay in the sixth, seventh, or eighth dorsal segment.

It was often so persistent that it threatened life, as in severe cases no nourishment could be kept down. In several instances it set in within a few hours of infliction of the wound, and in many severe cases persisted till death or as long as we had the patients under observation. It was generally forcible and projectile, and was apparently associated with much discomfort, but with little nausea, though a few patients complained of the feeling of sickness.

In mild cases it occurred only some time after taking food, and this alone might be brought up in a half-digested state, but when severer it was more or less constant and mucous stuff occasionally coloured with bile, and in a few instances blood-stained, was ejected. In some of our notes the similarity to the vomiting of a tabetic crisis is remarked on.

As in the large majority of cases in which this type of vomiting occurred the lesion lay in the region of the sympathetic outflow to the stomach it might be attributed to irritation or disturbance of the function of these fibres. And there is much evidence that this is its cause. Almost without exception these patients complained of girdle pains around the body, or on one or other side, between the level of the xiphoid and umbilicus, and of great tenderness to light contact, rubbing and other stimuli in the region in which the referred pain and tenderness associated with gastric disease occurs. Further, in several there was a persistent local contraction of a portion of the abdominal muscles between the xiphoid and the umbilicus corresponding to the cutaneous hyperaesthesia, which increased and produced pain when this area of skin was stimulated. In fact, the firm resistance and tenderness of this area to touch occasionally gave rise to the suspicion of a large intra-abdominal lesion. In a few patients the intercostals innervated by the same dorsal roots were also in contraction, and everted the ribs to which these were attached.

Vomiting occasionally occurred after injury to other regions of the cord, too, but in most of these cases it was associated with and probably due to intestinal paralysis, to severe septic infection, or to the cystitis or pyelonephritis which occur so frequently with spinal lesions. In a few cases of cervical injury, however, it was a prominent symptom, and could not be attributed to any of these causes.

When severe and frequent, such vomiting naturally exhausted the patient and induced emaciation. Great loss of flesh also occurs, as might be expected, in severe cases which run a downward course, but it is an interesting fact that it was seen also in patients with relatively slight injuries of the cervical enlargement who took food well and even had excessive appetites. We have observed several patients, for instance, with unilateral lesions of this region producing the Brown-Séquard syndrome, but apparently not affecting their general health, in whom there was extreme emaciation. In some of these the pulse-rate was increased, and there was slight pyrexia, but otherwise the visceral functions seemed unaffected.

PRAPISM.

Numerous other symptoms occurred as a result of spinal lesions, to which time will not permit reference here. Priapism has been frequently described, especially with lesions in the cervical region, but we have observed it in only a small proportion of our cases, and it seemed to occur relatively as frequently with lesions of the dorsal as of the higher segments. It was usually merely a soft turgescence of the penis. If, as is assumed, it is merely due to vascular engorgement, it is interesting to note that it occurred in two of our patients with low temperature, low blood pressure, and a slow pulse-rate; it was present in one man when the blood pressure was only 73 mm. of mercury.

TROPIC DISTURBANCES.

Various trophic disturbances were common in the severer cases, especially bullae and blisters in those parts of the paralysed regions which were subjected to any pressure. Irregular patches of red or strawberry-coloured discoloration, which were scarcely modified by pressure and disappeared slowly leaving a slight mottling of the skin, also occurred frequently in the same parts. Joint changes were not common in the early stages, though there was occasionally effusion with the knees or ankles when the legs were completely paralysed, and in a few patients we observed early arthritic affection of the fingers and wrist when the cervical cord was damaged.

HERPES.

Herpes occurred in nine cases, either immediately above or at the upper margin of the sensory loss. It developed between the third and the fifteenth day, and in three instances recurred in the same area. It usually first appeared as a zone of diffuse erythema with small papules which later became vesicular or pustular, generally in a

region in which there was either pain or tenderness. It usually lasted seven to fourteen days and disappeared, leaving some discoloration and brownish discoloration of the skin. Such larger vesicles as are seen in idiopathic herpes were not observed, and in one case there were only papules and vesicles without any erythema of the skin. In two cases in which *post-mortem* examinations were obtained the corresponding spinal ganglia were found bruised by displaced fragments of the vertebral column, and the clinical symptoms or the course of the missile made it probable that a ganglion was damaged in the other cases too; its pathology is consequently allied to that described for idiopathic herpes by Bäreusprung, and confirmed by Drs. Head and Campbell.

The state of sensation in the herpetic zone was variable; in some cases there was only excessive tenderness to contact, rubbing, cold, and other stimuli, associated with spontaneous pain; in other there were the symptoms of a root lesion, that is, a band of insensitiveness to pin-prick and to moderate degrees of temperature, with loss or diminution of tactility within it. In those cases in which there was definite sensory loss it was found that this was not coterminal or did not correspond with the area of the eruption; Sherrington has shown that the dermatomes are not superimposed in the myomeres, and it is obvious, too, that the peripheral distribution of the radicular fibres, which, when injured, are concerned in the production of herpes, do not coincide accurately with either.

REFERENCES.

- ¹ Oliver and Winfield, *BRITISH MEDICAL JOURNAL*, 1915, vol. i, p. 247. ² Parkin, *Guy's Hospital Reports*, 1891, vol. 23, p. 107. ³ Nissen, *Trans. Clin. Soc. London*, 1875, vol. vi, p. 75. ⁴ Shorten, *BRITISH MEDICAL JOURNAL*, 1915, vol. i, p. 801. ⁵ Hutchison, *Lancet*, 1872, vol. i, p. 714. ⁶ Weber, *Trans. Clin. Soc. London*, 1868, vol. 1, p. 163.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CONGENITAL ABSENCE OF RADII.

THE publication in the *JOURNAL* of September 11th, by Major Mansel Symptom, of a case of congenital dislocation of the right foot with almost complete absence of the fibula tempts me to put forward a somewhat similar case, in which, however, both upper limbs are affected.

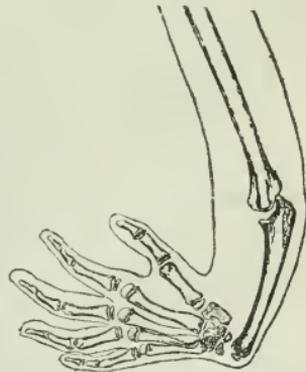
The patient, E. H., aged 16 years, an inmate of Dr. Barnardo's Homes, is an intelligent child whose father, however, is insane and an epileptic.

Both hands are dislocated to the ulnar side, and are at right angles to the forearms; the radiograms—a drawing from one of which is reproduced—show that there is complete absence of both radii. The radiographs were taken by Dr. G. Gushue-Taylor in November, 1910.

In spite of her deformity she can write distinctly, and is being taught to do various kinds of embroidery, which she does very well.

JAMES A. MILNE, M.D. Lond.,
M.R.C.S., D.P.H.

London, E.



"CHLORINE WATER" AS A DRESSING.

IN the *JOURNAL* of May 8th I published an article on the "Sterilization of Water by Chlorine." It occurred to me over two years ago, when working at this subject, that in addition to using my method for water purification, one might also use the "chlorine water" thus prepared as an antiseptic lotion. By doing this one would have on

service an unlimited supply of antiseptic always at hand. I accordingly brought the use of chlorine as a wash and moist dressing into use in my regimental hospital and had every reason to be satisfied with the results obtained.

The strength of chlorine used by me is somewhat weaker than that used by Captain Fraser. My method of preparing chlorine is by acting on potassium chlorate with concentrated hydrochloric acid, the gas going into solution as it bubbles through water, as described in the article referred to above. In this way a solution of a strength of 1 in 500 of chlorine in water is obtained. As a wash it is used undiluted. As a moist dressing I dilute it 1 in 3, as if used in greater strength it causes irritation, which may even go on to vesication.

Prior to the war it was in general use in my regimental hospital for various septic conditions, such as ulcers, boot bites, lacerated wounds, boils, etc., and as a gargle for septic throats (1 in 5) and a mouth wash in pyorrhoea alveolaris, it proved most efficacious. Since going on service a year ago I have continued to use it in these conditions, and also as an antiseptic wash and dressing for shrapnel and small arms wounds, no other antiseptic being used by me. The results obtained have fully justified its adoption, and, as already stated, the fact that the water sterilizing outfit is also an unailing source of supply of so useful a lotion has proved a great boon. Many cases of flesh wounds have not needed to be sent to the field ambulances, and all have healed by first intention. The fate of the more serious cases, which have had to be evacuated, I am unable to write about, but the large proportion who were very quickly discharged from hospital and returned to the firing line indicates that their wounds also followed an aseptic course.

J. J. HARPER NELSON, Captain I.M.S.

SALINE SOLUTION AS A DRESSING.

I AM interested in the good results obtained from irrigating septic wounds with salt solution, for I have used it frequently for the last three or four years, and lately have been in the habit of dressing ordinary flesh wounds with a saline solution with good results.

The method that I have employed for ordinary surface wounds is by dressing them with a piece of surgical lint soaked in a solution of sodium bicarbonate, the lint being then covered over by a layer of oil silk or jaconet. This method promotes healthy granulations and a speedy repair of the damaged tissues.

W. ROES KEMP, Lieutenant R.A.M.C.

Clipstone Camp, Notts.

Reports of Societies.

GAS POISONING: PHYSIOLOGICAL SYMPTOMS AND CLINICAL TREATMENT.

At a meeting of the Medical Society of London on November 29th Dr. LEONARD HILL read the paper which will be found in full at page 801.

The President (Dr. W. PASTEUR) related a case of a man who had been gassed three times with chlorine, and who arrived in England apparently well, but who every two or three days suffered from attacks of dyspnoea and lividity. It was as yet undetermined whether these attacks were the result of organic causes or were of the nature of a neurosis.

Professor BENJAMIN MOORE said that an investigation of the effects of gas poisoning opened up experimental channels for the elucidation of respiratory diseases. The use by the Germans of the asphyxiating gases must have been premeditated and arranged by previous researches, and it must be our object to prepare offensive and defensive means of countering it. Fortunately, the gas used lent itself readily to means of defence. The oedema produced by it was profound; it was a protective reaction which was overdone, and the exudate practically drowned the patient. The first aim of treatment should be to drain off the exuded fluid; if a means could be devised to keep up the discharge of the fluid and at the same time to leave sufficient lung active much might be achieved. Nearly all the severe cases in animals, if not immediately

fatal, ultimately terminated fatally from septic bronchopneumonia. The attention of clinicians should be drawn to this, so that the risk might be prevented if possible.

Dr. WILLIAM HILL suggested that possibly a combination of tracheotomy and the use of exhaust bottle might allow both of regular drainage and the administration of oxygen. In civilian work it had been found that a drop or two of ether relieved the surface tension of the fluid at once, and the foam about the mucus disappeared.

Mr. C. V. CARGILL referred to a case of retinal haemorrhages in each eye which had followed "gassing." It had cleared up in a few weeks.

Dr. NEWTON PITT pointed out that the effect of obstruction of bronchi was first pulmonary collapse but afterwards over-distension. This had an important bearing on the intense dyspnoea. The lung became more and more over-distended, and air was sucked to its superficial parts while the fluid collected in the deeper. An important factor in treatment was to lower the patient's head and to compress the chest to get the fluid to pass out. Permanent changes seemed to be produced in certain cases. In oedema of the lung and serous exudation in the lung, such as occurred after tapping the pleura, atropine had been found distinctly useful. There was also some evidence in favour of the use of adrenalin and pituitary extract. He disapproved of the use of the term "emphysema" for over-distension produced by mechanical means.

Dr. LEONARD HILL, in reply, said that he could not agree that fluid collected in the most dependent parts of the lungs. Its distribution was somewhat peculiar, and possibly due to the action of the bronchial muscle, which allowed fluid to enter some parts while it prevented it in others. He had restricted his remarks concerning atropine to severe cases; there was no reason why it should not prove beneficial in milder ones.

Reviews.

MATHEMATICAL BIOCHEMISTRY.

In its earliest days chemistry was a purely qualitative science, a matter of tests, colour-reactions, precipitates, and explosions. Towards the end of the eighteenth century it took on a quantitative cast, and proportions by weight or volume came to be regarded as of increasing importance. As a further step in the same direction, physical chemistry became more and more a matter of mathematical analysis and expression in the last quarter of the nineteenth century. It is now the turn of biological chemistry and the chemistry of immunity to be annexed and elucidated by the mathematicians. Eighteen months ago Dr. SVANTE ARRHENIUS delivered the Tyndall lectures at the Royal Institution, choosing for his subject the mathematical treatment of biochemistry. He has now amplified these lectures, and published them in the form of a book¹ containing six chapters. These are cast in the rigid lines of physical chemistry, and deal with various aspects of chemical reactions and chemical equilibrium in their particular applications to the living body and immunization. The author is at pains throughout to show that life is after all a matter of mathematics, and that living processes, like the processes of inorganic nature, are amenable to mathematical treatment by means of graphical representation, logarithms, coefficients, integration, and the like. The book is one for biologists and chemists with mathematical turns of mind; for example, the author expresses (p. 88) the whole progress of the digestion of meat by dogs in the formula:

$$dx : dt = 125 (1 - e^{-0.075x})$$

in which x is the quantity of undigested flesh in grams.

It is very satisfactory to find explained in this book the way in which mathematical analysis has pulverized the "poison spectrum" attributed to certain toxins, such as diphtheria toxin, by Ehrlich. It is only a few years ago that Ehrlich and Sachs, analysing as experimental pathologists the toxicity of various mixtures of toxin and anti-toxin, came to the conclusion that diphtheria poison contained within itself as many as ten varieties of "toxins"

¹ *Quantitative Laws in Biological Chemistry*, by S. Arrhenius, Ph.D., M.D., LL.D., F.R.S., London: G. Bell and Sons, Ltd., 1915. (Demy 8vo, pp. 175; 36 figures. 6s. net.)

and "toxoids," each with its various affinities and toxicities. But, with the aid of mathematical analysis, Dr. Arrhenius is able to show that, by parity of reasoning, the neutralization of ammonia with boracic acid can be made to prove that the ammonia is built up of not less than six components or "partial poisons." This conclusion is obviously absurd in the case of ammonia, and the diphtherial "poison spectrum" must no less go by the board, for it is based only on the relatively great errors of observation inseparable from such biological experiments as were at the disposal of Ehrlich and Sachs as the basis of their calculations. Dr. Arrhenius has been well known to chemists as a profound and original mathematician for thirty years or more. His book is clearly written and as intelligible to the plain man as any such work can be. It should be in the hands of all who are interested in the wide problems of biochemistry.

HANDBOOKS OF SURGERY.

A Textbook of Surgery,² by Mr. RICHARD WARREN, makes a very creditable appearance. It is in two volumes, which is a good plan, as it makes for ease in handling, and the print and illustrations are good. It is stated that the aim of the book is to place before the reader the more practical issues of surgery from the standpoint of the general surgeon. This book does admirably. It may be said to cover the ground completely without reaching the unwieldy bulk of some works on surgery. The arrangement and the grouping of subjects are both decidedly good. Of necessity one textbook on surgery must be very like another, but it often happens that when the practitioner turns to a book for help, the very point that is wanted is either not mentioned or dismissed with the briefest notice. This test of indiscriminate "dipping" is severe, but when applied to this book it was not found wanting. At the present day it is probably easier to write a new book than to bring an old one up to date, as there is a tendency to retain old-world theories and practices to the detriment of the more modern lines of treatment. In the book under consideration Professor Adams's scheme for the classification of tumours has been adopted, which is doubtless a step in the right direction, as this classification is now taught in most schools of pathology. The sections dealing with bones (including fractures), blood vessels, abdomen, and the urinary system are written with due regard to the developments of recent years. The surgery of the ear is placed in the same section as that dealing with the brain and meninges, which is a good plan, as the ear is so often responsible for infections of the latter. The sections on the cord and peripheral nervous system are especially good, and are well worth the attention of candidates for examination. Nerve injuries are common nowadays, and have a way of turning up at examinations. In conclusion, it may be truthfully said that Mr. Warren's book is excellent of its kind and may be most strongly recommended.

A new English edition of the second volume of FÉLIX LEJARS'S *Urgent Surgery*³ has lately been published. The translation from the seventh French edition, by W. S. DICKIE and E. WARD, is all that could be desired. The volume contains sections on the genito-urinary organs, the rectum and anus, on strangulated herniae, and on the extremities. The general production of the book and illustrations are excellent. The work is throughout most practical, and the author has the happy knack, only to be gained by long experience, of laying stress on the small details which make the difference. More than half the book is devoted to the surgery of the extremities. Fractures, dislocations, wounds of joints and injuries to nerves are all fully dealt with. The application of plaster splints in cases of fracture is fully described. The author is strongly of opinion that plaster splints should be used as first dressings in cases of compound fracture, so as to

secure absolute immobilization of the fragments. This use of plaster is perhaps the most noticeable thing about French military surgery at the present day. Some of these splints now in use are truly works of art. An outstanding feature of the book is the description of the various forms of strangulated herniae. This is one of the best accounts of the subject that has yet been published. The author rightly points out that the operation for the relief of strangulated hernia is one that any practitioner may be called upon to do, and further that it is an operation that any practitioner can do with ease if the case is not left too long, and the procedure be gone about in a systematic manner. Simple, straightforward cases are first described in detail, and then the various complications are considered. Under this latter heading fall adhesions within the sac, abnormal contents of sac, and cases complicated by previous injudicious taxis. The rare forms of strangulated hernia and their treatment are then discussed, and some most interesting cases mentioned. The book may be most strongly recommended to all, but perhaps more especially to those amongst us who have never held hospital appointments, and thus have had no chance of operating under the direct supervision of a senior.

Under the title *Practical Manual of Bandaging*⁴ Dr. D. C. L. FITZWILLIAMS has brought out a most useful little book. It was written, we are told, in Malta, when the author was medical officer to 1,500 prisoners of war of various nationalities, and while he was actively engaged in preparing orderlies for their duties in the field. The descriptions of the application of the various bandages are lucid and the illustrations clear and easy to follow. As regards the scope of the book all the well recognized roller bandages are described, and space is devoted to the various forms of triangular bandage and their application. Special bandages and the application of plaster are also discussed. In fact, any one who has carefully worked through the book with a suitable subject for practice, should never be at a loss to find an efficient method of bandaging any part of the body. The illustrations, it is stated, were drawn by one of the Hungarian prisoners of war. The frontispiece gives a touch of topical interest to the book, as it depicts the German Crown Prince with his foot and leg swathed in bandages supported round the neck by a sling. In conclusion, one may say that the book should prove of value to many who nowadays take an interest in matters surgical.

CRIMINOLOGY.

THE volume of the literature of criminology is out of all proportion to its importance. Judging by the number of publications and by the immense size of the books on criminology one would suppose that it was, like political economy, a well-established science whose professors, if they do not agree on the solutions of its problems, at least agree on what the main problems are; but familiarity with the literature of criminology soon dissipates this notion. It is filled with pious aspirations; with dogmatic assertions that have no sufficient grounds; with wild speculations that are proposed as hard facts; with crude statistics on matters that cannot be statistically estimated, collected by persons who show violent prejudice, and without any comparison with statistics, collected on a similar basis, of non-criminals. The intelligent outsider has therefore acquired a deep distrust of criminological literature, and it is with no small surprise that he finds a book which is a plain record of facts about individual criminals, collected with great industry and considerable acumen, and utterly destitute of hasty generalizations and crude theories. Dr. HEALY'S *The Individual Delinquent*⁵ is the most valuable contribution to the study of criminals that has yet been published, for the effort of the author, who is attached for the purpose to the juvenile criminal court at Chicago, has been, in every one of the thousand cases whose results are here recorded, to get at the causes, not of criminality in general, but of the criminality of the particular person whose case he is investigating. In this he seems to have been generally

² *A Textbook of Surgery*. By R. Warren, M.D., M.Ch. Oron., F.R.C.S. Vols I and II. London: J. and A. Churchill, 1915. (Roy. 8vo, pp. 755 and 749; 266 and 239 figures. 25s. net.)

³ *Urgent Surgery*. By Félix Lejars. Translated from the seventh French edition by W. S. Dickie, F.R.C.S., and E. Ward, M.A., M.D., F.R.C.S. (Third English impression.) Vol. II, The Genito-Urinary Organs; The Rectum and Anus; The Strangulated Hernias; The Extremities. Bristol: John Wright and Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. New York: W. Wood and Co. Toronto: The Macmillan Co. of Canada. 1915. (Sup.-roy. 8vo, pp. 597; 601 figures. 25s. net.)

⁴ *A Practical Manual of Bandaging*. By D. C. L. Fitzwilliams, Captain R.A.M.C. London: Baillière, Tindall, and Cox. 1915. (Demy 8vo, pp. 97; 1 plate, 190 figures. 3s. 6d. net.)

⁵ *The Individual Delinquent*. By William Healy, A.B., M.D. London: W. Heinemann. 1915. (Demy 8vo, pp. 845; 10 plates. 21s. net.)

successful, and the reader is much impressed with the openness of mind of the investigator. Dr. Healy has approached his thousand cases with no preconceived views of the causation of criminality, with no theory to support, but simply with the desire to discover; and, as has been said, he has been upon the whole very successful. His conclusions are that the born criminal does not exist; that there is no physique characteristic of the criminal; that there is no criminal subspecies of man; that, while mental abnormality is a causal factor in more than one half the cases he examined, mental deficiency, properly so-called, was present in only about a quarter; that in but few cases was only one factor operative; and the most important conclusion of all is that by careful and patient investigation the causes of a young person becoming criminal can usually be discovered, and when discovered can often be removed.

The book is divided into two parts, of which the first treats of generalities and methods, and the second relates individual cases illustrative both of methods and of causes. Dr. Healy recognizes the desirability and importance of testing and estimating other mental faculties than intelligence and memory, and he has devised a number of ingenious methods of testing such faculties as attention, motor co-ordination, association, perception of relations of form and colour, ability to profit by experience, foresight, and what he calls planfulness, which is what we on this side of the water should call ingenuity, judgement, vocational tests, and so forth. The aim of these tests is extremely praiseworthy, and shows in what an enlightened spirit Dr. Healy approaches his subject; but whether his tests are competent to elicit the information he desires may be doubted. It is, however, much easier to criticize them than to devise better ones, and no doubt as time goes on they will be improved. The important thing is that he does recognize how little value is to be placed on the mere ability or inability to satisfy verbal tests, and how utterly useless for all practical purposes are in this matter the reaction tests and the results of using the algometer and the ergograph and the rest of the armamentarium of the "physiological psychologist." The general result of the investigations shows that a criminal is by no means necessarily deficient in ability, and, in fact, that many criminals are in this respect decidedly above the average.

The greater part of the book is occupied by the records of individual cases as illustrative of the various factors which conduce to the commission of crimes. These factors are very numerous, and rarely act alone; and from Dr. Healy's method of approaching the cases without any theory to support or any preconceived opinion to establish, he succeeds in showing that they are surprisingly various, ranging from defective eyesight to parental neglect, and from epilepsy to puritanic upbringing. One notable discovery is the small part attributed to excess in alcohol in young criminals in contrast with the considerable frequency of excessive indulgence in tea and coffee.

Dr. Healy is no supporter of the view that criminality is a disease, nor is he captivated by any of the many fads that thrive amongst criminologists. He insists on the necessity of punishment, but he insists also that punishment should not harm the offender, as in practice it usually does.

MEDICAL ELECTRICITY AND X RAYS.

THE second edition of Dr. Tousey's massive volume on *Medical Electricity, Röntgen Rays, and Radium*⁶ has been enlarged and brought fairly up to date; the first edition was published five years ago. It begins with a thorough and well-written account of the phenomena and nature of static and dynamic electricity. Next follow chapters on the employment of various forms of electricity in the diagnosis and treatment of nervous and other diseases. The subject of high frequency currents is treated at length in a chapter of 100 pages. In the second half of the volume the x rays receive a no less thorough and scientific consideration; their use in diagnosis is very completely illustrated, and x-ray therapy is equally well described. At the end of the volume some forty pages

are given to the subject of radium, its origin, and its physiological and pathological effects. It may be noted that Dr. Tousey speaks highly of the Coolidge x-ray tube; in this country, we believe, its employment has not been entirely free from disappointment. Dr. Tousey writes very clearly; the book is illustrated with 16 coloured plates and nearly 800 other illustrations. There is a very complete index.

We are disposed to quarrel with Dr. REGINALD MORTON's title-page, for he describes his treatise as *A Textbook of Radiology*,⁷ unqualified even by a subtitle, but the book in fact deals exclusively with x rays, and almost entirely with x rays in diagnosis. The nomenclature in this department of knowledge is hardly yet out of the furnace, but it seems desirable that the term "radiology" should be reserved to denote the science of all the various forms of radiant energy, instead of being narrowed down, as it is in this instance, to only one of them, and to that one merely in its practical applications. This apart, the work is admirably planned for the purpose of the student. The author begins with an explanation of the focus tube, to which every other part of the x-ray outfit is subsidiary, and from this point he works backwards to the question of electrical supply and of accessory apparatus. Photographic and fluoroscopic technique is described very fully, and then there follows, in a series of chapters, a discussion on the use of x rays in medical and surgical diagnosis. Perhaps the most valuable of these chapters is that on the digestive system, which is illustrated by some admirably drawn figures. The last twenty pages are devoted to a survey of the largely unmapped *Hinterland* of x-ray therapeutics; the author seems to approach this part of his task with some diffidence, and carries it through conservatively. Several of the modifications Dr. Morton describes, notably one for completely suppressing the inverse current from the coil, are his own design. A fuller index might be included in those succeeding editions which may be confidently predicted for so useful and authoritative a book.

Dr. A. C. CHRISTIE⁸ has recently published a short account of his x-ray study of gastric and intestinal cases in the laboratory of the United States Army Medical School. He advises the use of barium sulphate rather than bismuth subcarbonate. He uses 10 x 12 plates for photographic investigation of the stomach, and plates 14 x 17 for the colon. He finds x rays of great assistance in the detection of gastric ulcer. Two varieties of gastric ulcer may be directly diagnosed—namely, the penetrating ulcer with a deep crater, and the perforating ulcer with cavity formation. He adds that there are other signs of great value here, although they are not diagnostic of gastric ulcer in themselves. These are the incisures, the six-hour residue, the hour-glass stomach, and a localized point of tenderness on pressure. If the ulcer is on the lesser curvature, the incisure practically always occurs on the greater curvature. Care must be taken not to confuse the cardiac incisure occurring in normal stomachs under the left costal margin, or the angular incisure normally occurring in the angle of the lesser curvature, with those incisures due to gastric ulcer. It must be remembered, too, that incisures may be caused by reflex irritation from an inflamed appendix or gall bladder. Hence to be of value as a diagnostic aid the incisure must be constant in position and accompanied by other signs of ulceration. He attributes the incisure of gastric ulceration to spasmodic contraction of the circular muscular fibres of the gastric wall; its edges are usually quite smooth and its extremity bluntly rounded. A marked residue in the stomach at the end of six hours, amounting to one-eighth of the meal or more, is considered a confirmatory sign of gastric ulcer; it is attributed to pylorospasm. Dr. Christie adds that the hour-glass stomach is of the same value in the diagnosis of gastric ulcer as the incisure, for it is due to the same cause—namely, spasm set up by irritation. As for a localized spot tender on pressure, he says that it must be very sharply circumscribed, constantly present, and accompanied by other

⁶ *A Textbook of Radiology*, by E. R. Morton, C.M. (Trin., Tor.) F.R.C.S., Ed., etc. London: H. Kimpton, 1915. (Demy 8vo, pp. 237 26 plates, 72 figures. 7s. 6d. net.)
⁷ *Studies in Roentgen-ray Diagnosis*, by A. C. Christie, Captain, Medical Corps, 1915. Washington: Government Printing Office. Bulletin No. 7. (Med. 8vo, pp. 35; 45 figures. 30 cents.)

⁸ *Medical Electricity, Röntgen Rays, and Radium*, by Sinclair Tousey, A.M., M.D. Second edition, thoroughly revised and greatly enlarged. Containing 793 practical illustrations, 16 in colours. 1915 Philadelphia and London: W. B. Saunders Co. (Roy. 8vo, pp. 1219, 25s. net.)

signs of ulcer in order to be of value as a diagnostic aid. Dr. Christie also gives the result of his investigations of the small intestine and colon. Here his conclusions are less definite; he gives histories of the more important of his cases and numerous photographic reproductions of his skiagraphs. The pamphlet should be in the hands of all skiagraphers.

Dr. HAROLD MOWAT, Lieutenant (temporary) R.A.M.C., has written a volume on *X Rays: How to Produce and Interpret Them*,⁹ which, though of slight compass, will excellently serve its purpose as an elementary introduction to the subject; in quieter times the author will, it may be hoped, write a companion volume on x-ray therapeutics, a subject which at present he has left untouched. His inaccuracies are very few; certain passages in the section dealing with x-ray production might have been a trifle more clearly expressed, and there is a little error on p. 14, where it is made to appear that in a hard tube the rays have a comparatively long wave length, and in a soft tube their wave length is shorter; as a fact, the reverse is the case, the wave length diminishing with increasing hardness of ray. One of the best chapters is that on the localization of foreign bodies; not many writers have found it possible to give an intelligible and workable description of the cross-thread method in so few words. On the other hand, the author takes it for granted that every one knows about the telephone probe as an adjunct to x-ray localization. Many of the excellent illustrations depict war injuries. Perhaps the most striking is one showing a hole made by a bullet which went right through the iliac crest without causing any fracture in that region, and entered the bowel, producing a faecal fistula.

For the use especially of those on active service in the field Mr. T. RANKINE has recently issued in English, and also in French, a brief account of his method of determining the position of foreign bodies in the tissues by means of the x-rays. No additional apparatus beyond a pair of compasses is required; the procedure merely involves the application of the compasses to a table of graphs which is included in his pamphlet.¹⁰ His method may be recommended for its simplicity to the attention of all skiagraphers.

THE HAUSA LANGUAGE.

Mr. ALAN C. PARSONS, the writer of *A Hausa Phrase Book with Medical and Scientific Vocabulary*,¹¹ who was for some time a medical officer in Northern Nigeria, has done good service by collecting and publishing in a handy form a large selection of colloquial phrases such as an Englishman in Nigeria is most likely to want, and many of which are not found in the Hausa grammar or in the dictionary published by the Cambridge University Press. A large number of similar books have been issued during the last few years, but this is by far the best and most scholarly which we have seen. In one or two instances (cf. the use of *sami* for *samri* or *sauri*) the author has admitted a form which is only a local variant, but for the most part the Hausa is that spoken in Kano, and more or less generally accepted as the best Hausa. The Hausa language is already the *lingua franca* throughout an immense area in West Africa, and an accurate knowledge of it is likely to become still more essential to Englishmen than it already is if England has to undertake the supervision of Togoland and part of the Cameroons when the present war is over. The volume ends with a carefully selected vocabulary of medical terms which will be of special use to medical officers.

NOTES ON BOOKS.

IN the series *First Books of Science* published by Macmillan, Mrs. CATHCART has written the volume on *Physiology and Hygiene*.¹² There are many good points about

this little book. It is well illustrated, the subject matter is well chosen, and the difficult task surmounted of giving a very elementary account of anatomy, physiology, and hygiene. It is a pity that the author is not more careful in her style. The English is slipshod in many places; for example, "The constipation is cured very often if the muscle be given more work to do by eating food which contains a great deal of waste matter." Some of the statements of fact are erroneous, such as the assertion that the headachy and sleepy feeling in a stuffy room is due to lack of oxygen and too much carbon dioxide. The ill effects in truth arise from the physical qualities of the atmosphere. Discussing the stiffness of the muscles following exercise the authoress says that the beneficial effects of a hot bath are due to the fact that the bath stimulates the little sweat glands to secrete, and they help to rid the body of its waste products. The hot bath really brings more blood to the tired limbs and oxygen to oxidize the waste products. The function of the sweat is to cool the skin by the evaporation of water, its excretory function is of minimal importance. In a passage concerning indigestion Mrs. Cathcart says "the most frequent cause of indigestion is the bolting of food." We know of no proof of this statement; the hungry dog habitually bolts its food, and has a perfect digestion. Soft cooked food requires little mastication, and can easily be dealt with by the stomach. The danger of bolting lies in over-eating; that and lack of open-air exercise are the real causes of indigestion.

We commend the perusal of Miss EDITH L. MAYNARD'S book, *Women in the Public Health Service*,¹³ to those who desire to train for the work of a sanitary inspector, an inspector of milkwives, or a general health visitor. Not only is clear and concise information given as to the way to obtain the necessary education, but the need for the work and its interest are pointed out as well as the difficulties and drawbacks that will be encountered. The question of salaries is also dealt with. Much stress is rightly laid on the need for accurateness, promptness, and courteousness on the part of all public officials. The more highly educated, both in general and technical education, the better will the official be prepared for her work. Yet that alone is not enough, the *suaviter in modo* is indispensable in dealing with the numerous workers, official and voluntary, with whom she will be brought in contact, as well as in dealing with the people she visits in their homes. We are glad to note that it is stated that work with regard to infants calls for much wisdom and for insight into all the conditions of the home, and that dirty sanitary conveniences and the flies they encourage need much insistent and repeated care. A high tribute is paid to the mothers for the way in which they manage the small family income.

Dr. W. T. PROUT'S well-known little book on hygiene and sanitation in the tropics has now reached its fourth edition.¹⁴ It is written in the form of thirteen lectures, and is illustrated by a number of outline drawings and photomicrographs of an unpretentious nature. The lectures include an account of the structure and working of the human body, an outline of the chief diseases met with in tropical climates, and hints as to the general and special hygiene indicated in hot countries. The book is simply and clearly written, and will be very useful to laymen who go to live in the tropics.

Dr. THOMAS BUZZARD'S personal narrative of his experiences with the Turkish army in the Crimea and Asia Minor some sixty years ago forms a book¹⁵ that should be of interest to a wider circle of readers than that for which it was written a few years ago. Dr. Buzzard went out as a member of the British medical staff of the Ottoman army; he writes a most vivid account of his experiences by land and sea in this part of the world during fifteen months of the years 1855 and 1856. The book should be of particular interest at the present moment, when the fate of Constantinople hangs once more in the balance; it is illustrated with reduced reproductions of drawings of the local scenery made by the author on the spot, drawings that recall the early Victorian art of their period with the greatest felicity.

⁹ *X Rays: How to Produce and Interpret Them*. By H. Mowat, M.D. (Litt.), temporary Lieutenant R.A.M.C. Oxford Medical Publications. London: H. Frowde, and Hodder and Stoughton, 1915. (Demy 8vo, pp. 216; 106 figures. 8s. 6d. net.)

¹⁰ *Simple Methods of Radiographic Localization*. By Thomas Rankine, Edinburgh and London: W. Green and Son, 1915. (Foli 4to, pp. 11; 3 plates; 1s. net.)

¹¹ *A Hausa Phrase Book with Medical and Scientific Vocabulary*. By A. C. Parsons, W.A.M.S., M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. Oxon. London, New York, Toronto, Melbourne, and Bombay: H. Milford, 1915. (Crown 8vo, pp. 168. 7s. 6d. net.)

¹² *First Book of Physiology and Hygiene*. By Gertrude D. Cathcart, M.B., D.Sc. Glasg., D.P.H. Camb. London: Macmillan and Co., Ltd. 1914. (Crown 8vo, pp. 141; 52 figures. 1s. 6d.)

¹³ *Women in the Public Health Service*. By Edith L. Maynard. London: The Scientific Press, Ltd. 1915. (Crown 8vo, pp. 128. 1s. 6d. net.)

¹⁴ *Lessons on Elementary Hygiene and Sanitation, with special Reference to the Tropics*. By W. T. Prout, C.M.G., M.B., C.M. Edin. Fourth edition. London: J. and A. Churchill, 1915. (Demy 8vo, pp. 204; 60 figures; 2s. 6d. net.)

¹⁵ *With the Turkish Army in the Crimea and Asia Minor: A Personal Narrative*. By T. Buzzard, M.D. London: J. Murray, 1915. (Foli 8vo, pp. 318; 8 illustrations, 2 maps. 10s. 6d. net.)

MEDICAL AND SURGICAL APPLIANCES.

Forceps for Suturing.

CAPTAIN H. H. KING, I.M.S., has designed the forceps illustrated in the accompanying drawing. The main point in the design is that the space between the blades is sufficient to allow the free passage of any ordinary needle, so that it becomes possible to suture a little more accurately than with ordinary forceps and with less damage to the tissues, because there is no need to grip the skin or other tissue tightly with the forceps. They might, Captain King considers, be of use also when it is necessary to insert sutures in conscious patients in whom the grip of an ordinary pair of forceps sometimes causes pain, especially where the tissues are tough, as in the scalp. The length of the forceps, the breadth of the blades, and the width of the interval, can be adjusted to meet the wishes of the surgeon by the maker. The idea, Captain King says, may not be new, and is less his own than that of Dr. K. Bremer, of Cradock, South Africa, who firstly suggested the idea as the result of a conversation some years ago on the

disadvantages of the ordinary type of forceps for all occasions.

A Head Fluoroscope.

Dr. FRANCIS HERNAMAN-JOHNSON, Captain (temporary) R.A.M.C., Consulting Radiologist, Aldershot Command, writes: Some foreign bodies which require removal are either so small, so deeply placed, or so numerous as to make it necessary that the surgeon's instruments shall be guided by direct x-ray vision. Some years ago Wullyamo introduced a small screen in a wooden box, which could be strapped on the head. This could not be sterilized, did not admit of any change to ordinary vision, and was apt to cause eyestrain. I have now had in use for over six months a "head fluoroscope" having the following advantages:

1. The construction is of aluminium, and a detachable cover of this material is provided for the end containing the screen.

This is sterilized by boiling, and affixed to the fluoroscope after the latter has been bound on to the surgeon's head. It is thus quite safe for him to bend down until the lower surface of the cover is almost in contact with the wound, for if it touches the latter accidentally no harm is done.

2. As the apparatus is generally used where very small fragments are concerned, lenses magnifying three to four diameters are placed inside the instrument and to avoid eyestrain due to convergence, prisms with bases inwards are combined with them. There is also ample room for the surgeon to wear his own glasses should he need any.

3. The instrument is so constructed that the front lifts up as a kind of door. The field of ordinary vision thus obtained is quite extensive,

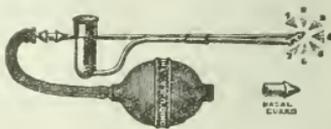
and enables the operator to change from x-ray direct vision at any moment he chooses, and as often as he chooses.

For use in conjunction with this device a set of forceps is provided having blades at right angles to the handles, and the vertical portions of graduated lengths, differing by steps of $\frac{1}{4}$ in. A pair is chosen of which the vertical portion is slightly longer than the depth at which the fragment is estimated to lie. The general position of the fragment must first be determined, and skin marks made in the usual way. The blades are placed vertically in the wound, when the handles will lie horizontally to the surface of the body, and almost touching it. The surgeon balances the forceps lightly with one hand, and brings down his head gently

until the aluminium cover of the fluoroscope clicks against the shafts. He now opens the blades until the shadow of the foreign body is seen between them. If the blades, when closed, do not now grasp the fragment, the error, provided the previous adjustment has been properly made, can only be a vertical one, and as the gripping portions are $\frac{3}{4}$ in. long, it is limited to insufficient depth. The blades are long ovals and are carefully smoothed, so that it is safe to burrow gently with them in the tissues. In most cases a little manipulation will secure the fragment; at the worst, it will be possible to seize tissue so close to it that it can be seen to move with the blades. If it be encapsuled, no forcible attempts should be made to withdraw it. It should be firmly held by an assistant while the surgeon severs the detaching tissues. This he does by ordinary vision. Should the forceps slip during this process, they must be readjusted. The diaphragm of the tube-box should be cut down until the size of the illuminated patch does not exceed $1\frac{1}{2}$ in. square. As the small screen within the head fluoroscope is protected by lead glass, the operator will run no risk, provided the diaphragm is made of sufficiently dense material. No protective gloves are needed; the handles of the forceps are purposely made long so as to be outside the field of action of the x-rays.

An Improved Spray.

Dr. J. A. KNOWLES RENSIAW (Manchester) writes that he has found the spray illustrated in the accompanying drawing to present the following merits: (1) It is composed of metal throughout, and is therefore readily sterilized and not easily broken. (2) A measured amount of the solution is placed in the receiver, which should be completely emptied on



each occasion that the spray is used, so that there is no waste—a great advantage introduced under similar drugs are used, as exact dosage is possible. (3) It sprays at a low pressure. (4) The swivel nozzle allows the spray to be directed in any direction. It has been supplied by Messrs. Mottershead of Manchester.

MEDICINAL AND DIETETIC PREPARATIONS.

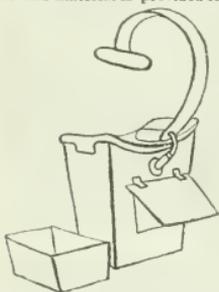
"Chymol."

WE have received from Messrs. Armour and Co., Limited (Atlantic House, Holborn Viaduct), a sample of a new food which is being introduced under the name "Chymol." It is stated to be prepared from red bone marrow, egg yolk, and other ingredients which supply the carbohydrates present, the fats being pancreatized and infants, and in cases of anaemia, indigestion, debility, consumption, diarrhoea, etc. Our analysis of the sample submitted showed it to contain:

Proteins (from the total nitrogen) ...	4.4 per cent.
Carbohydrates, calculated as maltose ...	44.5 "
Fat ...	17.0 "
Mineral matter ...	0.83 "

The fat was present in an emulsified state, while the ash contained an appreciable amount of iron, and evidence was obtained of the presence of haemoglobin. The preparation has the consistence of a fairly thin malt extract, and is very palatable.

THE Co-operative Association for Post-graduate Teaching of Medicine is the name of an organization recently formed for the purpose of making Philadelphia a leading centre in the United States of advanced research and study in medicine. Dr. David Reisman is chairman, and among the members of the executive committee are Drs. F. X. Dercum, W. L. Richmond, and George E. de Schweinitz. A central bureau, with a permanent secretary, is to be established. The preliminary work to be undertaken by the association is the tabulation of lecture courses and hours of laboratory, hospital and dispensary work, and obtaining the co-operation of all medical schools and hospitals in Philadelphia so that their educational advantages may be available for post-graduate students.



Head fluoroscope, showing open front, with door and detachable metal cover made by Messrs. W. Watson and Sons, 19, Great Portland Street, W. The special right-angled forceps are made by Messrs. S. Maw and Sons, Aldersgate Street.

British Medical Journal.

SATURDAY, DECEMBER 4TH, 1915.

NATIONAL ECONOMY IN FOOD.

PROFESSORS HOPKINS AND WOOD have published through the Cambridge University Press a valuable pamphlet on food economy in war time; it can be had for sixpence and may be used to save millions of pounds. They point out that "a generous consumption of protein secures that the maximum muscular power shall be always and quickly available. . . . During exposure to cold protein has again a special function because of its power to quicken combustion in the body. The Eskimo cats much fat as a source of body heat; but only when he has eaten, as he usually does, a large amount of protein also, can he perform such a feat as sleeping without cover in spite of the rigor of his climate. This he frequently does with impunity when well stuffed with seal flesh." The troops, then, in winter must have plenty of meat as well as other foods.

While 1 lb. of protein costs 5s. or 6s. in the form of beef, it costs only 5½d. when purchased in bread, 3d. in oatmeal, and 6d. in such vegetables as peas.

Sedentary workers, apart from the poorest, can make a substantial reduction in their food without injury to themselves, and many by so doing will only be bringing their consumption down to a normal and healthy level. An enormous amount of overfeeding goes on in this country, particularly now when the wages of munition workers are so high. Overeating adds to the work of doctors and makes the fortunes of the quack pill vendors. A "helping" at an eating-house or canteen is not graduated to the work done, but is the same for him who works strenuously in outdoor physical labour and him who occupies a clerk's stool in an overheated office. The daily energy output of the one may be double that of the other, but the clerk may think he has as good a claim to stuff himself as the labourer, and probably believes that he can feed himself strong—a great illusion. Intellectual activity makes very small demands upon food. The well-to-do not only generally overeat, but eat far more animal protein than they require. The need felt for exercise is "in part due to the fact that the food eaten is in excess of what, without the exercise, would cover the needs of the body." Motor-car rides are used to burn off the excess of food eaten and alcohol drunk; the physically indolent thus get the cooling effect of the moving air. Normal food consumption leaves, then, a good margin to draw upon in these times of economic need before the limits of safety are reached. The normal intake of 4 oz. of protein a day can be halved for many months without harm.

In dealing with the price and value of foodstuffs, Hopkins and Wood draw attention to the comparative dearth of prepared breakfast foods compared with oatmeal. The cheapest oatmeal gives more calories and proteins for 1½d. than some breakfast foods for 7½d. The purchaser pays for the advertisement, packing, and fortune of the maker of the latter. In

the case of rice, tapioca, oatmeal, cornflour, the cheapest samples in every case yield per rd. of expenditure more protein and energy than the dearer. The purchaser pays for appearance, whiteness, and other fanciful qualities. The grocer not often, by a trick of the trade, sells the very same article for more money to the well-to-do when asked for a better quality of goods. The well-to-do will pay 3d. for what is equally good at 1½d. A pound of protein taken in milk costs only half what it costs in beef. The protein in skim milk only costs 7d. a pound. The cow is a machine daily turning grass into animal protein, but the ox and sheep are fed up and then killed for eating. "Fresh fish, largely owing to cost of transport, is never a cheap source either of protein or fuel."

Comparing the expenditure of the poor with that of the well-to-do, Mr. Rowntree has shown that for a shilling the former fortunately gets nearly twice as much for their money in the matter both of protein and fuel value. The rich simply pay for rarity and the tickling of the palate.

To secure the required national economy the consumption of luxuries of every kind must be diminished. The energy of the workers must be directed to the making or getting of munitions, fuel, food, and clothing, and the manufacture of articles which can be exchanged with neutral countries for munitions, food, and the raw materials required for the manufacture of munitions and necessities. The consumption of luxuries in food, clothing, and many other articles, induces workers to carry on much uneconomical production. The expenditure of a sovereign roughly means the week's work of some one upon the getting of our luxuries. The producers must be diverted into the army or to factories, coal mines, farms, etc., where either necessities or the articles required for export and exchange are produced.

The general conclusion is that the wealthy classes, aided by the middle and lower classes, could effect a saving averaging 10 per cent. of the national expenditure upon food—a sum of at least £60,000,000. It is in food, the fluff of women's clothing, and personal articles of men's luxury, in which the nation can save, and with not the least hurt to health or happiness.

THE THERAPEUTIC VALUE OF QUININE AND ITS CONGENERS.

A most interesting and valuable clinical investigation of the relative therapeutic worths of five of the chief cinchona alkaloids, and of two laboratory derivatives of the group, has recently been published by Major A. C. MacGillchrist.¹ The alkaloids tested were quinine, which is laevo-rotatory, and its optical isomer quinidine or conquinine, which is dextro-rotatory; cinchonine and its optical isomer cinchonidine, both from the chemical point of view representing quinine without its methoxy group; quinoidine, or amorphous quinine, a tarry, treacly substance obtained from the mother-liquor of cinchona bark after the extraction of quinine and the other crystallizable alkaloids; hydroquinine, which is from the chemical point of view a reduced or hydrogenated quinine, and may be obtained either from cinchona bark or the laboratory; and ethylhydrocupreine or optoquin, a derivative of quinine introduced by Morgenroth and Levy four years ago, which has attracted a deal of attention on the Continent, and has recently been described in this JOURNAL.²

¹ *Food Economy in War Time*, by T. B. Wood, M.A., and F. G. Hopkins, M.A., F.R.S. Cambridge: The University Press, 1915. Demy 8vo, pp. 25. 6d. net.)

² *Indian Journal of Medical Research*, Calcutta, 1915, iii, 1.
³ See BRITISH MEDICAL JOURNAL, 1915, ii, 542.

In his previous work with these seven alkaloids Major MacGilchrist had shown that optoquin is the least toxic for guinea-pigs, quinoidine the most toxic, while quinine salts came about halfway between the two. On the other hand, as regards infusoria, optoquin was the most lethal, quinoidine the least, while quinine and quinoidine came low down on the list. In his trials of these alkaloids upon man the author treated the malarial inmates of two large gaols at Alipore. As a preliminary each patient received 4 grains of calomel. The different alkaloids were always given in solution and by the mouth, and a dose was administered every eight hours while the treatment lasted, so as to keep the amount of absorbed alkaloid as constant as possible. The dosage was always made proportionate to the weight of the patient. Every eight hours a blood film was prepared in the usual way, using Leishman's or Giemsa's stain, so that the time of the disappearance of the malarial parasites from the peripheral blood could be approximately estimated; a fall of febrile temperature cannot be trusted as a guide to this disappearance. A measure of the activity of each alkaloid was furnished by the period elapsing between the exhibition of the first dose and the disappearance of the asexual parasites from the peripheral blood. In all, 149 malarial patients were kept under observation for the purposes of these investigations.

In his first series Major MacGilchrist treated 72 patients with benign tertian, malignant tertian, or quartan malaria with one or other of four of the cinchona alkaloids—namely, quinine, quinoidine, cinchonine, and cinchonidine. The other three alkaloids were excluded because the larger doses required might have been dangerous. The dosage was at the rate of one gram to seventy kilograms of body weight, given every eight hours. These massive doses invariably caused the parasites to disappear from the peripheral blood after nine doses; in some instances one dose sufficed, in others all nine were requisite. To give an example of the results registered: in the case of benign tertian fever the average numbers of doses necessary were 4.7 for quinine, 5.0 for quinoidine, 5.5 for cinchonine, and 5.6 for cinchonidine. This amplitude of variation is naturally too small for a comparative test of the value of these alkaloids, and in addition it must be remembered that the results obtained appear to depend more upon the stage reached by the developmental cycle of the parasite at the moment when treatment is begun than upon any other condition.

In a second series of experiments the attempt was made to determine the minimal effective dose of quinine in the three varieties of malarial fever treated. The number of patients was fourteen; the number of doses was not limited to nine, and the treatment was continued while the patient remained in the gaol hospital. As in the previous series, the dosage was proportional to the weight of the patient's body. The second series cannot be regarded as complete or final in any way, but it enabled Major MacGilchrist to conclude, as a working result, that the minimum therapeutic dose of quinine at eight-hour intervals for a patient weighing seventy kilograms is 0.1 gram for benign tertian, 0.15 gram for malignant tertian, and 0.2 for quartan infections. These doses caused the parasites to disappear from the blood in a few days.

Armed with this knowledge, Major MacGilchrist proceeded to his third series of patients, sixty-one in number. The seven alkaloids were administered to them in the minimal doses given above for quinine, according to the variety of malarial infection present;

the medicine was continued as long as the patients remained in hospital. In this series, as in the last, the number of patients with each variety of malaria treated with each of the seven alkaloids is not large enough to justify any final and decisive conclusions. Yet many interesting facts emerge from their consideration. The large doses of the first series acted, as was to be expected, more quickly than the smaller doses of the third series, so that the number of doses given in the latter was larger (but not very much larger) than in the former. On the other hand, the total amount of alkaloid required to free the peripheral blood of asexual parasites in the small dose series was only a quarter to a sixth part of that requisite in the large dose series. Major MacGilchrist's paper contains a great deal of information interesting to parasitologists which must here be passed over; but he gives an interesting comparison of the relative therapeutic antimalarial values of the alkaloids he tested in a tabular statement of the average total amount of each drug, expressed in grams per 70 kilograms body weight, required to free the peripheral blood of asexual parasites in benign and malignant tertian infections combined: Hydroquinine hydrochloride 0.765 gram, cinchonine sulphate 0.915 gram, quinine sulphate 0.95 gram, quinoidine sulphate 1.12 gram, optoquin hydrochloride 1.22 gram, quinoidine 1.79 gram. These figures are calculated for the free alkaloids, not for their salts.

It is interesting to note that clinical experience with malaria thus agrees with the results of experiments *in vitro* with infusoria, so far as the natural cinchona alkaloids are concerned, but not in the case of optoquin. As for the occurrence of by-effects, summed up in the term "cinchonism," these were practically absent in the small dose series. In the large dose series, quinine, cinchonine, and quinoidine were the chief offenders. Apart from their obvious practical applications, it is clear that Major MacGilchrist's valuable results are bound to modify considerably the opinions expressed in the current manuals of therapeutics and pharmacology on the various cinchona alkaloids and their relative values in the treatment of malaria. Not a few of his conclusions support opinions previously expressed by Continental workers in this field.

MARRIED WOMEN'S WORK.

The Women's Industrial Council has been making an inquiry into married women's work, and has now issued a report, edited by Clementina Black.¹ It gives a temperate and graphic account of the lives of working women, and contains notes of the results of actual inquiries into many kinds of work at home, in the workshop or factory, and on the land. It is found that two classes of married women seek work—those who must earn because the family income is inadequate from lowness of the husband's wage, irregularity of work, or his failure in some way, such as sickness, idleness, drink, or desertion; and those who, although the family income is adequate for the supply of necessities, earn to get a few more comforts or luxuries.

With regard to infant mortality, it appears that it is probably less harmful for a woman to work close up to her confinement, if by this means she is able to get more and better food, than to stay at home

¹ *Married Women's Work; being the Report of an Inquiry undertaken by the Women's Industrial Council (unincorporated)*. Edited by C. Black. London: G. Bell and Sons, Ltd. (Cr. 8vo, pp. 292; 1 chart 2s. 6d. net.)

and go hungry. The inquiry does not confirm the generally accepted statement that married women should not go to work because the children are thereby neglected. It is in the dirty homes, whether the mother goes out to work or not, that the mortality amongst the children is frequently high, whereas in a poor but clean home the children seem to flourish. One thing that the report brings out is that a constant result of an inadequate family income is that the elder children are put out to work at the earliest possible moment, and that it is largely in this way that blind alley occupations are fed. Another is that it is the irregular earnings, due frequently to seasonal occupations, almost more than the small earnings, that are harmful to the family welfare, or as one woman puts it, "It is difficult to lay out what you are not sure of getting."

The experience of a certain number of cases brings out the significant point that the domestic work of a hard-working woman in her own home is of the value of 1s. a day, so that unless she earns more than 7s. a week she is probably out of pocket, though she does not recognize the fact; but the poorer the woman and the more unskilled she is the less can she earn, though the amount of labour expended is greater, and this class of woman worker is physically much overtaxed, as she often stays up late at night to keep her house clean and to make and mend for her children. "No driving foreman, no greedy employer, can so spur the efforts of a mother as her maternal affection spurs such a woman. A day's illness is an indulgence she dare not afford herself, while the premature collapse of a child's boots is a disaster that disturbs all her calculations." Among women earners there is a large proportion of intelligent and efficient workers who have good homes whatever their circumstances. It is from amongst the large class of married women whose income is inadequate and yet who do not earn that the gossipers at doorways and the frequenters of public-houses are recruited, and this is explained by the woman being so poor that her furniture and appliances are reduced to a minimum, and she has not enough household work to occupy her time, while the fact of her poverty denies her most of the means by which the better off harmlessly beguile their idle hours.

The contrast between the women of Knowledge, West Worcestershire, who work outdoors, and the women of Wiltshire, who work indoors at glove stitching, is interesting. The former, though working hard all day in the fields, are described as full of vigorous health and spirits, equally ready for work and play, while the latter are depressed and burdened with a variety of small ailments. A number of domestic budgets are given, which must be taken as proof that the food provided is in most cases quite inadequate for the family.

The report is well worthy careful study by the general public as well as by employers of labour. Although it would not be safe to draw definite conclusions from it, yet it is on the lines of such an inquiry as this that wider investigations should be carried out.

GRANDE COLÈRE D'AUGUST MARTIN.

We regret to find, under the heading "Internationale Gynäkologen," in the November number of the *Monatsschrift für Geburtshülfe und Gynäkologie*, an article by Professor August Martin, almost as virulent as the deliverances of Père Duchesne in his "Grande Colère." He begins by asserting that in August, 1914, when war blazed

out in Europe, he, as did most of his countrymen, hoped that scientific and personal relations with foreign colleagues would be maintained. *Das war ein eitler Wahn!*—That was a vain delusion! He is not, he says, surprised that Treub of Amsterdam is incensed against Germany, for Treub, he knows, has ever nourished a temperamental prejudice against *Deutschthum*. Recent events, though Professor Martin does not say so, may not only have confirmed this opinion, but even strengthened it. Martiu complains that Treub displays in his clinic a set of models of malformed fetal heads, labelled "The Prussian in 1815, 1870, 1914, 1915, and 1920," the last being an anencephalus! Professor Martin says that the ill-will displayed in this series was not unexpected; but he cannot understand—though to most of us the problem presents little difficulty—why Professor Jacobs of Brussels is angry with Germany. Jacobs, Martin complains, began from the first to write about German atrocities in Belgium, although a man who knows so much of Germany should never, says Martin, have believed that Germans could do such things, and he asks if the charges are not the monstrous figments of an overheated fancy. Why, Martin asks, should Dr. Jacobs, who formed so many friendships with Tontons in sundry international congresses, believe all these misrepresentations "which the highest ecclesiastical authority of Belgium, even the Holy Father himself, admits do not correspond to the truth? Yet Jacobs supports these unsubstantiated lies! On them are based all the otherwise incomprehensible agitations against *Kultur!*" Then follows the sneer that these lies are hawked about all over the world, especially among those unhappy Belgian doctors who preferred to desert their fatherland instead of remaining at their posts in its hour of need and continuing to perform their professional duties! (Die unglücklichen belgischen Aerzte . . . welche es verzegeben haben, ihr Vaterland zu verlassen, statt in Nothlage auf dem Postem zu bleiben und ihren ärztlichen Pflichten nachzukommen), National prejudice alone can explain so gross a misrepresentation of facts by a man of acknowledged professional standing. Professor Jacobs, for the reason he indicates in the letter published at p. 841, thinks it advisable not to make any detailed reply, but how these Belgian doctors were treated, and why they fled, has been related more than once in the JOURNAL. The ruined and battered houses may be excused as unavoidable results of bombardment justifiable on the ground of military necessity; but the instruments collected by the Belgian Doctors' and Pharmacists' Fund, and classified and put into order by the Master of the Apothecaries' Hall, remind us how the members of the medical profession in Belgium suffered from the confiscation of their instruments, Professor Jacobs being treated, we understand, with special harshness. Professor Martin next turns to Professor Pinard, and quotes the French obstetrician's address to the Paris Obstetrical and Gynaecological Society in November, 1914, in the original language. Pinard found fault with the Kaiser, and exclaimed, "*Honte à jamais aux barbares scientifiques!*" (Shame for ever to the scientific barbarians! we must echo back in the vulgar tongue.) After a diatribe on Pinard, Martin turns to the "Easter neighbour," Professor Stroganof, in whom, he politely observes, we see a reflexion of Pinard's delusions. Bossi, and, lastly, Romolo Sanguinati are rated, the former for his rapid dilator—a gross plagiarism, of course, from the Germans—and Sanguinati for his advocacy, in the *Annales de Gynécologie*, of Latin as distinguished from German culture in Italy. To paraphrase Pope's famous lines on Addison, while we must feel inclined to laugh if there be such a German doctor as would pen an abusive article of this kind, we sorrowfully ask who would not weep if August Martin were he—a distinguished man who in peace time was hospitable to foreigners, and was admitted to be reasonable with opponents in debate.

THE PUBLIC AND THE PROFESSION.

At a recent meeting of the Worcester Division of the British Medical Association a resolution was adopted making an appeal to the public to show special consideration to the medical profession at the present time. The words of the resolution were: "In view of the increased work thrown on the remaining doctors, through the absence of so many of their number on active service, it is earnestly desired that all messages should be sent as early in the day as possible." The Scottish Medical Service Emergency Committee last March made a like request to the public. It pointed out that it would materially help to relieve the great strain now imposed upon the medical practitioners remaining at their posts throughout the country if patients and their friends made a point of sending messages as early as possible in the morning, so that the doctor might arrange his daily round in the way most economical of time. In many parts of Scotland this practice had already been partially adopted. This appeal also pointed out that where the case was not urgent, and a visit on the next day would suffice, this fact should always be stated in the message. A similar appeal was made by the Newcastle-on-Tyne Division of the British Medical Association about the same time. It pointed out the need for the active co-operation of the civilian population if medical work was to be properly accomplished. It asked that calls upon medical men at untimely hours should be restricted as far as possible, and reminded the public that requests for visits after a doctor has left his surgery in the morning take often four times as long to accomplish as when communicated before 10 o'clock. If these simple requests were sympathetically noted and acted upon by the public the pressure on the profession would be materially relieved, and the public would benefit, for, as the Newcastle appeal pointed out, "No doctor can do his best work when unduly fatigued. For this latter reason requests for evening or night visits should only be made when the case is one of extreme urgency, and Sunday visits naturally fall into the same category." In this connexion we may refer to another matter upon which the co-operation of the public is requested, as was explained in a letter issued to the press by the Central Medical War Committee about a couple of months ago. This letter, while clearly stating that the right of every person to consult any doctor he chose was fully recognized, appealed to British citizens not to give up their usual medical attendant on account of his temporary absence on military duty, and to insured persons not to apply for transfer. Those who have entered the military medical services of the Crown not only risk death and injury but also the loss of their means of livelihood on their return. The letter, which was signed by, among others, Sir William Osler, Sir Clifford Allbutt, Sir Alexander Ogston (President of the British Medical Association), the President of the Royal College of Physicians of London, and Sir Rickman Godlee (ex-President of the Royal College of Surgeons of England), stated that in all cases it should be regarded by members of the public as an obligation and patriotic duty to safeguard in every possible manner the interest of the doctors who volunteer for active service, and expressed the hope that patients would inform the practitioner they may consult that their own doctor was absent on military service and that they intended to place themselves again under his care whenever the need arose on his return.

FACTORY LIGHTING.

Nearly three years ago the Home Office appointed a committee to inquire into the conditions necessary for the adequate and suitable lighting, both natural and artificial, of factories and workshops. The committee, of which Dr. R. T. Glazebrook, Director of the National Physical Laboratory, is chairman, has lately issued its first report; there is still another volume to come, which will contain a detailed account of the lighting conditions in the various

factories visited. The report is a noteworthy piece of work, and is relevant to the circumstances of the day, in view of the large number of factories which are working overtime on Government orders. It is recognized, in the first place, that good illumination is necessary for the safety of the worker (which is obvious), also for his general health, and for the efficiency of his work. The relation of lighting to health is a part of the subject which calls for a great deal of further study, and even closer co-operation between the physiologist and the illuminating engineer. As to the effect of lighting upon output and efficiency, there seems to be abundant evidence that where the lighting conditions have been improved there has been a gain both in respect to the quantity and quality of the work done. The committee recommends that there should be statutory power to demand adequate and suitable lighting, and although the problem is so complex that it might seem impossible to formulate a scale of values, the report prescribes a minimum illumination in factory interiors of 0.25 foot-candles. This is not to be the average value, but the legal minimum; and, of course, the special lighting required for particular and localized tasks will, in almost all cases, provide those higher minimum values which are desirable. The avoidance of excessive contrast is met partly by this requirement with regard to general illumination and partly by the requirement that there shall be reasonable constancy over the working area. Outdoor lighting entails a different set of conditions. In large open spaces, docks, etc., the suggested value is 0.05 foot-candles, which, according to a paper read recently before the Illuminating Engineering Society, is about equal to the illumination in St. James's Square in the pre-war days, but at certain working places and points of danger special measures would have to be taken.

NOTIFICATION OF MEASLES AND GERMAN
MEASLES.

The Local Government Board has issued an Order, dated November 27th, making the notification of measles and German measles compulsory in England and Wales. The duty is imposed both upon medical practitioners and on parents or guardians or other persons in charge of the patient, but a medical practitioner is not required to notify if a previous case of the same disease has been notified in the same household or institution during the preceding two months. On receipt of the notification the medical officer of health is required himself, or by an officer acting under his instructions, to make inquiries and take steps for investigating the source of infection, for preventing its spread, and for removing conditions favourable to it. The Order also enables local authorities to provide medical assistance, including nursing, for the poor inhabitants in their districts when suffering from these diseases. The Central Council for District Nursing in London has a scheme (as was noted in the *JOURNAL* of July 24th, p. 156) for supplying nurses to cases of measles, among other diseases, and the Local Government Board hopes that in other areas it will be found possible to arrange for nursing, either by engaging temporarily whole-time nurses or by contracting with county or other nursing associations; but it is realized that in many districts it may be difficult to provide such assistance, and that the local authorities may be reluctant to embark on new expenditure. It is thought, however, that much good may be done if parents can be brought to realize that measles is not a trifling ailment, and are advised as to the care which should be exercised and the precautions which they can take. To this end it is suggested that leaflets should be issued and the services of voluntary helpers enlisted to supplement the work of official visitors. The Board's medical officer has prepared a memorandum on measles,¹ and appended to this is a specimen leaflet. The memorandum sets out steps which local authorities should

¹ To be obtained through any bookseller. Price 1d.

ordinarily take under the Order. It is admitted that the fact that the disease is infectious before it can be diagnosed reduces the possibility of preventing its spread from the first case to other susceptible members of a household, but it is believed that through early notification of recognized cases the medical officer of health will be able to take action to prevent the spread of the disease and to secure improved care of patients, thus reducing the proportion of fatal cases and of disabling complications. One means which will be at his disposal will be the power to give information of cases to school teachers. Each case notified should be regarded as a means of discovering other cases, for it is recognized that cases not seen by a doctor constitute a chief risk of the spread of the infection and of a fatal result in the individual patient. Again, it is recognized that as a large proportion of the fatal cases of measles occur in infancy, removal to hospital is difficult, while the explosive character of epidemics makes it unlikely that the majority of cases can be treated in hospitals. It is thought, however, that all sanitary authorities should make some provision for the hospital treatment of a certain number of cases. It will be remembered that the Board issued a circular on March 31st last, requesting sanitary authorities to take into consideration the question of making measles and German measles notifiable. The average number of deaths occurring annually during recent years in England and Wales from measles was 11,000, the great majority being in children under 5 years of age, but during the first half of the present year the number of deaths was 12,414, and representations have been made to the Local Government Board by the Army Council to the effect that measles has caused a large amount of disablement among the troops in this country, and that accurate information of the presence of the disease among the civil population would be valuable to the military authorities. The Order comes into force on January 1st, 1916.

BACILLUS COLI IN LIGHT BEERS.

Cases of gastro-intestinal disturbance having occurred among the French troops of the north-western line, apparently as the result of drinking the light beers of local production, one of the bacteriological laboratories of the French army was instructed to make an examination of the bacterial flora of the suspected beers. The result of these investigations has been to show that in many cases these beers contain notable quantities of *Bacillus coli communis*. This microbe was found in a third of the Dunkirk brews tested, and in as many as three-quarters of the beers made in the villages and small towns of the neighbouring flat countryside. Over two hundred samples were examined, half of them being collected in the breweries themselves; the conclusion reached is that the beer becomes infected either by the use of contaminated water for cleaning purposes in the breweries, or by the employment of contaminated stocks of top yeast for fermenting the wort. It was noted that the use of an impure yeast did not necessarily result in the production of a beer containing *B. coli*; that microbe was regularly destroyed in three or four days if the yeast was otherwise of good quality and strong growth, and not contaminated with the bacteria of acid fermentation as well as with *B. coli*. Indeed, the light beers of good quality were found to be actively bactericidal to this microbe, when it was intentionally introduced either into the fermenting vat or into the finished product. It is remarked that the water supply of the district is almost entirely drawn from shallow wells, with the exception that Dunkirk is supplied by an excellent spring. The local brewers have to contend with many difficulties, as it is very difficult for them to obtain good malt, and it is impossible for them to secure fresh strains of yeast periodically from Lille, as was their custom before the war. In addition the local demand for light beer is so

great that the temptation to increase production by cutting short the time given to the fermentation of the wort and cleansing operations has apparently proved too strong for the small brewers. Hence the military authority has found it necessary to forbid the sale of the infected beers.

EPSOM ROYAL MEDICAL FOUNDATION.

The Royal Medical Foundation attached to Epsom College has done such good work in helping members of the profession who, owing to misfortune of one kind or another, have fallen by the way in the race of life, or dependants whom they have left in need, that we are sure our readers will be sorry to learn that there is a grave risk of its usefulness being crippled by lack of funds. The numerous urgent demands on doctors made by the war have caused the withdrawal of very many subscriptions; so great has been the loss of income from this source that extreme anxiety is felt by the council lest it should be found impossible to maintain the existing numbers of pensioners and foundation scholars. The situation is made the more serious by the fact that the number of applications for these benefits will, in all probability, increase as the financial pressure of the war becomes greater. Particulars as to the pensions to aged medical men in reduced circumstances or their widows, as to the scholarships given by the Foundation, and as to the educational advantages offered by Epsom College will be found at p. 55 of our advertisement columns. It is earnestly to be hoped that the appeal made by the Honorary Treasurer, Sir Henry Morris, in a letter published at p. 840, will meet with a generous response. The Epsom Royal Foundation is an institution of which the doctors of this country have every reason to be proud. Created by John Probert, a man who was in every way an ornament of the profession to which he belonged, it has during the sixty years of its existence continued to extend its sphere of usefulness till now the College ranks among the most successful of our public schools, while the Foundation has solidly established itself as a harbour of refuge for many who would without its help have been submerged. It would be deplorable if a foundation so excellent in its aims and so efficient in pursuing them were allowed to suffer any diminution in its means of carrying on its work at a time when the need of it is most acutely felt.

THE LEEUWENHOEK GOLD MEDAL.

The Leeuwenhoek gold medal of the Royal Academy of Sciences, Amsterdam, has been awarded to Surgeon-General Sir David Bruce. It is awarded every ten years in recognition of the most remarkable observations made during the decade on the microscopical organisms first discovered by Leeuwenhoek in 1675. The award sets out that it was the discovery of the *Micrococcus melitensis*, the cause of Malta or Mediterranean fever, which first made Bruce's name generally known. The agar plate culture of this microbe from the spleen of a soldier who had died from the disease afforded a sure foundation for the diagnosis of this widespread malady, which occurs throughout the whole of the south of Europe as well as in the subtropical parts of America, Asia, and Africa. His researches led many others to follow similar lines of inquiry, with the result that the history of the disease is now well known, and a new method of treating it provided by the serums produced with Bruce's micrococcus. It was, however, the award proceeds, the very important discovery of the cause of African cattle, or tsetse fly disease, known as Nagana, which made Bruce's name so well known. The life-history of the blood parasite, *Trypanosoma brucei*, was elucidated by him; he proved that the tsetse fly, *Glossina morsitans*, is the transporter of the disease, and his observations indicated the ways

L. Bousquet, M. Hiruté, L. Darat, A. Pierre Marie. *Bull. Acad. de Méd.*, Paris, 1915, xlv, 460.

in which effective steps could be taken against the disease. Afterwards he made careful and extensive researches, with the help of a staff of assistants, into other tropical African diseases caused by trypanosomes, especially into sleeping or Congo sickness caused by the *Trypanosoma gambiense* and transported chiefly by the fly *Glossina palpalis*. Here again his untiring patience and keen observation paved the way for practical results. He is still active in the study of these microscopical parasites, and the award concludes, "It may justly be said that he has worked for the benefit of mankind." The medal will be presented at the meeting of the Academy of Sciences in Amsterdam on Saturday, December 18th.

THE Croonian Lecture for 1915 will be delivered before the Royal Society on Thursday next at 4.30 p.m. by Dr. W. M. Fletcher, F.R.S., and Professor F. G. Hopkins, F.R.S., on "The Respiratory Process in Muscle, and the Nature of Muscular Motion."

WE regret to record the death, at the age of 58, of Dr. F. T. Houston, senior surgeon to the Adelaide Hospital, Dublin. We hope to publish an obituary notice in an early issue.

Medical Notes in Parliament.

War.

Army Medical Services (Advisory Board).—On November 25th Mr. Shirley Benn followed up his question of November 22nd (JOURNAL, November 27th, p. 789) by another, in which he inquired why no meetings of the Army Medical Advisory Board had been held during 1915; by whose authority the paid members had been constantly consulted; and whether a unanimous written opinion of any six out of the clerical members had been obtained during the present year on any question of policy. Mr. Tennant said that he thought it would be agreed that it was desirable to modify administrative machinery created in peace to meet the requirements of war, and it was for this reason that it had been found preferable to use the services of the Board in the manner he had described on November 22nd rather than in the normal and more formal manner. The Director-General A.M.S. was responsible for such consultations. He was not aware that there had been any want of unanimity among the members, save that which was usual and a healthy symptom in mobile minds. He did not think that a board of members of which were always in agreement would command great confidence. In reply to further questions, he said that the duties performed by the Board had been absolutely invaluable, and the medical service which had been so good and so much admired could not have been performed without its help. It was the deliberate policy of the War Office not to hold formal meetings, for no particular purpose; conferences were very useful and absolutely essential, and were constantly being held. In reply to Sir H. Craik, he said that medical advice was more effective if given by the medical members in conference and not collectively by the Board.

Invalided Soldiers.—Sir C. Kinloch Cooke on November 25th asked a question with regard to the food provided on board ship for officers and men invalided home from the Dardanelles with dysentery and enteric. Mr. Tennant said that he was awaiting further information, but could state that hospital ships were supplied with regular hospital diet and medical comforts. Transports were not intended to carry serious cases, but were provided with hospital comforts. At first the supply of such comforts had run short on the transports, but that danger had now been averted.

Cambridge Hospital.—In reply to Mr. Cathcart Wason, on November 25th, Mr. Tennant said that he had received a representation concerning the management of the 1st Eastern General Hospital, Cambridge, and that it had been referred for inquiry and report.

Medical Students.—On November 30th Mr. Snowden asked whether medical students approaching the end of

their third year's course could be exempted from pressure to enlist, and whether first and second year students who desired to continue their training would be allowed to do so. Mr. Tennant replied by reading the communication to the press which was quoted last week (p. 785), and added that he could not undertake that first and second year students should be exempted any more than he could cancel the decision that candidates for holy orders should be regarded as eligible to be canvassed and enlisted or to receive commissions.

Steel Helmets.—In reply to Sir George Scott Robertson, Mr. Tennant said that the supply of steel helmets to the troops in large quantities was being continued in accordance with the recommendations of the Commander-in-Chief, all of whose demands had, he believed, been carried out.

Munition Workers: Effect of Long Hours.—In reply to Sir Courtenay Warner, who asked a question on November 25th as to the effect of the continued prevalence of Sunday labour and as to its tendency to lessen the physical efficiency of munition workers, the Parliamentary Secretary to the Ministry of Munitions (Dr. Addison) said that the whole question of the effect of long hours upon the health of workers and upon production of munitions of war had been engaging close attention, and a committee under the chairmanship of Sir George Newman, M.D., had been appointed to advise on it. This committee had presented an interim report on the question of Sunday labour and it was hoped shortly to lay this report before the House and to state the recommendations of the Ministry. In reply to Mr. Peto he added that steps were being taken to enable workmen engaged at Woolwich on day and night shifts to get an adequate supply of food and temperance drinks in the middle of their working hours. In reply to a further question on November 30th, Dr. Addison said that, in order to encourage the provision of canteens in controlled establishments, the Minister of Munitions was prepared to give full consideration to capital expenditure incurred, with the previous approval of the Control Board, in assessing current profits under the Munitions of War Act. A memorandum on the subject of industrial canteens had been prepared by the Health of Munition Workers Committee, and would be issued with a covering letter, urging the importance of sufficient accommodation being provided.

Supply of Drugs.—On November 24th Mr. Peto, in a question as to the scarcity and high price of aspirin, salicylates, and all coal-tar products, such as phenacetin and antipyrin, and all drugs requiring spirit in their manufacture, asked whether, among steps that might be taken to secure an adequate supply, it was proposed to permit the use of spirit free of duty in their manufacture. Mr. McKenna said that it was not possible within the limits of a parliamentary reply to give any adequate statement of the steps that had been and were being taken. He understood that the position as regards available supplies was, on the whole, improving, and that there was no reason to anticipate any serious shortage in the future. It was not practicable to allow the use of duty-free spirit in the manufacture of drugs generally, but it would be allowed, so far as it was practicable, on certain terms.

Midwives (Scotland) Bill.

As was said by Mr. Barnes, M.P., in the House of Commons last week, a Midwives (Scotland) Bill is overdue. It is thirteen years since the Midwives Act for England and Wales was passed, and although that measure was not perfect, and notwithstanding several difficulties in its working which arose soon after it came into operation, and which cannot yet be said to have been fully removed, it has done much to improve the training of midwives and has given powers of supervision which have had a beneficial effect in regulating the practice of the women who, in the words of the Act, "habitually and for gain attend women in childbirth." In the weeks which immediately preceded the outbreak of war in the summer of 1914 two Midwives Bills for Scotland were before Parliament, one introduced by Lord Balfour of Burleigh into the House of Lords, and the other, under the care of Mr. Barnes, Mr. Ainsworth, Dr. Chapple, and others, in the Commons.

Both these bills omitted the phrase "habitually and for gain," and many authorities regarded this omission as a distinct improvement. During last winter an agitation for a Midwives Act for Scotland began in the north and excited sympathy in the south also, for the nation was beginning to realize the value of infant life with a clearness hardly before attained, the shepherding of the expectant mothers was being accepted as an imperial duty, and the dilliculty of procuring medical men to carry on obstetric work in sparsely populated parts of the country was being more acutely felt with so many of the profession absent on war service. An influential signed memorial was presented to the Secretary for Scotland in August (see JOURNAL of August 28th, 1915, p. 344). At conferences on the maternity benefit under the Insurance Act and at meetings of sanitary associations (see JOURNAL for August 7th, SUPPLEMENT, p. 82, and for September 11th, p. 420), resolutions were passed calling for legislation even in war time, and some weeks later an assurance was given in Parliament that a bill would be shortly introduced. No doubt other influences, and not least Dr. Newsholme's able report on maternal mortality in connexion with childbearing, have been helpful in bringing the pressing need for a Midwives Act for Scotland before the attention of the Legislature.

The measure, which is entitled a bill to secure the better training of midwives in Scotland and to regulate their practice, was presented by Mr. McKinnon Wood and supported by the Lord Advocate, and read a second time on November 25th, with variations to suit special conditions in Scotland. It follows the wording of the English Act somewhat closely; even the phrase "habitually and for gain" is retained, and it does not seem necessary, therefore, to look at the bill clause by clause. But certain salient features may be mentioned. With regard, in the first place, to certification, it is to be enacted that from and after January 1st, 1917—

any woman who, not being certified under this Act, shall take or use the name or title of midwife (either alone or in combination with any other word or words), or any name, title, addition or description, implying that she is certified under this Act, or is a person specially qualified to practise midwifery, or is recognized by law as a midwife, shall be liable on summary conviction to a fine not exceeding five pounds.

Further, that from January 1st, 1920—

no woman shall habitually and for gain attend women in childbirth otherwise than under the direction of a registered medical practitioner unless she be certified under this Act; any woman so acting without being certified under this Act shall be liable on summary conviction to a fine not exceeding ten pounds, providing this section shall not apply to registered medical practitioners or to any one rendering assistance in a case of emergency.

Other paragraphs deal, as in the English Act, with the fulfilment of various conditions prior to certification, with the non-employment of uncertified persons as substitutes, and with the rights and titles under the Medical Acts which this midwives' certification does not confer. Provision, however, is here made for the granting of certain certificates rendered necessary in connexion with maternity benefit under the Insurance Acts. The second clause makes provision for existing midwives in the following terms:

Any woman who, within two years from the date of this Act coming into operation, claims to be certified under this Act, shall be so certified, provided she holds a certificate in midwifery from the Royal Maternity Hospital of Edinburgh, the Royal Maternity Hospital, Glasgow, the Maternity Hospital, Aberdeen, the Maternity Hospital, Dundee, the Obstetrical Society of London, the Royal College of Physicians of Ireland, the Coombe Lying-in Hospital, and Guinness's Dispensary, the Rotunda Hospital for the Relief of Poor Lying-in Women of Dublin, the National Maternity Hospital, Dublin, the Central Midwives Board for England, or such other certificate as may be appointed by the Central Midwives Board for Scotland; and produces evidence satisfactory to the last-mentioned Board, that at the passing of this Act she had been for at least one year in bona fide practice as a midwife, and that she bears a good character.

The period of two years may be extended by the Central Midwives Board for Scotland in special cases where any woman is able to satisfy them that she had reasonable excuse for having failed to make her claim within the prescribed time.

A Central Midwives Board for Scotland is provided under Clause 3, to consist of:

1. Three persons to be appointed by the Lord President of the Council, two of whom shall be certified midwives practising in

Scotland, and shall be first appointed when, in the opinion of the said Lord President, midwives so qualified are available in number sufficient to warrant such appointment;

2. Four persons to be appointed, one by the Association of the County Councils for Scotland, one by the Convention of the Royal Burghs of Scotland, one by the Queen Victoria Jubilee Institute for Nurses (Scottish Branch), and one by the Society of Medical Officers of Health for Scotland;

3. Five registered medical practitioners to be appointed, one by the University Courts of the Universities of Edinburgh and St. Andrews conjointly, one by the University Courts of the Universities of Glasgow and Aberdeen conjointly, one by the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow conjointly, and two by the Scottish Committee of the British Medical Association.

All the members of the Board are to retire from office on February 1st, 1921, and on the same date in every fifth year thereafter; but they shall be eligible for reappointment.

The meetings of the Board are to be held in Edinburgh, and the members are to be paid reasonable expenses for their attendances.

Further clauses deal with future revision of the constitution of the Central Midwives Board, with its duties and powers, with provisions as to suspensions, with expenses of midwives and offences by them, with the midwives' roll, with local supervision of midwives, power of entry, notification of practice, penalties, medical assistance in cases of emergency, etc. All these are along the lines of the English Act of 1902.

It is believed that the passing of this bill will be welcomed by the medical profession in Scotland, and in the Highlands and Islands its beneficent effects will soon be evident, whilst in the cities and lowlands it will give a means of bringing under supervision the unqualified or incompletely trained women who are at present attending the poor in their confinements.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE WEEK'S SUBSCRIPTIONS.

The following additional subscriptions have been received:

£ s. d.		£ s. d.	
B.M.A. New South Wales Branch (L29), Queensland Branch (478), Tasmania Branch (437) (per Dr. W. H. Casco, Hon. Treasr.)	250 0 0	Dr. Lloyd Owen	10 0 0
Dr. Chas. J. Hill Aitken	1 1 0	Dr. Pierce Jones	10 0 0
Dr. Greenwood (per Dr. Bars)	2 2 0	Dr. Vaughan Roberts	10 0 0
Mr. J. W. Thompson	0 15 0	Dr. Green	10 0 0
B.M.A., South Carolina and Merioneth Division (per Dr. E. Lewys-Lloyd)	10 0 0	Dr. J. R. Jones	10 0 0
Dr. Rowlands	0 10 0	Dr. Richard Jones	10 0 0
		Dr. Harry Griffith	10 0 0
		Dr. E. Lewys-Lloyd	10 0 0
		Dr. R. Evans	10 0 0
		Dr. F. T. Jones	10 0 0
		Dr. J. O. Williams	10 0 0
		Dr. J. Myles	10 0 0
		Dr. Hugh Jones	10 0 0
		Dr. Evan Williams	10 0 0

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

DURING a discussion at the Philadelphia Obstetrical Society (*Lancet, Journ. Obstet.*, October, 1915, pp. 624 and 687), after Dr. Buschmann had read a communication on unilateral impairment of the kidney in the toxæmia of pregnancy, the question whether gestation should be interrupted when this complication occurred was raised. It was pointed out that certain methods employed for diagnosis, such as the phenolsulphophthalein test, were not always reliable, even when conducted by experts, and were out of the question when the patient was far from laboratories. Dr. George V. Janvier said that pericæpial clæpsia and renal complications were far graver matters in country than in hospital practice. He had had to do with a large number of Italian emigrant women, and had been struck with the frequency of pathological conditions of the kidney among them during gestation. He showed good reasons for ascribing them to the peculiarly toxic food which they consumed. They kept to their native diet, and during winter had practically no fresh vegetables, such as greens and fruits. They made in autumn a pasty heavy tomato sauce which they used as a relish with their food all through the winter. The food itself was a "horrible fresh, heavy, Italian bread," Bologna sausage, and the savoury but more than suspicious Frankfort sausage, all germ-laden dried meat. The remedy was that such patients should consume milk freely during the last three or four months and eat plenty of green vegetables.

THE WAR.

THE POSITION OF CASUALTY CLEARING STATIONS.

Is the general scheme of evacuation of wounded from a firing line it is provided that they shall be brought in from the regimental dressing stations to the field ambulances by ambulance cars, as a rule motor driven, and from the field ambulance head quarters dispatched in the same way to casualty clearing hospitals.

Owing to the special conditions of the military operations in Northern France—conditions which, it should be remembered, may not recur in the future—the tendency appears to have been to diminish what may be called the hospital side of these units and to make them, more than ever before, places from which wounded are cleared as rapidly as possible to the base. It is for this reason apparently that their name has been changed to Casualty Clearing Stations, although they still retain some of the functions of a hospital, since they may be in the position, if necessary, to retain from 20 to 30 per cent. of the patients brought to them. The remaining 70 or 80 per cent. are usually got away within twenty-four hours by an ambulance train. Nearly a year ago, indeed, Sir Anthony Bowlby, in a paper on the work of the clearing hospitals in France during the preceding six weeks, after pointing out that a clearing hospital is in its conception essentially a mobile unit, consisting really only of a staff with a sufficient amount of surgical and medical equipment for emergencies, said that it was intended in future to call it a "casualty clearing station."

On July 3rd we published an interesting note from our correspondent in Northern France, in which he said that as the army grew in size so had the number of clearing stations increased. They were, he said, never far from the real front. Although at that moment two or three had been left by the rising tide a dozen miles or so from the trenches, others were so close that even in what the army calls "peace time" their occupants could fairly well gauge what was going on merely by the sounds that reached their ears, while others were at intermediate distances. The motor ambulance convoys from the various head quarters of the field ambulances serving the divisions occupying the section of the line nearest the village where the clearing hospital is established usually arrive in the morning bringing in the whole of the wounded gathered between daylight that morning and daylight twenty-four hours previously. Though the convoys usually arrive in the morning there is no absolute regularity, for an ambulance car may at any time go down with a few wounded, who could be collected quickly, and sometimes it is possible to send on in the afternoon men who at daybreak seemed too ill to be moved.

There has recently been some discussion of the position occupied by the casualty clearing stations, and it has been suggested that an economy of personnel might be effected if these stations were pushed up nearer the firing line, so that they might more generally and rapidly relieve the field ambulance stations. As economy of personnel is a matter of great importance, we took the opportunity of consulting a medical officer serving in France, who has replied in the following letter. He begins by expressing his general dissent from the view that the casualty clearing stations could be moved nearer the firing line, for the reason that it "lacks perspective." He continues as follows:

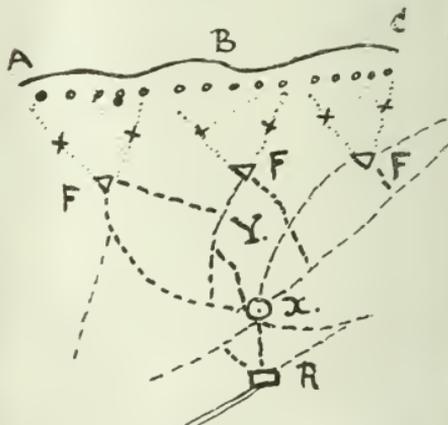
Casualty clearing stations are neither regular hospitals on the one hand nor first aid posts on the other.

Their essential function is to take over the sick and wounded from the field ambulances serving various

portions of a battle line and to treat them until circumstances, including the condition of the patients, permit of their being sent down the line of communications to a stationary or general hospital. They are thus the nodal points in the whole system by which an attempt is made to undo the human damage caused by the enemy's weapons; and that fact must also be borne in mind when questions of their position are raised.

Even on paper that position cannot be varied entirely at will. It must always bear a certain relation on the one hand to a railroad, and on the other to the points—the regimental aid posts (a)—at which the sick and wounded from the portion of the battle line served by the casualty clearing station in question are first collected. With the regimental aid posts the casualty clearing station is connected by the field ambulances, and the relative positions of all three are, speaking in a general way, such as are shown in the diagram.

The field ambulances served by the casualty clearing station each work in co-operation, say, with five regimental or battalion aid posts, and form with them a species of triangle. The apex of each such triangle points in the direction of the casualty clearing station, and consists, say, of the field ambulance head quarters or principal tent section, while its base is in touch with the battalions in action, and is formed by their aid posts; the sides are marked by the advanced dressing stations and bearer sections.



A, B, C, Portion of a battle line. o o o, Aid posts of battalions in action. x x x, Advanced dressing stations. F F F, Field ambulance tent or head quarter sections. X, Casualty clearing station. R, Railroad. ---, Line of communication with base. Paths available for bearer parties. ---, Roads.

The three small triangles themselves form the base line of a larger triangle whose apex is represented by the casualty clearing station. Doubtless on paper this apex could be compressed and its position altered so as to push the casualty clearing station very close indeed to the sub-triangles and to the battalions in action which form their real base, but it does not follow even on paper that the ability of a casualty clearing station to fulfil its functions will have been increased thereby. The closer it is placed to one portion of the fighting line the further it may be from the rest.

In fact unless the portion of a fighting line that a casualty clearing station serves happens to be a segment of a true circle, and the casualty clearing station is at the centre thereof, some of the battalions concerned must always be relatively distant from a casualty clearing station—that is to say, more distant than others.

If all this be true as a matter of mere mathematics, it is doubly true in practice. Mathematically, it is conceivable that if a casualty clearing station were pushed up to, say, point Y, it would there be much closer to all points of the line A, B, C, than it was at point X, but practically it may be ten times further off. This would certainly be the case if there were good roads from A, B, and C to X, but no roads or bad ones, from the same point to Y.

It is, in short, not proximity but accessibility that is the point of real importance. The more roads that lead from the fighting line to a casualty clearing station and away from it towards the base the better for all concerned.

Further, accessibility of a casualty clearing station to vehicles approaching it from the field ambulances, and to those which leave it loaded with patients on their way to stationary and general hospitals, is not the point of sole importance.

A casualty clearing station, though always a mobile unit, is a good deal more than a glorified tent section of a field ambulance. It is able to undertake operations of any kind; has a large personnel, which includes nursing sisters; and, while invariably equipped for 200 patients, must be prepared—as experience has time and again proved—temporarily to provide suitable accommodation for five or six times that number. This means that its location must be such that it can always secure at a moment's notice almost unlimited supplies. Consequently it must be fairly near a railroad or a railway siding which is being employed as such.

A third desideratum is that its position should secure it from any but the most deliberate heavy artillery fire. There is not much point in removing the wounded out of the firing line and in making elaborate arrangements to secure them both nursing and surgical assistance which is in every way efficient, if the hospital housing them is placed in such a position that the dozens of vehicles which must daily seek and leave its doors will form a good mark for the enemy, or if it is liable to be accidentally destroyed in the course of an ordinary everyday artillery duel. The lives of combatants even when wounded are valuable, and nurses and doctors cannot be replaced too easily.

All the foregoing facts are strong arguments in favour of not compressing the apex of the triangle which has been mentioned, and thus pushing the casualty clearing stations close up to the battalions in action; while the weight of the sole argument adduced in favour of the latter step is minimized by the fashion in which the patients are transported.

If they had to travel to a casualty clearing station by a country cart or on a jolting supply wagon it might be reasonably concluded that every additional half-mile that they had to be carried would lessen the chance of their recovery. But these means are never now employed; all the patients are transported from the advanced dressing stations to the casualty clearing stations solely on well-sprung pneumatic-tired ambulances, which cover a mile in the space of about five minutes.

Supposing a patient fit to be moved at all, can it really make any practical difference to him whether he remains in such vehicle five minutes more or five minutes less? If the response be that it must make some difference, the reply is that it cannot make half as much difference as that spelt by a patient eventually finding himself in a real hospital instead of in a huge dug-out, or its equivalent, such as is alone conceivable as the habitation of a casualty clearing station which had been thrust quite close up to the line of fire in accordance with the views of your friend.

I am afraid the censor would object if I endeavoured to illustrate the degree to which the authorities have managed by the disposition of their clearing stations to meet the desiderata mentioned in this letter, but in any case the task would be superfluous.

The published despatches of Sir John French and those of sundry newspaper correspondents have disclosed with considerable fullness the position of the British line.

If the facts therein contained be studied by means of one of the very large scale maps now on sale in England, you can note for yourself what towns, villages, or collection of houses seem to be within easy reach of the line by numerous roads, and also within easy reach of a railway by the same means. On some of the maps, indeed, you can even make a fair estimate as to the extent to which certain localities—which seem otherwise suitable for a clearing station—are exposed to the ordinary fire of the enemy, or are protected by hills or rising ground from any but long distance artillery and aeroplane bombs.

When you have thus picked out your possible positions for yourself, I can assure you that you may then safely conclude that each of these localities is either already occupied by casualty clearing stations, or that a casualty

clearing station has been there until driven out by shell fire, or that all the buildings shown are absolutely required as billets for reserve or resting troops, or that the position is one that the military authorities intend to hand over shortly to the French or Belgian troops, or consider likely to be at any moment the aim of a heavy attack by the enemy.

I am afraid that this is all I can say on this particular aspect of the subject beyond expressing what I find to be a general belief—and one which, so far as I am in a position to form an opinion, is also my own—namely, that if the indubitable interests of the great mass of sick and wounded men are not to be sacrificed to the debatable interests of a very small minority, the casualty clearing stations as a whole cannot rightly be advanced any further than they usually are.

This "small minority" is made up mainly of cases of gunshot wound of the chest and abdomen, and of profound shock from hæmorrhage. I have described their interests as debatable because there would be plenty of room for difference of opinion as to their treatment even if they were due to an accident occurring just outside the door of the operating theatre of a London hospital; while when they occur on the field of battle no conceivable, not merely possible, means of dealing with them can be regarded as anything but in the nature of a *pis aller*.

I cannot discuss so many sided a question in this letter, but before winding up what I have to say on its main theme I may mention that these minority cases represent no new problem. It is one which on a glance at any textbook dealing with the medical side of army administration will be perceived to have been carefully studied long before this war, and during this war it has been, and still is being, handled in the light of the most advanced surgical knowledge of the day, and of weekly accumulating experience.

Various means of dealing with it have been tried, but in the main dependence has been placed on the advantage in the way of rapid and easy transport offered by motor ambulance convoys.

Automobile transport is a novel feature in war, and its introduction lies in a measure at the root of the discussions sometimes heard as to the relative utility of various features of the evacuating system as a whole.

Compled with other circumstances—such as the siege-like character of the operations in Flanders, the large number of troops held ready to engage on a comparatively narrow front, the configuration of the ground, and the existence of many possible railheads—it has led on the one hand to the making of medical demands such as would never have been heard had the operations consisted of long advances or retreats; and, on the other, to a superficial obscuration of the principle underlying the work in the evacuating zone, owing to the occasional aggregation and proximity of medical aid posts, advanced dressing stations and casualty clearing stations, and the consequent apparent superabundance and superfluity of some items in the scheme.

As to all this, I can only say that should the eventual consideration of the leading events of this war by tacticians and strategists lead them to a conclusion that the warfare of the future will be trench war, then perhaps we shall see certain more or less radical changes in the existing medical system so far as the evacuating zone is concerned.

But personally I am not disposed to anticipate anything more than some modification perhaps in the equipment and organization of the field ambulance.

It is only in France (and during the last eleven months or so) and in the Dardanelles that the war has been, so to speak, abnormal—that is, has consisted mainly of siege-like operations. Elsewhere—in Mesopotamia, in Russia, and so far in Serbia—the war has been of the kind for which the British evacuating system was primarily invented. I say primarily only because it is mainly when advance movements are rapid and frequent that the merits of the system become readily visible. For its real strength lies in its adaptability to all circumstances and in the fact that it provides a definite backbone for evacuating operations whatever their kind.

For instance, at certain parts of the line during the past few months the two series of triangles shown in the diagram have been coalesced into one, a casualty clearing station practically taking the place of the field ambulance

head quarters shown as forming the apex of the smaller of the two triangles.

But this does not necessarily mean that the organization of field ambulances is out of date or that their head quarters have been useless. There has been plenty of work for their displaced main tent sections or head quarters to do of a most useful kind, in the way of running rest stations, convalescent hospitals, and bathing establishments, and meantime the field ambulances have preserved their unity, and have thus been ready and also able (as comparatively recent events have shown) to fulfil their full normal functions at a moment's notice.

As you know, there are three field ambulances attached to every division, and each consists of three sections subdivided again into a stretcher bearer and tent subsections. These main sections and subsections can act together or separately, and can devote themselves either mainly to running advanced dressing stations, and the connected bearer work, or partly to this and partly to forming and conducting temporary hospitals for the treatment of patients who cannot be moved on.

So far it has been in the former direction that there has been most work for them, but at any moment the scene may change. Should, for instance, any attack such as that on Loos last September, or on Neuve Chapelle last March, prove completely successful the line will move forward so rapidly as to place the advanced dressing stations too far away for the line being from the casualty clearing stations for really serious cases to be sent to them straight away, even if the roads be not too encumbered for good motor convey work. In that case tent section work, which has already been carried on to some extent on different occasions, will come into complete operation, and the advantage of including operating surgeons of first-rate ability among the personnel of the field ambulances will be realized to the full.

On the question of the handling of the abdominal and chest case problem I will try to write to you at a later date, and am meantime happy to be able to conclude now by saying that the completeness with which varying circumstances and different contingencies are anticipated by the existing evacuation system, as also the skilful fashion in which it is being worked, have alike impressed me very considerably.

TYPHOID FEVER IN THE GERMAN AND AUSTRIAN ARMIES.

TYPHOID INOCULATION.

PROFESSOR GOLDSCHNEIDER and Dr. K. Kroner have published¹ a lengthy report on the effect of typhoid inoculation in the German army in the winter of 1914-15. When the Germans invaded France little was at first done to protect the troops from typhoid fever by inoculation, and it was not till late in October that this prophylactic treatment was begun. Extensive inoculation was carried out during November, December, and January. Two to three injections were given at intervals of eight days, the dosage being 0.5, 1.0, and 1.0 c.c.m. When Marx's vaccine was used these doses were doubled. In many cases only one injection was given, owing to ill health or other considerations. It was not till a later date that inoculation with three successive injections was adopted as a routine measure.

The first cases of typhoid fever in the army to which the authors were attached occurred in the second week of September. The number increased in October, reached its maximum in November, and afterwards fell rapidly. There were a few cases in December, and in the following months there were only sporadic outbreaks. The credit for this could not, they considered, be given entirely to the inoculation, for typhoid fever commonly disappeared spontaneously in the late autumn and winter.

The Course of the Disease among the Inoculated.

The authors observed about 300 cases of typhoid fever in patients who had previously been inoculated. In many sufficient data for estimating the effect of inoculation on the course of the disease were lacking. There were 125 cases of typhoid fever among patients inoculated once, 125 cases among patients inoculated twice, and only

39 cases among patients inoculated three times, about which adequate notes had been made. Broadly speaking, the temperature charts showed the same features for the inoculated as for the uninoculated; and there was no temperature curve exclusively characteristic of typhoid fever among the inoculated. But in this class it was relatively common to find a temperature curve with an early tendency to fall permanently or for a short time—a feature indicative of a benign form of the disease. Among the inoculated the temperature sometimes began with an abrupt rise, accompanied by a rigor. The temperature would almost directly fall again more or less abruptly. This type of temperature was most common in patients who had just been inoculated; and it would seem that the inoculation had shortened the incubation period, a slight or abortive variety of typhoid fever being the result.

The Mortality among the Inoculated and Uninoculated.

There were 20 deaths from typhoid fever among the inoculated (6.9 per cent.) as compared with a mortality of 12 per cent. among the uninoculated. Of the deaths among the inoculated, 13 occurred among the 125 patients who had been inoculated once, and only 5 among the 125 patients who had been inoculated twice. In other words, the mortality from typhoid fever among patients inoculated once was as high as 10.4 per cent., whereas it was as low as 4 per cent. among those who had been inoculated twice. There were 2 deaths among the 39 patients inoculated three times, the mortality being 5.1 per cent. The general condition was, as a rule, better among the inoculated than among the uninoculated, and toxic brain symptoms were notably less frequent and prominent among the former. The pulse and general condition of the heart were also more satisfactory. Again, the inoculated developed fewer complications, and myocarditis, thrombosis, plebitis, and intestinal hæmorrhage were relatively rare sequelæ. Respiratory complications were also less frequent and severe among the inoculated. This mildness or absence of complications was most noticeable among patients inoculated more than once, but the inoculation did not seem to check exacerbations and relapses of the disease, yet convalescence was often strikingly rapid among the inoculated.

Complications.

In this connexion it may be interesting to note that J. Matko² has analysed the frequency with which certain complications followed typhoid inoculation in the 64th Roumanian Infantry Regiment. His statistics concern about 3,000 soldiers. The vaccine used was Besredka's, and the dose was 1 c.c.m., followed in six days by a second of 2 c.c.m. Special attention was paid to the temperature, the leucocytes, and the urine, the latter being examined daily with reference to the diazo, the albumin, and the aldehyde reactions. The soldiers were admitted to hospital only when a rise of temperature was accompanied by symptoms of a severe general reaction, such as pain in the head, limbs, and trunk. Many different types of fever were observed. In some cases the temperature rose to 39° C. after the second injection, and fell again to normal next day. In 20 cases the fever lasted for a day or two, after which it fell to normal by lysis. In 3 cases the temperature remained between 38° and 39° for three days and then fell to normal by crisis. In a few cases there was no fever till the second day after the inoculation, when the temperature began to rise slowly, reaching its maximum on the same day and falling again slowly on the third day. With one exception, all the complications followed the second inoculation. The exceptional case was that of a man, aged 24, who had undergone hydropathic treatment for two months for arthritis before he received his first injection. It was followed immediately by a rigor and severe pain in the wrists and ankles, which were much swollen next day. In eight other cases of articular rheumatism the first injection provoked pain in the limbs, but it was not till the second injection that the joints became swollen. In several cases the skin over the joints was hot and red; but with one exception these articular symptoms were transient and disappeared rapidly without treatment. In other cases refractory to treatment by salicylates and electrolol, rapid improvement was effected under hot air treatment. In four cases the inoculation was followed by

¹ *Berl. Klin. Woch.*, September 6th, 13th, and 20th.

² *Wien. med. Woch.*, August 21st, 1915.

acute nephritis, characterized in three cases by haematuria and the presence of numerous erythrocytes, casts and other renal elements in the urine. Pulmonary and intestinal complications were frequent; the most frequent pulmonary complication was cough due to dry, diffuse bronchitis, which disappeared in a few days without treatment. In three cases there were signs of recrudescence of pulmonary tuberculosis, the temperature in these cases remaining high for a long time. One case terminated fatally from miliary tuberculosis of the lungs. In thirty-two cases the second injection provoked transitory colic and diarrhoea. Typhoid bacilli were never found in the stools of these patients.

THE MORTALITY FROM TYPHOID FEVER.

In the opinion of Professor A. v. Koranyi of Budapest² the fate of the patient suffering from typhoid fever was often decided during the first days of the illness. An analysis of 523 cases showed that 45 had died, a mortality of 8.6 per cent. The treatment consisted of careful nursing, a fluid diet, and the free use of chemical antipyretics. In a very few cases only did the treatment include baths, the value of which Professor Koranyi considered very doubtful. The patients were divided into three classes, according as they were admitted within the fourth, seventh, or tenth day of the illness. Although many of the patients in the last class were already convalescent, this classification clearly showed that the mortality was directly proportional to the days of illness which had elapsed before the patients were admitted to hospital. Professor Koranyi argued from this that soldiers suspected of typhoid fever should be spared long journeys as far as possible. In this connexion he pointed out that in determining the value of various forms of treatment physicians were apt to overlook this important factor, yet the great fall in the mortality from typhoid fever which had occurred within the past fifty years was, in his opinion, largely due to the earlier recognition and treatment of the disease.

PULMONARY TUBERCULOSIS AMONG SOLDIERS.

At a meeting of the Medical Society of Hamburg⁴ Dr. Rumpel stated that as early as October, 1914, the medical department of the German War Office took steps to secure beds for tuberculous soldiers in tuberculous institutions. He anticipated that the war would increase both the morbidity and mortality from tuberculosis, but hoped that this change for the worse would be only slight and transitory. Another speaker, Dr. Fahr, gave an account of his observations in the dead-house on the frequency of tuberculosis among soldiers. He had found fatal tuberculosis in as many as 12 per cent., but was inclined to think that this figure was too high for the whole of the German army. The mortality from tuberculosis in the army was, however, disquietingly high, and it was obviously desirable to take more effective measures to keep the disease out of the army. Another speaker, Dr. Prechtl, expressed a more optimistic view, and even denied that the war had increased the frequency of tuberculosis. In the military hospital in his charge he had treated about 5,000 sick and wounded soldiers, only 18 of whom were definitely tuberculous. The military authorities were opposed to the employment of the tuberculous, and the demonstration of tubercle bacilli was sufficient to stamp the patient as permanently unfit for service. Dr. Rumpel argued that the decision whether a man suspected of tuberculosis was fit for military service should not be made on the evidence of the tuberculin test. Many soldiers who were undoubtedly tuberculous had, he said, undergone the strain of active service without breaking down. This, for example, had been the case with a soldier who had been in hospital for two years for tuberculous empyema, which had necessitated extensive resection of ribs. Dr. Rumpel insisted that a careful expert examination of the tuberculous soldier was of primary importance. The necessity for this had been recognized by the War Office in its order that the advice of specialists in tuberculosis should be obtained in doubtful cases. It had also arranged that soldiers should be sent to institutions for the tuberculous as soon as the disease was detected.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

LIEUTENANT COLONEL ALEXANDER AITKEN ROSS, R.A.M.C. (T.F.), died in an officers' hospital in London on November 24th, aged 44. He was the son of the late Lieutenant-Colonel A. A. Ross of the Leicestershire Regiment, and was born at Halifax, Nova Scotia, and educated at Edinburgh University, where he took the degrees of M.B. and C.M. in 1893. He settled in practice in Edinburgh, and, on the institution of the Territorial Force, joined its medical department. On August 15th, 1908, he attained to the command of the 3rd Lowland Field Ambulance, and with it he went last July to the Dardanelles, and had only recently been invalided home. He was married about two years ago, and leaves a widow and an infant child. He was buried with military honours on November 27th, and the funeral procession through the south side of Edinburgh, in which he practised, was witnessed by large and respectful crowds. Among those present were Surgeon-General Bourke, D.D.M.S., and a number of other officers of the R.A.M.C., as well as three hundred men of the Lowland Field Ambulances.

Wounded.

Lieutenant F. T. Simpson, R.A.M.C. (temporary). Mesopotamia.

Quartermaster and Honorary Lieutenant F. O. Chappell, R.A.M.C., Flanders.

Died of Wounds.

Lieutenant James Richardson Spensley, R.A.M.C., died of wounds as a prisoner of war in the officers' prison hospital at Mainz, in Germany, on November 10th. He was at first reported as killed in action, and an obituary notice was published in the BRITISH MEDICAL JOURNAL of October 16th. Later it was stated that he was alive, as a wounded prisoner.

Lost at Sea.

The hospital ship *Anglia*, the vessel in which the King crossed the Channel after his recent injury, was sunk on November 17th, while bringing a convoy of wounded across, it is believed by striking a mine. At the time there were 13 officers and 372 of other ranks on board. On November 29th was published a list of those lost—4 officers, 1 nurse, and 129 men, all of whom, except the nurse, had been previously wounded. The nurse lost was Miss M. Rodwell, of Queen Alexandra's Imperial Military Nursing Service Reserve.

DEATHS AMONG SONS OF MEDICAL MEN.

TOWNSEND, J. W. E., Lieutenant-Commander R.N., younger son of the late Dr. E. R. Townsend, of Cork, died at Parkston on November 19th. He had seen active service, while in the navy, in Crete and in South Africa (medal and clasp), and retired from the navy in 1910. At the beginning of the war he offered his services, which were accepted; and while serving in H.M.S. *Imperieuse* in the North Sea he contracted bronchitis, which proved fatal. He was buried at Parkston on November 22nd with full naval honours.

The notice of Captain Sloan, Scottish Horse, published in the JOURNAL last week, p. 791, requires correction. The name of the officer was Captain George Henry Sloan. He died at Suvla, Gallipoli, of wounds received while attempting to save the life of one of his lance-corporals. He was the son of Dr. Samuel Sloan of Glasgow, and his two brothers serving are Lieutenant-Colonel J. M. Sloan, D.S.O., D.A.D.M.S., and Lieutenant-Colonel S. M. Sloan, Scottish Horse Brigade Ambulance.

MEDICAL STUDENT, PRISONER OF WAR.

Wilkin, Second Lieutenant B. O., of the 6th Battalion Duke of Cornwall's Light Infantry, attached to the Royal Flying Corps, was reported a few days ago as having been made a prisoner of war. He was a medical student at the University of Edinburgh, and took a commission on August 26th, 1914. While reconnoitering over the German lines his machine was damaged, forcing him to come down behind the enemy's lines.

NOTES.

THE CONVERSION OF ASYLUMS TO WAR HOSPITALS.

At the meeting of the Medico-Psychological Association of Great Britain and Ireland on November 23rd the president, Lieutenant-Colonel David G. Thomson, M.D., gave an account of the conversion of the Norfolk County Asylum into a war hospital for sick and wounded soldiers. He said that on January 29th, 1915, the Lunacy Board of Control expressed its willingness to try to provide 15,000 beds in asylums by clearing some entirely of their ordinary patients and distributing them in other asylums. As the result of two conferences twelve asylums were converted

² *Deut. med. Woch.*, September 9th, 1915.

⁴ *Deut. med. Woch.*, August 25th, 1915, and September 2nd, 1915.

into war hospitals, and it was arranged that the receiving asylums should charge the vacating asylums the actual cost of maintenance and make no charge in respect of the building fund—that is to say, rent, upkeep of buildings, and interest on capital. Opinion being strongly against placing sick and wounded soldiers in even wholly separated parts of the same institution as the insane, not even women working patients were retained. It was arranged that the 1,050 patients in the Norfolk County Asylum should be transferred in parties to other asylums. Friends were duly notified, and in sixty instances were encouraged to apply for the patient's discharge under Section 79; in fifty-three cases this was arranged. In making up the parties, due care was taken that each should consist of the various classes—the recent, acute, sick, infirm, epileptic, convalescent, and working. Parties began to leave on March 19th, and by March 31st 960, or an average of one hundred a day, had been transferred without any mishap or accident to nine different towns. Thirteen too little to move were retained for two or three weeks more. To convert the asylum into a hospital many structural alterations were necessary; some of the doors had to be enlarged, and three lifts were installed. In spite of the great demand for hospital furniture and x-ray and electro-therapeutic instruments, the x-ray and operating theatres were thoroughly well installed, the War Office showing uniform courtesy and promptitude in helping on the work. The staff of the Norfolk and Norwich Civil Hospital, which is close by, including the radiologist, ophthalmologist, pathologist, and dentist, were appointed *en bloc* for the Norfolk War Hospital, the remuneration being £1 for each day the hospital was visited. There was difficulty in getting together a resident medical staff. This was achieved by obtaining the services of men medically unfit for active service. A resident woman pathologist was appointed. She has a well-equipped laboratory, and reports upon all clinical specimens sent to or collected by her. The president also described the nursing equipment, and in conclusion paid a tribute to the arduous work of the two commissioners of the Board of Control, Dr. Marriott Cooke and Dr. Hubert Bond, who acted as intermediaries in all the negotiations between the War Department and the asylums.

In a short discussion which followed Dr. Marriott Cooke said that in the twelve hospitals now established 23,996 patients had already been admitted and treated, and 14,776 had, on November 1st, been discharged or transferred, 101 had died, and three remained under treatment 9,120, leaving, at the moment, vacant beds for 4,108. Without the hearty co-operation of those responsible for the administration of the asylums such a work could not have been carried out, and praise was also due to the asylum nurses. Though some of the insane were transferred to distances as great as 150 miles there was no hitch.

Lieutenant-Colonel H. A. Kidd gave an account of the work at the Graylingwell Military Hospital, Chichester. Out of 3,000 patients admitted 1,250 had returned to duty, 1,000 returned to light duty, and 600 were sent to convalescent hospitals, making 95 per cent. of the admissions. At this hospital at the first 490 cases were received in 30 hours.

Colonel Vincent (Wadsley Hospital, near Sheffield) sent an account of his experiences, and Dr. G. M. Robertson (Edinburgh) pointed out that the war and the needs it had brought would teach the speciality more than ever the good policy of having female attendants and nurses for both sexes of patients, a matter he had been interested in for a long time. Sir George Savage also spoke, and the President replied.

CASUALTIES AMONG MEDICAL MEN IN THE GERMAN ARMY.

According to the *Militärärztliche Zeitschrift*, No. 18, 1915, the German army has suffered the following losses of medical men from the beginning of the war to September 22nd, 1915:

Wounded	463
Missing	128
Missing, since returned	35
Killed	139
Prisoners	101
Died of disease	100
Died of wounds	50
Killed by accident	20
Total	1,027

OCTOGONARIAN SCERGONS IN THE GERMAN ARMY.

Two octogenarian doctors are doing voluntary service at the front. Stabsarzt Hertwig, who on October 1st, 1914, celebrated his 80th birthday in the field, where he is serving with a mounted force, and Geheimrath Müller,

who, in spite of his many years, is the energetic superintendent of two reserve hospitals.

CO-OPERATION BETWEEN CIVIL AND MILITARY DOCTORS.

The Danish and German medical press has lately published correspondence on the difficulties which may arise in the relations between the civil and the military doctor. Probably the most frequent cause of friction is the attitude of the military doctor in particular and of the military authorities in general towards certificates of health issued by civilian doctors. In *Igeskrift for Læger*, the journal of the Danish Medical Association, this delicate and complicated matter has lately been handled by correspondents with the gloves off. The origin of this particular discussion appears to have been the publication by a civil doctor in a lay journal of an attack on military doctors in general, in which a military medical officer was alleged to have overlooked plebeitis. This case was put forward as an example of the "depraving influence of militarism," and the doctor in question was accused of "indefensibly frivolous treatment of a dangerously ill patient." In reply to this attack on his colleagues by a civil doctor in a lay journal, a military doctor, in *Igeskrift for Læger*, remarked very properly that such matters should be discussed but not in the lay press. In the correspondence that followed in this journal the civilian's complaint that his certificates of health were "contemptuously flung across the table" was indignantly denied by the military doctor who took up the cudgels on behalf of his colleagues. The correspondence leaves on the reader the impression that, though the civil doctor's complaints may have been exaggerated, they were not altogether baseless. In the German medical press, Professor Schwabe, editor of the *Deutsche medizinische Wochenschrift*, has complained that the systematic neglect of medical certificates by the authorities has been repeatedly brought to his attention by his colleagues. In this connexion it is interesting to find that the new regulations issued by the medical department of the German War Office to the Army Medical Service, contain the following clause: "The certificate when issued by a doctor in private practice must be authenticated by some official. . . . No comment on the value of such a certificate must be made in the presence of the bearer."

MEDICAL OFFICERS WANTED.

1st Home Counties Field Ambulance.

Surgeons for the front. An opportunity for interesting work at the front is offered to men who are keen on surgery by the Officer Commanding, 1st Home Counties Field Ambulance, Hailton Camp, Tring, to whom applications may be sent; these will be dealt with in the order in which they are received.

2nd South Wales Mounted Field Ambulance.

There is a vacancy for a lieutenant in this unit, which is now stationed on the East Coast. There is also a vacancy for a regimental medical officer in one of the yeomany regiments of the brigade. All particulars concerning these vacancies can be obtained from Lieutenant-Colonel Herbert Jones, Lyons Farm, Blythburgh, Halesworth.

3rd South Midland Mounted Brigade Field Ambulance.

Medical officers are urgently required for the above unit, at present stationed at Oxford. When trained and efficient they must be prepared to be posted to the second and first lines to replace casualties. Apply to Officer Commanding, 3rd South Midland Mounted Brigade Field Ambulance (T.F.), 1, Ilfrey Road, Oxford.

3rd London Field Ambulance (T.F.).

There are vacancies for medical officers in the 3rd London Field Ambulance (T.F.). Pay and allowances 18s. 10d. daily. Captaincy in six months. Applications for imperial service and period of war only entertained. Apply, Officer Commanding, 3rd London Field Ambulance, Marlow.

Scotland.

GLASGOW HOSPITALS.

THE report of the Western Infirmary, Glasgow, for the year ending October 31st, presented to the annual meeting on November 25th, showed that the deficit was over £21,000, and about £500 more than in the previous year. It had been necessary to draw on capital accounts for over £7,000, reducing the unrestricted capital funds to a little over £4,000. One hundred beds had been placed at the disposal of the military authorities, and the majority of the medical and surgical staff were engaged in military service, either at home or abroad. The number of in-patients was 9,692, an increase of 100 on the previous year. The new connecting block now nearing completion contains an admission and casualty department, three lecture rooms, and three operating theatres. The extension fund, from which a balance of £24,000 was brought forward last year, has been diminished to about £14,000. Much regret was expressed that the Glasgow Corporation threatened to reduce its annual contribution to this and other hospitals in the city to one-half.

GREENOCK INFIRMARY.

The directors of Greenock Infirmary have recently received intimation of a bequest of £2,000 from the late Miss Edgar of Uddingston, and a donation of £1,000 from Mr. Robert Macpherson, C.A., and family, to endow a bed in memory of his son Hugh and of George W. Allan, who enlisted together last year in the Glasgow Highlanders; they fell side by side last May in the fighting at Richebourg.

CIGARETTE SMOKING AMONG WOMEN.

At the thirty-fifth annual meeting of the Greenock Eye Infirmary, Dr. N. Gordon Cheekie, in reporting on the 3,492 patients who had made use of the infirmary during the year, spoke of the harmful effect on eyesight of the excessive use of tobacco, and said it was with deep regret he had to state that this habit was very largely indulged in by females. It led to the premature wearing of spectacles. Dr. Robert Fullerton reported on the work done in the throat, nose, and ear department.

Ireland.

RED TAPE AND THE SENDING OF POOR LAW PATIENTS TO HOSPITAL.

THE Dundalk guardians last week made a strong protest against the action of the Local Government Board in refusing to sanction payment of an account for the maintenance in a Dublin hospital of a patient removed there without having been admitted to the workhouse hospital. The medical officer, Dr. Flood, had certified that the case urgently required operation, and that the patient could not safely be removed to the workhouse hospital. The guardians decided to contest in the court any surcharge that may be made. The usual procedure, in order to have a Poor Law patient in the country sent to one of the Dublin hospitals, is that the medical officer first admits him to the workhouse infirmary and then recommends him to the guardians for transference to another hospital for special treatment; he is then sent to the hospital at the expense of the poor rates, and a small sum is paid towards his keep while in hospital. This method answers well enough in ordinary cases, and perhaps tends to limit the number that might otherwise be sent, but it is not suitable in a case requiring urgent operation, for the doing of which there are no facilities in many of the workhouse infirmaries. If the medical officer or the guardians are not to be allowed to use their discretion in such cases, it simply means that if no charitable person can be found to pay the expenses the patient must be left to take his chance.

MORTALITY OF BOARDED-OUT CHILDREN IN DUBLIN.

At the last meeting of the North Dublin Union a long discussion on the boarding-out of illegitimate children arose on a statement by the chairman that the auditor had threatened to surcharge the guardians for relief given to a woman who had three such children to nurse. A guardian went to the root of the matter when he said that no woman who required Poor Law relief was a fit person to receive boarded-out children. The whole question calls for careful reconsideration. The infant mortality in Dublin is high, and the very high rate among illegitimate infants is occasionally brought to public notice by an inquest. But social workers acquainted with all the facts of the adoption system have little doubt that terrible carelessness prevails. A lady guardian stated that two of these children died under the care of one woman who then took a third. Within the past six months according to the Children's Act Inspector, twenty-eight of these children had died and a sum of £95 had been paid in adoption fees in respect of them. Very few inquests were held, only one in every sixteen deaths. She believed that children were dying in Dublin simply of starvation, cold, and neglect. A resolution was passed directing the clerk to write to the boarding-out associations in Dublin impressing upon them the undesirability of giving children to women in receipt of outdoor relief. Common sense would indicate that an adoption fee should not be paid to a woman who receives a boarded-out child without some sort of guarantee that she is in a

position to take care of and feed the child, and that she will do so. A woman under whose care one such child has died should not be entrusted with the care of a second, unless after searching inquiry she has been proved not to have been to blame for the death of the first. The question has many aspects, and is really only a part of the larger question of the conditions of life in the Dublin slums as well as of that of immortality in Dublin. On both these matters there is need for a stirring of the public conscience.

THE LIBRARY OF THE ROYAL COLLEGE OF PHYSICIANS.

The library of the Royal College of Physicians of Ireland has suffered from the war, as is shown by the report of the committee presented on St. Luke's Day, 1915. It is there stated that there was a considerable decrease in the number of books purchased as compared with the previous year. This deficiency, however, was largely compensated by an increase in the number of books presented to the library. It was found impossible to obtain many of the foreign periodicals which formerly found a place in the library, but here, too, several Fellows had helped by regularly presenting copies of various journals. The report gives a history of the development of the library, the nucleus of which was the collection of books left to the college by Sir Patrick Dun in 1711. At present the library contains 12,934 volumes, not including pamphlets, of which there are 186 bound volumes.

England and Wales.

THE CHRISTIE CANCER HOSPITAL, MANCHESTER.

THE report presented to the annual meeting of the Christie Cancer Hospital on November 25th stated that during the year 128 in-patients had been treated, of whom 71 had been discharged, 39 had died, and 18 remained in the wards. In connexion with the Manchester and District Radium Fund, treatment by radium had been commenced. Advantage had been taken of the proximity of the Royal Infirmary, and out-patients had been treated there. Dr. Burrows, the radiologist to the fund, having been appointed on the honorary staff. The majority of the patients were in such an advanced stage of the disease that no good could be done, but since January, when the new department had been opened, 17 patients had received the treatment. In many cases great relief from pain had been experienced, but it was too early to speak definitely as to permanent results.

Professor Wild, replying to a vote of thanks to the honorary staff, referred to some remarks of the chairman, Mr. E. Tootal Broadhurst, as to the large number of cancer cases in the country and the comparative few that came to the hospital, and said that it was a curious fact that cancer was far commoner in country districts than in large manufacturing districts. Every hospital received operable cases, but Christie Hospital generally received only the worst cases. Dr. Fletcher Shaw expressed the expectation that research would lead to the discovery of the cause of the disease, and then the search for a real cure would be more easy. Dr. Burrows, the radiologist, said that though radium, with improving technique, occasionally cured a case and gave brilliant results just short of cure, it was unfortunately no exception to the general rule that no remedial agent comes quite up to the expectations of its originators.

Sydney.

THE UNIVERSITY AND THE WAR.

A SUGGESTION was made recently that the University of Sydney should consider the possibility of granting a preliminary qualification in surgery to medical students volunteering for active military service, on the understanding that they should return to the university to complete their qualification in medicine. This matter was fully considered by the Faculty of Medicine, which reported as follows:

1. The great demand for Australian medical graduates at the present time is not only for the Australian Army Medical Corps, but also for appointment to the Royal Army Medical

Corps. Before appointment to the Royal Army Medical Corps the War Office requires from each candidate a certificate of registration as a medical practitioner from the General Council of Medical Education and Registration of the United Kingdom. Under the provisions of the Medical Act graduates of Colonial universities are placed upon the Colonial list of the British Medical Register. His Majesty having previously defined the colonies to which the law applies, "A person who desires to be registered as a colonial practitioner must prove to the Registrar of the General Council of Medical Education and Registration of the United Kingdom that he holds a recognized colonial diploma granted in such a British possession; and that he is of good character, and entitled to practise medicine, surgery, and midwifery in such possession."

2. For the reasons that (a) the War Office requires registration on the British Register before appointment of army medical officers; and (b) the registration implies a recognized diploma in medicine, surgery, and midwifery, the Faculty is of opinion that to issue a preliminary diploma in surgery alone, omitting certain subjects from the last part of the curriculum, as has been suggested, would debar the holder of such a diploma from registration in Great Britain, and from services with the Royal Army Medical Corps, where they are urgently needed.

3. The Faculty also considers that in addition to surgery, a knowledge of the other medical subjects is essential for services in the Australian Army Medical Corps.

4. The Faculty is therefore of opinion that the measures previously recommended, whereby the full course is compressed by making use of the vacations, are the best that can be devised for shortening the course and so accelerating the supply of army medical officers.

At a meeting of the staff of the University on July 26th, under the chairmanship of Professor David, C.M.G., the president of the Professorial Board, it was decided that those present should form themselves into a Committee of National Service of the University of Sydney, that all members of the staff should be invited to join it, and that each member of the staff should be invited to indicate what special work he was able to perform, so that steps might be taken to inform the Commonwealth how the staff of the University might be utilized in this national emergency.

ELECTRIC BELTS.

The following notice has been published in the *Commonwealth Gazette* of July 24th, 1915:

Whereas by the Customs Act 1901 1914, it is enacted that all goods the importation of which may be prohibited by Proclamation, are prohibited imports; and whereas it is desirable in the interests of the public health and welfare to prohibit the importation into the Commonwealth of electric or magnetic belts or any belt which is alleged or intended to produce a therapeutic effect by electric or magnetic influences: Now, therefore I, Sir Ronald Cranford Munro Ferguson, the Governor-General, acting with the advice of the Federal Executive Council, do hereby prohibit the importation into the Commonwealth of Australia of electric or magnetic belts, or any belt which is alleged or intended to produce a therapeutic effect by electric or magnetic influences.

HEALTH INSPECTORS' CONFERENCE.

The annual conference of the Health Inspectors' Society was opened on September 27th under the presidency of Mr. George Black, the Minister for Health. The secretary in his report stated that the membership of the society had grown from 7 in 1913 to 197 in 1915. At the beginning of the war the society had urged upon the defence authorities the necessity for appointing qualified inspectors to supervise sanitary matters at the various military camps, stating at the same time that a number of inspectors would volunteer their services. This offer, however, was not accepted. During the year the society had tried to secure legislation giving inspectors greater security of tenure of office but without success. The endeavour being made to bring all employees of shire and municipal councils under one wages board should be strenuously opposed. The president referred to the great advance made in sanitary matters during the past few years. Special attention should be paid to country hotels, which in some cases were still little removed from savagery. He spoke of the complaints made that inspectors were sometimes victimized by aldermen, who refused to comply with the ordinances and objected to interference. It would be a most untidy thing if men were discharged for doing their duty fearlessly, and there should certainly be some board of appeal to which cases of alleged victimization could be taken. In conclusion, Mr. Black promised to inquire into the matter with a view to removing this obstacle to the usefulness of the inspectors. Dr. W. G. Armstrong, chief medical officer of the Board of Health, said the outstanding event of the past year was

the passing of the Public Health Amending Act, which gave power to local authorities to close places unfit for human habitation without the necessity for cumbersome legal procedure. He paid a tribute to the late Dr. Ashburton Thompson's splendid work in connexion with health matters in the State. Not only was he one of the greatest authorities in the world on a number of the worst diseases known to humanity, but he was practically responsible for the framing of the health laws of New South Wales, and, together with the Crown Law authorities, drafted the present Act. He always recognized the importance of the work performed by the sanitary inspectors, and did all in his power to raise their status. The following resolutions were agreed to:

That owners of tip-carts should be licensed and a number-plate fixed on the cart, and that the said owners should be responsible for the name and address of the driver.

That Ordinance 39 be amended so as to compel owners of dwellings and tenements to provide and maintain a supply of water of not less than 4 gallons per minute from at least one tap on each floor or story.

That the Minister be asked to extend the definition of "owner" in the Local Government Act similar to that in the Public Health Act, so as to include the agent of person receiving the rent.

That the time is now ripe for the Board of Health to authorize health inspectors to purchase for analysis samples of food other than milk.

That the ordinances under the Local Government Act be amended to provide a penalty for any person refusing to give his name and address when called upon by an inspector.

That the Government be requested to consolidate the Public Health Act of 1902 and the Public Health Amendment Act, and that they should be reissued.

That in an inspector's appointment power should be given to prosecute without a permit from the Mayor, and that the Local Government Act be amended to cover it.

That the time is now ripe when the Health Inspectors' Society should have representation on the Local Examining Board of the London Sanitary Institute.

Correspondence.

THE ROYAL MEDICAL FOUNDATION OF EPSOM COLLEGE.

SIR.—It is again my duty to ask you to allow me to appeal to your readers for contributions in aid of the Royal Medical Foundation attached to Epsom College.

Owing to the loss of many subscriptions as a result of appeals in connexion with the war, the Council are experiencing a period of extreme anxiety lest they should be unable to maintain the existing numbers of pensionerships and foundation scholarships. At the same time, the calls upon the Foundation will most certainly increase. At this year's election the son of a medical man who was killed in action on board H.M.S. *Good Hope* was elected to a foundation scholarship, and the Council anticipate that not a few other appeals will arise directly or indirectly as a consequence of the war.

As is well known, a large number of civilian medical men are serving with the Army Medical Corps, the Red Cross Society, and in volunteer hospitals in France and elsewhere, and those who are carrying on their professional work at home will doubtless consider it both a duty and a privilege to assist any of their brethren or their dependants who may suffer financially in consequence of the sacrifices they have made in the service of their country.

It is earnestly to be hoped that whilst so many generous and munificent gifts are being made by our countrymen to aid Belgians, Serbians, Poles, and others of our allies, our own benevolent institutions will not be allowed to suffer.

May I, therefore, appeal to those of your readers who can do so to increase their contributions to our Medical Foundation, and to those who are not already annual subscribers to come to the assistance of the Council at this particularly anxious time. Although subscriptions of under 1 guinea do not give voting privileges, I may add that smaller contributions are gladly received.—I am, etc.,

HENRY MORRIS,
Honorary Treasurer.

LONDON, W., Nov. 26th.

BROMIDES IN EPILEPSY.

SIR.—Dr. Mercier in his letter in the BRITISH MEDICAL JOURNAL of October 23rd opens up a big subject for

discussion. He deals with the question of giving bromide in epilepsy in a somewhat summary manner. The shortage and prohibitive price of the drug is, in his estimation, seemingly a blessing in disguise. But to some of us who have charge of a large number of epileptic patients the disguise is very thick, and we are sceptical as to the "blessing." Dr. Mercier's name carries such weight that some of us would have liked to have had from him, not a dogmatic statement, but a reasoned opinion based on his great experience. Certainly he deals only with the routine giving of bromide in epilepsy, and I suppose any routine treatment has disadvantages, but I believe that the different bromides, if given intelligently, are very useful drugs in the treatment of idiopathic epilepsy, and aceto is easily avoided by combining them with arsenic.

The following statement shows the average number of fits per patient per month at Lingfield Colony (with nearly 500 epileptics):

1900. No bromide treatment: Fits per patient averaged 13.5 per month.

1907. Heavy doses of bromide: Fits per patient averaged only 1.99 per month, but many showed traces of bromism, and the head teacher complained that they were like "logs" in school.

1914. Moderate doses of bromide, plus individual treatment: Fits per patient averaged 1.5 per month; children showed no signs of bromism. Head teacher reports favourably as to educability.

Of course the arrest of the "fit" does not necessarily mean the arrest of the disease: mental impairment may still go on, but it does mean the prevention of the convulsive habit being formed.—I am, etc.

A. HUME GRIFFITH, M.D.,

Superintendent and Medical Officer, Lingfield Colony.

October 29th.

SIR.—With reference to the use of bromides in epilepsy it may perhaps be of interest to note that of the 73 epileptic aments under care in this institution to-day, not one receives a grain of bromide as a matter of routine treatment.

Bromides, however, are given for three reasons:

1. As a means of control in the increasing frequency and intensity of the convulsive attacks, until the cause of such exacerbation has been determined and, if possible, rectified.

2. As an adjuvant in the status epilepticus. The best means of dealing with this condition is by the immediate induction of general anaesthesia followed by the injection of an emulsion containing bromides with chloral hydrate, so as to ensure good sleep for some hours.

3. Epileptics when temporarily suffering from other diseases are often benefited by the addition of bromides to the mixtures prescribed for those diseases.

Assiduous attention to the diet, the hygiene of the bowels, and the general health of the individual are the essentials in the management of the epileptic, in the endeavour, that is, to guard him against the pernicious effects and the evil results of his disease. But for his own sake let him have his "fits." As Dr. Mercier intimates, the convulsion is to epilepsy what the pyrexia, say, is to acute pneumonia—a protective mechanism.

In conclusion, it remains to state that these principles of treatment, which I have tested to my own satisfaction, have been in practice in this institution for nearly twenty years, being first introduced by the present superintendent, Dr. Caldwell, by whose courtesy they are here published.—I am, etc.,

H. F. STEPHENS.

The Royal Earlswood Institution.
Nov. 15th.

TYPHUS FEVER AND LICE.

SIR.—In connexion with the very interesting paper by Major Davy and Captain Brown (*JOURNAL*, November 20th), I should like to make a remark regarding the lice theory of infection, for I am decidedly of opinion that it would not be wise for any one to regard lice as the only source of danger.

If a person, unprotected by a previous attack of typhus, exposes himself by remaining for some time near a typhus patient in a close, stuffy, unventilated room, I believe that he runs a risk of contracting the disease although there are no lice present. It is to be noted that the writers of the paper in question state (p. 738):

We found evidence that the infective agent resides in the body for at least three weeks after defecescence. Fresh outbreaks occurred when patients were returned to their communities after the three weeks' period, though they and their clothes were disinfected and were presumably lice-free in all respects.

Many years ago I had a considerable experience of typhus while Physician-Superintendent of Belvidere Fever Hospital, Glasgow, and I feel it to be my duty to give this word of warning.

While not denying that the infection may be carried by lice, and agreeing that every means should be employed to get rid of them, I have faith in cubic space and a free circulation of fresh air as prophylactics in the case of typhus fever.—I am, etc.,

Bellefield, Lanark, November 22nd.

JAMES W. ALLAN.

PROFESSOR A. MARTIN AND PROFESSOR JACOBS.

SIR.—The Germans having shown the Belgians how dangerous for their fellow countrymen it is to have discussions with them at the present time, I think it my duty as a patriot to abstain for the present from retorting all the nice things which Professor A. Martin addresses to me in the last number of the *Monatsschrift für Geburtshilfe und Gynäkologie* in the name of German Kultur. We shall see after the war that the matters are fully cleared up. Suffice it to say once more that all I have said and written has been seen and proved by me. Professor A. Martin seems to believe that the appeal which I have made in this country on behalf of the Belgian doctors and pharmacists ruined by the war was destined for the unhappy exiles. In that, too, he is deceived. The brotherly generosity of the international corps *médical* mainly helps, and is intended to help, the doctors and pharmacists who have remained in Belgium. The English committee can give a stronger opinion on this point than myself.

The pitiless war overwhelming Europe has created trenches terribly deep between scientific men. It is to be feared that they will be impassable to German *savants* for generations. The unjustifiable attacks which Professor A. Martin directs against me, Professors Pinaud, Treub, and Bossi shows us the course we shall be obliged to take in the future, in spite of the old scientific and friendly relations which we have held with the Germans.—I am, etc.,

C. JACOBS,

Professeur Université de Bruxelles,
Médecin Reg. 1^{ère} Classe, Belgian Army.

December 1st.

Obituary.

ARTHUR HAMILTON WHITE, L.R.C.P. AND S.J.,
LATE PROFESSOR OF PATHOLOGY, ROYAL COLLEGE OF SURGEONS,
IRELAND.

It is with deep regret—a regret which will be shared by many friends in England as well as Ireland—that we have to record the death, from pneumonia, on November 27th, of Arthur Hamilton White of Dublin, at a comparatively early age. White started his early career in the Prisons department of the Irish Civil Service, and while performing the duties connected with this office he found time to study for the medical profession, and took out the night lectures and practical courses conducted by the Carmichael College of Medicine, which subsequently became amalgamated with the school of the Royal College of Surgeons in Ireland. He was a pupil of the Meath Hospital, where he came under the influence of the late Arthur Wynne Foot, and having served in various undergraduate positions in the hospital, he obtained the diplomas of L.R.C.P. and S.J. in 1893.

Later White worked under Sir Victor Horsley in London, and then devoted a considerable amount of time under Kronecker in Berne to the study of the nutrition of the frog's heart. He studied also in Vienna and Freiburg, and coming back to Ireland he obtained the Renben Harvey Memorial Prize for original work on the heart of the frog. He was appointed subsequently pathologist to his old hospital, and to the House of Recovery, Cork Street, and in 1898 was elected to the chair of pathology in

¹ The nature of Professor Martin's effusion is indicated in an annotation published at p. 822.

the Royal College of Surgeons in Ireland. These positions he held up to the summer of this year, when he resigned owing to ill health.

In 1893 he became Secretary to the Leinster Branch of the British Medical Association, Honorary Secretary to the Irish Committee of the same Association, and in 1911 Honorary Secretary to the Conjoint Committee of the British and Irish Medical Associations, a committee formed for the furtherance of Poor Law reform in Ireland, and revived, after a period of obscurity, with the passage of the Insurance Act. Firmly convinced that this Act could be turned to good account, White threw himself into the work with all his energy. Mainly owing to his activity a memorial was drawn up and sent to every member of the profession in Ireland, and in this work of organization he succeeded in reconciling the many warring elements with consummate ability and tact. Professor White was a member of the Central Council of the British Medical Association for many years and a very regular attendant at its meetings, and found among its members some very firm friends.

White was an enthusiastic pathologist, as his contributions to various medical journals testify. He had a passion for work and for seeing others work. His own had been a hard and rugged road, and he was impatient of "short cuts." "Aids" of any sort were to him an abomination; the "grinder" was anathema. His own knowledge of the subject was profound—and yet he was not himself a very successful teacher of junior students. He never lectured in the ordinary sense of the word, but while demonstrating morbid changes he made disjointed remarks, the drift of which the average student sometimes found it hard to follow. But those who took the trouble to think about what he said generally came to realize that his observations contained some illuminating principles, some particle of pure gold to be stored up and treasured. He was scrupulously conscientious, avoided dogmatism in everything, and out of fear of misleading students hardly ever committed himself to a definite statement if he could avoid it. He was a devoted follower and believer in the pathological teaching of Sir A. Wright, and his work on the opsonic index showed the patience, industry, and accuracy with which he was endowed.

Outside his work White was a genial companion. He had a keen sense of humour, of beauty in nature and art, and held vigorous views in politics and literature. His disposition was naturally childlike and lovable. He loved children, he loved sunshine, and he loved a good book. But if ever a man had to battle against "the slings and arrows of outrageous fortune" that man was Arthur White. Day and night he carried with him the burden of miserable health. His frequent illness, due to continuous pain, was mistaken by many for senescence, and thus misjudged, or misunderstood, his life would have been a lonely tragedy had there not been a few who had been understood. But it was a tragedy none the less. Maimed, battered, blinded, he worked to the bitter end undaunted, while his hopes and ambitions faded one by one before him. With the resignation of the chair of pathology, his whole life seemed to tumble about his ears; and yet he hoped—hoped for a year, or may be two, of peace in the sunshine that he loved—for a respite to nurse himself back to some degree of health, and then—to work again. To such a life the noble lines of Henley's *Invictus* form a fitting epitaph, and we who knew him well may "thank whatever Gods may be" for his "unconquerable soul."

EVAN WILLIAMS, M.R.C.S., L.R.C.P.

(LATE PRESIDENT OF THE NORTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION.)

It was with deep grief that the news of the death of Dr. Evan Williams was received among the profession and the public of the county of Merioneth, and more especially in Bala and district, where he was well known for upwards of thirty years. He was discharging his duties on October 20th, but when out later in the day shooting he had a seizure and died from cerebral hæmorrhage in about four hours.

Evan Williams was born at Llandderfel, near Bala, in 1860, received his medical education at University College, London, and took the diplomas of L.R.C.P. and M.R.C.S.

in 1882. After acting as assistant to the late Dr. Roge Hughes of Bala, he became his partner. He gained a large practice in Merioneth and was M.O.H. for Bala, and held many other public medical appointments. When a prisoners-of-war camp was established at Froncogh, near Bala, Dr. Williams was appointed medical officer. He took an active part in all the public and social life of the district, was a member of the Merioneth County Council, a county magistrate, and a member of the North Wales Asylum Board. Some years ago he was President of the North Wales Branch of the British Medical Association. He was also a prominent Freemason and a keen sportsman. He inspired more than liking in those with whom he came in contact, and his private friends were innumerable and closely attached to him. The attendance at his funeral at Llanfor Churchyard, on October 23rd, afforded evidence of the love and esteem with which he was regarded by those among whom he lived. He leaves a widow, with whom much sympathy is felt.

Dr. JACOBUS, formerly of Leeds, and recently of Cloughton, near Scarborough, died on November 2nd, at the age of 38. His father was a banker in Cyprus. He was educated at Trinity College, Dublin, where in 1896 he was Vice-Chancellor's Prizeman, and graduated M.B., M.Ch., and B.A.O. in 1903. He practised in the Roundhay and Harcliffe district of Leeds for six years, but his health failed, and he was compelled to retire to Cloughton three years ago. Dr. Jacobus was a classical scholar of some authority, and he undertook the translation of highly important ancient Greek documents. He was married, and his widow survives him.

Dr. JOHN PATERSON of Girvan died on November 24th after a short illness. He was a son of the late Dr. William Paterson, superintendent physician of the Glasgow Hydro-pathic Establishment, Rothsay, and succeeded his father. He received his medical education in Edinburgh, and took the diplomas of L.R.C.P. and S. Edin. in 1870. He is survived by a widow and three children.

Dr. H. B. CURRIE, who died recently in Johannesburg, took the degrees of M.B. and C.M. Glasg. in 1894. Afterwards he held the appointments of assistant medical officer in the Belvidere Fever Hospital, Glasgow; assistant physician at the Crichton Royal Institution of Dumfries, and physician to the Glasgow Western Infirmary. A few years before the Boer war he went to South Africa. He did service as medical officer of the Natal Carbineers through the siege of Ladysmith, and was afterwards appointed Surgeon-Captain to the Imperial Light Infantry. After the peace he was made a major in the Transvaal Volunteer Medical Service Corps. He was also physician to the Johannesburg General Hospital, and on his retirement was placed on the consulting staff.

Dr. JOHN HALLEY, who died at Wentworth Falls, New South Wales, on November 6th, was a son of the late Mr. D. R. Halley, Inland Revenue, Aberdeen, and was the Government medical officer at Fiji. He graduated M.B. at Aberdeen University in 1899. He was 42 years of age.

The death is announced, on November 18th, of Dr. ROBERT BARKER ROBSON of Alwicks, Northumberland. He graduated M.B. Durh. in 1886, and took the diploma of M.R.C.S. in the following year. He was honorary surgeon to the Alwicks Infirmary, and M.O.H. to the urban district.

BRIGADE SURGEON ALEXANDER TURNER, Army Medical Department (ret.), died at Plymouth on October 31st, aged 74. He was educated at Aberdeen University, where he took the M.B. and C.M. in 1862 and the M.D. in 1863. He entered the Army Medical Department as assistant surgeon on September 30th, 1863, became surgeon on March 1st, 1873, and surgeon-major on September 30th, 1875, retiring with a step of honorary rank on October 18th, 1881. The *Army List* assigns him no war service.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

At the recent medical preliminary examination 54 candidates passed and 21 failed in English, and in mathematics the numbers of those who passed and failed were the same. In Latin 48 passed and 39 failed; in Greek 5 passed and 2 failed; in French 42 passed and 32 failed; in German 3 passed and 3 failed. All those who were examined in Gaelic, Malayalam, Urdu, Sanskrit, Persian, and Yoruba passed.

The number who completed the preliminary examination in the Faculty of Medicine was 133, as against 119 in January, 1914. The total number of first-year students, including women, is 188; the number of extra-academical women students is 111. (The total number of women students in connexion with the university is 613, as compared with 621 last year.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Annual Meeting of Fellows.

LIEUTENANT COLONEL JOSIAH OLDFIELD, B.A.M.C.(T.) writes: Please allow me to correct the report in your last issue as to the meeting of the Royal College of Surgeons. You state: "After some further discussion, in which Lieutenant-Colonel Oldfield took part, this motion was carried." I regret that, owing to my military duties, I was not present at the meeting, and therefore did not take any part in the discussion. My views on the question of admitting Members to a share in the government of the College are wholly opposed to those of Sir Watson Cheyne. What I have claimed time and again at the annual meeting is not that the College should be transformed into "a political institution," but that it should become a real *alma mater*, on scientific, ethical, and protective lines, to all its members. At present it does but the barest minimum instead of seeking to do the highest maximum possible for them. A Council keen on the educational and scientific side would provide a better library; so draughty and wanting is it in the essentials of what a library should be, that wherever possible I go to study at the Lincoln's Inn rather than at the College of Surgeons Library, and it is because this latter library is used for banquets that it cannot be fitted up as a library for study should be fitted up, and yet Sir Watson Cheyne claims he is working for "an educational and a scientific institution." The College has failed to function, too, on ethical and protective lines. In the great fight on insurance, in the great struggle of members to be allowed to use the title of doctor (that is, *doctus*, or learned in the art of healing), in the important questions of equalizing examinations and unifying degrees—to give a few instances of non-political problems which gravely affect the wellbeing of members—the College has given no lead nor taken any care of its members. Surely the Council should be scientific enough to know that the appreciation of evolution is quite different from the fear of evolution, and yet the latter is the annual plea put forward for perpetuating ineptitude.

The Services.

EXCHANGE DESIRED.

CAPTAIN, Field Ambulance, wishes exchange with another Captain, Base Hospital. Address No. 5790, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

DR. GEORGE MINTO JOHNSTON has been added to the Commission of the Peace for Leith.

An electro-therapeutic department for the treatment of gonorrhoea has been established at the Male Lock Hospital, Dean Street, W., and placed in charge of Mr. C. R. Huss, M.B.Lond.

THE Hutterian Society held a clinical meeting on November 24th at the Heart Hospital, Westmoreland Street, London, W., the plans of which were explained by the secretary. A series of cases were shown by members of the hospital staff, and Dr. Hamill and Dr. Strickland Goodall demonstrated the working of the electro-cardiograph and explained the interpretation of electro-cardiograms.

THE drawing-room sale in aid of the funds of the Royal Medical Benevolent Fund Guild, to which the attention of readers was called in the BRITISH MEDICAL JOURNAL of November 20th, took place at Crews House on November 24th, and attracted a crowd of visitors. They showed their sympathy with the cause in aid of which the sale was arranged in a very practical way, with the result that a sum amounting to just over £1,000 has been added to the funds of the guild. It is highly gratifying that the public

should have come to the help of a medical charity in so generous a spirit, and we are sure that the whole profession will join with us in congratulating Lady Tweedy and her fellow workers on the success of their efforts.

AN action for damages, laid at £40,000, was recently brought against the New York Rockefeller Institute for Medical Research and three members of its staff by two former employees at the institute, who alleged that the doctors sued had persuaded them to submit to the injection of a serum, and that as a result of carelessness and negligence they had become infected with a venereal disease. The case came before the United States District Court on November 4th, and was dismissed on the ground that the facts stated were insufficient to constitute a cause of action.

THE committee of the Heritage Craft Schools at Chislehurst, Sussex, reports that seven old boys, once crippled, are now serving abroad, four of them as transport drivers. Since the outbreak of war the boys' workshops have been wholly occupied in the making of war equipment, furniture, and appliances for hospitals. The Princess Louise Military Wards have been established as a relief hospital, in connexion with the London Hospital, for the reception of wounded soldiers. The enterprise is in need of funds, owing to the increase in the cost of provisions and material and to other causes. A handi-craft sale of objects made by the children will be held at the Girls' Heritage, Chislehurst Clump, on Saturday, December 4th.

I. MARZINKOWSKY (*Medizinskoje Obzrenije*, No. 20-21) relates that Dr. N., in order to investigate the infectivity of the scarlatinal desquamation, carried out upon himself the following experiment: Having made several incisions over the skin of the shoulder, he applied to the scarified surface a thick layer of an emulsion made of a mass of desquamating cuticle, triturated in a physiological solution, but no infection followed. He then performed the same experiment upon himself with the desquamation of two adults in the second and third weeks of scarlet fever and upon his son, aged 15, who had never had scarlet fever, by applying the emulsion directly to the nose and tonsils with a negative result. Denying the infectivity of the scarlatinal desquamation, the author is of the opinion that the vehicle of contagion is derived from the mouth and nares, and that it is transmitted through "carriers" of scarlet fever as well as through those who suffer from it.

IN the course of his address to the Röntgen Society the new President, Mr. J. H. Gardiner, F.C.S., referred to the suggestion that it might be possible for the medical man of the future to be provided with a set of x-ray tubes, duly labelled for the production of any desired kind of rays. Such a project appeared very enticing, but he doubted whether it would be possible or even desirable. There were too many conditions involved to enable x-rays to be put up in bottles like drugs, and for the purpose of exact research such a plan was unthinkable. Nevertheless, it was now possible to produce and maintain rays of any desired value, and if the immense differences in the effects produced by luminous radiations differing only slightly in their wave-lengths were considered, it did not seem unreasonable to expect that similar special reactions might be due to shorter rays of some definite quality. The investigation called for very great refinement, and the man who was going to make the desired advance would have to combine the qualifications of a pathologist with a thorough knowledge of the physics involved in the passage of electricity through gases. It was now practically certain that Roentgen rays differed from the familiar electro-magnetic disturbances of light, heat, and electricity only in the extreme shortness of their waves, which ranged from about one twenty-millionth to one five-millionth of a millimetre. In the purely physical sphere of investigation the field was equally interesting, but the vacuum tube had not yielded up all its secrets. Vision for most people ended in the blue-violet. Shorter waves than these belonged to the ultra-violet and Schumann region, where chemical and ionizing actions reached a maximum. Beyond this and before the softest radiations were reached there occurred a hiatus, a dark continent of the deepest interest for the physicist, for in that region took place the profound changes which distinguished luminous radiations from those produced in a vacuum tube. At the other side of the vacuum tube rays, beyond what the radiologist called hard rays, and before the gamma rays of radio active substances were reached, there occurred another small gap. Here much work was being done at present, and there was reason to believe that before long it would be possible to construct tubes which would give rays closely approaching, if not corresponding to, gamma rays in wave-length.

Letters, Notes, and Answers.

As above desirable reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 423, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR OF THE BRITISH MEDICAL JOURNAL, 423 Strand, W.C.; (2) Telephone, 263; (3) Gerard, (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisement, etc.), *Articulate*, Westwood, London; Telephone, 263; (4) General, (3) MEDICAL SECRETARY, *Metropolis*, Westwood of the British Medical Association is 16, South Frederick Street, Dublin.

For queries, answers, and communications relating to subjects which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

INCOME TAX.

PILGRIM writes to say that the surveyor of taxes refuses to allow a deduction of two-thirds of the assessable value of his house under Schedule D, in spite of the fact that the whole of the ground floor is given up to professional purposes. The surveyor will only allow one-third. "Pilgrim" inquires as to his remedy, and as to whether arrears of tax can be claimed against him for more than three years, if the surveyor's contention should be upheld.

The first rule, Cases I and II, Schedule D, provides that no deduction shall be made for the value of any dwelling-house, "except such part thereof as may be used for the purposes of such trade or concern," not exceeding two-thirds. It will be seen that the deduction made by our correspondent is the maximum proportion; whether he is entitled to the full two-thirds is a question on which he is entitled to appeal to the General Commissioners. In the circumstances one-third would certainly seem insufficient, but on the other hand "Pilgrim" is not correct in deducting the ground rent as well as two-thirds of the assessable value, inasmuch as the latter undoubtedly includes the former. The right of assessing arrears extends to the three previous years only (Finance Act, 1907). The surveyor's claim to six years' arrears seems incapable of support, except on the ground that such payment would be by way of compounded penalties (Inland Revenue Regulation Act, 1890). In view of the fact that the question in issue is a debatable one, the Revenue authorities are hardly likely to invoke the penalty sections, though, on the other hand, "Pilgrim" may possibly, not desire to avoid restitution of any tax which may ultimately be found to have been unpaid owing to any misapprehension of his rights of deduction.

ANSWERS.

M.B., M.A.—Chinosol is the trade name for potassium oxychloride for oxyquinoline sulphinate. The salt is readily soluble in water but sparingly in alcohol. The name Chinosol indicated the product of Franz Fritzsche, of Hamburg. For washing out the bladder a solution of 1 in 1,000, increased gradually to 1 in 500, is suitable. Chinosol, we understand, is not highly recommended by authorities for this purpose.

THE DESTRUCTION OF RATS.

MR. ROBERT M. CAPON, Liverpool, sends the following method, which, he states, is adopted by the Chinese: Place a fairly large barrel on end, covering the upper surface with brown paper, on the centre of which place a suitable bait. From the ground to the top of the barrel place one or two planks as a run to the baits. Continue this placing of bait for three or four nights in succession, then on the following night remove the end from beneath the brown paper covering, leaving only the brown paper, on which is again placed the bait. In the bottom of the barrel and in the centre place a brick on end, partly fill the barrel with water until it nearly reaches the top of the brick, and then leave all as before. The results should be as follows: The first rat runs up as usual, falls through the brown paper; the second does the same, and then fights the other for the unremoved brick surface. They both set up such a squealing that all the other rats rush up to see what is going on, as they love a fight, the consequence is a lot are caught; after a few days this can be repeated.

DR. W. E. PAIN (London, S.E.) states that if ordinary gas tar is placed in the runs of rats they will disappear. After trials extending over many years he has never known this plan to fail.

DR. T. RECKEL ATKINSON states that the use of Dantox virus cleared a vicary which had been infested with rats for some years, and the animals did not return.

DR. W. M. MORRISON (Anfield Plain) recommends that for a day or two the rats should be well fed to disarm their suspicions,

and then bread or meat poisoned with "rodine" placed near the suspected nest, leaving a plentiful supply of water near, as the poison produces great thirst.

TREATMENT OF CORNS.

DR. W. FELLOWES FISHER (Ramsay, Huntingdon) sends the following suggestion for the treatment of corns on the sole: Make a pad of rubber about $\frac{1}{2}$ in. thick and 1 in. in diameter (a piece of inner tube of motor cycle) and cut a hole in the centre the size of the corn. The rubber will adhere to the skin and relieve pressure on the corn, and has not the disadvantage of adhesive plasters, which have to be renewed each time one washes.

X-RAY APPARATUS.

A. H. F.—(1) It would be quite feasible to run an X-ray and electrical apparatus from a dynamo driven by a gas engine of 3 h.p., but the practice is open to the objection, when working a small set, that there is likely to be considerable flickering and jumping of the current. A slender run could be ensured by the introduction of accumulators, which could be charged by the engine. Two sets of accumulators might be kept, one under charge, and the other in use. (2) Any manufacturer of electro-medical apparatus would give advice on the subject.

"SIMPSON LIGHT."

CURRIOT asks a question as to "S" rays, by which is meant, we presume, what is known as the Simpson light. So far as our information goes, this is a method of using a portion only of the spectrum, or portions in combination, and is based on a somewhat similar principle to the Finsen and other light treatments employed in dermatology. The inventor of the process, who, as understood by a slender, is a medical student, is not commercial. The Simpson light, we believe, is only being employed at present in the electro-therapeutic department of St. Bartholomew's Hospital.

INTERMISSION OF ASTHMA DURING PREGNANCY.

DR. FRANCIS HAKE (Beckenham) writes, in reply to a question on p. 500: The cessation of asthma during pregnancy is fairly common, and the freedom from the complaint may be prolonged during the subsequent lactation. The same is true of all the other paroxysmal neuroses—migraine, vasomotor angina pectoris, and even epilepsy (in some cases). Dr. Wesley Wilson will find these occurrences somewhat fully dealt with in my book, *The Food Factor in Disease*, 1905, vol. 1, pp. 234-235. It must also be said that asthma sometimes appears during pregnancy, being absent at other times (*ibid.*, p. 256).

LETTERS, NOTES, ETC.

PASTING FOR DIABETES.

DR. JOHN HADDOX (Denholm, Hawick) writes: I am pleased to see in the JOURNAL a notice of the treatment of diabetics by Dr. Allen, in America, who has been trying the effect of fasting from all food for eight or ten days. Fasting has been had recourse to by the laity in America for many years, and in my book I give cases showing its wonderful power in curing disease. I have seen a man fast for forty days to cure his rheumatism and he succeeded. Fasting, however, in some cases is not safe and ought not to be undertaken except under medical supervision, but the fact that stopping taking food cures disease, or even relieves any symptom, ought to convince the profession that food is the chief cause of disease.

PEPPER IN THE PROPHYLAXIS AND TREATMENT OF FILARIASIS.

DEPUTY SURGEON-GENERAL V. G. THORPE, R.N., writes: It is pepper that prophylactic against filaria, as Dr. J. H. Robertson in the JOURNAL of October 9th, p. 535, states it is, then it is certainly strange that, as I first pointed out in my paper on the Filaria of the South Sea Islands (BRITISH MEDICAL JOURNAL, October 3rd, 1894, p. 189), for every one of the total male population of the Friendly Islands harbour in their blood a non-periodic variety of filaria, apparently identical with *F. bancrofti*, in spite of the fact that the universal native drink is "kava-kava," which is an infusion of a pepper root (*Piper methystricum*), the active principle of which (methystricin) is allied to piperin.

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THE PSYCHIC MECHANISM OF THE VOICE IN RELATION TO THE EMOTIONS.

BY FREDERICK W. MOTT, M.D., LL.D. EDIN.,

F.R.S.,

PATHOLOGIST TO THE LONDON COUNTY ASYLUMS.

The mechanism of the control of the breath in ordinary speech has become so habitual that, as a rule, one is unconscious of any voluntary effort. It is not so, however, in the arts of oratory, acting, and singing, the conscious management of the breath being of fundamental importance in the expression of the emotions and passions. The correct management of the breathing in the actual technique of vocalization should become a habit, so organized mentally that after a time there is no need to devote conscious attention to the technique of perfect vocalization and clear diction. This fundamental part of the art of dramatic singing can be acquired by careful instruction and practice, so that after a time conscious effort is no longer necessary; for every state of consciousness which is habitually repeated leaves an organic impression on the brain by virtue of which that same state may be reproduced more readily, at any future time, in response to a suggestion fitted to excite it. We can, therefore, readily understand how very difficult it is to cure a bad habit of voice production or diction when once it has become mentally organized; the same applies to any imperfection in phrasing a particular passage in a song. Moreover, consciousness of the difficulty causes nervous apprehension, and a mental struggle may ensue between the conscious right method of rendering and the subconscious habitual wrong method which may make itself apparent to the audience by a faltering and imperfect technique or even a complete breakdown.

A good singer not only pays particular attention to the practising of scales and exercises in order to acquire the habit of correct intonation, but he makes himself thoroughly familiar with the phrasing of difficult passages in classical music as practised by the great master singers, such as Santley and Sims Reeves, for experience tells him that this familiarity will be a mine of wealth which he can constantly utilize not only in the conscious rendering of the particular music in which the passage occurs, but also consciously and unconsciously in learning a new song or operatic part. Not until he has mastered the whole technique of correct vocalization, diction, and memorizing of the words is consciousness relieved of its duties as a watchful censor to prevent mistakes to such a degree that he can devote his attention to the production of all those fine shades of affective tone in the modulation of the voice which are so essential for dramatic singing. The actor and dramatic singer voluntarily expresses the emotions and passions by the conscious control of the force and mode of escape of the breath—for example, the loud outburst of anger and vengeance, the quiver or tremor of fear, the halt of terror, the sob of grief, the sigh of despair, the variations of sympathetic tone and loudness to express the tender emotions of pity and love; and the joyful outburst, tinged with anger, of passionate love, the laughter of joy, the rollicking laugh of mirth, the hiss and sardonic laughter of hatred and jealousy with which he clothes articulate language is the supreme effort of his art.

Sir Charles Bell, who discovered the respiratory system of nerves, pointed out how the lungs from being in the lower animals merely the means of oxygenating the blood, become in the higher animals utilized in the art of expelling air from the body for the production of audible sounds—the elements of human voice and speech.

Likewise, in his great work on the expression of the emotions, he first drew attention to the influence which powerful emotions exercise upon the organs of respiration, including the countenance—for example, the dilated nostrils in anger. Again, he says, when the voice suffers interruption and falters, and the face, neck, and chest are animated by strong passion working from within the breast, language exerts its most commanding influence. But is it necessary or advisable

for the great artist to feel these emotions and passions strongly? He must feel them to a certain degree, for if he expresses them consciously he *must* feel them, and the degree to which he feels them is largely a matter of individual and racial temperament. Darwin pointed out that by voluntarily assuming an expression of the countenance and bodily attitude which an emotion or passion naturally excites, the feeling of that emotion or passion occurs to some degree. But, as Maudsley in his *Mental Physiology* points out, there is a fallacy in the experiment, as, in order to produce the suitable movements of expression, we are compelled to imagine the emotion or passion; but, after allowance has been made for this cause of error, there is still a sufficient reason to believe that the feeling of the emotion or passion is intensified and made more definite by the bodily action. The orator, the actor, or the dramatic singer can consciously assume the expression and bodily action suited to the vocal part, and the feeling tone will be intensified in the voice whether the words are spoken or sung. Every true artist has aesthetic feeling; but he must exercise control of this feeling, for an emotion strongly felt is liable to produce commotion in consciousness and thus interfere with its action, as the censor controlling the automatic subconscious psychic mechanism upon which the successful vocal technique of the artist depends. Such loss of control is very liable to cause imperfections of vocalization, especially faulty intonation, for in anger the pitch of the voice naturally tends to rise, and in fear to fall and the voice to choke. Moreover, he is liable to forget the words. Rather he should aim at keeping a control over his feelings so that his technique does not suffer, and yet be able to arouse in his audience the emotions which he expresses. Thus the art of dramatic singing and acting lies in concealing the art, and the master singer, like the great actor, by the modulation of the voice, by his expression and gestures, feeling himself little or no organic internal disturbance, the essential part of a strong emotion, can nevertheless by his art arouse in the expectant audience that part of the emotion which he does not portray, and probably does not feel, at any rate intensely—namely, the quickening or slowing of the pulse, and respiration, the emotional thrill or shudder of the spine, pallor and coldness or redness and warmth of the skin, tears, and various other manifestations of bodily disturbance. You are all familiar with the passage in *Hamlet* in illustration of this point:

Oh what a rogue and peasant slave am I!
Is it not monstrous that this player here,
But in a fiction, in a dream of passion,
Could force his soul so to his own conceit
That from her working all his visage waned;
Tears in his eyes, distraction in's aspect,
A broken voice, and his whole function suiting
With forms to his conceit? And all for nothing!
For Hecuba!
What's Hecuba to him, or he to Hecuba,
That he should weep for her?

I shall be very interested to hear some of the members of the society on this point. How far they feel the emotions and passions they portray in song, facial expression, gesture and bodily attitudes, and how far the assumption of these outward and visible manifestations assist them in the expression of the affective tone in the voice.

MUTISM.

In my experience at the military hospitals a number of remarkable cases have come under my care illustrating several points in connexion with the psychic mechanism of the voice in relation to the emotions. A large number of men suffering with shell-shock, and having no visible signs of injury, have lost their speech, and yet are quite able to write a lucid account of their experiences. This mutism is really an exaggerated form of hysterical aphonia. A woman owing to an emotional shock may lose her voice; she can, however, as a rule whisper. These men cannot whisper or produce any audible sound. They occasionally show the bodily signs of extreme terror, and in a very few severe cases one is reminded of the lines in Spenser's "Faerie Queen":

He answered nought at all, but adding new fear to his
first amazement,
Starting wide with stony eyes and heedless hollow hue
Astonished stood, as one who had espy'd
Infernal furies with their chains unty'd.

* A paper read before the Society of English Singers on November 17th, 1915, the President, Sir Charles V. Stanford, in the chair.

We may ask, Why should these men whose silent thoughts are perfect, for they comprehend all that is said to them, and are able to express their thoughts and judgements in writing, be unable to speak? The cause of the mutism is clearly not due to an intellectual defect, nor is it due to volitional inhibition of language in silent thought. Hearing, the primary incitation to vocalization and speech, may be unaffected, yet they are unable to speak. They cannot even whisper, cough, whistle, or laugh aloud. Many of these poor fellows, who are unable to speak voluntarily, yet call out in their dreams expressions they have used in battle and trench warfare. Sometimes this is followed by return of speech, but more often not. There has been a severe emotional shock. Is the fear effect still operating on the mind, full as it is of the recollection of the terrifying experiences of the trench warfare they have been engaged in? The frequency with which these cases of shell-shock suffer with terrifying dreams at night, and occasionally even during the day in the half-waking state, points to the conclusion that the emotional shock is exercising an effect on the mind by thoughts continually reverting to terrifying experiences they have gone through at the front; and probably their continuous influence on the subconscious mind accounts partially, if not entirely, for the terrified or vacant look of depression on the face, the cold, blue hands, feeble pulse and respiration, and the sweats and tremors which the severer cases manifest. As these dreams cease to disturb sleep, so these visible physical manifestations of fear pass off and give place to the sweet unconscious quiet of the mind of normal sleep.

The sudden and varied manner in which these mute patients recover their speech is indicative of a refractory condition of respiration in its function of voluntary production of audible sounds in all forms, even the cough, cry of pain, or the audible sound of explosive laughter, for when tickled so as to produce the full measure of the facial expression of laughter no sound comes. Some of these men, however, have suddenly recovered their speech by crying out when unexpectedly feeling physical or mental pain—for example, one man cried out when some boiling tea was spilt over him, another when he was held down and his feet tickled, others have shouted out in their terrifying dreams, and awaked to find themselves speaking, and have continued speaking aloud to be sure that they have recovered. In most cases it is the sudden and unexpected which restores the function of the vocal mechanism. Surprise is an essential element. Thus, a sergeant saw some soldiers larking in a punt, and he suddenly shouted out, "You will be over." Another recovered his speech when a Canadian, who bet he would make him speak, quite suddenly surprised him by seizing him by the throat. He called out, "Leave off." Occasionally the stimulus of a well known chorus has broken down the refractory condition in the psychic mechanism of the voice and the mute has surprised himself and others by finding himself singing. As depressing emotional conditions, including terror arising from the awful scenes of death, exhaustion, and fatigue, play an important part in aggravating the shock effects of shell fire and maintaining subsequently a more or less transitory functional neurosis in the form of deafness, blindness, paralysis, tremors, and mutism, we may suppose the sudden emotional excitement, especially if it be connected with the preservation of the individual, is followed by such a powerful stimulating reaction on these depressed nervous centres that the refractory phase established in them by the shock is suddenly overcome. I believe this mutism is due primarily to an inhibitory functional paralysis of the voluntary cerebral nervous centres which control the management of the breath and direct its mode of escape through the glottis, mouth and nostrils, for I have seen many cases where they have involuntarily and unconsciously in their dreams talked and uttered cries and sweats, but in their conscious state were unable, not only to talk and sing, but to whisper, whistle, utter a cry, cough, or laugh aloud. The worst cases were unable even to blow a candle out. I examined one with the x rays and found the diaphragm hardly moved in respiration; he could not expand the chest necessary to fill the bellows. Latterly he has acquired this power; he can now take a fairly deep inspiration, but yet he cannot talk or even whisper, cry, or laugh aloud; he blows a candle out with the mouth open instead of moulding the lips. Therefore in his case there is an in-

hibition of the whole voluntary mechanism of audible sound production. Now in the cortex cerebri the parts controlling the movements of the lips, the tongue, the jaws, the larynx and soft palate are all contiguous and work together; this, then, is the voluntary nervous mechanism which controls the mode of escape of the breath for the production of audible sounds, whether it be a simple voluntary cry for help or the most complex vocalization. Experiments show that abductors and adductors of the two vocal cords are equally represented in both hemispheres; that there is bilateral representation of the movements of the muscles of the two halves of the larynx. A part of the cerebrum (great brain) controls the voluntary nervous mechanism of the breath in the production of ordinary sounds, and this is represented in both halves of the brain, for the muscles of the two sides of the body which control the breath and phonation never work independently; but the mechanism of phonation cannot say to the breath mechanism, "I have no need of thee," for they are interdependent in the production of audible sound—which reminds me of the story of the organist and the organ-blower. The latter greeted the former one Sabbath morning, "We are going to play as a voluntary, 'O rest in the Lord.'" "We indeed!" said the organist. "Yes, we," said the blower. The service was ended; no sound came from the organ. "Is it *tee!*" was heard. "Yes, confound you!"

SYMBOLIC LANGUAGE AND SOCIAL HERITAGE.

Symbolic language is a social heritage in which auditory and visual symbols have been used, especially by civilized races, to express judgements and feelings. The fact that in all right-handed people it is represented in the left hemisphere shows that it has developed with the specialization of use of the right hand. The feeling tone in symbolic language largely depends upon gesture, facial expression, and modulation of the voice. The mere utterance of articulate language, whether in speech or song, fails to express the emotions and passions, however clear the diction may be. Savages and deaf-mutes are able by mimic and gesture to express the emotions and passions connected with the appetites and desires. This universal language is inborn and not acquired; it is understood by all peoples, as it has its roots in the preservation of the individual and the species; it is not acquired by imitation, like articulate language, but is dependent upon an instinctive pre-organized mechanism in the central nervous system. The effect of emotional shock in the production of mutism is upon this preorganized mechanism which controls the force and mode of escape of the breath in the expression of the emotions and passions. In support of the view of the existence of a preorganized mechanism, I may mention the fact pointed out by Galton in his *History of Twins*—namely, that whereas similar handwriting was seldom observed, similar vocal intonation was usual in identical twins brought up in a different environment. This supports the view that the affective tone of the voice is in great measure inborn and correlated with the temper of the individual.

TERRIFYING DREAMS.

The terror sometimes observed in soldiers suffering from "shell-shock" is contemplative fear; it is fear made more or less permanent by the imagination fixing in the memory past terrifying experiences, repressed in great measure by conscious activity of the mind during the waking state, but evident in the dreams which afflict nearly all these soldiers suffering from "shell-shock" and trench warfare. Shakespeare has not only in his characters shown how a passion steals into the soul, so that it becomes the solo tyrant of the desires, but he has clearly indicated how dreams influence the minds of men, and how they are based upon past experiences. Thus Mercutio in the description of Queen Mab refers to the soldiers' dreams in the following lines, which are as true to-day as when Shakespeare wrote them:

Sometimes she driveth o'er a soldier's neck,
And then dreams he of cutting foreign throats,
Of breaches, ambuscades, Spanish blades,
Of healths five fathom deep; and then upon
Dreams in his ear; at which he starts and wakes;
And, being thus frighted, swears a prayer or two,
And sleeps again.

FIXATION OF REPEATED EXPERIENCES IN SONG.

This fixation and organization of repeated experiences in the mind is shown in other ways—for example, a song that has been sung a number of times only requires the first word or note for it to be continued to the finish without any effort of consciousness, the last note or word uttered serving as the appropriate stimulus of the next; as in an instinct, we have what is termed a chain reflex. This was strikingly exemplified in a soldier under my care who suffered with a bullet wound of the brain. The bullet entered the left side of the head, passing through the part of the brain which controls articulate speech, also damaging the structures which control voluntarily the muscles of the right half of the body. It passed through the right orbit destroying the eye, it also in its passage cut the optic nerve of the left eye through, so that he was made totally blind. This poor fellow was very cheerful, comprehended all that was said to him; thus, by feeling my tunic sleeve he recognized my rank for when asked was I a Captain he expressed negation by "oot." Colonel also by "oot," meaning "no," and Major by "ah." He obeyed all commands. Now, curiously enough, although he was unable to express judgements only by "ah" and "oot," which correspond to yes and no, he was able to sing several songs through without difficulty provided the first word or bar of music was given. Thus I stood beside him and hummed "This a long way," and immediately he started the well-known chorus of "Tipperary," winding up with "Are we downhearted? No!" If then said, "Say Tipperary, Tom." He replied, "oot," and he was unable to utter any of the words. It must be concluded either that the song had been repeated so often as to have become organized in both halves of the brain or in sub-cortical lower centres. There is reason to believe that whereas articulate speech is primarily represented in the left hemisphere, phonation is represented equally in both halves of the brain, and therefore music may be also; consequently this may account for the fact that the music and the words of the songs he could sing were organized by frequent repetition in both halves of the brain, especially when it stirs the emotions. It is well known how long melodies can be retained in the memory with comparative ease by countless men and women if words are attached to the tunes. The tune may revive the words, or the converse. A month later, when I saw him, he was able to walk and speak. Thus, given a half-crown, he felt it, then tried the rim for milling on his teeth, and said, "Two shilling bit." When asked again, he corrected it with "Half-crown." Given a penny, he tested it in the same way, and the unpleasant taste left in his mouth caused him to throw it down with all the signs of disgust, saying at the same time, "Copper."

THE PSYCHIC AND PHYSIOLOGICAL MECHANISMS INTERDEPENDENT.

For a perfect performance consciousness should only be employed as the Censor (attention) to watch over and prevent the occurrence of imperfections in the technique of the vocal mechanism, whether it be the control of the breath, articulation, phonation, or the memory of the words. When the technique by constant practice of right methods has become perfect and organized in the subconscious memory as a fixed habit, the dramatic singer can then devote his whole attention to that portion of his art upon which his success will largely depend, namely, the expression of the emotions and passions by voice, countenance, and gesture. Not only will the successful artist be able to interpret the dramatic feeling of the composer, but he may also colour the part with his own personality, by an individual and original feeling tone, which is afterwards associated with his name. There are many happy mortals who have an inborn disposition to the sense of rhythm and harmony, and start well provided with the raw material necessary for the development of the psychic mechanism of the voice. They are what is termed musical, and, provided they possess a good physiological mechanism, are born singers, bound to succeed if they are properly instructed. There is nothing so deadly dull as monotony of tone in an orator or singer. Pleasure of listening comes from sequence of sounds, such as form musical phrases and cadences. Song in this respect has an advantage over speech because a much

wider range of tones is employed. But there must be a sympathetic quality in the voice due to emotional influence.

A perfect psychic mechanism is as necessary as the physiological mechanism for the production of perfect vocalization, especially for dramatic singing. A person, on the one hand, may be endowed with a grand vocal organ, but be a failure as a singer on account of incorrect intonation, of uncertain rhythm or imperfect diction; on the other hand, a person only endowed with a comparatively poor vocal instrument, but knowing how to use it to the best advantage, is able to charm his audience; incapable of vigorous sound production he makes up for lack of power by correct phrasing and emotional expression. We see, then, that the combination of a perfect physiological and psychological mechanism is essential for successful dramatic singing, the chief attributes of which are: (1) Control of the breath, adequate volume, sustaining power, equality in the force of expulsion of air to avoid an unpleasant vibrato, and capability of producing and sustaining loud or soft tones throughout the register. (2) Compass or range of voice of not less than two octaves with adequate control of mental perception of the sounds of the necessary variation in tension of the laryngeal muscles for correct intonation. (3) Rich quality or timbre, due partly to the construction of the resonator, but in great measure to its proper use under the control of the will. (4) The power to express the emotions and arouse the feelings of the audience. This may be acquired, but largely depends upon the inborn artistic temperament. Something is lacking in a performance, however perfect the vocalization as regards intonation and quality, if it fails to arouse enthusiasm or to stir up the feelings of an audience by the expression of emotion or passion, through the mentality of the singer.

Undoubtedly the effects produced upon the mind by song largely depend upon circumstances and surroundings, also upon the association of ideas. Thus I was never more stirred emotionally by the human voice than upon hearing a mad Frenchman sing at my request the Marseillaise. Previously, when talking to him, his eyes had lacked lustre and his physiognomy was expressionless; but when this broad-chested, six-foot, burly, black bearded maniac rolled out in a magnificent full-chested baritone voice the song that has stirred the emotions and passions of millions to their deepest depth, and aroused in some hope, in others despair, as he made the building ring with, "*Aux armes, citoyens, formez vos bataillons*," I felt an emotional thrill down the spine and a gulp in the throat, while the heart and respirations for an instant stayed in their rhythmical course. Not only was I stirred by the effect of the sounds heard, but by the change in the personality of the singer. It awakened in my mind the scenes of the French Revolution so vividly described by Carlyle. The man's facial expression and whole personality suddenly appeared changed; he planted his foot firmly forward on the ground, striking the attitude of a man carrying a musket, a flag, or a pike; his eyes gleamed with fire, and the lack-lustre expression had changed to one of delicious excitement. A pike in his hand and a red cap on his head would have completed the picture of a *sans-culotte*. Dramatic song that does not evoke emotional response in the audience, therefore, is *vox et præterea nihil*.

The second part of the annual report of the New York Rockefeller Foundation, issued on September 25th, gives an account of the work of the Rockefeller War Relief Commission in Europe from August 14th, 1914, to January 1st, 1915. Besides vast quantities of food and clothing sent to Belgium, the Foundation, within a fortnight of the outbreak of the war, made a grant of money to enable Dr. Alexis Carrel, of the Rockefeller Institute, who was mobilized as a medical officer of the French army, to purchase antimentingitis serum and antidyentery serum. Funds were also provided to be used by the American Red Cross in sending doctors and nurses to Europe. A commission was sent to Belgium and Holland to investigate and report on the organizations for relief in those countries. This commission afterwards visited Poland and Siberia for the like purpose. The Foundation further appropriated funds at the rate of £4,000 a year for the professors of scientific subjects who had been obliged to abandon their laboratories and who had been provided with opportunities of carrying on their work in England.

ORGANIC LESIONS FROM SHELL CONCUSSION.

BY

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OPHTHALMIC SURGEON TO THE 1ST AND 2ND
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A LARGE number of cases of shell concussion have been reported since the beginning of the present war. As far as they concern the eyes, the main symptoms are: Impairment of sight, contraction of the visual fields, photophobia, and blepharospasm.

When these symptoms are noted with little or no evidence of injury to the eyes or neighbouring cavities, it is usual to regard them as functional—a form of traumatic neurosis—and in the majority of cases this view is correct.

It must not, however, be assumed that they are all of this nature, and it is the object of this note to draw the attention of the profession in general and military surgeons in particular to the possibility of such symptoms arising from more or less gross organic lesions. The lesions may be present without any superficial sign of injury whatever, or very gross changes may follow such slight surface injuries that it is impossible to regard the latter as the true origin of the organic lesions, and we are compelled to admit that they are probably concussion effects.

The following have been observed among the cases which I have examined during the last twelve months or so:

Hole at the Macula.

In one case the patient gave the history of having been knocked over by the explosion of a shell, and there was no sign that anything had struck him in the region of the head. In the second case the patient said he might have been shot, but there was no sign of a bullet wound or other injury. In both cases x-ray photography showed an absence of foreign bodies, and there was no evidence of fracture of the orbital walls.

Haemorrhages in the Globe; Ruptures of Choroid.

S. P. was admitted into the 2nd Birmingham War Hospital suffering from loss of sight and oedema of the face. There was also a wound, apparently superficial, of the right malar bone, which skiagraphy showed to be punctured, but there was no sign of any foreign body in the head and no wound of exit suggesting that it was a bullet wound. The patient could not enlighten us as to the nature of the projectile which struck him. The cause of the visual defect was found to be multiple ruptures of the choroid with haemorrhages all over the fundus and into the vitreous. Later it was noted that the discs became atrophic, although he still retains sufficient vision to get about.

The appearances of the fundi in this case were identical with those seen after the passage of projectiles of high velocity across the orbits behind the eyeballs.

Mr. Harrison Butler, at a meeting of the Midland Ophthalmological Society, showed a case in which the patient, who had been exposed to shell concussion in August, 1914, had lost the sight of the right eye. There were large membranous opacities in the vitreous the result of haemorrhage, the temporal vessels were reduced to white cords, apparently a little thicker and less defined than the vessels themselves, and the disc was atrophic. Vision = hand movements on the temporal side only.

Optic Atrophy.

Mr. Butler also showed a man suffering from atrophy of the optic nerve on the left side. He had been buried in a trench by the explosion of a shell. He was unconscious for eleven hours; when he recovered consciousness he found that he could not see with the left eye. At that time there was much swelling about the eye, but when admitted to the Birmingham Eye Hospital there was complete absence of any sign of injury. A case with similar history under my care showed optic atrophy and rupture of the choroid, but no sign of injury.

Another case under my care presented right optic neuritis and secondary atrophy with central chorioiditis and vitreous opacities. The only injury was a small superficial wound of the upper lid. There was no fracture or foreign body shown by x rays. Atrophy of the optic nerve, presumably from haemorrhage into the sheath, has also been seen without any evidence of injury.

It is generally assumed, also, that intraocular changes only follow the passage of bullets of high velocity, when they pass through the orbital cavity. This is true in the main, but the following case shows that it is not always so.

Private H. was shot through the left cheek, the bullet passing through the left antrum and the nasal cavities, and emerging through the right zygomatic region. Vision was reduced to $\frac{1}{20}$ in each eye. The macular area in each eye showed marked oedema and the fovea in the left eye showed a red spot almost like the cherry spot of embolism of the central artery. Pigmentary changes in maculae followed.

We have met with other cases in which there is little or no evidence of injury, but which show gross changes such as dislocated lens and detached retina in the eye, but the histories of cases have not been sufficiently definite to ascribe these changes to concussion.

Shell shock also seems capable of bringing out latent ocular defects; squint and nystagmus have become manifest after shell fire, although the patients deny their previous existence.

The cases recorded will, I think, sufficiently indicate the necessity of investigating cases of "shell shock" very carefully in order to differentiate those that are functional from those that are due to organic lesions.

BILATERAL IRIDODIALYSIS WITH AMBLY-
OPIA AND CONTRACTED FIELDS DUE
TO EXPLODING SHRAPNEL.

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A PRIVATE, aged 37, came to the Royal Eye Hospital on June 12th, 1915. He states that he was wounded in the advance on Neuve Chapelle on March 10th by shrapnel exploding in mud, as far as he could judge some 4 ft. on his left front. He was completely blinded for the time, no doubt by the mud and debris thrown up, as well as the blood from the numerous lacerated wounds of the lids and forehead. From the field hospital he was taken to "E" and rested a night at "M" and "O" before joining the hospital ship *Asturias*. Thence he was conveyed to "N" where he arrived at the "W" hospital, March 16th, and remained till April 22nd.

On arriving at "N" he was unable to see at all, probably owing to extraocular inflammation of lids and forehead, which, judging by the scars, must have been very considerable. He began to see with his right eye after three weeks, and with the left after five, and then at times saw double.

He is a strong, squarely built, thickset, muscular man, with fair complexion and healthy appearance. On admission he had a somewhat dull, apathetic look. His mental cerebration was slow, and he was inclined to be querulous and sullen. Sense of taste, smell, and hearing were normal, and, as far as one could learn, not impaired since the accident. He is married and has three healthy children. He had never had any previous illness or affection of the eyes, was a moderate drinker, but a heavy smoker. There were numerous scars on the forehead, eyebrows, and upper lids, chiefly on the left side, one larger than the rest, involving the whole length of the upper lid, running from the inner canthus up and out to the left external angle of the frontal bone. The mobility of the lids was not impaired.

R.V. = $\frac{1}{20}$ c. + 1.0 ϕ . L.V. = ϕ , not improved.

There was well-marked horizontal astigmatism in both eyes, which on correction did not improve vision. The corneae were clear, and the conjunctivae and sclerotics presented no signs of injury; the anterior chambers normal in depth.

Right Eye.—Pupil of oblique oval shape, 2 x 3 mm. in diameter, with long axis from below in to above out, and parallel with small detachment of the iris for 2 mm. from its ciliary border on the upper and inner side. Reaction very sluggish to light, accommodation, and convergence. Consensual reflex slight. Lens and vitreous clear. Optic disc somewhat hazy and paler than normal; margins, especially the inner, ill defined, and slight oedema of the retina around the papilla. Surrounding vessels appear normal both in size and direction. At the upper and inner quadrant only are numerous foci of pigmentary

choroidal degeneration which seemed of doubtful traumatic origin. These have remained constant since the patient came under observation.

Left Eye. Pupil circular, 3 mm. in diameter, larger than right. Reaction to accommodation and convergence sluggish, but doubtful to light. At the outer margin and slightly above horizontal meridian the iris is detached from its ciliary border for 2 mm., and shows an identical semilunar-shaped opening to the right eye. Optic disc somewhat paler than normal, with ill-defined margins. Surrounding retina shows some effusion. Red reflex present through openings in both irides, but equator of lens not visible.

He was not conscious of any increased illumination through the secondary pupils. There was no evidence of any hyphaemia when he came under observation. X-ray examination and Wassermann reaction gave negative results.

The fields were markedly contracted, especially for red and green.

The diplopia was not constant, and could not be elicited

in examination by the ordinary methods. He stated that it was present at times when lying down in bed and described the one image as being lower than the other. Beyond this it was difficult to obtain information which could be considered reliable, but the evidence pointed to the eccentric pupil accounting for the condition.

The amblyopia, seemingly due to commotio retinae and functional disturbance, improved with rest and treatment. His general condition benefited, and his view of life became considerably more cheerful and intelligent.

Vision now: R. = $\frac{20}{40}$ c. disc $\frac{5}{10}$. L. = $\frac{20}{40}$ c. disc $\frac{5}{10}$.

The fields were taken on admission and twice since, and show no material improvement. This corresponds with Lister's observations on similar cases.

Monocular diplopia can now be elicited in both eyes, but it does not inconvenience him.

I cannot discover any recorded case of a similar binocular condition of the irides, traumatic or congenital. Parsons states that multiple dialyses occur, but presumably means of the same eye. Fuchs states that "he never saw them as a result of injury."

The peripheral zone of the iris adjacent to its ciliary attachment where it lacks the support of the lens behind, and is backed only by the zonule of Zinn, is admittedly the weakest, and the usual situation of these injuries.

The detachment in the left upper angle of each eye would be explained by a blow from the left and above. The head was probably held down in the act of running forward, or automatically ducked on hearing the scream of the shell, as in the case of bullets whistling above.

In the absence of other injuries to the eyeballs the detachments were most probably due to sharp impacts through the upper lids, from lumps of mud and clay from the left front. This explanation would readily fit in with Arlt's explanation of the condition, which says: "The cornea being momentarily flattened, the circle described by the corneal scleral border and the ciliary body, with which it is firmly united, is extended, whilst the sphincter iridis is contracted, the serrated connexion of the iris with the ciliary body is torn to a greater or less extent, and a second communication is formed between the anterior and posterior chambers."

I am indebted to Mr. Stroud Horsford for his opinion on the case, and the kind use of one of his beds.

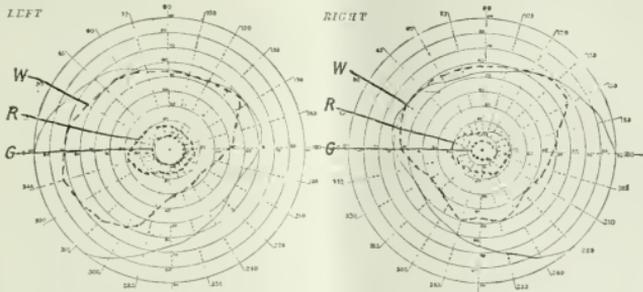


Chart 1.—Fields: w, White; r, Red; g, Green. Size of object 5 mm. (June 14th, 1915.)

THE PROPHYLAXIS OF TETANUS:

A SUMMARY.

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IN THE BRITISH MEDICAL JOURNAL, October 10th, 1914, a short and necessarily incomplete account of the use of tetanus antitoxin was given.

Since then many cases of tetanus have occurred, and many papers have been written on the subject, and a consideration of them should show us where our knowledge has made progress, and where it has been found wanting.

Owing, doubtless, to the exigencies of the times in which we are living, the writers, while expressing definite opinions, have given usually incomplete details of the results upon which their conclusions were based. This want of precision has tended to confusion, and has prevented in many instances the separation of those wounded who had a prophylactic injection of serum from those who had none. The value of the communications is thereby lessened, but in spite of this it is hoped that this further summary of the literature on the prophylaxis of tetanus may prove of interest and of use to those whose duties have not allowed them much time for reading during the past year.

PROPHYLAXIS.

In the *Memorandum on the Treatment of Wounds in War* (July, 1915) there are the following statements:

The prophylactic use of tetanus antitoxin is a proceeding of well established value.

Since, in the first two months of the war, more cases of tetanus occurred than had been anticipated either by ourselves or our Allies, it was decided to direct that a preventive dose of

serum should be given to every wounded man. The results have been excellent, and in the last six months there have been only 35 cases of the disease among those who received a preventive dose of serum within twenty-four hours of being wounded.

The preventive dose of 500 U.S.A. units should be given subcutaneously at a distance from the wound at the earliest possible moment. In severe wounds medical officers not infrequently give 1,500 units; there is no objection to this, but at the same time there is no evidence that the smaller dose is insufficient if given promptly.

Such has been the experience of the British army. Do the reports from other countries confirm it? Walther (1914) records that the action of prophylactic injections has been clear, although they could not in some cases be made until five to eight days after the wound. All the wounded in three wards and ten seriously wounded in another ward received each 10 c.cm. of antitetanic serum. Only one case had tetanus, and this came on the day after the injection—that is, before the serum could have produced its full effect. All the other cases of tetanus were observed among the wounded of three other wards in which prophylactic injections could not be given.

Hartmann (1914) at Besançon and Bourg met with 43 cases of tetanus among 3,373 wounded, and states that at neither of these places did a case occur among the men who had received an injection of antitoxin. He is of opinion that if a prophylactic dose of serum were given in all cases and repeated six to seven days later in intractable wounds tetanus would disappear as a complication of wounds.

Hufnagel (1914) reports that among 2,193 cases received into a hospital at Namur between September 11th and November 30th, 1914, there were 27 cases of tetanus. After October 15th every case had a prophylactic injection of 20 (Behring) units = 800 U.S.A. units, and among the

1,195 men admitted after that date (presumably October 15th) there was not a single case of tetanus, though many were severely wounded.

Madelung (1914), speaking of Strassburg where up to October 31st, 1914, there were 15,134 wounded with 101 deaths from tetanus, mentions that no case of tetanus occurred in those who were injected prophylactically before admission into hospital, but that tetanus occurred in some cases though they were received shortly after being wounded and on admission had a prophylactic injection of serum.

Bazy (1915) relates that 200 wounded had to be divided into two lots—each 100 containing cases of about the same degree of severity. The one half had prophylactic injections of serum, and among them there occurred one case of tetanus which developed the day after the injection. Among the other 100 who had no serum, there were 16 cases of tetanus. There were 10,896 wounded with 129 cases of tetanus, of whom 70 per cent. died. One case was admitted into hospital on October 8th, 1914, and had serum the same day. Tetanus began on December 12th and ended fatally on December 18th.

Gasch (1915) describes the usual routine treatment of the hospital with which he was connected as consisting of a prophylactic injection of 20 Behring units in every case of dirty wounds, thorough opening up of the wound and keeping it open. After this treatment there was not a case of tetanus among 700 cases. One case, among a series of 65, was not injected because of the apparent innocency of a wound of the great toe. He developed tetanus and died.

According to Nivière (1915), 14,100 soldiers were admitted into the nineteen hospitals in Vichy between August 17th, 1914, and November 16th, 1914. There were 61 cases of tetanus, and none of them had had a prophylactic injection of serum.

Heile (1915), when reporting his experience of 12 cases of tetanus, mentions that there was no case of tetanus among the wounded who had had a preventive injection. Five severely wounded soldiers were admitted from the same field of battle, and four of them had a prophylactic dose. The fifth man did not seem to be so badly wounded as the others, and so the serum was not given. In his case tetanus appeared on the seventh day, and ended fatally. Ritter (1915) had no more cases of tetanus after prophylaxis with serum was instituted.

Teutschländer (1915) mentions that tetanus bacilli were cultivated from the secretions of the wounds of three soldiers, each of whom had had a prophylactic dose of serum. Except that one man had a slight transient, painless contraction of the sole of the wounded foot, there were no symptoms or signs of tetanus at any time. Notwithstanding vigorous local disinfection, tetanus bacilli, virulent for mice, were cultivated from the wounds several weeks later.

From September 23rd to October 1st, 1914, Goldscheider (1915) had 14 cases of tetanus (one or two a day). Then 500 wounded were admitted in three days and each of them received 20 (Behring) units (= 800 U.S.A. units). Among these there were 4 cases of tetanus, each of whom either showed premonitory signs of the disease when injected or developed it within forty-eight hours. One died of sepsis, one died from the severity of a wound of the lung, and the other two were mild cases. No other case of tetanus occurred, and up to November 5th 1,427 wounded were admitted.

Now Hinterstoisser states (1915) that in the Franco-Prussian war there were, among 95,000 German wounded, 350 cases of tetanus = 0.36 per cent., and F. Stricker (1914) that in the battles of Colomby, Mars la Tour, and Gravelotte, with 29,340 wounded, there were 62 (= 0.21 per cent.) cases of tetanus, and in the battle of Spichern among 3,482 wounded there occurred 20 (= 0.57 per cent.) cases of tetanus.

How does this compare with the incidence in the present war?

If we put together the figures given in the various papers, we get an approximate idea of the percentage of wounded soldiers who have developed tetanus. It is only approximate, as it is impossible to ascertain exactly how much, if any, overlapping there is. It must also be remembered that some of the wounded had received a prophylactic injection.

Percentage of Wounded Developing Tetanus.

	No. of Wounded.	Cases of Tetanus.	Percentage.
Bazy	10,896	129	1.18
Walther	456	20	4.30
Hartmann	3,373	43	1.30
Gasch	700	1	0.14
Hufnagel	2,193	27	1.23
Schoute	242	3	1.20
Nivière	14,100	61	0.43
Goldscheider	1,427	4	0.28
Madelung	15,134	101*	0.66
Hinterstoisser	800	13	1.60
L. Simon	700	8	1.14
Joly	1,798	21	1.62
Siemon (German	1,500	26	1.74
(French	600	2	0.33
Forestier	74	5	6.75
Arzt	26,600	65	0.24
Ennicke	3,000	10	0.33
	83,593	539	0.65

* Deaths.

Hinterstoisser (loc. cit.) also mentions that on the western front during two months of 1914 there occurred among 27,677 German wounded (Madelung's 15,134 may possibly be included in these figures) 174 cases of tetanus = 0.62 per cent. He quotes further:

	Number Wounded.	Cases of Tetanus.
Crimean war	12,094 (English) ...	19 = 0.15%
American Civil War	217,000	505 = 0.2%
Russo-Turkish War	51,700 (Russian) ...	66 = 0.12%

We thus see that the incidence of tetanus in the present war has been greater than would have been anticipated from previous experience.

The figures available with regard to the wounded who received prophylactic injections are very small.

Wounded who received Prophylactic Injections.

	No. of Injected.	Cases of Tetanus.	Percentage.
Bazy	100	1*	1
Gasch	70	0	
Hufnagel	1,195	0	
Heile	4	0	
Teutschländer	31	0	
Goldscheider	500	4*	0.8
Dudgeon, Gardner, and Bawtree	9	0	
	1,881	5	0.26

* It is questionable whether these cases should be included (cf. Bazy, Goldscheider, above), but even if they are, the incidence rate among the injected is less than half the total incidence.

In all these cases tetanus bacilli were found in the secretions of the wounds.

Very much stress cannot be laid upon these figures, but from the "experimental evidence," as it has been termed, quoted above it may be gathered that the surgeons of the armies on the western front have found tetanus autotoxin of extremely great value when used prophylactically.

Thus the estimate of its value formed before the war has been confirmed by the further experience gained from its use during the severe test of active service.

PROPHYLACTIC DOSE.

The next point to be considered is the number of U.S.A. units of antitoxin which should be given as a prophylactic dose. It is necessary to specify the kind of unit referred

to, as the German unit is much larger than the American—1 German unit = 40 U.S.A. units. The mitage of French serum is not given, and one can only presume an average mitage from the results of tests of samples. V. Behring (1915) tested a sample of French serum and found that it contained 40 U.S.A. units per c.c.m. Rosenan and Anderson (1908) estimated the strength of two samples to be 40 U.S.A. units and 66 U.S.A. units respectively. The writer tested a market sample, and found the titre to be more than 50 and not quite 100 U.S.A. units per c.c.m. We may therefore assume that the usual prophylactic dose of 10 c.c.m. of Pasteur Institute serum is equal to some 600 U.S.A. units.

Doses Recommended by Several Writers.

v. Behring (Nov., 1914)	800 U.S.A. units, and repeat if wound not healed, as the preventive injection may merely postpone the tetanus.
v. Behring (Feb., 1915)	800 U.S.A. units, but if the serum can be given immediately the wound is received 500 U.S.A. units may be enough.
Goldscheider ...	800 U.S.A. units.
Kimmel ...	800 U.S.A. units. Must be repeated in some cases.
Grundmann ...	300-4,000 U.S.A. units, and repeat every two weeks.
Weinrand ...	800 U.S.A. units.
Hufnagel ...	800 U.S.A. units.
Gusch ...	800 U.S.A. units.
Aschoff ...	4,000 U.S.A. units, and 800 units eight days later.
Walther ...	10 c.c.m.—about 600 U.S.A. units.
Bazy ...	10 c.c.m.—about 600 U.S.A. units. Thinks that in some cases 2 or 3 c.c.m. might be enough.
English army ...	500 U.S.A. units. No evidence that this dose is too small.
Joachim ...	800 U.S.A. units.
Euenicke ...	800 U.S.A. units, and repeat twice at weekly intervals.

Here, again, war experience confirms the pre-war conclusion, and it may be accepted that from 500 to 1,000 U.S.A. units of tetanus antitoxin is a sufficiently large prophylactic dose for the *great majority* of injuries, provided it is given early.

ANOMALOUS CASES.

Cases have, however, occurred, and, no doubt, will occur again, in which the injection of from 1,500 to 4,000 U.S.A. units appears to have had only a comparatively limited effect, if any, in preventing the onset of an attack. In some of these cases the interval between the injection and the onset of the disease was too short to allow of the development of the full effect of the antitoxin. As an instance, a case recorded by L. Simon (1909) may be mentioned. A boy aged 5 years, weighing 45 lb., was run over on the evening of August 31st, and brought to the hospital shortly after the accident. It was found that he had a compound fracture of the right leg with a very dirty wound. Amputation at the knee was performed. There was also a compound fracture of the left toe, which was cleaned and dressed. At the same time 20 Behring units, = U.S.A. units, of tetanus antitoxin were injected into the right thigh. At 11 a.m. on September 1st (eighteen hours after the injury) symptoms of tetanus appeared. The attack was moderately severe, and ended in recovery. In the same paper Simon gives details of another case (a boy aged 12 years, run over), in which tetanus developed nineteen hours after the injury. In such cases serum given subcutaneously has no chance of exerting its full effect. But there are some cases in which the seeming failure of a prophylactic injection of antitoxin must be left unexplained until we possess fuller knowledge of the subject. The most remarkable is that recorded by v. Behring (1914):

His assistant H. Sch. was infected:

(1) In 1895, through the nasal mucous membrane when he was preparing dried tetanus toxin.

(2) In 1898, by inhaling dried powdered tetanus toxin; in this attack there was early tetanus of the diaphragm.

(3) In 1902, at 9 a.m. on Sunday November 9th, owing to a litre flask of bouillon culture of tetanus breaking in his right hand, and pieces of glass penetrating deep into the palm. The same afternoon very careful antiseptic treatment was given to the hand, and a plentiful amount of antitoxin was injected into the right arm. On the fourth day there were suspicions of tetanus, and on November 13th there was obvious tetanus

which, in spite of further injections of serum, increased in severity, so that on the sixteenth, as a last resort, the chief nerve trunks in the right axilla were exposed, and as much as possible of Behring's strongest serum was injected into each of them; the result was excellent. The tetanus ceased to progress, and the case gradually but slowly went on to recovery. The use of the right arm was not perfect for a long time.

It is most unfortunate that Behring does not say how many units of antitoxin were given or where it was injected in the earlier stages of the case. He, however, concludes that very shortly after the injury the intramuscular nerve endings had taken up and fixed a minimal lethal dose of the toxin. This, however, is a questionable statement; for if so much of the toxin was absorbed so soon on the 9th, then the lethal dose had not all passed up to the central nervous system by the 16th—that is, in seven days—a rate of travel which is somewhat slow according to experimental evidence (*cf.* Marie and Morax, 1902; Permin, 1913). v. Behring would not, we presume, have given a smaller dose of antitoxin than 20 Behring units, = 800 U.S.A. units, but whatever the dose was the immunity due to it did not last longer than four days.

Duration of Passive Immunity.

The duration of the passive immunity conferred by a dose of antitoxin is a question which has been the subject of investigation but is still unsettled.

In this connexion I may refer to an experiment performed by Meyer and Ransom (1902), though it had a different object in view.

They injected into the left sciatic nerve of a dog about 2.1 U.S.A. units of tetanus antitoxin, and immediately afterwards an equivalent amount of toxin subcutaneously, half being injected into the right fore-leg and half into the left hind-leg. On the third day the right fore-leg was tetanic but the left hind-leg was free. On the seventh day there were signs of commencing tetanus in the left hind-leg, and on the eleventh day it was distinctly involved.

In this case the passive immunity conferred on the left hind-leg by an amount of antitoxin sufficient to neutralize all the toxin injected began to pass off in one week. Ruediger (1913) showed from his experiments that the subcutaneous injection of 1,500 U.S.A. units of antitetanic horse serum into the horse confers a passive immunity lasting from six to eight weeks, and that 250 U.S.A. units of similar tetanus antitoxin injected into guinea-pigs protects them for four weeks against a dose of tetanus toxin in each case fatal to the control animals. If we take the blood volume of an ordinary horse to be about 30,000 c.c.m., and that of a guinea-pig of 500 grams to be 50 c.c.m., then the amount of antitoxin injected was $\frac{1}{60}$ U.S.A. unit per cubic centimetre and 5 U.S.A. units per cubic centimetre respectively. These quantities bring out the difference in the duration of the effect of a homologous and of a heterologous serum. Calculating from the guinea-pig figures, according to body weight only, a man weighing 70 kilos would require some 35,000 U.S.A. units of antitoxin to protect him for a month against a fatal dose of tetanus toxin.

Levin (1909), from experiments made with diphtheria antitoxin, concludes that there is no difference in the rate of absorption of a homologous and of a heterologous serum, but that the former appears to remain about three weeks in the circulation, while the latter has almost all disappeared at the end of a week. He states that of two animals of the same weight receiving the same amount of antitoxin, one may show 50 per cent. higher concentration of antitoxin in its blood than the other (*cf.* Park and Biggs, 1912-13); that if 10, 20, or 40 c.c.m. of heterologous serum be injected into a rabbit, practically all has disappeared at the end of about six days, whether it was given intravenously, intramuscularly, or subcutaneously; also that if it is wished to keep the antibody concentration at a certain height for some time, a series of relatively small doses must be given, and not one very large dose.

L. Simon (1914, *loc. cit.*) mentions the following case:

In a shell wound of the arm, because there was some twitching of the arm and face, 3.0 (presumably Behring) units = 12,000 U.S.A. units, of tetanus antitoxin were given intravenously. As all the symptoms subsided, it was concluded that the assumption of tetanus was a mistake. Thirteen days later the symptoms of tetanus returned in a more severe form, and so another 300 units were given intravenously under chloroform anaesthesia. On recovery from the narcosis the patient became suddenly cyanosed, had a rigor and a temperature of 40.9° C., but the pulse kept good and the respiration was

normal. After this partial shock had subsided there was no return of the tetanic symptoms. Three days later (seventeenth day after the first injection) 100 units were injected intravenously. The patient became totally unconscious for half an hour, there was marbling of the body, the pulse was scarcely perceptible, and the temperature rose to 40.1 C., but the respiration was fairly normal. Recovery was rapid and complete.

Then we have Rowan's (1910) "run over" case:

There was compound comminuted fracture of both bones of the leg, in which five hours after the accident 1,500 U.S.A. units of tetanus antitoxin were given subcutaneously. On the twenty-fifth day after the accident there were "premonitory symptoms" of tetanus, and death occurred on the fourth day of the attack.

In Simon's case we have 12,000 U.S.A. units protecting for only thirteen days, while in Rowan's case 1,500 U.S.A. units conferred immunity for over three weeks.

These results are conflicting, and when considered in conjunction with the general experience that 500 to 1,000 U.S.A. units is a good prophylactic dose make plain the existence just here of a gap in our knowledge which we should endeavour to fill up by taking every advantage of the present opportunity of studying the disease.

The fact that these large doses failed to protect completely, and the experience of the British army that "there is no evidence to show that 500 U.S.A. units is too small a dose" tend to confirm Levin's conclusions that it is better to give a series of small doses rather than one large one. If the dose of 500 units is repeated at the end of a week and of a fortnight after the receipt of the wound we should not use any more serum, and we should probably get a more prolonged immunity than by giving the 1,500 units which some surgeons seem to prefer.

VERY LATE DEVELOPMENT OF TETANUS.

Other cases which are puzzling are those in which tetanus develops very late. One such case is reported by Don (1915). A man was wounded in the shoulder on December 21st, 1914, and received a prophylactic injection (number of units not mentioned) on December 23rd. On March 2nd, 1915, tetanus developed. Tetanus bacilli were found in the pus. Were these tetanus bacilli present from the date of the wound or did infection occur at a later period?

Köhler (1915) and also Grundmann (1915) both suggest that some cases of tetanus arise after admission into hospital, owing to the infection being conveyed from one wounded man to another—most probably by the patients themselves. In 3 cases Tentschländer (1915, loc. cit.) found virulent tetanus bacilli on the secretions of wounds which had been received several weeks previously, and Dudgeon, Gardner, and Bawtree (1915) state that—

"A wounded man may be acting as a carrier of tetanus bacilli for at least two months after the date of the wound, and without any reason on clinical grounds to suggest that these bacteria are present in the tissues."

They cultivated tetanus bacilli from two cases neither of whom had had a prophylactic injection of antitoxin. One of these developed the disease and recovered, whilst the other escaped scot-free.

As suggesting possible sources of late infection, two cases of tetanus recorded by Kirimisson (1914) are not without interest.

The first was that of a girl of 17½ years, who was being treated for dorsal scoliosis. A plaster corset was put on on February 10th, and layers of felt were slipped in underneath the plaster on February 14th and 21st, and on March 7th and 21st. On April 1st there was trismus. The corset was immediately taken off, and a little eschar was found on a right costal projection. Death occurred forty-eight hours later.

The second case was that of a girl of 19½ years, who under similar conditions developed acute tetanus, and died in forty-eight hours.

Kirimisson suspected the felt, and his suspicions were proved to be correct as tetanus bacilli were isolated from it.

Another way in which infection may be brought about is that to which Jacobsthal (1914) has called attention. After meeting with tetanus in two cases in which the East Indian fibre known as Pangawar Djambi had been used to dress the wounds, he examined seven specimens of this fibre, and found tetanus bacilli present in three of them.

Further, it appears that the surgeon may be the cause of the development of tetanus by the use of procedures

which under ordinary conditions would be quite harmless but which are not safe owing to certain peculiarities of the tetanus bacillus. These "vagaries," as they may be called, are well brought out by the results of the laboratory studies of the bacillus carried out by Francis (1914). Eleven vaccine viruses, ten of which contained *B. welchii*, were artificially contaminated with tetanus spores and injected subcutaneously on the back of 26 mice and on the abdomen of 26 guinea-pigs. All the guinea-pigs contracted tetanus after an average incubation period of four days and all died; 17 of the mice had tetanus—average incubation period eight days—and died. The remaining 9 mice showed no signs of tetanus, but each of these 9 mice had a mate which had an injection of the same amount of the same material and each mate, with one exception, developed tetanus from which it died. After forty-five days, in the case of 6 of these mice, and after sixty-six days in the case of the other 3, they were all injected subcutaneously on the back with a twenty-four-hour old agar culture of staphylococcus and all promptly contracted fatal tetanus. Scrapings from the site of inoculation in each instance contained over 500 mouse minimal lethal doses of tetanus toxin.

Again, 93 glycerinated vaccine viruses artificially contaminated with tetanus spores were inoculated in 1 c.c.m. amounts beneath the skin of the abdomen of 93 guinea-pigs weighing about 250 grams each. Seventy-seven died of tetanus, 4 had tetanus but recovered, while 12 manifested no symptoms whatever of tetanus. He showed that tetanus spores may remain in the tissues of the guinea-pig for about four weeks, and at the end of that time may be activated by injections of quinine or of staphylococci. White mice will harbour tetanus spores in the subcutaneous tissues for at least four months, at the end of which time the spores may be activated by staphylococci but not by quinine, and at the site of inoculation there may be produced as much as 10,000 mouse minimal lethal doses of tetanus toxin. Further, Francis mixed 0.5 c.c.m. of glycerinated vaccine virus with 0.5 c.c.m. of a rich suspension of tetanus spores and used the mixture to vaccinate five monkeys, each in five places on the back. There was a good "take" at every insertion, but none of the animals contracted tetanus. In the case of one monkey a portion of the "crust" was removed on the fourteenth day and injected beneath the skin of two guinea-pigs, both of which developed tetanus. This experiment was repeated in the case of three other monkeys with the same result. He then vaccinated a monkey with plain virus, and on the fifth day, when there was a good "take," he rubbed tetanus spores well into the "take." The animal never showed a sign of tetanus.

It would be interesting to compare Francis's animal figures with figures obtained from wounded men, but it cannot as yet be done. The only figures the writer has come across are those of Fleming (1915), who examined bacteriologically 127 wounds within seven days of infliction, and found tetanus bacilli to be present in 22 of them. It is not stated whether the bacilli were identified by microscopical examination only or by cultivation. Unfortunately he does not state how many of the men developed the disease.

The demonstration by Francis that injections of staphylococci may reactivate quiescent tetanus spores and give rise to a fatal tetanus is of great importance when considered in connexion with the experience of C. J. Bond (1915), who states that there are reasons for thinking that cases are occurring in which some slight surgical interference has reignited a violent local reaction in the neighbourhood of a recently healed wound. "I have records of cases in which after all incisions and sinuses round a compound fracture involving the elbow-joint or hip or other joint had completely healed, even simple passive movement of the joint under an anaesthetic has lighted up a violent reaction, the reappearance of the old sepsis and the formation of local abscesses, although no incision was made, nor any solution of skin surface produced."

Confirmation is afforded by Bérard and Lumière (1915), who have encountered a number of cases of tetanus following some operation or trauma affecting a wounded soldier who had had a prophylactic dose of serum, and had long recovered apparently from his wound.

Goldscheider, too, suggests that a case recorded by him

was possibly due to too early and prolonged active movement after a wound had healed.

The case was that of a soldier who received a flesh wound of the left thigh on October 4th, 1914. A dressing was applied by a comrade, and he was admitted into hospital on October 7th. He had no prophylactic injection, and the progress of the wound was normal. On October 30th he was discharged as fit for active service, and he walked 22 kilometres that day, and 5 kilometres the next day with the object of regaining his regiment. On the night of October 31st–November 1st he had pains in the left leg and trouble in eating. He missed his regiment, and had to retrace his steps some distance. The symptoms increased, he was readmitted into hospital, and he died of tetanus on November 7th.

The studies of Francis and the experience of Bond, of Héraud and Lumière, and of Goldscheider point out a line along which we may conduct our investigation into the causation of these cases of late development of tetanus.

OPERATION.

As regards operating in cases of tetanus the opinion before the war was against doing so, and nothing has occurred since to change that opinion. This is not to be wondered at considering that it has been shown by:

1. Bolton and Fisch (1902), that toxin makes its appearance in the blood of the horse several days before any symptoms of tetanus are to be observed, and that it gradually increases until about two days before the symptoms become noticeable, and then it suddenly diminishes and may in some cases even disappear. The amount of toxin varies in different cases. In one instance the serum from a diphtheria antitoxin horse about two days before the symptoms of tetanus appeared was sufficiently toxic to kill a guinea-pig in a dose of 0.1 c.cm.

2. Madsen (1908), that five days before the appearance of tetanic symptoms in a horse there was in the filtered serum enough tetanus toxin in:

5 c.cm. to kill a guinea-pig in 8 days	
8 " " " " " 3 "	
10 " " " " " 3½ "	

Serum obtained shortly before the horse's death, on the same day that the symptoms were noticed, killed a guinea-pig in a dose of 4 c.cm.

Nivière (1915) mentions that in 8 cases which had been operated on tetanus developed, in 2 within twelve hours, in 4 within twenty-four hours, and in 2 within forty-eight hours after the operation.

Cobb (1914) reports a case of severe shell wound of the left arm in which amputation of the arm was performed two days after the injury at the base hospital in France. He was admitted into hospital in England on the seventh day with wounds very septic and large sloughs. These latter were cut away, the whole area swabbed with H_2O_2 , and a prophylactic dose of antitetanic serum given. Next day there were twitches in the shoulder, and later in the day the patient developed well-marked trismus. The attack progressed rapidly, and ended fatally on the third day of the disease—the tenth from the receipt of the wound.

As another example, Esau's (1910) case may be cited. A boy of 14 years of age received a pistol shot wound of the left hand. The wound was opened up and cleaned on the third day after the injury. On the seventh day there were slight contractures of the flexors of the left hand, but they passed away, and serum was not given. On the following days the contractures recurred more frequently. They could be overcome with slight force, but this gave pain, and they returned again at once. Not the slightest trouble with the jaws. On the fifteenth day after the injury the wound was opened up again, and some foreign bodies removed. Next day (sixteenth) there was general tetanus, which became moderately severe, but ended in recovery.

It is imperative, therefore, when an operation is proposed in wounded who may have been infected with the tetanus bacillus, to bear in mind that there may be toxin circulating in the body. A large prophylactic injection is consequently necessary, and it should be given in such a way as to ensure that there is no free toxin in the blood at the time of the operation and for some time after. Subcutaneous injections, except as supplementary agents, are out of the question here because of the slow rate of absorption. If the injection be given intramuscularly, then the operation should not take place for several hours. An intravenous injection permits of the operation being performed at once, and as it bears upon the question it is

of interest to note a statement of Ichring's (1915) to the effect that the amount of antitoxin present in 1 c.cm. of blood a few minutes after an intravenous injection of antitoxin remains constant for nearly sixty minutes.

An intravenous injection of serum always raises the question of the possibility of anaphylactic trouble ensuing. E. E. Irons (1915) gives an instance of this and a description of the precautionary measures which were taken. The patient had a prophylactic dose of 1,500 U.S.A. units after a punctured wound of the heel. Ten days later tetanus set in. While arrangements were being made for his admission to hospital 1,500 U.S.A. units were given subcutaneously. This was followed by a moderate urticaria. Eight hours later, on arrival at the hospital, 5 c.cm. of serum were injected intravenously on the assumption that sufficient time had elapsed since the previous dose, which had been followed by an immediate cutaneous reaction, to render him insensitive to further serum. However, an immediate severe serum reaction occurred after this second dose—urticaria, rapid respiration, and rapid pulse. "The severity of the tetanus made us feel that unless something further could be done he would surely die of tetanus. We prepared a 10 per cent. solution of antitetanic serum in NaCl solution, and injected 10 c.cm. intravenously very slowly, watching carefully the pulse, blood pressure, and respiration. There was no further reaction, and the full dose of 20,000 U.S.A. units was then given intravenously and 5,000 units intraspinally without a trace of serum reaction." Surgical treatment of the wound and sufficient sedatives to control spasms completed the treatment. The patient recovered.

CONCLUSIONS.

The experience gained during the first year of the war has confirmed the opinion that from 500 to 1,000 U.S.A. units of tetanus antitoxin is a sufficiently large prophylactic dose for the majority of cases, and that it is advisable, in severe wounds, to repeat the dose once or twice at intervals of a week. Occasionally cases occur in which antitoxin appears to have little preventive effect. These cases should be recorded with minute details, so that our knowledge of them may be increased and an explanation of their occurrence obtained. Those cases of tetanus which develop some weeks after the receipt of an injury may be due to the reactivation of a quiescent focus by too early or too energetic active or passive movement.

NOTE.—It has been assumed that, in all articles published in German, when the expression "A.E." (Antitoxin Einheit) is used it means a "Behring unit."

BIBLIOGRAPHY.

- Arzt, 1914: *Wien. klin. Woch.*, December 27th, 1914, p. 1635; abstract in *Journ. Amer. Med. Assoc.*, February 6th, 1915, p. 551.
 Aschoff, 1915: *Deut. med. Woch.*, April 8th, 1915, p. 456.
 Baz, 1915: *Presse médicale*, Paris, February 8th, 1915.
 v. Behring, 1918: *Deut. med. Woch.*, October 8th, 1914, and November 12th, 1914.
 v. Behring, 1915: *Berl. klin. Woch.*, February 8th, 1915, p. 121.
 Bénière, 1915: *Bull. de l'Acad. Méd.*, Paris, August 31st, 1915; abstract in *Journ. Amer. Med. Assoc.*, October 16th, 1915.
 Bolton and Fisch, 1902: *Trans. Assoc. Amer. Phys.*, xvii, pp. 462-7, cited by Rosenau and Anderson.
 British MEDICAL JOURNAL, September 25th, 1915, p. 467.
 Cobb, 1914: *BRITISH MEDICAL JOURNAL*, November 14th, 1914, p. 856. Doi, 1915: *Lancet*, 3rd Dec. 1915, p. 1233.
 Dudgeon, Gordon, and Hawtree, 1915: *Lancet*, June 12th, 1915.
 Esau, 1910: *Deut. med. Woch.*, p. 706.
 Eubanks, 1914: *Munich. med. Woch.*, October 27th, 1914, p. 2147.
 Francis, August, 1914: *Bull. 95, Hyg. Lab., U.S. Public Health Service*.
 Flingens, 1915: *Lancet*, September 18th, 1915, p. 638.
 Forstner, 1914: *BRITISH MEDICAL JOURNAL*, November 14th, 1914, p. 854.
 Gaseh, 1915: *Deut. med. Woch.*, March 11th, 1915, p. 330.
 Goldscheider, 1915: *Berl. klin. Woch.*, March 12th, 1915.
 Grundmann, 1915: *Berl. klin. Woch.*, February 22nd, 1915.
 Hartmann, 1914: *Bull. de l'Acad. Méd.*, Paris, December 8th, 1914.
 Hufnagel, 1914: *Deut. med. Woch.*, December 17th, 1914, p. 2102.
 Klotz, 1915: *Berl. klin. Woch.*, February 15th, 1915.
 Hinterstoisser, 1915: *Wien. klin. Woch.*, February 18th, 1915.
 Irons, 1915: *Journ. Amer. Med. Assoc.*, May 8th, 1915.
 Jacobsohn, 1918: *Munich. med. Woch.*, October 13th, 1914, p. 2079.
 Joehmann, 1914: *Deut. med. Woch.*, October 22nd, 1914, p. 1881.
 Joly, 1915: *Bull. de l'Acad. Méd. Paris*, January 26th, 1915.
 Kimmel, 1915: *Munich. med. Woch.*, April 30th, 1915, p. 570.
 Klotz, 1915: *Bull. de l'Acad. Méd. Paris*, January 26th, 1915; abstract in *Journ. Amer. Med. Assoc.*, July 4th, 1914, p. 44.
 Kohler, 1915: Abstract in *Berl. klin. Woch.*, February 8th, 1915, p. 137.
 Levin, 1909: *Zeitsch. für Immunitätsforsch.*, 1, orig., pp. 3-7.
 Madeluns, 1914: *Muench. med. Woch.*, December 29th, 1914, p. 2441.
 Madsen, 1908: *Centralbl. f. Bakt.*, 1, orig., xlii, p. 276.
 Marie and Morax, 1902: *Annal. Inst. Pasteur*, xvi, p. 818.
 Meyer and Ransom, 1903: *Archiv. f. Experim. Path. u. Pharm.*, xlii, pp. 367-416.
 Nivière, 1915: *Bull. de l'Acad. Méd. Paris*, March 30th, 1915, p. 402.

Park and Biggs, 1912-13: Collected Studies, Bureau of Laboratories, Health Department, City of New York.
 Fernin, 1913: Communications de l'Institut sérothérapique de l'Etat Denois.
 Mitter, 1915: *Muench. med. Woch.*, April 23th, 1915.
 Rosenau and Anderson, 1908: *Bull. U.S. Hyg. Lab., U.S. Public Health Service*.
 Towan, 1910: *J. Am. Med. Assoc.*, February 12th, 1910, p. 553.
 Schneider, 1913: *Philippine Journ. Science*, viii, Sec. B, pp. 138-142.
 Schönke, 1915: Abstract in *BRITISH MEDICAL JOURNAL*, January 2nd, 1915, p. 45.
 Simon, 1914: *Muench. med. Woch.*, December 1st, 1914.
 Simon, 1909: *Muench. med. Woch.*, p. 2361.
 Shiozo, 1915: *Muench. med. Woch.*, November 10th, 1914, p. 247.
 Stricker, 1914: *Dent. med. Woch.*, December 24th, 1914, p. 247.
 Teutschländer, 1915: *Dent. med. Woch.*, May 13th, 1915.
 Weithner, 1914: *Presse médicale*, Paris, October 8th, 1914.
 Weintraud, 1914: *Berl. klin. Woch.*, October 30th, 1914.

THE CONTROL OF "DIPHTHERIA-BACILLUS CARRYING"; AND THE JASMIN OIL METHOD.

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THE revelation of the unsuspected evil of "carriers" arose from a study of the longer and less direct route followed by the dissemination of typhoid, although the recrudescence of diphtheria epidemics at schools had long been identified with a readmission of pupils certified (after an adequate convalescence) as clinically cured. The notion that these were minor relapses after the cure continued to be held for a while after the first observation (by Kayser in 1906) of the spread of typhoid by a "cured-typhoid" bacillus carrier. Since then we have recognized the more subtle and possibly frequent danger from the "typhoid-intact" carrier; and it is now admitted that diphtheria also may have its "cured-diphtheria" and its "diphtheria-intact" carrier, both needing their local internal sanitation, though with a less remote and extensive seat of infection than in typhoid.

That result does not appear to have been achieved. This late publication of suggestions originated and practised long before the "carrier" period has been occasioned by a recent inquiry by a correspondent (*BRITISH MEDICAL JOURNAL*, 1915, vol. ii, p. 459) for a reliable method of curing diphtheria carriers. My first paper in 1897 (*BRITISH MEDICAL JOURNAL*, vol. ii, p. 1564), in conjunction with my then house-physician, Dr. W. A. Hubert, was mainly concerned with tracheotomy dangers—namely, to safeguard the patient against the dangerous suppression of his cough mechanism inflicted for the sake of an air-way; and to help him, less through antiseptics than by the expectoration of the infective material and by a recovery of some of the impaired ventilation and circulation of the lung. It also referred, however, to my antecedent treatment for several years. This contained potentially all the clinical work that followed; practically the "spreading oil-film method" as a mechanical substitute for the unpractical principle of corrosive antiseptics, which is inapplicable to the healthy membrane of the carrier. It is to be regretted that that effort should have passed unnoticed in this country; although in France some reference has subsequently been published to an intranasal instillation of oil which, perhaps, may still be in vogue. Owing to that oversight, and to the lack of systematic institutional opportunities for any test by results, I now offer this method only as a tentative proposition for the purpose of disinfecting carriers. Yet it has not lacked clinical evidence for its feasibility and for its benefits, under active infection.

I had realized the desirability of forestalling any extensive secondary sinus infection, and it possible of suppressing it gradually during treatment, whilst at the same time mitigating the severity of the local trouble. Eventually instructions were given for a systematic toilet at least twice daily in all my cases of diphtheria from the beginning of and throughout their hospital treatment. Antitoxin, which came in as the supreme agent for the clinical cure, did not displace that hygienic indication. I may mention, in illustration of the cleansing power of oil, the benefit derived three weeks ago by an adult patient with bilateral pulmonary phthisis, operated on last February for polypi and still suffering from them, but now unfit for surgical interference. The discomfort was greatly relieved by the first application, and, within three or four days, the

severe factor from which he had suffered for years was completely suppressed. In this instance, however, I had followed up the oil supply with an insufflation of boracic powder, immediately.

The original disinfecting purpose led me to take within the systematic scope of the method practically all the infections including influenza, whooping-cough, mumps, tonsillitis, etc.) which own an ori-nasal origin or extension. Meanwhile the mechanical "oil-film by water carriage" disclosed its ability to reach beyond the feebly moistened glottis and to give relief to an inflamed tracheal or bronchial membrane; though its greatest benefaction is in easing the acute catarrhal upper nasal obstructions, as well as all the acute and chronic catarrhal affections of the naso-pharynx, fauces, and upper larynx.

The method itself has hardly varied from its original form, except for the discarding of carbolic acid (1 in 60) and the substitution of jasmin oil, which is exceptional among flavoured oils in its freedom from the irritating effect of any added essential oil. The mechanism of the method is simple, but needs judgement. It is not free from the influence of the psychical factor, which the sense of relief usually cures provided this is not marred by inexperience in the patient or the nurse. The main idea is still the original one of utilizing to the full the downward action of the cilia, and to sweep the mucous membrane with a continuous moving film. The supply must therefore be from above, not as in spraying, douching or syringing from below. Though introduced at the nostril the oil is collected in the upper fossae. The rapidity of the radiating spread of the film by surface tensions is great in proportion to the moisture of the surface and to the fluidity of the oil. Our main concern is its after movement practically independent in time from the first, and practically uninfluenced in its direction by those evenly centrifugal radiations, which broadly coincide with it in one hemisphere of the field whilst contrary to it in the other. Whether "up or down," the cilia work the transportation towards the external orifice. From a charged frontal sinus it moves downwards, the same way as the massive discharge from blowing the nose, and also backwards. But in the trachea any "descending" film would be moved upwards, the same way as if it arose from an intratracheal injection. The film is, of course, a passing show, easily broken up by absorption. Its full value is in its frequent renewal with adequate charges.

The simple implements are an eggcup to hold a small supply and a penfitter to convey the oil into the nose—namely, for an adult, a charge nearly half filling the tube. The patient reclines on a bed or flat couch with a narrow bolster, and spreads a towel well up to the chin or higher. The essential is to throw the head well back behind the bolster and to maintain it there for half, or the whole of a minute after charging both nostrils. The oil must not be rushed up or run in, but instilled drop by drop. The other essential is the complete lateral movement of the head to the right for a while and then to the left, to favour the irrigation of the sinuses, as that small supply cannot fill them. As the head is gradually levelled the oil is felt to trickle down the back of the naso-pharynx. This is the only unpleasant sensation. But that surplus is not considerable. It may be swallowed; or better, by refraining from swallowing, it may be allowed to find its own way down the larynx and trachea. It is better to have assistance, but most of my patients succeed in their unaided performance on the strength of these simple directions. I believe—but must leave the decision to those with larger opportunities—that this method, with the addition of the insufflation, if duly persevered with, is the most likely one to rid a carrier of his influenza or of his diphtheria bacillus.

BIBLIOGRAPHY.

BRITISH MEDICAL JOURNAL, 1897, vol. ii, p. 1564. *Ibid.*, 1898, vol. i, p. 1381. *Ibid.*, 1899, vol. i, p. 342. *Lancet*, 1899, vol. i, p. 377. *Ibid.*, 1899, vol. ii, p. 780. *Ibid.*, I. A. Grimes, 1899, vol. ii, p. 409. *Ibid.*, 1899, vol. ii, p. 1808. *Ibid.*, 1909, vol. i, p. 33.

The *Medical Record* states that out of 600 applicants for the United States Navy examined recently in Boston only 50 were accepted, the remainder being rejected as physically below the normal or mentally or morally unfitted for the service. From this, Rear Admiral Albert Ross draws the conclusion that America must make its rapidly degenerating citizens into men before they can be made sailors or soldiers.

The Goulstonian Lectures

ON

SPINAL INJURIES OF WARFARE.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

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III. THE SENSORY DISTURBANCES IN SPINAL INJURIES.

In the previous lecture we discussed, as far as time would permit, certain symptoms produced by injuries of the spinal cord, selecting those which were the most important and interesting; in the present lecture the disturbances of sensation, especially those that result from incomplete or unilateral lesions, will be described, and observations that may contribute to our knowledge of the course and grouping of the sensory afferent impulses within the cord will be particularly emphasized.

If you permit me it will be advisable, however, before passing to my own observations, to give a short sketch of the conduction of sensation within the cord as far as it is at present known.

Nearly sixty years ago the first valuable contribution to this subject was made by Brown-Séquard,⁷ who from both clinical and experimental observations concluded that a one-sided lesion of the spinal cord produces motor paralysis, with hyperaesthesia and loss of muscle sense on the same side, and in addition anaesthesia of all other forms of sensibility on the opposite half of the body.

These conclusions have been, however, violently attacked by both physiologists and clinicians, and even Brown-Séquard himself later modified his views, but they have formed the basis of all subsequent contributions, and it has been, in fact, only within recent years that any important additions or modifications have been made to them.

The exact intraspinal course of the various forms of sensation soon began to excite interest. Many workers, following Brown-Séquard and Schiff, held that pain and temperature at least pass upwards through the grey matter, while tactile impressions and those that underlie the sense of position, ascend, according to Schiff, through the dorsal columns. Bechterew's and Bikel's experiments, however, made it probable that impressions of pain are conducted, after decussation, through the white matter of the ventral part of the lateral columns. But it is obvious that neither the grouping nor the course of sensory impulses within the cord could be determined by experiments on animals, and it is not surprising that the most reliable conclusions we have were obtained from clinical observations on suitable cases of injury or disease in man. It is largely to Petróń⁸ that we owe the most accurate and comprehensive summary of clinical observations. From the collation of a large number of cases he has concluded that impressions of pain and temperature pass through the opposite lateral column, "muscle sense" through the homolateral dorsal column, while two paths are open to tactile impressions, one through the uncrossed exogenous fibres of the dorsal column, another in the opposite lateral column. A careful and elaborate analysis by Drs. Head and Thompson⁹ of sensory disturbances produced by spinal lesions confirmed these conclusions, and showed that when the appreciation of cutaneous pain is lost, that produced by pressure is also disturbed, that light touch and heavy touch are lost simultaneously, and that the appreciation of all degrees of temperature is abolished together. They also found that the ability to recognize the simultaneous contacts of two compass points depends on impulses conducted through the homolateral dorsal column. The affection of other forms of sensation by spinal lesions has been also investigated. The French school particularly has been interested in the appreciation of the vibrations of a heavy tuning-fork, and Egger,¹⁰ as well as Seiffer and Rydel,¹¹ have shown that disturbance of this is generally associated with loss of the sense of position, and that it consequently depends on the integrity of the dorsal columns. Finally, working with Dr. Head,¹² I found that in unilateral spinal

lesions the appreciation of weight and the recognition of size and shape are frequently lost in the paralysed side, and from this observation, correlated with other facts, we concluded that the impulses that subservise these functions also ascend uncrossed through the dorsal column; we also confirmed earlier observations that the appreciation of vibration passes by this path too.

The nature of our material and especially the fact that we have been able to investigate most of our cases only in that early stage in which certain symptoms may be attributed to shock and other to partial lesions and incomplete blocking of the passage of sensory impulses makes extreme caution necessary in drawing final conclusions on the mode of sensory conduction within the cord, but the disturbances we observed must have an important bearing on this subject. We have been, however, able to keep certain cases under observation as long as ten to twelve weeks after the infliction of the wound.

BROWN SÉQUARD PARALYSIS.

The description of the sensory changes found in incomplete lesions can be most easily introduced by the history of a typical case of unilateral injury:

CASE IV.

Pte. C., 15417, was wounded on May 12th, 1915, by a rifle bullet, which entered immediately to the right of the fifth cervical spine and made its exit 2 cm. below the right angle of the mouth. His jaw was fractured. He lost all power of movement in both legs and in his right arm at once, and his left arm became weak. He complained of pain in his left shoulder and had retention of urine at first, but this quickly disappeared.

He came under observation three days after the infliction of the wound. An x-ray examination then showed a fracture of the right side of the arch of the fifth cervical vertebra and some damage to the bodies of the fourth and fifth on this side. There was a well-marked palsy of the right cervical sympathetic and his right arm was toneless and completely paralysed. All movements of his left arm were possible, but its

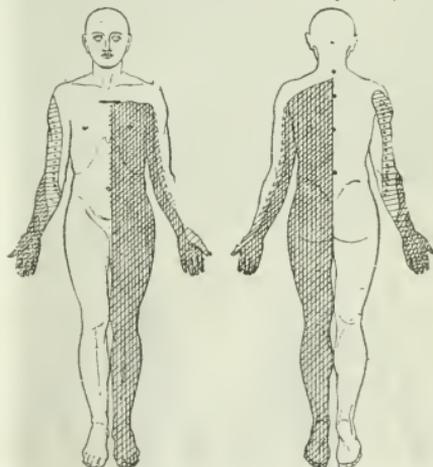


Fig. 6.—Sensory disturbances in Case IV. In this and the succeeding figures the horizontal lines represent tactile anaesthesia, the vertical lines anaesthesia, and the oblique lines thermo-anaesthesia. Interrupted lines indicate partial loss of the corresponding form of sensation. In Fig. 6 the dotted line on the right arm indicates the limit of anaesthesia to heavy touch.

distal segments were slightly weak. There was practically no movement of the right side of his chest in ordinary respiration or on taking a deep breath, and the rectus abdominis and the diaphragm of this side were weak. The movements of his left lower limb were as full and as strong as normal, but the right was flaccid and powerless. The arm-jerks were absent on both sides, and the knee and ankle jerks on the right, but on the left these reflexes were exaggerated; the right plantar response was extensor and the left was flexor.

He then complained of pins and needles in his right leg and of a sharp stabbing pain in his left shoulder. Examination revealed complete loss of appreciation of painful and thermal stimuli on his left side up to the lower margin of his second rib in front and to his first dorsal spine behind, as well as on the inner border of his arm and hand (Fig. 6). Even the highest,

tactile stimuli could be recognized on both legs and on both sides of his trunk, but when a wisp of cotton-wool was drawn over either hairless or hair-clad parts it tickled more, and was "more distinct" on the right than on the analgesic side; when compared with parts above the level of the lesion it was found that this subjective difference was due to non-appreciation of the tickling component in the stimulus on the left side. The extensive sensory disturbances represented on the chart were found on his right upper limb; there was total loss of sensation to pain on the hand and on the radial side of the forearm, loss of appreciation of temperature over a slightly larger area, while cotton-wool and heavy touch could be recognized only on the inner side of the arm; rubbing or scratching, however, produced much discomfort on the area in which sensibility to touch was lost, but that to pain preserved. The sense of position and the appreciation of passive movement were abolished in his right limbs and diminished in his left ulnar fingers, and vibration could not be recognized in his right leg, on this side of his trunk, or below his right elbow. He was also unable to recognize the form of objects placed and moved about in his left hand, but owing to the tactile anaesthesia this could not be then tested in his right hand.

Ten days after the injury his left limbs were almost as strong as normal, and the right reflexes had reappeared, but were feeble; the state of his sensation remained unaltered, except that heavy pin pricks could be occasionally felt on the left side above the level of his fifth rib.

Twenty-four days after the infliction of the wound his general condition had improved and permitted a more complete examination. His right leg was still flaccid and powerless, and his right upper limb was wasted and completely paralysed; the left limbs were now quite strong. He now complained of severe pain in his right leg, especially when it was touched or moved, but there was no local condition to account for this. Apart from his right arm, the lightest tactile stimuli were appreciated as well on one side as on the other; but cotton-wool still appeared smoother and tickled less on the left leg and on this side of his trunk than on the right. Neither pricks nor heavy pressure produced any pain on his left leg or trunk, but strong pricks could be occasionally recognized between the sixth and second rib and in the inner aspect of his left arm. Now pricks and all painful stimuli were "much sorer," and evoked much more reaction than on the right side; in fact, the hyperaesthesia of this side was as pronounced as we have seen it. The appreciation of temperature was still completely lost to the original level. The sense of position was absent in his right limbs and in the three ulnar fingers of the left hand, but vibration could now be recognized in his right leg when the fork was beating strongly. The threshold of discrimination of the compass points was normal on the radial parts of his left arm, but the two points could not be distinguished when 5 cm. apart on the ulnar side of this palm, or on either sole when separated to a distance of 10 cm. (normal threshold 2 to 3 cm.). He was still unable to recognize the form of objects placed in his left hand.

In his right arm the analgesia was now limited to the thumb, index finger, and the lower half of the radial border of his forearm, and the areas of anaesthesia and thermo-anaesthesia had diminished slightly from above downwards.

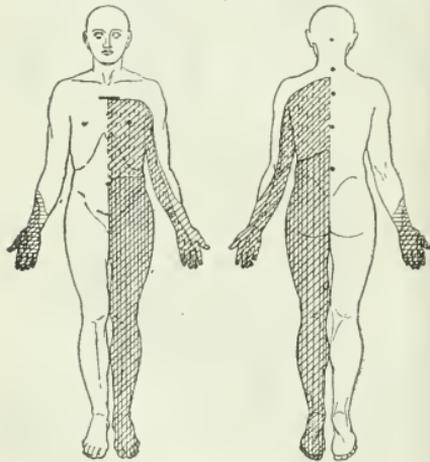


Fig. 7.

He was transferred to England two months after the infliction of the wound. During the latter half of this time he wasted enormously, and had frequently persistent attacks of vomiting; he regained, however, some power of movement in his right leg, but his right arm remained wasted, flaccid, and powerless. The only noteworthy alterations in the disturbances

of sensation were an ability to recognize strong painful stimuli above the level of the nipple on the left side, though sensibility to pain remained much reduced to its original level, and a further restriction of the anaesthesiae on his right arm, as is illustrated on the chart (Fig. 7); now there was analgesia only on the thumb and the adjacent portion of the hand. The sense of position was still absent in his right limbs and in his left ulnar fingers, and the appreciation of vibration was abolished below his right wrist and diminished in his right leg. The compass points could still not be discriminated when separated to 6 cm. on either sole.

He was admitted to the King George Hospital under the care of Dr. Farquhar Buzzard, to whom I am indebted for the further history of the case. Some secondary changes had evidently occurred during the journey, as when he arrived his right leg was again completely paralysed, and the knee-jerk on this side, which had been brisk, had disappeared; the right plantar response was sometimes flexor, though previously it had been constantly extensor. Otherwise his condition remained unchanged till his death on August 10th. A few days before this occurred his right carotid artery had been tied owing to an aneurysm, and an abscess in connexion with his fractured jaw was drained.

On post-mortem examination no obvious deformity of the spinal column was found, but the fourth, fifth, and sixth cervical segments were softened, and contained numerous haemorrhages.

The sensory disturbances in this case may be divided into "remote," or those due to interruption of the sensory conducting tracts in the cord, and "local"—that is, such as are produced by injury of the sensory root fibres as they enter the cord, or at least before the impressions they carry are regrouped within it.

An elaborate analysis is not possible here, but a short discussion chiefly in relation to the current views of intramedullary conduction of sensation will be interesting. It will be based not on this case alone, but on our notes of 45 cases in which the injury was partial and produced the Brown-Séquard syndrome, or some other form of dissociation of sensation.

REMOTE SENSORY DISTURBANCES.

Anaesthesia to pain and temperature is certainly the most common and prominent disturbance of cutaneous sensibility; in incomplete transverse lesions, for instance, it is frequently found that though tactile stimuli can be appreciated, pricking or the application of heat or cold, even of extreme degrees and over a large area, evoke no sensation apart from that of contact. Both are always lost on the side opposite to the lesion when this is unilateral and lies above the first lumbar segment, and more diminished on this side when the injury is bilateral but more severe on the one side. This crossed relation does not occur when the lesion lies below the twelfth dorsal segment. During recovery from bilateral lesions, too, tactile sensibility usually returns before that to painful or thermal stimuli. As a rule both these forms of sensation were lost together, but in some cases only thermal appreciation was disturbed.

We have not yet observed a case with primary isolated affection of either heat or cold, but during recovery sensibility to either may reappear some time before stimulation with the other evokes any sensation. Some dissociation is, however, common at the upper level of the remote sensory loss, but this will be discussed later when the mode of decussation of the sensory paths will be considered. Many cases seen confirm the conclusion put forward by Drs. Head and Thompson, that when pain cannot be excited by cutaneous stimuli it cannot be produced by excessive pressure; we have, however, seen cases in which heavy pressure gave pain in parts which were completely analgesic to pin pricks, but it must be admitted that in some of these at least sensibility to prick returned within a relatively short period. Their further conclusion that sensibility to all degrees of temperature is affected simultaneously may be accepted if it is borne in mind that when the disease is slight the appreciation of moderate stimuli only may be lost; everything is, however, in favour of their view that thermal stimuli of all degrees pass by the same intraspinal paths, but that, as the study of syringomyelia shows, heat and cold are conducted by separate fibres.

Remote tactile anaesthesia was present in only a very few of our cases of unilateral spinal lesion, and then it generally corresponded with the analgesia—that is, it occurred on the side opposite to the injury. Frequently, however, especially when cotton-wool was used as a stimulus over hair-clad parts, there was a marked

subjective difference in the sensations evoked on the two sides, as contacts on the analgesic area "tickled less" or were "smoother" than on the side of the lesion; this might be, on the one hand, attributed to the homolateral hyperaesthesia or unnatural sensitiveness to various stimuli which Brown-Séquard originally described, but when the sensations were compared with those similarly evoked from normal parts it was evident that the tickling element in the sensation was defective on the contralateral side. On the other hand, this difference was not due to a diminution of tactile acuity, as this could not be demonstrated when other stimuli were employed; in a few cases in which von Frey's hairs were used no definite threshold difference between the two sides was found. Further, on stroking the sole, or on applying any other stimulus which naturally tickles, less reaction was evoked on the side opposite to the injury. It appears, therefore, that of the two spinal paths open to tactile impulses only the crossed fibres which are closely associated with those that carry pain are concerned in the conduction of the affective impressions produced by many tactile stimuli. This observation is particularly interesting, as lesions of certain portions of the optic thalami show that at this level the impulses that underlie tickling are closely related to those of pain.

But though crossed tactile anaesthesia was the rule in our cases, in a few there was greater diminution of sensibility to light touch on the side of the lesion, or on the side of the greater motor paralysis; even homolateral anaesthesia with crossed analgesia occurred in one case.

CASE V.

Pte. J., 15863, was wounded by a rifle bullet which entered slightly to the left of the fifth dorsal spine, on March 11th, 1915. He lost power in both legs at once, but was able to move the right again next day.

When seen four days later all movements of his right leg were possible and fairly strong, but the left was absolutely

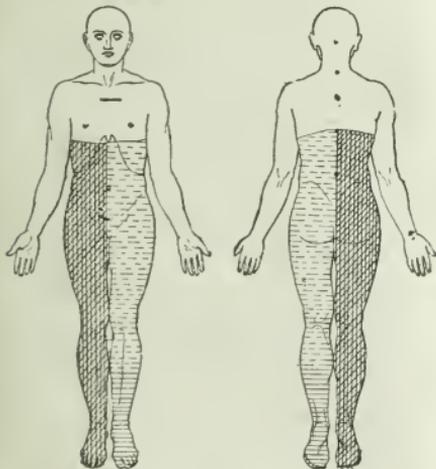


Fig. 8.

paralysed. The left knee-jerk was much depressed, and extensor responses were obtained from both soles. There was complete analgesia and thermo-anaesthesia on the right leg, and on this side of the trunk to the level of the xiphoid and the seventh dorsal spine, but both painful and thermal stimuli were perfectly appreciated on the left side. On the right tactile sensation was unaffected, but there was total anaesthesia to touch on the left leg, and marked hypoaesthesia as high as the xiphoid (Fig. 8). The recognition of position and of passive movement, as well as of vibration, was abolished in the left leg, but normal in the analgesic limb.

A laminectomy was performed by Lieutenant-Colonel Sargent a few days later; the bullet was found embedded in the left articular process of the sixth dorsal vertebra, and a long, sharp spicule of bone which had been driven by it through the dura mater penetrated, as far as could be made out at the operation, this side of the cord. Very little improvement occurred before he left for England, six weeks after the

infection of the wound; and the analgesia of the left side became, however, incomplete, and there was less anaesthesia on his left leg.

Another interesting form of dissociation of sensation was represented by a case of incomplete injury due to fracture of the left side of the sixth cervical vertebra by a rifle bullet. There was complete paralysis of the left leg and of the trunk muscles on this side, and all the movements of the opposite limb were weak; on the right side there was complete loss of sensibility to touch, pain, and temperature, while on the less paralysed half of the body pricks and other painful stimuli were appreciated normally, and thermal sensation was only slightly diminished, but there was complete anaesthesia to both light and heavy touches. The sense of position and the appreciation of vibration were completely lost on both sides below the level of the second rib.

In such a case we have the converse of the general rule that tactile sensibility suffers less severely than sensation to pain.

One interesting question that rises from these observations is the mode of decussation of the sensory fibres of the second order which convey impressions of touch, pain, and temperature, and the obliquity with which they cross to the opposite side of the cord. In cases in which the lesion was unilateral the upper limit of the remote anaesthesia to these different forms of sensation varied, and as a rule the upper border of the contralateral loss did not correspond to the segmental level of the injury. If such observations were sufficiently numerous it would be obviously possible to determine the number of segments necessary for the complete decussation of each set of fibres of specific sensory function. To obtain unequivocal results, however, it would be necessary to consider only cases in which the lesion interrupted these fibres after their decussation is completed and in which their interruption is total; unfortunately such cases are rare.

In the mid-dorsal region the crossing of pain and thermal impulses apparently occurs quickly, and is probably complete about one segment above the entry of the dorsal roots that carry them to the cord. Thermal impressions probably cross here less rapidly than those of pain, and as touch, if it is affected, is generally lost to the slightly lower level the fibres of the second order that convey it probably require two segments for decussation. This conclusion is accepted with full recognition of the fact that the peripheral overlap of the tactile root fibres is greater than that of those concerned with pain and temperature. The same order holds for the upper dorsal segments, but here the obliquity of decussation is greater; pain and temperature impressions do not cross for at least two segments after their entry into the cord, and three are frequently required.

The higher we go in the cervical enlargement the slower does the decussation become. At the fourth cervical segment, for instance, the decussation of the pain impulses is not complete till five to six segments after their entry through the dorsal roots, and that of thermal impressions for four to five segments. In the cervical enlargement pain seems to cross within about four segments, thermal sensibility within three to four, and touch somewhat more obliquely than pain; as the upper margin of the anaesthesia to heat is generally slightly higher than that to cold it may be assumed that the afferent impulses that subserve the latter decussate more slowly.

When the lesion is not complete, and especially if it is unilateral, the upper border of the sensory loss frequently retreats caudalwards. In Case iv, for instance, the upper margin of the complete analgesia altered from the sixth cervical to the ninth dorsal root area in two months, and in another case of partial bilateral lesion it retreated from the upper margin of the right cervical root area to the level of the umbilicus within four weeks. A parallel recovery of thermal sensibility may be frequently observed, but it is usually much slower, and heat and cold are then frequently dissociated, the latter recovering as a rule earlier than sensation to heat; but the converse may occur. On the other hand, even when the lesion lies high in the cord, and has produced total or partial loss of sensation to the corresponding level, it is not uncommon to find the area of the lower spinal roots, and especially the skin in the region of the anus, sensitive to one or other mode of stimulation. Further, during recovery it is sometimes

in these regions in which sensation first reappears. In a case of injury of the fourth cervical segment, for instance, which produced thermal, pain, and tactile anaesthesia to the root of the neck, prick could be well appreciated on all the sacral and on the fifth lumbar root areas on the left side. And in another the third, fourth, and fifth sacral areas escaped, though there was otherwise total loss of sensation to the level of the umbilicus. There is generally a remarkable dissociation of sensation in this caudal area; occasionally only pain can be appreciated, but it is frequently sensitive to touch too, and either to heat or cold or to both. The area sensitive to thermal stimuli is, however, generally smaller than that in which pain can be felt. As a rule the caudal anaesthetic part in such cases corresponds roughly to areas of root distribution to the skin.

These two phenomena, the caudalward recovery of sensation and the escape or early reappearance of sensation in the caudal areas, throw light on the arrangement of the sensory fibres of the second order as they ascend through the ventrolateral columns. They indicate a lamellar arrangement in which the fibres that carry any specific form of sensation from successive dorsal roots lie in series; and as there is a general law that the longer ascending fibres lie nearer the periphery of the cord, those that convey impressions from the lower spinal roots are probably placed lateral to those that have later reached the contralateral side. The escape of the sacral root areas would therefore indicate a lesion that involves only the more mesial fibres of the sensory path, while an anaesthesia disproportionately low in relation to the level of the spinal injury would suggest a local destruction of its more lateral fibres. When it becomes possible to correlate the exact histological changes in these cases with the results of careful clinical examinations definite conclusions on the exact course of the fibres that carry various forms of sensation from different regions of the body will be possible.

Microscopical examination has shown that extensive softening and even secondary changes occur frequently in the centre of the cord, especially in the cervical region, and we might consequently expect to find sensory disturbances resulting from interruption of the fibres that decussate at the level of such a lesion; certain of the sensory changes that occur in syringomyelia are due to this cause. The most striking example of this condition that we have seen was:

CASE VI.

Pte. H., 10162, was wounded on February 22nd, 1915, by a rifle bullet which entered just behind the middle of the right sternum.

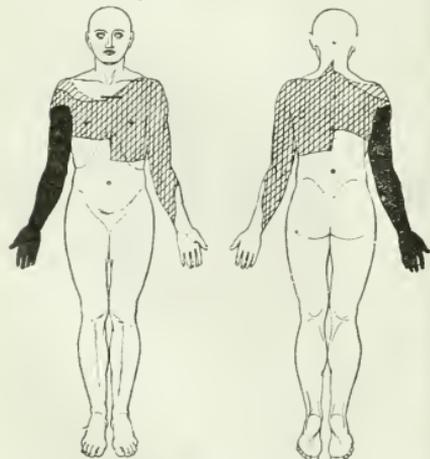


FIG. 3.—The analgesia is indicated by vertical lines, the thermo-anaesthesia by oblique lines. All forms of sensation were lost on the parts of the right arm coloured black.

mastoid, and made its exit 1 cm. to the right of the first dorsal spine. He lost power in his legs at once, and his arms became

very weak two or three days later. He had no difficulty with micturition.

Both arms were flaccid when he was seen six days later; the right was completely paralysed, but all movements of the left were possible though weak. The right lower limb was weak in all movements, but the left was considerably stronger. His arm, knee, and ankle jerks were absent, and extensor responses were obtained on both sides. Sensation to touch, pain, and temperature were lost over the regions shown on the chart (Fig. 9), and in addition the sense of position and the appreciation of movement and vibration were abolished in his right arm and diminished in his right leg. His general condition and the power of movement, except in his right arm, which remained flaccid, improved during the following three weeks, but the only alteration in sensation was some return of sensibility to prick and temperature on the outer side of his left arm. The complete flaccid palsy and total sensory loss on his right arm was probably due to extensive destruction of the grey matter on this side, the remaining analgesia and thermo-anaesthesia to injury of the decussating sensory fibres.

But the remote disturbances of sensation include also those forms which are affected on the side of the injury, that is the sense of position, the appreciation of passive movement, vibration and form, and the discrimination of compass points. Of these, the sense of position and the recognition of movement were the most commonly lost, and as the dorsal columns through which the impulses that subserve them pass are especially liable to suffer in partial and indirect injuries they were frequently the only form of sensation affected in slight cases; on the other hand, these and the other components of sensation carried by the dorsal columns occasionally escaped, especially in unilateral lesions, though the remote loss of pain and temperature was complete.

The appreciation of vibration, too, was commonly affected on the side of the lesion, though there was frequently no close parallel between this and the state of the sense of position, as the latter was frequently abolished in parts in which vibration could be recognized, but then careful examination generally revealed diminished sensibility to the latter. On the other hand, the discrimination of compass points was, as a rule, more severely affected than either, but we found the reverse in three cases. In a partial injury of the sixth dorsal segment, for instance, even a strongly vibrating fork could be rarely recognized on the right leg, but the two compass points could be accurately distinguished on each sole when only 3 cm. apart, and on the front of each leg when separated to 10 cm. In another case with a unilateral lesion in the second cervical segment there was a marked loss of the sense of position in the right arm, but the threshold to the compass test was the same in both palms and well within the normal. We must consequently conclude that, though the impulses which underlie all these different forms of sensation pass through the homolateral dorsal column, they may be dissociated or affected in different degree by incomplete lesions. They are all independent of tactile sensibility, since they may be all abolished, though the threshold of the latter is unaltered.

In a few cases of high cervical injury we have had the opportunity of testing the power to recognize the form of objects placed in a hand in which tactile sensation is unaffected, and always found it absent if the other symptoms indicated a lesion in the homolateral dorsal column.

Consequently, we may assume that destruction of one dorsal column can produce homolateral astereognosis, which is, as it may be in cortical disease, independent of any tactile loss. This confirms the observations previously made by Dr. Henry Head and myself. The power to recognize differences in the texture of materials placed in one hand is also abolished by destruction of the homolateral dorsal column.

LOCAL SENSORY DISTURBANCES.

The local loss of sensation such as occurred in Case IV must be next considered. Here it was represented by abolition of all forms of cutaneous sensibility over areas of different extent, with absence of the sense of position in the whole limb and of the appreciation of vibration below the elbow. Such local sensory loss may occur with lesions of any level of the cord, but as it presents special features when present in the upper limb, it will be described in detail as it is seen here.

It may result, in the first place, from injuries of the dorsal roots as or before they enter the cord, which, as

might be expected, frequently happens with gunshot injuries of the spine, but as the sensory disturbances then produced are those generally seen with root lesions they require no special mention. Or, in the second place, it may be due to intramedullary lesions which interrupt some or all of the afferent sensory impulses after they enter the cord by one or several dorsal roots, either before or after they have been regrouped in the grey matter. Consequently, all forms of sensation may be affected or certain may escape. The most common type is that seen in Case iv, in which all forms of sensation are involved. Then the tactile loss is the most extensive, and the anaesthesia to pressure is almost coterminous with that to light contact. The thermo-anaesthesia, including loss to all degrees of temperature, is occasionally almost as wide, but it is frequently limited to the area of analgesia; this is generally much smaller. The sense of position and the appreciation of vibration were severely affected in every case, too. In another type only the appreciation of pain and temperature was affected, the impulses carried by the dorsal columns escaping.

But even more remarkable than the character of the local sensory loss on the upper limb is its distribution. In Case iv as well as from the other figures reproduced (Fig. 10), it

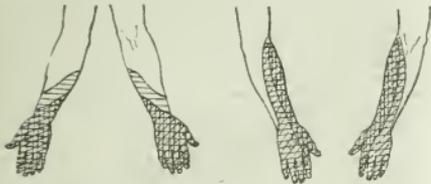


FIG. 10.

will be seen that it does not correspond either to the areas of any peripheral nerves or of any dorsal roots; in fact only the peripheral portions of the cutaneous areas of several roots were anaesthetic. On the other hand, it frequently showed a tendency to coincide with the segments of a limb. It has been generally found that when the upper part of the cervical enlargement was involved, the sensory loss extended higher on the radial than on the ulnar border of the arm, and that when it lay in the lower portion of the enlargement the loss was higher on the ulnar side. A similar area in which there is no sensory disturbance is seen on the left arm in Fig. 9.

A local lesion in the lateral part of Burdach's column can, of course, interrupt all the sensory impressions conveyed through this from the roots immediately below it, but the mode of occurrence of the cutaneous sensory disturbance is less obvious.

Its explanation must depend on the anatomical arrangement of the sensory paths. The tone of the muscles, as well as their co-ordinated actions, depends chiefly on afferent impulses that pass from the corresponding segment of the limb to the cord, and act through the grey matter on their final common path. If for the moment we consider only the intrinsic muscles of the hand, we may assume for them a group of cells in the lowest cervical and the first dorsal segments, which, however, receive afferent impressions from the whole hand, through reflex collaterals from at least four dorsal roots, that is, from the sixth cervical to the first dorsal. An interruption of these fibres as they enter this group of motor cells would then cut out all the non-sensory afferents that control the small hand muscles, but would leave intact the connexion of other collaterals from the same roots with the other motor cells that innervate the arm muscles. We would consequently have a segmental reflex palsy. Much the same probably holds for the fibres of cutaneous sensation. Those that convey impressions of pain, for instance, are not all relayed in the grey matter at the level at which they enter, but ascend and descend some distance in Lissauer's zone, and there are probably not grouped according to the roots by which they arrived as they enter the grey matter, but in relation to the segment of the limb from which they come. Thus those that carry impressions of pain from the hand may be relayed at one level, while other fibres of the same roots that carry similar impulses from the forearm

may end in the grey matter at another level (Fig. 11). If such an arrangement exists sensory disturbances similar in distribution to those described may be easily produced by isolated lesions. The type of the sensory loss would depend on whether the sensory afferents were interrupted before or after undergoing relay.

The commonness of these types of local sensory loss would then correspond to the frequency of lesions in the dorsal horns. Fig. M (Plate) represents such a lesion. When the neighbouring part of the dorsal column is also involved the sense of position would be affected in the corresponding limb; occasionally this occurs as an isolated phenomenon—that is, without disturbance of cutaneous sensibility. An interesting example of local loss due to a small lesion in the dorsal column, and probably limited to its root entry zone, was seen in one patient in whom the sense of position and of passive movement was lost at the left elbow and shoulder, though normal in the hand, while on the outer side of this arm he was unable to recognize the vibrations of a tuning-fork when applied to the soft tissues, to discriminate compass points even when separated to three times the threshold distance of the corresponding part of the right arm, or to distinguish texture. All these local sensory disturbances have a tendency to diminish or disappear more rapidly than the remote loss.

SUBJECTIVE SENSORY SYMPTOMS.

Subjective sensory symptoms were not uncommon; pain, for instance, is very commonly present in the parts that correspond to the segmental level of the spinal injury, but here it may be due to irritation of the dorsal roots, or may be only associated with the hyperaesthesia which frequently occurs in this region. Distant pain—in a leg, for instance, when the spinal wound was in the cervical region—occurred, however, in a certain number of cases, and can be attributed only to the spinal lesion. It was frequently only transient or disappeared within one or two weeks, but occasionally persisted as long as we had the patients under observation, in one case for two months. It was generally described as a burning or tingling, which increased when the part was touched or handled. In one patient it was so severe that it prevented sleep and needed morphine. It was generally most severe at night and in some instances increased when the part was exposed or moved, though there might be no demonstrable hyperaesthesia. It sometimes spread over the whole side of the body below the level of the injury, but it was frequently limited to the foot or leg. It occurred only with relatively slight or unilateral lesions, and in the latter case was always on the same side as the injury and on that on which there was no cutaneous sensory loss. In a few instances, however, no sensory loss could be discovered in either side, or, if any existed, it was only a slight diminution of sensibility to pain and temperature.

The condition known as hyperaesthesia was extremely

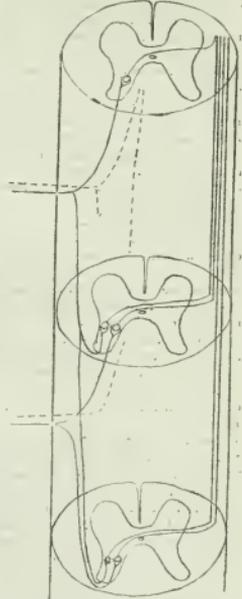


FIG. 11.—Diagram to illustrate the manner in which sensory impulses enter and are grouped within the spinal cord. The broken lines represent the fibres which carry the impulses that ascend through the dorsal columns, the continuous lines those that convey impressions of touch, pain, and temperature. The latter probably ascend or descend in Lissauer's zone before entering the grey matter.

common; it may occur, as was originally described by Brown-Séquard, on the side of the injury when there is a unilateral lesion; or on areas which had been anaesthetic as sensation recovers, or even more commonly as a band on one or both sides of the trunk or down the limbs, at the upper margin of the sensory loss.

A homolateral hyperaesthesia in Brown-Séquard cases is by no means constant, though we observed it occasionally; it extended over the whole half of the body almost up to the segmental level of the injury. Here pin-prick, heavy pressure, and especially scraping, or even rubbing hair-clad parts with a wisp of cotton-wool, produced severe pain and much more reaction than these stimuli on normal parts. The application of cold, too, usually evoked pain, and heat of 45° C. and upwards caused a severe burning sensation. In one case pin-prick not only gave more discomfort than normal, but this persisted abnormally long. This distant hyperaesthesia always showed, however, a tendency to diminish rapidly and disappeared in some cases while they were under our observation. Its pathogenesis has been already the subject of much discussion and experiment. The hypothesis that it is due to section of efferent inhibitory fibres seems very improbable, while the fact that it is generally transient or disappears rapidly is more in favour of the view that it is due to an inflammatory reaction, or rather to oedema and other such changes, at the site of the lesion than to overloading of the afferent tracks that remain open to sensory impulses.

An excellent example of hyperaesthesia in areas in which sensation is recovering was a case in which, owing to a transverse wound across the back of the neck which fractured the sixth and seventh cervical spines as well as the lamina of the sixth vertebra, a complete paraplegia with analgesia and thermo-anaesthesia to the level of the eighth cervical root areas set in at once. Within a fortnight, however, there was complete pain loss only below the umbilicus, and the appreciation of thermal stimuli was only diminished above this level; in the area in which sensation had recovered pricks produced an extremely unpleasant burning sensation, and high and low degrees of temperature gave much more discomfort than on normal parts. He later came under the care of Dr. Head, who found the same condition more than two months after the infliction of the wound.

Finally we come to the hyperaesthesia which is so commonly found at the upper level of the sensory loss on one or both sides, with either complete or partial lesions. On the trunk it is generally associated with a girdle sensation of pain, burning, tingling, or constriction, and on the limbs with pain or paraesthesia over the areas of one or more dorsal roots. It may persist for weeks, but usually diminishes. When severe the lightest contact, or even the approach of any one to his bedside, may be feared by the patient, and the movement of his bedclothes, or the removal of his shirt or bandages, may excite severe pain. Local muscular contractions are frequently associated with it. The state of sensation in the hyperaesthetic area has been carefully worked out in several cases; it is found to be variable. No loss to light contact was ever found, and when they were used no raising of the threshold was discovered to von Frey's hairs, but in three cases contact with No. 4 and No. 5, which only gave a maximal threshold reading on normal parts, produced a sharp stinging or burning, "like a red-hot iron," on the hyperaesthetic zone. Pain was most readily produced by any moving stimulus, as a wisp of cotton-wool, or by scraping with any rough or sharp object, but, on the other hand, moderate pressure generally gave no discomfort.

The state of sensibility to pain and temperature varied; in one group the threshold to pain was, if anything, diminished, while that to temperature was unaffected, but any degree of cold, and heat above 45° C., evoked much pain. In the other class sensibility to pain and temperature were lost or diminished over part of the area that was painful to rubbing or scraping.

The origin of this hyperaesthesia is interesting; it is most commonly attributed to irritation of the corresponding dorsal roots, and this seems to be frequently the actual cause, but there are many facts which prevent us from accepting this explanation in every case. It is often, for instance, much more extensive than it would be if due to irritation of even two pairs of roots in the neighbourhood

of the wound; in one case of injury to the spine of the axis it extended over both upper limbs and to the level of the nipples, and in another patient in whom the fourth cervical vertebra was damaged it spread not only over both arms, but to the base of the xiphoid. But an even stronger argument is the fact that in cases of the Brown-Séquard syndrome, in which there were both hyperaesthesia of the homolateral side and a local area of pain and tenderness at the level of the lesion, no essential difference may be found between them. It is therefore probable that in many cases at least the cause of the pain is to be found within the cord, and that it is due to oedema, circulatory disturbances, or slight diffuse lesions, as Brown-Séquard originally postulated as the explanation of the local contralateral hyperaesthesia he described. Finally, in several cases we have found no injury, on *post-mortem* examination, to the roots which corresponded to the areas that were hyperaesthetic.

PROGNOSIS.

The prognosis during the first two weeks in any one case is extremely difficult, and it must be admitted that there is no one sign or symptom from which we can draw reliable conclusions on the severity of the lesion, or from which we can say, when there is complete motor and sensory paralysis, as there nearly always is in the earliest stages, whether the cord is completely divided or not. It must be remembered that though neither the cells nor the fibres of the spinal cord do regenerate, very considerable improvement may occur, as at least part of the early symptoms are due to oedema, circulatory disturbances, and to incomplete damage. The structural damage is consequently not always parallel to the functional loss. We have seen that the knee-jerks are absent for a time with lesions of all degrees of severity, and this consequently cannot be a guide in prognosis. The most reliable information is perhaps given by the state of tone in the muscles of the lower limbs; after three or four days the legs are generally very flaccid and their muscles toneless when the lesion is severe and irrecoverable, and gradually become more so and waste. The preservation of tone in the muscles is, on the other hand, an indication that some improvement may be expected. Valuable information can be also obtained by stimulation of the soles, as the amount of reflex movement that results varies more or less inversely with the severity of the injury. When this is complete, no reflex muscle contraction can be, as a rule, elicited, while in all stages of slighter damage a brisk withdrawal reflex can be obtained.

Probably no serviceable recovery can be expected if the plantar responses are flexor.

In less severe cases in which all forms of sensation are not abolished, the amount of disturbance of the latter is an indication of the amount of the cord damaged; we have generally seen the promise of useful recovery when tactile stimuli could be felt in the lower limbs within the first two or three days.

When the cervical region is injured the upper limbs are usually more paralysed than the lower, and remain flaccid and waste while these show signs of recovery; histological examination shows that this atrophic palsy of the arms is due to extensive softening of and haemorrhages into the ventral horns, and as the motor cells contained in them are readily destroyed the chance of much improvement is slight.

If recovery sets in early, steadily progressive improvement may be, however, expected, unless complications occur. We know of a few patients, however, in whom the symptoms increased after movement, as Case IV, who lost again the power of movement he had regained in his right leg during his transference to England; and in one other case we observed syringomyelia develop some time after the infliction of the injury.

TREATMENT.

Owing to the nature of the lesions the treatment of these spinal injuries is naturally unpromising. The damage to the spinal cord is done when the wound is inflicted, and we are unable to influence it by treatment. In many cases surgical intervention and the removal of missiles or displaced bone which compress the cord have given a hope of greater recovery, and should be attempted if the symptoms or an x-ray examination make it probable that the cord is

compressed, and that there is any prospect of recovery. But it must be realized that in such cases the symptoms are certainly more dependent on intramedullary changes produced at the time rather than on compression.

Dr. A. R. Allen¹² showed experimentally some years ago that the symptoms produced by severe contusion of the cord can be relieved and recovery made possible by incising the dorsal columns at the level of the injury, thus draining away oedematous fluid and intramedullary hæmorrhages, and allowing the swollen fibres to expand, but it is necessary that this operation should be performed within a few hours of the infliction of the injury. This is rarely possible in warfare, and the early symptoms are so equivocal that if resorted to more harm than good might be easily done.

A large proportion of cases of spinal injury die soon after the infliction of the wound from shock or associated wounds of the chest or abdomen. Among those that survive the greatest danger is from cystitis and pyelonephritis and the development of extensive bedsores. A large part of the responsibility consequently falls on the nursing. When cystitis is threatened or has developed, we have seen excellent results from suprapubic drainage. Finally the danger of moving the patient must be borne in mind; the risk is obvious if the vertebral column is fractured, and if detached pieces of bone lie within the canal these may be displaced and lacerate the cord during transit. Further, we have evidence that secondary changes are more liable to develop after movement; absolute rest is consequently advisable during the first few weeks if the symptoms hold out any prospect of useful recovery.

REFERENCES.

- ⁷ Brown-Séquard, *Journ. de la Physiol.*, 1865, vol. vi, p. 124. ⁸ Pétrén, *Scandinav. Archiv. f. Physiol.*, 1902, vol. xiii, p. 9. ⁹ Head and Thompson, *Brit. Journ.*, 1906, vol. xiii, p. 537. ¹⁰ Esser, *Rev. Neurolog.*, 1902, vol. 8, p. 549. ¹¹ Bydel and Seiffert, *Archiv. f. Psychiatr.*, 1905, vol. xxxvii, p. 488. ¹² Head and Holmes, *Brain*, 1911, vol. xxxiv, p. 102. ¹³ Allen, *Journ. Amer. Med. Assoc.*, 1911, vol. lvii, p. 878.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A NEW CATARACT OPERATION.

The following is a preliminary note on a new cataract operation which is now being performed in Delhi. This operation, which embodies several new features, was conceived and perfected by my assistant, Pundit Hari Shanker. The essential feature of the operation is a preliminary conjunctival flap cut so as not to hamper the movements of the knife in making the incision in the eyeball. The lens is removed entire in its capsule either with or without a preliminary iridectomy.

The advantages of the operation, as shown by the results obtained in some 1,500 cases performed this year, are:

1. The wound in the eyeball is closed at once by the flap so that the risk of subsequent infection is nil.
2. Prolapse of the iris and vitreous are prevented from occurring.
3. The flap is firmly adherent to the globe within a few hours, and in a large majority of cases the dressing can safely be then removed.
4. Cataract cases are now treated in this hospital as out-patients, and they can go home immediately after operation, returning next day to have the dressing removed permanently.
5. No photophobia is present subsequent to the operation, even on the second day, when the patients are provided with glasses, and can see well.
6. The usual corneal astigmatism is very much less than is generally found after other operations.

Delhi.

M. CORRY, M.D., Major I.M.S.

IMPROVED TECHNIQUE FOR INTRAVENOUS INJECTIONS AND REMOVAL OF BLOOD FROM VEINS.

The chief remaining difficulty of this practice is that of properly entering and canalizing the vein, especially when the veins are small or deep, as often happens when the

superficial veins in front of the elbow form a plexus of small veins instead of the relatively large trunks of the textbooks. The application of a bandage in this case produces a series of veins scarcely as large as the needle, and canalization is difficult or impracticable. But by using a sphygmomanometer instead of the bandage, and then compressing to just short of blood pressure point, say 120 to 150 mm. Hg, the hitherto small veins will stand out turgidly, and can easily be punctured and canalized, for the vein stands up to the needle, and will not yield before it. Even in the case of the largest veins the manoeuvre is more easily accomplished by this method.

After the canalization, in the usual way, the cutting or removal of the bandage often causes movement of the arm and endangers the possibility of second puncture. But with the sphygmomanometer all that is necessary is to release the escape cock without disturbing the compression bag. The latter should in the first place be carried right up into the axilla, and in primary and secondary cases at least should have a sheet of Billroth's cambric interposed between it and the skin to avoid infection. The one I have used has been the Herbert French pattern, but any having a similar pressure bag would be equally serviceable.

J. ALFRED CODD, M.D., Lond.,
Honorary Physician, General Hospital, Wolverhampton.

Reports of Societies.

FIBROSITIS.

At a meeting of the West London Medico-Chirurgical Society on December 3rd the president, Dr. LEONARD DOBSON, in the chair, a discussion was held on fibrositis. Dr. GRAINGER STEWART, in opening it from the medical aspect, said that quite apart from acute traumatism, a large number of soldiers had been invalided with subacute and chronic rheumatism, both articular and muscular. Most of those cases occurred in middle-aged men or in those who had previously been the victims of chronic rheumatism, and there was nothing special to discuss in regard to them. As regards the wounded, it appeared to him that the occurrence of fibrositis was more frequent and the degree more severe than in cases of injury received in civil life. He had been struck by the rapidity with which adhesions formed, not only around and in the joints, but also in the tendon sheaths and muscular structures. He thought that several factors were present which might account for this: (1) Infection from wounds; (2) the effects of chill, strain, or exposure; (3) the protective strain on the muscles guarding the injured part; (4) the complete cessation of functional activity in the wounded limb as the result of its being bound up in splints, and the impossibility of carrying out passive movements and massage of those parts of the limb not directly involved by the injury. Early passive movement and massage would do much to prevent the formation of adhesions, would speed the recovery of the slightly wounded, and would prevent many of the more severely wounded, who would not be fit for further service in the army, from becoming economically a burden to the State in after-years, by keeping the joints supple and the muscles in good condition until the patient had recovered from the primary injury, whether it involved injury to the bone or to the nerves. Personally he regarded immobility as the chief cause of those fibrous adhesions, and, that being so, it was of prime importance to insist on the daily movement of the joints of the affected limb as far as that was compatible with the surgical necessities of the case. Mr. H. S. SCUTTAR, in dealing with the surgical aspects of the question, said that his main contention was that many of the after-effects of injuries and diseases incidental to war, which might be classed under the heading of fibrositis, were preventable, and that, applying the lessons of recent researches in the treatment of fractures, it was of the first importance to avoid anything in the way of too prolonged or too complete immobility of the affected parts. The President, Drs. BRIGHTON, RICKARD LLOYD, F. G. LLOYD, JOHNSON SCOTT, and CLIPPINGDALE took part in the discussion which followed, and Dr. GRAINGER STEWART and Mr. H. S. SCUTTAR replied.

Reviews.

INDUSTRIAL TRAINING FOR DISABLED SOLDIERS.

EVIDENCE of the attention that is now being paid in France to the problems raised by the re-education and professional employment of the wounded soldiers is furnished by a book¹ recently published by Dr. M. CARLE. The subject has been brought before the public by the well-known writer, Maurice Barrès, and Dr. Carle gives a full account of what his society, the Fédération Nationale des Mutiles, and other voluntary associations have done in France to enable soldiers invalided from the army after amputations or other severe injuries to earn their own livings. Such schools for the wounded have been established at Paris, Marseilles, Bourges, Montpellier, Tours, Bordeaux, Pau, Orleans, Nancy, Rouen, Clermont-Ferrand, and many other places. Dr. Carle gives an account of the way in which such establishments should be worked, their objects, the manner in which suitable cases are chosen for them, and the general lines in which artificial limbs and other prosthetic appliances are provided for the victims of the war. The book is short and well written. It should be in the hands of all who have to deal with similar problems in this country.

ANCIENT HINDU SCIENCE.

In his account of *The Positive Sciences of the Ancient Hindus*,² Mr. BRAJENDRANATH SEAL gives a modern exposition of ancient lore dating back to between the years 500 B.C. and 500 A.D., practically speaking. The scientific ideas of the Hindus were founded, naturally enough, on the observation of phenomena; observation, however, was not enough, designed experiment was rarely thought of, and the development of science was handed over to the inductive method and methods of algebraic analysis. Perusal of Mr. Seal's well-written book will show the reader how ill such methods serve the progress of science, however successful their application to philosophy and speculation may have been. Successive chapters are devoted to ancient Hindu chemistry, mechanics, acoustics, plant and animal life, physiology and biology; in the last fifty pages Dr. Seal gives an appreciative estimate of the scientific method of the Hindus, its strength and limitations. It would seem that theoretical considerations and dialectics, logic and inference, possibilities rather than probabilities, were here given undue weight. Hence to the Western mind, which values an ounce of experience more highly than a ton of theory, Hindu science is apt to be disappointing, unpractical, and therefore ineffective. How far Dr. Seal is justified in interpreting the ancient Hindu texts in the terms of the latest scientific views, with the use of such words as "isomers," "infra-atomic vibratory particles," "catalysis," "valency" (as applied to atoms), and the like, is open to question. It seems improbable that the Hindus of the period with which he deals can have had any clear realization of the senses in which such terms are employed nowadays. The book is clearly written, and should be studied by all who are interested in the history of science and philosophy.

DISEASES OF THE RECTUM.

MR. LOCKHART-MUMMERY has written a valuable monograph on *Diseases of the Rectum and Anus*.³ Several works on the subject have been published in the English language during the last few years; this book is both comprehensive and practical, and is in all respects a sound work of reference.

The malformations of the rectum and anus are first described, and there follows a chapter on examination and diagnosis. Mr. Lockhart-Mummery emphasizes the mistakes that are made for want of a proper examination in

rectal complaints; he goes in detail into the methods of examination, and the chapter is one of much practical value. He then proceeds to describe what may be called the general technique of rectal operations, preparation general and local, diet, and after-treatment. Precise instructions are given. A chapter by Dr. Blumfield on anaesthesia completes this preliminary part of the book.

Haemorrhoids is the first of the rectal diseases considered. For external thrombosed haemorrhoids immediate removal with scissors under cocaine anaesthesia is recommended. It is interesting to find that for internal piles the author has almost entirely discarded excision and suture for the older ligature operation. In the chapter on prolapse, the method which Mr. Lockhart-Mummery described in 1910 is recommended for the first and second degrees of the affection. It consists in anchoring the rectum by cicatrix in the posterior rectal space. We believe this to be a reliable procedure, but are not disposed to agree with the characterization of sigmoidoexy as a generally unsatisfactory operation. Several following chapters are devoted to the inflammatory affections—proctitis, ulcer, abscess, and their sequelae. The fact that forty pages are given to fistula shows how completely the author deals with his subjects.

The reader will naturally turn with particular interest to the chapters on malignant disease. It is not possible to analyse these adequately here. There are no dogmatic statements as to choice of operation except a general preference for the abdomino-perineal in view of its superior results. The detailed discussion of this operation will be welcomed by surgeons.

This book undoubtedly counts, if one may use the expression. It is certainly one for all who have to do with rectal disease to add to their bookshelves.

OLD AGE PENSIONS.

The key to this book⁴ is contained in one sentence in the first paragraph, "A practical and human account of the actual working and ascertained results of the Act." It commences with a general account of the Acts, and then proceeds to narrate and discuss the difficulties that arise as to age limit, the conditions of nationality and residence, and the difficulties and methods of ascertaining the annual income of persons who apply for pensions. The various disqualifications for a pension are treated in two chapters, and a long chapter is devoted to a general description of the mode of dealing with claims for pensions. The machinery of the Acts is fully described; and though it is stated that no one authority has undertaken to correlate the statistics that must be available in the various departments concerned, a considerable series of tables is given as to the number and character of claims and the manner in which they are dealt with, and estimates are given as to the effect which the pension scheme must have on the statistics of pauperism and the cost to the rates. A final chapter contains a quantity of suggestions for the amendment of the Acts and for improvements in their administration; and from the intimate knowledge which the author (who has unhappily been killed in Gallipoli) shows of the administration his suggestions must be deserving of careful consideration by the authorities. The book does not claim to be a legal treatise though it is written by a lawyer. Composed in an easy narrative style, it should find many readers among social workers who desire to know the general working and results of the old age pensions scheme, and at the same time it cannot fail to be of great value to lawyers and administrators who want to know in detail the more technical points in administration.

NOTES ON BOOKS.

THE new and revised edition of Sir HENRY BURDETT'S well-known book, *How to become a Nurse*,⁵ tells the reader how and where to train, and is, indeed, a guide to training for the nursing profession, with particulars of the schools and institutions in the United Kingdom and

¹ *Jes Booles Professionnelles des Blessés*. Par le Dr. M. Carle; Préface de M. Edouard Terril. Deuxième édition. Lyons: A. Rey, Paris: J. B. Baillière et Fils, 1915. (Med. 8vo, pp. 132; illustrated.)

² *The Positive Sciences of the Ancient Hindus*, by Brajendranath Seal, M. A., Ph. D. London: Longmans, Green, and Co., 1915. (Med. 8vo, pp. 305, 12s. 6d. net.)

³ *Diseases of the Rectum and Anus: A Practical Handbook*. By J. P. Lockhart-Mummery, F.R.C.S. Eng. London: Baillière, Tindall, and Cox, 1914. (Demy 8vo, pp. 354; 102 figures, 7s. 6d. net.)

⁴ *Old Age Pensions: Their Actual Working and Ascertained Results in the United Kingdom*. By H. J. Hoare, B.Sc., LL.B. With an Introduction by Sir Laurence Gomme, F.S.A. London: P. S. King and Son, Limited, 1915. (Cr. 8vo, pp. 206, 3s. 6d. net.)

⁵ *How to become a Nurse: The Nursing Profession: How and Where to Train*. By Sir H. Burdett, K.C.B., K.C.V.O. New and revised edition. London: The Scientific Press, Limited, 1915. (Cr. 8vo, pp. 336, 2s. net.)

abroad where training in general and special nursing may be obtained. The book is now in its ninth edition. It is complete and up to date in its information, even including pages on the British Red Cross Society, on the Order of St. John of Jerusalem, and on the army and navy as training schools for male nurses.

The eighth edition of Dr. THRESH'S *Simple Method of Water Analysis*,⁶ especially designed for the use of medical officers of health, an excellent manual, has been brought up to date by the inclusion of an account of the purifying of water on the small scale by the addition of almost infinitesimal amounts of chlorine in the form of calcium or sodium hypochlorite. As in our notices of previous editions of this little book, we warmly recommend the latest edition to the attention of those for whom it has been written.

In their little manual of *First Aid in the Laboratory and Workshop*,⁷ Messrs. ELDRIDGE and BRISCOE give outlines of the treatment called for by the emergencies of the workman's life. The text is cut down to a minimum, and errs, perhaps, on the side of excessive brevity.

A serviceable series of diagrams, with the necessary brief explanatory text, for the use of those who have to teach elementary anatomy and physiology to nurses and the like, is provided by *Phillips's Popular Mammikin*.⁸ This is composed of a series of coloured diagrams, superposable, of the human body in various stages of dissection. Both the diagrams and the text furnished by Mr. FURNEAUX appear to serve their purpose admirably.

⁶ *A Simple Method of Water Analysis, especially Designed for the Use of Medical Officers of Health.* By J. C. Thresh, M.D. Vic., D.Sc. Lond., D.P.H. Camb., Eighth edition. London: J. and A. Churchill, 1915. (Cp. 8vo, pp. 62, 2s. 6d. net.)

⁷ *First Aid in the Laboratory and Workshop.* By A. A. Eldridge, B.Sc., and H. V. A. Briscoe, D.Sc., with a Foreword by Surgeon-General Sir A. Keogh, K.C.B. London: E. Arnold, 1915. (Cr. 8vo, pp. 32, 1s. net.)

⁸ *Phillips's Popular Mammikin or Model of the Human Body.* Edited by W. S. Furneaux. London: G. Phillips and Son, Limited, 1915. (9½ x 7½, pp. 16; 5 diagrams, 8 figures. 3s. 6d. net.)

FACTORIES AND WORKSHOPS.*

The report of the Chief Inspector of Factories for 1914 appears almost at the close of the year 1915. The delay is attributed largely to the shortage of the staff caused by the withdrawal to the war of 50 factory inspectors and assistants, 14 clerks from the central office, and 18 from branch offices. At the close of 1914 certifying surgeons to the number of 87 had received long special leave for military service. To-day the number is greater. In the report there appears the announcement that telephones have been provided for all branch offices; this is a remarkable confession. The delay in the introduction of so necessary an appliance must, we presume, be set down to the discredit of officials of the Treasury.

The 1914 report is neither so bulky nor so full of statistics as its immediate predecessors. There were fewer fatal and non-fatal accidents in 1914 than in 1913. During 1914 159,000 casualties were reported, a decrease by 10.5 per cent. when compared with the preceding year. The decrease varied in different districts and is difficult to explain. Usually hurry and speeding up have been regarded as causes contributing to accident, but in some places; for example, Barrow-in-Furness, though much overtime was worked as well as double shifts to very notable increase occurred. In Newcastle-upon-Tyne there were fewer accidents, but a large number of fatalities owing to the men brought into the shipbuilding yards and engineering shops having been comparatively speaking unaccustomed to the dangers. In the textile trades the fewer accidents are probably to be explained by the better fencing of machinery. The fact still remains that many accidents are the result of neglect or of indifference on the part of the workers. It is stated that 30 per cent. of the accidents investigated were the result of such causes. Cleaning machinery whilst in motion is a fruitful source.

The report does not contain reports by the superintending factory inspectors of the various divisions. Some of these inspectors, instead of furnishing reports of divisions, have written upon such subjects as sanitation, safety, and employment. These papers form an interesting contri-

bution to the report. There is slight overlapping, but this is no drawback. Mr. J. H. Rogers draws attention to the comparative absence of suitable messrooms, but, on the other hand, alludes to the improved health and efficiency of the workers in those factories wherein employers have provided facilities enabling the workers to get their meals properly.

The report of the principal lady inspector is, as usual, interesting. Miss Anderson deals with the changes which are creeping over women's labour. Old factories have been adjusted to meet new methods of manufacture, and the women have readily adapted themselves to the new processes. Industrial occupations open to women have changed owing to the necessities created by war. The war has shown how dependent we as a people have been upon Germany for drugs, chemical compounds, and certain types of machinery. In the future this will have to be remedied. Labour difficulties and high wages, also widespread indifference, have been the main reasons why the manufacture of certain products have passed out of the country. Attention is again directed to the unsatisfactory condition of the sanitary conveniences provided for women in factories. We have in previous reviews touched upon this subject. More frequent prosecution and publication of the names of offending employers would tend to improve matters in this direction. It is too soon to attempt to speak of the effect of overtime upon women's health. Women, to their credit be it said, are working with a will and with greater energy than usual because they know that the men at the front require extra clothing and munitions.

Of the 20 fatalities during 1914 from electric shock 18 were caused by alternating currents.

Dr. T. M. Legge discusses the part played by dust in causing diseases of occupation. He ranges himself on the side of those who regard inhalation of lead dust as playing a greater part in causing plumbism than the introduction of the metal into the body by food eaten by workmen with unwashed hands, or its possible passage through the skin. Mention is made of Dr. Shuttleworth's interesting series of cases of plumbism occurring in lead workers after the men had joined the army—a circumstance probably to be explained by the increased metabolism due to the altered conditions of life. Poisoning by gases developed in various industries receives considerable attention, as also the subject of dermatocosis, especially industrial eczema. Carefully prepared tables of industrial lead poisoning are submitted by Dr. Legge, who remarks that the continued diminution in the number of cases of plumbism notified has not been accompanied relatively by a corresponding fall in the number of deaths reported. A special chapter is devoted to tetrachlorethane poisoning. This material is an ingredient of varnish used for covering the wings of aeroplanes so as to make them impervious to moisture and air. One of the effects of poisoning is jaundice. The report covers interesting ground, and quite maintains the reputation of its predecessors.

HEALTH OF MUNITION WORKERS COMMITTEE.

The Committee appointed by the Minister of Munitions of War, with the concurrence of the Home Secretary, "to consider and advise on questions of industrial fatigue, hours of labour, and other matters affecting the personal health and physical efficiency of workers in munitions factories and workshops," is constituted as follows:

- Sir George Newman, M.D. (Chairman).
 Sir Thomas Barlow, Bt., K.C.V.O., F.R.S.
 Mr. G. Bellhouse, Factory Department, Home Office.
 Professor A. E. Boycott, M.D., F.R.S.
 Mr. J. R. Clynes, M.P.
 Dr. E. L. Collis, M.B., Factory Department, Home Office.
 Dr. W. M. Fletcher, M.D., F.R.S., Secretary of Medical Research Committee.
 Dr. Leonard E. Hill, M.B., F.R.S.
 Mr. Samuel Osborn, J.P., Sheffield.
 Miss R. E. Squire, Factory Department, Home Office.
 Mrs. H. J. Tennant.
 Mr. E. H. Pelham is secretary; to him communications may be addressed at the offices of the Board of Education, Whitehall, S.W.

The memorandums on Sunday labour and on industrial canteens mentioned below are the first of a series on

* Annual Report of the Chief Inspector of Factories and Workshops for the year 1914. [Cd. 8051.] Price 1s. 2d.

matters of immediate practical importance which the Committee will submit to the Ministry of Munitions. They will deal with such subjects as welfare supervision, hours of labour, the employment of women, and sickness and accidents. It is anticipated that they will eventually be incorporated in a single report, which will also deal with other matters affecting the health and physical efficiency of munition workers, and will include summaries of evidence and other material.

Sunday Labour.

The memorandum on Sunday Labour (No. 1) which is of the nature of a preliminary report, contains certain conclusions, together with an outline of the evidence upon which they are founded. The main conclusion is that Sunday labour should be everywhere discontinued, and by all classes of workers, except in the tending of furnaces and other work which must necessarily be continuous. In such cases, and also in respect of repairs, special arrangements should be made to give a corresponding rest during some other part of the week. Exceptions may occasionally be necessary to meet sudden emergencies, including the making up of arrears in particular sections. Except for quite short periods, continuous work is, in the opinion of the Committee, a profound mistake, not only on social and religious grounds, but also economically, since it does not pay, the output not being increased. The output is not increased partly because men become bored and wearied with the monotony of the work, and partly, apparently, because the actual number of hours worked may be larger when the average weekly hours are reduced. In one case the reduction was from 73½ to 65½ hours, and, though the normal hours were thus reduced by 13, the average number of hours worked during the three months preceding the change was 60, whereas the average number of hours worked during the six months preceding the change was 59½. The Committee express the opinion that the foremen and the higher management require definite periods of rest even more certainly than the manual workers. They never spare themselves, carry a heavy burden of responsibility, and cannot be replaced.

Industrial Canteens.

The memorandum on this subject, which is numbered 3, deals first with the general problem of nutrition. It is pointed out that, speaking generally, more importance is to be attached to the food being fresh, digestible, and appetizing than to its chemical composition or proportion. The relative value of food to the individual is affected by the nature of the employment, whether sedentary or active. With an increase of work there must be proportionate increase in quantity and in nutritive value of the food. A man who has to work hard, or long, or steadily, needs a proportionately ample food supply, composed of highly nutritive ingredients, if he is to withstand the strain. A woman requires on an average about four-fifths of the food supply of a man, and an adolescent about seven-tenths. The Committee considers that industrial alcoholism is in part due to the lack of cheap, good food. It found evidence that workers are getting a better type of food than formerly, but that large numbers of both sexes are not getting such a diet day by day; difficulty arises mainly where the workman or workwoman must have meals away from home. After referring to the custom of bringing food to the workshop, where sometimes facilities for cooking or warming are provided, and to the improvement in the character of cook-shops and coffee-houses, the Committee expresses the opinion that by far the most hopeful enterprise has been the establishment by employers of industrial canteens or workpeople's dining-rooms in or near the factory. The general scope of such a canteen is, perhaps, best expressed and explained in the following statement of an employer, which, the Committee says, expresses its conviction:

In answer to your inquiry as to the effect which our canteen arrangements have had upon the health and efficiency of our own workpeople, we were so fully alive to the importance of this as to erect a complete installation, separated from the factory proper, for the use of those who live too far away from the works to dine at home. From 1,500 to 2,000 workpeople make use of these rooms daily.

The building has a well equipped kitchen, but the majority of those who dine at the works, although buying tea and light refreshments, bring their own dinner. This habit obtains elsewhere. We make a point, however, of having, in addition to other things, one or two cheap and very nutritious dishes—for example, a 1d. basin of soup or stew, of which some hundreds are sold daily. In planning the dining block, we felt it was not merely a question of supplying food, but of doing so under restful and comfortable conditions, in rooms well lighted

and ventilated and properly warmed. A great deal more was done than was required for bare efficiency, and it is not necessary to bring about costly a result. At the same time, as there is a moment's doubt as to the importance of a comfortable dinner hour for our people from the point of view of their efficiency in the afternoon.

The health of our workpeople has unquestionably improved in recent years, and we feel sure that the dining-room has helped to bring about this result. At the same time, as there are many factors which have come into play, it is not possible to value with any approach to accuracy the part that each of these has played. The proper ventilation of the workrooms, medical and dental attendance freely given at the works, with facilities for those in poor health getting to a convalescent home, are among the many factors which have each exercised an influence.

The Committee has been impressed with the consensus of opinion as to the substantial advantages both to employers and workers following the establishment of an effective and well-managed canteen. These benefits have been direct and indirect. Among the former has been a marked improvement in the health and physical condition of the workers, a reduction in sickness, less absence and broken time, less tendency to alcoholism, and increased efficiency and output; among the latter has been a saving of the time of the workman, a salutary though brief change from the workshop, greater contentment, and a better mid-day ventilation of the workshop. The Committee is satisfied that the evidence of these results is substantial, indisputable, and widespread.

ROYAL MEDICAL BENEVOLENT FUND.

At the November meeting of the Committee 39 cases were considered. One applicant was elected to an annuity of £20 and £273 granted to 23 cases, and the others were either postponed for further inquiries or found unsuitable. The following is a summary of the cases relieved:

Daughter, aged 27, of L.R.C.P. Irel. who practised in Ireland. Applicant had nursed her mother, who had died recently, through a long and serious illness, and required a change and rest. Mother's income derived from charities ceased at her death. Voted £3 to enable her to take a holiday.

Widow, aged 57, of M.D. Glasg. who practised at Glasgow, and died in 1911. Only certain income £7 per annum. Son who helped to keep the home going had joined the army. Applicant endeavoured to make a living by taking lodgers, but this has not been a success of late. The Glasgow Branch of the Guild reported very favourably of this case. Voted £10.

Widow, aged 62, of M.D. Dubl. who practised at Elgin and died in 1904. Husband prior to his death was for some years an annuitant of the Fund. Applicant left totally unprovided for, and obtained post as manageress of a boarding-house in London, but owing to the war the house has been closed, and she is now out of work. Has one son who is a permanent invalid. Voted £12 in twelve instalments.

Widow, aged 67, of M.D. Dubl. who practised at Widnes, Lancashire, and died in August, 1915. Applicant had been separated from her husband for some years owing to his habits. Was left totally unprovided for at his death. Is an invalid and has lost the sight of one eye. Has two daughters, aged 22 and 9, and one son aged 16. The eldest daughter is a nurse. Applicant has a home temporarily provided by friends. Voted £10 in two instalments.

Daughter, aged 68, of M.R.C.S. Eng. who practised at Cambridge and Cheltenham and died in 1887. For some years has just managed to earn a living by keeping a boarding house at Westcliff, but owing to the war has not had any visitors, and has had to sell her home to provide rent and other expenses; only income £35 per annum. Voted £12 in twelve instalments.

Daughter, aged 65, of M.D. Edin. who practised at Spalding and died in 1896. Has only a very small permanent income, and relatives who have helped her in the past are now unable to do so. Voted £12 in twelve instalments, and referred to the Guild.

Daughter, aged 64, of M.D. Edin. who practised at Newark-on-Trent. Applicant lives in own house, which is heavily mortgaged, and the little investment she has is not paying dividends owing to the war. Has a lady boarding with her who only pays a nominal amount. Voted £10, and referred to the Guild.

Daughter, aged 22, of M.P., C.M. Aberd. who practised at Methick and died in 1909. Mother of applicant died this year. The applicant is the oldest of six children, the three youngest of whom are at school. Of the other two, one boy aged 19 has joined the army, and the elder is a clerk earning £1 per week. Only permanent income £27 10s. per annum. Applicant is desirous of keeping the home together. Voted £10 in two instalments, and referred to the Guild.

Widow, aged 50, of M.R.C.S. Eng. who practised at Bexhill-on-Sea and died in 1912. Was left unprovided for with two daughters, now aged 20 and 11. The eldest earns about £1 per week as a clerk. The applicant's health is very bad, and she is quite unable to undertake any employment. Relieved three times, £30. Voted £10 in two instalments.

(To be continued.)

British Medical Journal.

SATURDAY, DECEMBER 11TH, 1915.

REST AND FOOD OF MUNITION WORKERS.

LAST September the Minister of Munitions, with the concurrence of the Home Secretary, appointed a Committee on the Health of Muniton Workers, to consider and advise on questions of industrial fatigue, hours of labour, and other matters affecting the health and efficiency of workers. The Committee intends to issue a series of memorandums dealing with such questions as hours of labour, industrial canteens, the employment of women, and sickness and accidents. The members of the Committee have taken evidence in London and other important centres from employers and representatives of the workmen, and have visited a large number of controlled factories and workshops. In another column the constitution of the Committee is stated, and a short account is given of the two memorandums on Sunday labour and on industrial canteens respectively, which have already been issued.

As soon as the war began overtime was prolonged in muniton factories, so that men worked even fifteen hours a day and seven days a week. Night and day shifts were instituted, and the change from night to day was made in many factories by the men working an eighteen-hour shift—for example, from 6 p.m. on Saturday to noon on Sunday, the other shift working from noon on Sunday to 6 a.m. on Monday. Such pressure of work might be sustained for a short period, the workers being keyed up by the high wages earned—double pay on Sunday—and the country's need of their exertions, but it is physiologically impossible that such hours should be endured for the long period which the war has, and will, occupy. Tired nature compels the workers to lose time, and then nothing is gained by the long hours; there may even be loss owing to staleness and a general lowering of health and efficiency. It must be remembered that not only has Sunday labour been the rule, but the usual holidays have been greatly curtailed. It is on the highest skilled workers, such as the toolmakers—most in demand—and on the executive—the brains and organization of the work—that the continuous labour and excessive hours of work have most heavily told. "These individuals have never spared themselves, they carry a heavy burden of responsibility, and they cannot be replaced." So topsy-turvy, too, are the present economic conditions that we have heard of piece workers earning half as much again as their charge hands, who are on a fixed salary. The representative of one important firm told the Committee that it had recently extended the relief at the week-end and reduced the average weekly hours from $78\frac{1}{2}$ to $65\frac{1}{2}$ hours. Though the normal hours were thus reduced by 13, the average number of hours (60) worked during the three months succeeding the change had, he said, exceeded the average number of hours ($59\frac{1}{2}$) worked during the six months preceding the change. Moreover, in his opinion, the output was improved. The employers have been coming to the view that

Sunday work does not pay. If the workers lose time in the week, they have to be stopped from earning double pay on Sundays, and thus the Sunday rest is given to those who need it least. The evidence obtained from trade union officials is that the men are getting "fed up," and that much of the time lost is to be attributed to the fact that the men feel they want more rest. They would rather have the Sunday holiday and lose the double pay. The Committee justly considers "that the discontinuance of Sunday labour should be of universal application and should extend to all classes of workers, except that where the work must necessarily be continuous special arrangements will be necessary." The employment of women and boys and girls on Sundays is particularly deprecated. Should it prove difficult, if not impossible, to bring about the early stoppage of all Sunday work, it should, it is considered, at least be practicable to lay down the principle that Sunday labour is a serious evil to be steadily and systematically discouraged and restricted. The Committee suggests several ways in which present conditions may be mitigated, even if the full return is not made to the one day off in seven. We trust that the Minister will not content himself with merely circularizing the advice of the Committee, but will give it the necessary power to ensure that its recommendations are carried out. The workers, from all the accounts that have reached us, have responded with praiseworthy and extraordinary zeal to the long hours of labour demanded of them. They work in the face of the greatest discomfort in crowded factories which, since they are occupied continuously, can never be thoroughly scoured out with fresh air, for they are now occupied during the hours of night when under normal conditions they would be empty. It must be remembered also that both men and women suffer also because means of transit are slow and the vehicles crowded.

Moreover, housing difficulties are very great in some districts, and in such neighbourhoods, and perhaps even more in places where the working population has been very largely increased owing to the setting up of muniton factories, the facilities for getting nutritious meals in comfort must often be inadequate or altogether deficient. This consideration has led the Committee to issue another very interesting memorandum—on industrial canteens. The problem is to supply suitable food at a low price for large numbers of persons at specified times. Independent enterprise has provided improved coffee-houses and refreshment rooms, and philanthropic effort has done something, but in existing circumstances, at any rate, much more is necessary, and the Committee considers that the most hopeful plan is the establishment by employers of industrial canteens or workpeople's dining-rooms in or near the factory itself. Various partial expedients may be successful when circumstances are specially favourable, but the need can only be effectively met, at least in many instances, by establishing a dining-room supplying cheap hot and cold dinners in association, if possible, with an institute or club affording facilities for rest and recreation, including rest rooms, baths, and perhaps a gymnasium, a roof garden, and even education classes. It is estimated that a dinner consisting of meat or fish, with two vegetables, pudding, and bread and cheese, can be supplied for 6d. to 1s., and non-alcoholic beverages for from $\frac{1}{2}$ d. to 1 $\frac{1}{2}$ d. It is recognized that any canteens which may obtain permission to sell alcoholic beverages will require particularly careful supervision. On this point, however, the Committee says that it has been impressed not only by the improved nutrition

manifested by the users of a canteen, the prevalence of a spirit of harmony and contentment, and an increase of efficiency, but also by a lessened tendency to excessive consumption of alcohol.

The Committee has a great opportunity not only to remedy the grosser defects produced by the existing pressure and shifting of work, but to make what ought to be a permanent advance towards the scientific management of manual labour and the greater efficiency and happiness of manual workers. We welcome the practical nature and good sense of its first memorandums.

MUSIC, EMOTION, AND MUTISM.

THE power of music to evoke emotions and memories is well known, but as Dr. Ormerod observed in the discussion which followed the delivery of the philosophical and suggestive address by Dr. Mott before the Society of English Singers (p. 845), the process may in some instances be extremely subtle and difficult to understand. Dr. Mott shows that a perfect psychic mechanism is as necessary for the production of perfect vocalization as is a perfect physiological mechanism thoroughly under control. For successful dramatic singing the perfect and co-ordinated action of the series of mechanisms necessary include the control of the breath in the manner he indicates, an adequate compass, rich quality, due partly to the construction of the resonator, but in great measure to its proper use under the control of the will, and the power to express the emotions and rouse the feelings of an audience.

Dr. Ormerod pointed out that the reaction in the mind of the hearer might go beyond that at which the singer or, indeed, the composer aimed, and he mentioned the case of a lady, the pupil of a distinguished composer, whose mother would beg her not to sing one particular song of his. Yet the daughter had no notion what distressing emotion was evoked by it or why. Music in its appeal to the hearing, like odours appealing to the lower sense of smell, might open up obscure labyrinths of feeling—the "vestigia intercommunia sensūs."

Dr. Aikin, the honorary secretary of the society, observed that Dr. Mott's work, which came so near to the very source of artistic expression in song, seemed to establish a psychic technique controlling the emotions which express themselves naturally in the breath. The breath in its turn, as the physical source of sound, supplied the foundation of phonological technique which carried out the natural and educated uses of the organs in vocalization and diction. While the phonologist can only follow the phenomena of the voice down to their breath foundation, Dr. Mott has carried his investigations from the emotions up to their influence on the breath. Thus continuity is established and it is shown that the meeting place of the psychic and physical forces is the breath. This important principle calls for careful consideration and shows clearly the necessity of psycho-physiological inquiry in matters concerning education.

Incidentally Dr. Mott dealt at some length with the subject of mutism produced by shock, and discussed the problem in the light of some remarkable cases he had observed among men suffering from shell shock, who, though they had no visible signs of injury, had lost their speech while yet quite able to write a lucid account of their experiences. Dr. Ormerod expressed the opinion that the condition thus produced by violent emotion in men presumably

healthy corresponded exactly with that which lesser emotions could produce in neurotic patients, which we are wont to call hysterical mutism. Why such emotion should particularly affect the function of speech was, he thought, hard to explain. But the fact had long been known. Virgil described the condition of terror in the well-known line:

Obstupui, steteruntque comae, et vox faucibus haesit.

The Bible phrase is, "My tongue clave to the roof of my mouth." Excellent instances of emotional mutism could, he added, be found in the Bible and in Herodotus. The return of the lost speech, which could as a rule safely be predicted, was often sudden and complete, and might take place during a dream, as Dr. Mott had pointed out, or from some emotion in the waking state, or in circumstances which seemed quite trivial and inadequate. This is a problem of no less psychological interest than the original loss of speech.

The analogy of such cases to those of loss of sight, or at any rate the power of interpreting visual images which apparently must be formed upon the retina, will occur to every one. Such cases are commonly regarded as functional, and are characterized by impairment of sight, contraction of the visual fields, photophobia, and blepharospasm. The symptoms are, in the majority of cases, due no doubt to functional derangement—a form of traumatic neurosis—but, as Dr. Jameson Evans of Birmingham points out in a paper published in this issue, this is not always the case, and he enumerates a number of definite lesions which may be present without any superficial sign of injury, or following such slight surface injuries that it is impossible to regard the latter as the true origin of the organic lesions of the eye.

TUBERCULOSIS AMONG SHOEMAKERS.

IN an article giving an account of the first year's work of the Medical Research Committee, published on November 20th (p. 754), it was stated that though the Committee had felt that its most urgent duty was to co-operate with the War Office by conducting researches into problems raised by the war, the research work done on its behalf in other directions though diminished had not been altogether discontinued, and special reference was made to inquiries into the incidence of phthisis in particular occupations and industries. It was stated that a special investigation committee, with Dr. Addison, M.P., as chairman, and as members Dr. Leonard Hill, Dr. Benjamin Moore, and Dr. Brownlee, of the Committee's scientific staff, and Dr. E. L. Collis, medical inspector of the Factory Department, Home Office, had begun an inquiry into the incidence of phthisis among workers in boot and shoe factories, leather and hide works, and printing shops.

A report has now been issued on the boot and shoe industry. Statistical returns have for many years past pointed to this particular industry as being associated in too high a degree with tuberculous disease, and the double purpose of the inquiry has been to ascertain the contributing causes of the fact and to suggest any possible amendments by which they might be counteracted.

The Committee in its report explains in detail the conditions under which bootmaking is carried out at the present time, and the changes of method which have followed the introduction of machinery to replace hand work. The strain upon the physical

powers of the workers has undoubtedly been considerably relieved in some of the operations of bootmaking that formerly involved a cramped position for many hours in the day, but it would seem that there is still room for improvement in this respect. The machines used in one department are for the most part small and numerous, and there is an attendant upon each. The work requires little active exercise, and the workers, in their desire to keep warm, do not carry out the prescribed rules for ventilation. The rooms become hot and stuffy, the machines in many cases produce a good deal of dust, and the windows, when kept tightly closed, are usually semi-opaque with accumulated dirt; the net result is to produce the very conditions under which it is believed that tuberculosis may most easily be spread if there should be a case of active disease among the crowd of workpeople of either sex. Sitting in close proximity and often facing one another, the operatives must be at all times liable to infection from any of their fellows who suffer from frequent coughing, even if there be no actual distribution of sputum. It is shown that a direct relation subsists between the departments where sedentary work is carried on and the incidence of phthisis. In some other workrooms, where larger machines are used and heavier work is undertaken, the hygienic conditions are better and proper ventilation is observed, the fear of chills and draughts being less marked owing to the more active nature of the work. In most of the factories reported upon it would seem that proper means are provided, but that the operatives themselves will not consent to make right use of them.

It follows from this that educational rather than structural amendments are called for, and with this object in view the Committee makes several valuable suggestions, which deserve very careful consideration on the part of factory managers and others responsible for the conditions under which large numbers of operatives are required to work for long hours in enclosed premises. A system of compulsory exercise is recommended, for a definite time each day, in the form of easy drills or other combined movements, and the avoidance of long four-hour spells of work without a break, more especially for girl workers. In some factories such a system has been found to be of advantage in every respect. More and better work is done, while the standard of health is raised. By the introduction of electric fans to keep the air of the workshops in movement, and by placing the whole system of ventilation out of the control of the occupants of the room, and by the compulsory cleaning of windows, much of the present defect may be removed, but there still remains the individual sufferer from chronic cough to be dealt with. While still able to tend his machine and to turn out his due proportion of work, such a person may be a constant source of danger to others. Compulsory powers to remove a consumptive patient to a sanatorium or otherwise segregate him do not exist, and the pregnant idea is mooted in the report that a sanatorium might be affiliated to the factory, in which the consumptive workman might continue his work, within limits to be prescribed by medical authority, but at the same time be under constant supervision and compelled to live a strictly hygienic life. This idea is one capable of very wide application, and doubtless there are many other trades where small machines are employed and where the work could be carried on by consumptives in various stages of disease, if only the requisite accommodation could be supplied in a sanatorium as a part of the factory itself. Already many large industrial undertakings

are provided with their own hospital accommodation, but the patients do not return to their work until their convalescence is complete. Very many of these would be quite equal to a moderate amount of work each day if the means for doing it were provided, and in the case of the consumptive, where the convalescent stage is of necessity prolonged, the opportunity for earning a little money and for occupying the mind would undoubtedly be welcome.

The adoption of such a scheme would naturally require some adjustment as regards the terms of insurance and sickness benefit, but the difficulty should not be insuperable.

A CLASSIFICATION FOR MEDICAL RECRUITING.

THE scheme of classification which has been under the consideration of the Central Medical War Committee for some time past is published in the SUPPLEMENT for this week, together with an explanatory letter addressed to the secretaries of local Medical War Committees in England and Wales. The scheme is comparable to that elaborated by Lord Derby, but the groupings are different in character and are to be used in a somewhat different way. The size of the armies now contemplated in this country makes the problem of the future very serious; and it is by no means certain that it may not be necessary for almost one-half of the medical profession to be in military service next year. To prepare for this possibility it is essential that every man of military age who is physically fit should declare his readiness to place himself at the service of his country if called upon to do so. The only method by which he can achieve this is by placing himself unreservedly in the hands of the national Medical War Committees, which, with the assistance of the local Committees, are able to decide, in as equitable a manner as the circumstances allow, in which direction each individual's duty lies. In the opinion of the Central Medical War Committee, patriotism demands that every eligible man, whatever may be his views as to the value of his own work, should sign an application for a commission in the R.A.M.C., and hold himself in readiness to make every sacrifice in his power for his country whenever it becomes plain that the holding up of his application is no longer justified by the nature of his employment in civil life. To talk about waiting until he is taken under the compulsion of conscription is unworthy of a member of the medical profession. Far better to show at once that he is willing to go without further question as soon as those in touch with the authorities are convinced that his services are needed in the army. Since the meeting of the Central Medical War Committee a fortnight ago, several important interviews have taken place between representatives of that Committee and various Government departments. In so large a scheme it is obviously necessary that all parts of the work throughout the country should be co-ordinated. It would not be politic to let the patriotic feelings of the doctors of one area run away with them to such an extent that they would forsake the necessary medical services of the civil community to go to war whilst there were a considerable number of medical men left in other districts who were not called upon to do their share. It is obvious that the difficulty of sparing medical men differs considerably in different parts of the country and in different types of practice. A man who has an appointment at a fixed rate of pay generally has some sort of goodwill attached to his post which he is able to retain even though he is temporarily absent and his work is carried on by a deputy. On the other hand, a practitioner who does work amongst private people, particularly in town districts, is wholly dependent for his goodwill on his continual and personal application; no

substitute can wholly make up for his absence. It is obvious that the first class of man can go to the war more easily than the other, and between these there are all grades. It is as the result of the recognition of these difficulties that the Central Medical War Committee has prepared a scheme to be a guide to the local committees. The Committee particularly wishes it to be understood that this classification is not to be regarded in any sense as a time-table; by that it is meant that those put in the early classes need not necessarily be on service before any in the last classes should be asked to consider the desirability of volunteering. The position of men in public services must, of course, be considered in relation to the Government departments responsible for their work; the views these departments take, and, indeed, have expressed, both in circulars and by the way they have dealt with applications for leave of absence by individual medical men, has been exemplary. The Central Committee is urgent in its request that the canvass of medical men under Lord Derby's scheme should be undertaken without fail in every area of the country. This is being done already by some local committees, who have put the actual canvassing in the hands of senior medical men of the district. This matter should not go by default, for it is likely that if the medical profession fail to seize this opportunity of arranging its own affairs the work of canvassing may fall into the hands of lay canvassers either under Lord Derby's scheme or whatever other scheme may follow it. All these efforts of the Committee are directed to the future; provision must be made for the continuance of a supply of medical men for the military services as the necessities of our growing armies increase the demand, but the Committee hopes that those men who can go now or at an early date will send in their applications for commissions without delay. All the rest, to whom the difficulties of freeing themselves seem insurmountable, should place themselves unreservedly in the hands of the Central, the Scottish, or the Irish War Committee, as the case may be, feeling assured that the Committee will not call upon them for service until such time as the demands of the war render the need for them imperative.

MAGNESIUM CHLORIDE AS CYTOPHYLACTIC.

LAST September Delbet and Karajanoğlu reported to the Académie de Médecine the results of their most recent researches into the influence of magnesium chloride in stimulating phagocytosis. From observations *in vitro* they found that the action of a solution of 12.1 per 1,000 of anhydrous magnesium chloride in stimulating phagocytosis was 75 per cent. greater than that of a solution of sodium chloride (8 per 1,000), which itself caused 63 per cent. more than Ringer's solution, and 154 per cent. more than isotonic sea water. They next ascertained that this cytophyllactic action of magnesium chloride was to be observed when an intravenous injection was made during life. Their first experiment consisted in injecting 150 c.c.m. of the 12.1 per 1,000 solution into the saphenous vein of a dog weighing 16 kilograms. On comparing the phagocytic action of the blood taken before and thirty-five minutes after the injection they found that in the first specimen 500 polymuclear corpuscles took up 245 microbes, and in the second 681, an increase of 180 per cent. They then by a rather elaborate experiment, details of which were not explained, ascertained that an even more marked result occurred when the phagocytosis took place in the circulating blood itself; the increase in the case of the *Bacillus coli* was 333 per cent., and in the case of the *Bacillus pyocyaneus* and cocci 129 per cent. The injections did not produce any toxic symptoms, but they had not made them in man, although they had used the solution of magnesium chloride for dressings and subcutaneously with good results. At the meeting of the

Académie on November 23rd² M. Pinard reported very favourably on the use of a solution of magnesium chloride in the treatment of wounds; owing to the difficulty of obtaining the anhydrous salt he had used the crystallized salt in corresponding proportion, which was calculated to be 17.5 per 1,000. The solution actually used was made by dissolving 18 grams of crystallized magnesium chloride in 1,000 grams of sterilized water. In treating the wounded from the battle of the Marne Pinard had used antiseptics, but after October 12th, 1915, he had entirely abandoned their use, and all the wounded from the Champagne actions were treated solely with the magnesium chloride solution. All the cases when received had infected wounds, which were suppurating freely. The wounds were irrigated with the solution and covered with a thin layer of sterilized absorbent wool impregnated with the solution. All cases which were suppurating, or which presented anfractuons wounds of the muscles or bones, were dressed during the first five days twice a day, after that once a day. No drains were used, and any counter openings considered necessary to afford free exit to the pus were small. The results, Pinard stated, were such as he had never before witnessed. Alike in wounds of muscles and those which involved bones, suppuration diminished very rapidly and the foul odour progressively grew less. Amputation wounds did extremely well; the epidermis extended from the edges with astonishing rapidity, as the neck of a bag is drawn in by a string, and in no case was it necessary to cauterize exuberant granulations. The stumps in some of the cases in which the amputations had been performed on September 25th, 26th, 27th, were completely cicatrized on November 23rd, but in a few there was a small fistulous opening leading down to the bone; in such cases the wound was irrigated with the solution every day, and the amount of excretion diminished daily. In wounds involving bones suppuration diminished rapidly, and the exposed bone either became detached in small fragments, each irrigation bringing away particles, or the bone became red and covered with granulations. If all the intricacies of the wound were thoroughly irrigated, the offensive odour of the discharge disappeared generally in a few days and callus formed rapidly. Only one case went wrong—a case of amputation through the thigh. In that the stump was very short, and it was difficult to keep the dressing in position; erysipelas developed. Two subcutaneous injections of 80 c.c.m. of the solution were made, one at the back of the stump, and the other at the upper margin of the erysipelatous blush on the skin. The temperature fell within twenty-four hours. The injections were repeated on the next and following day, the general symptoms disappeared, and the temperature fell to normal after, on the third day, a small abscess containing inodorous pus at the back of the stump had been incised. In another case of severe wound of the knee, with a temperature of 104° F. and abundant offensive suppuration, in which arthrotomy appeared urgent, the joint was thoroughly irrigated, every pocket being carefully washed out until the fluid returned limpid. The irrigation was repeated daily, and on the ninth day after admission suppuration had stopped and the temperature had fallen to normal. "When I compare," Pinard said, "the results I obtained with the wounded from the battle of the Marne, which I treated with antiseptics, with those I have recently obtained with the wounded from the battle in Champagne treated with the solution of magnesium chloride, the conviction that a great advance has been achieved is forced upon me."

GLANDULAR PARTIAL HERMAPHRODITISM.

DR. BLAIR BELL³ has had an opportunity of studying a case in which a patient commenced life and passed puberty as a normal woman, menstruating regularly for

² *Bull. Acad. de Méd.*, November 23rd, 1915, p. 577.

³ So-called hermaphroditism, with the Report of a Case, *Proc. Roy. Soc. Med.*, vol. xiii, 1915, p. 77.

¹ *Bull. Acad. de Méd.*, September 7th, 1915, p. 266.

eighteen months. The catamenia then ceased, and masculine characteristics developed. At the age of 19 the voice had become deep, a small moustache had developed, and the distribution of hair on the surface of the body was noted to be of the masculine type. An exploratory operation was performed. The left genital gland was enlarged to the size of a plum, and a wedge-shaped piece of tissue was excised for examination. The right genital gland presented the appearances of a rather small normal ovary. After a piece had been excised, a graft taken from an ovary removed from a patient under operation a few minutes previously was implanted in the uterus. The wounds in the genital glands were closed with catgut suture. There was no evidence of disease of the suprarenal glands. The microscopic appearance of a section of the piece taken from the enlarged left genital gland simulated columnar-celled carcinoma. In consequence, Dr. Blair Bell removed both genital glands and Fallopian tubes, with the fundus of the uterus. The after-history was remarkable, for the patient, who had ceased to menstruate for about three years, all menstrual molimina having disappeared as well, nevertheless became subject to slight menopausal symptoms. The right genital gland proved to be a small normal ovary, not in a highly active condition. The left genital gland was a true ovo-testis. The naked-eye appearance was instructive, the gland on section showing a pale cortex presenting all the appearances of an ovary, and a dark medullary portion. On microscopic examination the cortical part was seen to be made up of true ovarian tissue, with normal Graafian follicles; the more central portion was testicular tissue, made up of seminiferous tubules and testicular interstitial cells. No spermatogenesis, however, was seen. Dr. Blair Bell classifies this case under the head of "glandular partial hermaphroditism." We have had occasion to describe cases of gynandry and androgyny within the last few years, but recently the subject has been investigated with the indispensable aid of perfect microscopic technique. Total hermaphroditism—the power of self-fertilization or at least of fertilizing others and of being fertilized—is limited to invertebrates. Partial hermaphroditism, on the other hand, is known to exist in man. As judged by the strict standard of histological investigation, all the recorded cases except one of glandular partial hermaphroditism have been found to possess mixed gonads or ootestes with or without irregularities in the sex characterization of the genital ducts, external genitalia, and secondary characteristics. Dr. Blair Bell agrees with Pick and Tuffier and Lapointe in holding that all cases reported and accepted as "true hermaphroditism" should be called "glandular partial hermaphroditites." The ootestis has been detected in ungulates, moles, and other mammals, as well as in man.

RIVERS OF DAMASCUS.

SINCE the earliest days of civilization mankind has been in the habit of resorting to natural mineral waters for the cure of disease, by either internal or external application. Nowadays, it need hardly be said, spa treatment and treatment by draughts, baths, douches, sprays, and other applications of spring waters have become a necessity for the holidays and medical welfare of the upper and middle classes, and a highly valuable medicinal luxury for the poorer members of society to whom they are prescribed by medical advice. Many of the European springs of natural mineral waters hitherto most frequented are within the boundaries of the Central Powers with whom we are at war. For the present, therefore, they are not available for our invalids, and it seems likely that in the future also their utility will be seriously restricted so far as we are concerned. What are we to do about it? Obviously the time has come to give our own natural spring or mineral waters the more extensive trial their

merits have long deserved. Whatever may have been true of Syria in Naaman's time, there is good reason for believing that our own insular Abanas and Pharpar will prove on trial at least as valuable to invalids as many of the German and Austro-Hungarian waters of Israel. Dr. Sutherland has written an interesting historical account of the spas, baths, and wells of London,¹ in which he shows that for the most part the Londoner's rivers of Damascus, never of any great medical potency, have now, alas! dried up or become impoverished to such an extent as to render them medicinally valueless. Before it was built over and drained in the eighteenth and nineteenth centuries, the London area seems to have been as rich in natural springs as was many fountains' Ida in the time of Enone. Dr. Sutherland catalogues no less than twenty-three holy springs and wells, or sources dedicated to saints, in Old London; nineteen wells used for drinking purposes; two score public wells with pumps; and half a score bathing pools supplied with natural water of more or less medicinal properties. In addition he gives details of some nine medicinal springs in London itself, and over twenty more in its suburbs and vicinity, that have had their vogue during the last two hundred and fifty years. Many of these furnished chalybeate waters, the others contained larger or smaller quantities of magnesium sulphate in solution. In many instances spas were established and exploited at these medicinal wells or springs from the latter half of the seventeenth century onwards, but by the end of the eighteenth century the prosperous and palmy days of the majority of the London spas—or "spaws," as Dr. Johnson wrote the word—were over. No less than eight London spas existed within a mile of the present King's Cross. Dr. Sutherland enumerates twenty-five others that flourished for a time in and around London, including the celebrated spas of Hampstead, Kensington, Kilburn, Marylebone, Bayswater, Richmond, Shooter's Hill, Streatham, and, last but not least, Epsom. It is sad to have to record the fact that at the present time the spas of London and its environs have decayed, leaving but a couple of decrepit survivors south of the Thames. Abana and Pharpar have, in fact, dried up or become demineralized to such an extent as to rob them of medicinal value. Their day is passed, but Dr. Sutherland points out that there are plenty of other spas of sterling worth in England, Scotland, and Wales to which patients may be sent with the utmost advantage. In many of them the various forms of treatment necessary may be carried out quite as efficaciously and satisfactorily as at the foreign stations now closed to our invalids. The Londoner can no longer get spa treatment in or near London, it is true, but he will find himself excellently served at twenty British spas in the country.

THE SOLDIER'S DIET.

PROFESSOR FILIPPO RHO has published recently an essay on the feeding of soldiers in peace and war. The two chief points in it are—first, the repeated statement that the ration is too rich in nitrogenous content; and, secondly, that alcohol should be prohibited, although it is admitted that it may be an occasional addition to the dietary, but only with meals and when work is done, not as a preliminary to work; tea and coffee, well sugared, are, Professor Rho considers, much more useful in this respect. Although alcohol provides some calories, it is always rather an anarchic element—"consuming like a burning faggot, and not like charcoal, in a slow and lasting fashion." Like many writers on dietetics, he is much influenced by Clittenden's results; for the soldier, who is often still growing, he would allow 100 grams of nitrogenous food, 70 grams of fat, and from 300 to 600 grams of carbohydrate, according to the work required, the

¹ *Old London's Spas, Baths, and Wells.* By S. Sutherland, M.D. London: John Bale, Sons, and Danielsson, Ltd. 1915. (Demy 8vo, pp. 180; 35 illustrations. 7s. 6d. net.)

minimum diet giving 1,934 calories and the maximum 3,378 calories. He considers that the diets of practically all armies err on the side of providing an excessive amount of nitrogenous food, and the English are, he thinks, amongst the worst. It is even suggested that some of the so called trench diarrhoea is due to excess in nitrogenous food. Professor Rho realizes that the modern scientific results seem to suggest a reduction in the nitrogenous content of the diet as advisable, yet it is necessary to proceed slowly in making radical alterations when dealing with masses of men, for the majority are still believers that to be strong plenty of strengthening things such as meat must be taken. He gives this as a reason for not making detailed recommendations, but contents himself with explaining the results of recent work in dietetics, and how far practical experience has borne them out. It is interesting to read that according to calculations recently made, the rations of the old Roman legionary worked out at 123.57 grams albuminoids, 25.22 fats, 429 hydrocarbons, and 25 alcohol, giving a total of 2,482 calories.

ANTITYPHOID VACCINATION IN NORTH AFRICA.

The bacteriologists of the Algerian Pasteur Institute have been actively employed during the last sixteen months in preparing antityphoid and antiparatyphoid vaccines for the French North African army, using Vincent's method of preparation, and also finally heating the vaccine to 55° C. for an hour.¹ In Algiers, what is commonly known as typhoid fever has been very carefully studied by Roussel. In two and a half years between 1911 and 1913 he made 303 positive cultivations from the blood of typhoid patients. The microbe grown was the *Bacillus typhosus* in 227 cases, *B. paratyphosus* A or B in 72, the A variety being more often met with than the B; in the remaining four cases Roussel found two new intermediate types of paratyphoid bacillus which he terms C (three cases) and D (one case). The vaccine employed was designed to protect against the first three of these. Each cubic centimetre contained 400 million typhoid bacilli, and 200 million paratyphoid A and B combined. Four inoculations were made, containing respectively $\frac{1}{2}$, 1, 1 $\frac{1}{2}$, and 2 $\frac{1}{2}$ c.c.m. of the vaccine, in each case. Over 100,000 soldiers were treated in 1914-1915; it was noted that the local and general reactions were no more severe with the mixed vaccine than they had been up to October, 1914, when a simple antityphoid vaccine was in use. The results of the employment of the mixed vaccine are described as most satisfactory throughout the North African army. In Algiers itself both typhoid and paratyphoid A and B fevers are endemic among the unprotected civil population; several hundred cases are treated yearly in hospital. But no case has occurred among the fully inoculated soldiers of the garrison at Algiers; nine have been recorded among the few non-inoculated soldiers, and five among those who were in process of being inoculated.

STATISTICAL PSYCHOLOGY.

Those who have dissented from the belief so industriously propagated that modern science is mainly a product of "Kultur" must view with satisfaction the recent history of statistical methods. The school founded by Galton, and developed by Karl Pearson, composed, as far as its most distinguished members are concerned, exclusively of British and American citizens, has profoundly modified the technique of workers in apparently unrelated fields of investigation. In biology and anthropology, even those who decline to adopt the conclusions of the biometricians have been forced more or less unconsciously to use their methods. On medicine and pathology the researches of Sir Ronald Ross, Brownlee, Greenwood and others, not to speak of those of Professor Pearson himself, have left impressions, while in the study of sociological and economic

phenomena the modern English statisticians have had matters very much their own way. No subject, however, has been more affected than psychology, and Dr. Edward Webb's thesis, entitled, *Character and Intelligence*,¹ is a conspicuous illustration. Dr. Webb has applied statistical methods to data derived from two groups of students at a training college, numbering 98 and 96 respectively, and to four groups of school-boys totalling 140. From an analysis of a large number of coefficients of correlation, Dr. Webb reaches the following main conclusions: In the first place, he considers that the existence of a common central factor of intellectual energy—a factor to which attention was first directed in recent times by Spearman—is demonstrated by his results, which fully confirm those of Spearman and his co-workers. In the second place, he thinks that another general factor more specially prominent on the "character" as distinct from the purely intellectual side of mental activity, must also be postulated. He puts forward the tentative suggestion that this second factor stands in some close relation to "persistence of motives." We cannot attempt here to discuss the method adopted; it must suffice to say that everything turns upon the significance of certain coefficients of total and partial correlation. Dr. Webb is very properly keen on his guard against various sources of material error, and has brought to light certain fallacies which might not have been expected *a priori*. The value of his work is unquestionable, although it is open to attack on the purely mathematical side. It appears to us that Dr. Webb has not fully grasped the nature of the criticism to which some of Professor Spearman's work has been subjected by, for instance, Professor Pearson and Dr. William Brown. Some of Professor Pearson's criticisms of Professor Spearman's approximate methods of computation are indeed unanswerable, and it cannot be said that the processes of eliminating "observational errors," which Dr. Webb appears to regard as unimpeachable, are really so. A still more important question is the computation of a "probable error." Dr. Webb gives the ordinary formula for the "probable error" of a coefficient of correlation; but we doubt whether he has altogether realized the essential limitations of that formula and the difficulties involved in the evaluation of random errors when we have to deal with small samples, even if random, especially when the correlation is very high or very low, not to speak of the complications introduced where clustering is a possibility. The recent papers of Soper, "Student," Fisher, and others are of importance in this connexion, while, with regard to clustering, Soper has justly observed, in a recent letter published in *Nature* (September 9th), "In all cases where a space or time content is taken as the sample it is necessary, owing to unknown clustering, to repeat the sample many times over before a just estimate of the statistical constants and of their probable errors can be obtained." These remarks may seem hypercritical, but the importance of Dr. Webb's conclusions is so great that the steps by which they are reached merit the closest scrutiny. Dr. Webb is to be congratulated on the performance of a valuable and laborious piece of work.

AMOEBAE IN PYORRHOEA ALVEOLARIS.

DENTISTS have hitherto looked on pyorrhoea alveolaris either as a general disease with local manifestations or as a local disease of bacterial origin. Lately, however, it has been suggested that it is a local disease of amoeboid origin. In particular Bass and Johns are exponents of this view, and in a short memoir,² which gives evidence of much thought and careful study, they maintain that both the

¹ *Character and Intelligence* (British Journal of Psychology, Monograph Supplements No. 3), (A Thesis approved for the degree of Doctor of Science to the University of London). By Edward Webb. Cambridge: At the University Press, 1915. (Pp. 99. 8s. net.)

² *Alveolar Pyorrhoea*. By C. C. Bass, M.D., and F. M. Johns, M.D. Philadelphia and London: W. B. Saunders Co. 1915. (Roy. 8vo. Pp. 167; 42 figures. 12s. net.)

¹ L. Sergeant and L. Nègres, *Bull. Acad. de Méd., Paris*, 1915, Lxxiv, 469.

cause and the cure of what they prefer to call alveo-dental pyorrhoea have been established beyond dispute. The cause is the *Entamoeba buccalis*, and the cure emetic, which causes rapid disappearance of the amoeba. They have found the parasite in more than 300 cases in which the disease had developed to an extent which permitted it to be diagnosed, but have always failed to find it in microscopic preparations that contained no pus. The special "habitat of the organism is the dying tissue at the bottom of the lesion (the pocket) where bacteria and other agencies are few or absent . . ." Other evidence that the entamoeba is the specific cause of alveo-dental pyorrhoea is "the very certain and rapid results that follow treatment with a specific amoebicide, whether applied locally or given hypodermically." They believe that the *Entamoeba buccalis* finds a suitable habitat in tissues injured by trauma, such as misuse of the toothpick or dental silk, and that by its motile activities it implants into these tissues the bacteria which adhere to it. It thus ensures a constantly deepening infection. Once the amoebae are destroyed the tissues are given a fair chance of healing, but pockets must be mechanically destroyed, since reaccumulation will keep up the irritation and prevent healing. Whatever may be the part played by the entamoeba, there is no doubt of its presence, though the fact that it is found most abundantly in the depths of the pockets, that is, in the well-developed lesion, may suggest to some that it is rather a secondary than a primary factor. It has, indeed, been regarded as a scavenger. Further, the trauma which is postulated as necessary for its implantation (by providing injured tissue) is by no means a necessary factor to the development of the disease, which habitually attacks the most secluded spots. The results of using emetic are said to be very good, but we are not told of any cases treated by this drug alone. A statement as to the local treatment accompanying its use ought to have been given, since by thorough local treatment the disease may always be cured—so far as cure may be spoken of in a recurrent condition—and the use of a rather uncomfortable drug avoided. But the opinion expressed is worthy of consideration, and it is to be noted that they have been able to fix the entamoeba by heat. The essay contains many good illustrations.

HYPPOCHLORITES AS PROPHYLACTIC DISINFECTANTS.

We understand that trials have recently been made on the use of electrolyzed sea water containing hypochlorites for the disinfection of hospital ships carrying infectious cases. The tests, which were made under the auspices of the Medical Research Committee, seem to have been highly satisfactory. The disinfectant was chiefly used for application to the walls and floors of the wards; it was not used in the latrines on account of possible risk of corrosion of steel pipes. The condition of the wards as regards freshness and absence of odour following the use of electrolyzed sea water appears to have been excellent and the absence of secondary infection among the ships' staffs has also been noted. The cost of the necessary apparatus and of its maintenance in use is low.

Medical Notes in Parliament.

War.

Total Casualties.—In a written answer to Mr. Molteno, the Prime Minister gave the following statistics of the total casualties in the main fields of operation respectively up to November 9th:

	Officers.	Other Ranks.
Killed and died	4,529	69,272
Wounded	9,754	240,283
Missing	1,583	54,446
Total	15,866	379,983

Mediterranean.

	Officers.	Other Ranks.
Killed and died	1,504	21,551
Wounded	2,860	70,148
Missing	356	10,211
Total	4,720	106,610
<i>On the Trenches.</i>		
Killed and died	227	2,052
Wounded	537	5,587
Missing	76	3,223
Total	840	11,862
<i>Navy and Marines All Fields.</i>		
Killed and died	589	9,928
Wounded	161	1,120
Missing	52	310
Total	702	12,160
Grand total	5,422	510,230

Mr. Tennant stated on December 2nd, in reply to Mr. Lynch, that the casualties on the whole of the west front, as far as British, Canadian, and Indian troops were concerned, during the last three months, amounted to approximately 95,000 of all ranks. In the Gallipoli Peninsula the Australians, as distinct from the New Zealand forces, had sustained approximately 25,000 casualties since their arrival. Mr. Chamberlain, on December 8th, said, in answer to Sir E. Cornwall, that the casualties in the fighting at and about Ctesiphon were 4,567. These included 643 killed, 3,330 wounded, leaving 594 not yet accounted for. He had not yet received details as to the distribution of the losses in the retreat, but the total, according to his present information, was under 300. Sir J. Nixon reported that the general condition of the wounded was very satisfactory, and that the medical arrangements worked well under circumstances of considerable difficulty.

Picric Acid.—In reply to Mr. W. Thorne, who asked a question as to the injurious effect on workmen of picric and nitric acids at Woolwich Arsenal, Mr. Lloyd George said: I am informed that as regards picric acid no ill effects are caused except a discoloration of the skin, but that workmen engaged on trinitrotoluene are sometimes injuriously affected, the degree of susceptibility varying greatly, many workers being immune. Various expedients of a sanitary and medical character are in operation to counteract the difficulty, and a weekly medical examination of all workers is carried out with a view to the transfer to other work of persons specially susceptible.

Naval Dental Surgeons.—On December 2nd Mr. R. McNeill asked why dental surgeons employed afloat were given commissions and those ashore not given commissions; and whether under Lord Derby's scheme dental surgeons employed ashore by the Admiralty were held to be indispensable and not eligible for enlistment. The Financial Secretary (Dr. Macnamara) said in reply that there were obvious differences in the conditions of service of dental surgeons afloat and ashore. The services of dental surgeons employed on shore were indispensable, and they had been granted the Admiralty war service badge, and would be given a special certificate stating that their services could not be spared, and that it was their duty to remain at their present posts.

Asylum Attendants.—In reply to Sir John Lonsdale, Mr. Birrell said that the appointment of attendants in district asylums in Ireland was vested in committees of management, whose discretion as regards the age limits was not restricted further than that the regulations could not be altered without the approval of the Lord Lieutenant. Any alteration empowering committees to require that candidates must not be of military age or fit for army service would be sympathetically considered.

Claret.—Several questions were addressed to Mr. Tennant on December 6th with reference to the issue of claret to the French troops. All he could say was that the Army Council had no information as to the comparative immunity from sickness of the British and French troops at Gallipoli, nor as to whether the ration of claret had proved a preventive of disease, but he added that it had not been shown that like results would follow if claret were served to British troops. He seemed to countenance the suggestion that Pasteur had established that claret had germicidal properties.

Midwives (Scotland) Bill.—The Midwives (Scotland) Bill passed through the House of Commons on December 2nd, and was read a third time without amendment.

THE WAR.

VENEREAL DISEASE IN THE GERMAN ARMY.

Incidence.

At a meeting of the Verein für Wissenschaftliche Heilkunde¹ in Königsberg, Dr. Scholtz stated that the incidence of venereal disease was, in his opinion, not much greater than in the war of 1870. The conditions were somewhat worse in the West than in the East; and among certain bodies of troops stationed in large towns in the West the disease was prevalent. He, however, estimated the incidence of venereal disease in the German army at as low a figure as 3 per cent. a year. This figure was, he said, all the more striking as the incidence of venereal disease among German civilians in time of peace was as high as 25 per cent. for students in large towns; it was 16 per cent. among business men and 8 per cent. among workmen. There was, however, one important exception in the case of married soldiers, among whom the incidence of venereal disease was at present higher than among married civilians in time of peace. He, as well as other surgeons, had found that a third of the soldiers suffering from venereal disease were married men.

Dr. L. Halberstaedter,² attached to the system of military railways, has described the measures which have apparently been adopted with considerable success against venereal disease among the troops. During the rapid advance of the Germans in the early phases of the war there was, it is said, little opportunity of infection, and the active hostility of the invaded districts was a further barrier to sexual indiscretions. These restrictive factors ceased as the occupation of hostile territory continued and hostilities assumed a stationary character which afforded time and opportunity for the men to have relations with the civilian female population. Particularly in large towns and industrial centres, in which even in times of peace prostitution was widespread, did the vicissitudes of the war and lack of employment pave the way for wholesale prostitution.

Preventive Measures.

In the devising of measures for the prevention of venereal disease it was recognized that facilities for indiscriminate sexual intercourse must be reduced, and that the men must be taught the dangers of venereal disease, the risks they ran by attending certain resorts, and the consequences of over-indulgence in alcohol in this connexion. Steps were also taken to provide entertainments and comforts which would help to replace home comforts. These measures, however, did not effect any marked improvement. More severe regulations were accordingly put into force. The subjects of venereal disease were to a certain extent treated as if they had contracted one of the ordinary infectious diseases, and resort was had to early diagnosis, isolation, the detection and suppression of the source of infection, and, finally, prophylactic devices. The combination of all these measures, effectively supported by the co-ordination of various authorities, including the *Sitten Polizei*, kept the disease within moderate bounds.

The Educational Campaign against Venereal Disease.

Great importance was attached to the educational work of the army medical officers. In the course of an educational campaign among the soldiers, Halberstaedter was struck by the widespread ignorance of venereal disease, its causes and consequences, among his audience. An overwhelming majority of the men did not understand the significance of the first symptoms. He had little faith in leaflets of advice, which were often too windy to be very instructive, and could not be a substitute for oral instruction. The most effective educational influence was the parade of awe-inspiring examples, such as severe cases of gonorrhoea with complications, and neglected cases of syphilis.

Inspection and Supervision of the Infected.

Second only to the educational campaign in persuading the infected to notify themselves, was the systematic

medical inspection of the men; for they realized that they would be punished if this inspection revealed unnotified venereal disease. Not only did this measure lead to the detection of the disease in an early stage, but it also contributed largely to the suppression of amateur treatment and quackery. In the first months of the war, when this systematic medical inspection was not carried out, many cases did not come under medical treatment till the victims of amateur treatment had developed severe complications. Such cases were seldom seen after the introduction of medical inspection. In one area 22 per cent. of all the cases of venereal disease were not voluntarily notified at once. This relatively high percentage of concealed cases fell rapidly; it was 22 per cent. in December, 1914, 14 per cent. in January, and only 11 per cent. in February, 1915. These concealed cases were brought to light either by an unexpected medical examination or by the development of complications which forced the infected to go on the sick list. In the middle of February, when systematic medical inspection was made effective, this state of affairs ceased almost at once; and owing to the early "voluntary" notification of infection, hardly a single case was detected at the regular inspection. During the following five months there was scarcely one case in which notification was deferred till the development of complications. The author was, therefore, greatly impressed by the efficiency of this measure, which, to be of real service, must be carried out every fortnight, no exemption from inspection being permitted. An essential condition for success was the thoroughness with which it was carried out. Each soldier should be examined by himself, both for ethical reasons and in order that the examination might be the more thorough. All the manipulation necessary should be performed by the soldier himself. When it was noticed that the soldiers had passed water just before the examination, they were referred to a later examination. This inspection led to detection of the disease at an early stage, and it was only by this measure that the detection of the source of infection and the early treatment of the disease were rendered possible.

Tracing Venereal Disease to its Source.

Within the last few months the source of infection in almost every case had been discovered in the author's district. At first, when notification of venereal disease was largely evaded, many sources of infection remained hidden, and in many cases misleading information was given. When, however, instruction in venereal disease was combined with penalties for silence, information was usually forthcoming as to the source of infection. This was most easily discovered when the patient himself accompanied the patrol or the police in search of the source of infection. Thanks to the efficiency of the *Sitten Polizei*, the discovery and internment of infectious women was greatly facilitated, and by the prompt action of the police an appreciable reduction in the incidence of venereal disease was effected.

Treatment of the Infected.

Although the diagnosis was at once followed by treatment, most of the cases of gonorrhoea had, unfortunately, already reached the stage of profuse discharge, with numerous intracellular gonococci. There was therefore seldom an opportunity for early abortive treatment. On the other hand, syphilis was often detected in the early stage of chancre. In this connexion the examination for spirochaetes was the most valuable aid to early diagnosis at a stage in which a negative Wassermann reaction was valueless. The treatment adopted was a combination of salvarsan and mercury, the opinion being generally held that the ultimate fate of the syphilitic depends on the first course of treatment. With regard to the much-debated question whether the subjects of venereal disease should undergo treatment while on active service or be sent to a military hospital, two principles should be kept in view. Isolation during the infectious period must be as effective as possible, and skilled examination and treatment must be available. In most cases it was difficult for the regimental doctor to fulfil these two conditions, and it was therefore advisable for him to co-operate with a special department devoted to venereal disease in a military hospital

¹ Berl. Klin. Woch., August 16th, 1915.

² Dent. med. Woch., October 14th, 1915.

Every patient in the infectious stage should, as a rule, be transferred to a military hospital, and should remain there till the symptoms had disappeared. Later observation and intermediate courses of treatment could be arranged for outside the hospital without materially interfering with the soldier's duties. Unfortunately syphilis were often discharged as "cured" from the military hospitals after the completion of a course of treatment; and it was very difficult in these cases to convince the patient that further observation and treatment were necessary, and that they were still a source of danger. A negative Wassermann reaction was also apt to give the patient a false sense of security. As a result of early scientific treatment the incidence of gonorrhoeal complications, notably epididymitis, was much reduced. Thus, in the first five months, October, 1914, to February, 1915, there were in one area 24 cases of gonorrhoeal complications, 20 being cases of epididymitis. In two cases gonorrhoeal arthritis had supervened, and one of the patients had developed a febrile gonococcal septicaemia with endocarditis. In the same area in the next five months, March, 1915, to July, 1915, there was only one case of epididymitis, and no other complication of gonorrhoea.

Prophylactic Treatment.

The equipment of soldiers with antiseptic preparations for the prevention of infection, was accompanied by the warning that these preparations did not constitute an absolute guarantee against infection, nor did they imply that the authorities countenanced incontinence. Considerable tact and discretion were required in connexion with the supply of these prophylactic preparations to applicants, many of whom were elderly married officials, sensitive to the chaff of the young men in the Army Medical Service. On the whole, these prophylactic measures proved successful, and it was certain that the use of mechanical protective devices constituted a valuable protection against syphilis. In the case of gonorrhoea, the protection afforded by chemical preparations was very effective, and during the last few months practically all the patients who had contracted gonorrhoea had dispensed with these preparations, or had not used them properly. Halberstaedter considers that the adoption of prophylactic measures should be enforced by penalties.

CASUALTIES IN THE MEDICAL SERVICES.

Killed in Action.

CAPTAIN FRANCIS SHINGLETON SMITH, I.M.S., was killed in the battle of Ctesiphon, in Mesopotamia, on November 22nd-24th, aged 36. He was the son of Dr. R. Shingleton Smith, consulting physician to the Bristol Royal Infirmary, and was born on October 10th, 1879. He was educated at Cambridge, where he took the degree of B.A. He graduated B.C. in 1906 and M.B. in 1914. He studied also at the Bristol School and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1906. After acting as house-surgeon of the Weston-super-Mare Hospital he entered the Indian Medical Service as Lieutenant on July 27th, 1907, becoming Captain on July 27th, 1910. Since February 8th, 1913, he had been Medical Officer of the 120th Rajputana Infantry, formerly the 20th Bombay Infantry.

Lieutenant Maurice Mackenzie, R.A.M.C., was killed in France, aged 28, while attending a wounded officer under fire on November 28th. He was the youngest son of the late Sir Stephen Mackenzie of 18, Cavendish Square, London, and a nephew of the late Sir Morell Mackenzie. He was educated at Elstree and Repton, and at the London Hospital, where he was house-surgeon, house-physician, and receiving-room officer, and showed every promise of success in his profession. He took diplomas of M.R.C.S. and L.R.C.P.Lond. in 1912, and at the beginning of the war took part in the organization of a hospital at Chateau Laversine, which was placed at the disposal of the British Red Cross Society by Baron Robert de Rothschild. After the advance to the Aisne this hospital was evacuated, and he then took a temporary commission in the R.A.M.C. He was posted to the 43rd Field Ambulance, and, after a period of training at Aldershot, went with it to France in April. In August he was attached as medical officer to the 2nd Battalion Royal Irish Rifles,

was with them in the advance on September 25th; and remained with them at the front till his death.

Died on Service.

Lieutenant John Cunningham Bell, R.A.M.C., died of dysentery in No. 17 General Hospital, Alexandria, on November 22nd, aged 39. He was born on July 9th, 1876, the eldest son of Mr. George Bell, of Blackheath, educated at University College Hospital, London, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1900. He had been in practice for thirteen years at West Coker, Yeovil, Somersetshire, when he took a commission as temporary Lieutenant in the R.A.M.C. on September 16th, 1915. He went with the 7th Battalion Royal Scots to the Dardanelles, whence he was invalided to Egypt.

Quartermaster and Honorary Lieutenant Henry Robinson, R.A.M.C., is reported to have died in France. He was born in November, 1876. After eighteen years' service in the ranks he was promoted to Sergeant-Major in August, 1914, and got his commission in June, 1915.

Wounded.

Lieutenant-Colonel H. O. Browne-Mason, R.A.M.C., Mesopotamia.

Captain R. W. S. Murray, R.A.M.C., Special Reserve, France.

Captain D. Arthur, I.M.S., Ctesiphon, Mesopotamia.

Captain R. Knowles, I.M.S., Ctesiphon, Mesopotamia. This is the second time that Captain Knowles has been reported wounded.

Captain G. Tate, I.M.S., Ctesiphon, Mesopotamia.

Captain W. J. Powell, I.M.S., Ctesiphon, Mesopotamia.

Lieutenant W. C. Spackman, I.M.S., Ctesiphon, Mesopotamia.

Lieutenant M. B. Patel, I.M.S., Ctesiphon, Mesopotamia.

DEATHS AMONG SONS OF MEDICAL MEN.

Brocklehurst, James Edward, Private 6th Battalion Sherwood Foresters, Notts and Derby regiment, second son of the late T. H. Brocklehurst, M.R.C.S., killed in France, November 24th, aged 35.

Dane, Victor Louis Yate, Captain 22nd Punjabis, son of the late Colonel A. H. C. Dane, I.M.S., killed in the battle of Ctesiphon, Mesopotamia, November 22nd-24th, aged 28. He was born on February 17th, 1887, educated abroad and at Berkhamsted School, and entered the army as Second Lieutenant on August 5th, 1905. He joined the Indian army on October 25th, 1906, became Captain on August 5th, 1914, and since May 10th, 1914, had been Adjutant of his regiment.

Irvine, Paget George, Captain 16th Battalion Gloucestershire Regiment, son of the late Major George Nicol Irvine, R.A.M.C., killed in France on November 26th. He was a solicitor by profession, having been admitted in November, 1901, and was in practice at Bristol. His commission as Lieutenant was dated September 18th, 1914; he reached the rank of Captain in 1915.

MEDICAL STUDENTS.

The annual report of the Edinburgh University Union, dated November 25th, 1915, contains a list of members of the Union who have fallen in the service of their country during the war.

Sixty-three names are given; of these eighteen were medical officers of the various services. Obituary notices of all these eighteen officers appeared in the BRITISH MEDICAL JOURNAL at the time of their death. Thirteen more were medical students. This list is not exhaustive. Many students are not members of the Union. Of these thirteen, obituary notices of seven—R. B. Buchanan, R. N. Bunce, F. Chilton, A. H. M. Henderson, J. E. B. Millar, D. P. Thompson, and R. A. Wilson—have already appeared in the JOURNAL. The other six are:

Anderson, David, Private 4th Battalion Royal Scots, killed in Dardanelles May 27th.

Crozier, James C.B., Second Lieutenant 2nd Battalion Royal Munster Fusiliers, killed August 27th, 1914, in Flanders.

Hudson, R. G., Second Lieutenant Royal Field Artillery, Special Reserve, died in London September 13th, 1914.

Mackenzie, G. A., Second Lieutenant 8th Battalion Gordon Highlanders, killed in Flanders, September 26th-27th, 1915.

Ritchie, Charles A., Cadet, Artillery Unit O.T.C., killed by a fall from his horse, February 8th, 1915.

Smith, J. M., Lieutenant 5th Battalion Royal Scots, killed in Dardanelles, May 5th, 1915.

NOTES.

WATER SUPPLY AT SUEVA BAY AND ANZAC.

The extensive nature of the arrangements which must be made for the supply of potable water to troops is well illustrated by a telegram dated November 8th, 1915, from General Headquarters, Mediterranean Expeditionary

Force, to the War Office. The telegram has been published as a White Paper, and is as follows:

1. When Suvla operations were first planned information available pointed to a considerable amount of water in the Biyuk Anafarta valley and Suvla plain. The correctness of this information has been proved by subsequent experience. But the following preparations were made to guard against risks of not finding water or of inability to develop local resources in the first instance:

On June 17th War Office was asked to dispatch with each reinforcing division water receptacles for pack transport. On June 21st the War Office replied that they were only able to provide 250 eight-gallon receptacles. In consequence steps were taken to procure the balance of the requirements from India and Egypt, and eventually portable receptacles consisting of petroleum tins, milk tins, camel-tanks, water-bags, and pakhsas were provided as follows: On *Dundrennen* receptacles for 42,027 gallons, on *Wiltshire* 32,475 gallons, on *Grampian* and *Southland* receptacles for 11,400 gallons, on *Prah* receptacles for 2,000 gallons. Of the foregoing this amounting to two-thirds of the total gallons were tins and bags, etc., totalling one-third of the total were to be filled before leaving ship or beach, as it was found that the bags did not hold water for long.

2. Dealing with arrangements at Anzac. A high-level reservoir was built with a capacity of 50,000 gallons, pipe system, and distribution tanks. A stationary engine capable of filling the reservoir was brought from Egypt, but it broke down at one period.

3. A further supply was to be secured from lighters and water ships. These were under naval control and details as to the numbers arranged are not immediately available here. By arrangement with the Admiral the responsibility of the army was confined to the emptying of the lighters and the distribution of the water to the troops; while the navy undertook to bring the full lighters to the shore to replace empty ones. The arrangements made by the Admiral were considered adequate to provide a continuous supply.

4. Engineer stores and tank pumps. The *Prah* carried tanks and troughs, with a capacity of 195,000 gallons, for erection on the beach or at local wells, and 300 water buckets and 6 lift-and-fall pumps, and other pumps, however, were not a vital part of the water scheme.

5. The total number of miles ordered up for Suvla and Anzac was 3,700, together with 1,750 water-carts. This number was in addition to 950 miles already at Anzac. Representatives of the Director of Supplies and Transport at Suvla and Anzac were to allot this transport, which was to be used for carrying up whatever was most needed by units ashore, whether food, water, or ammunition.

OCCUPATION FOR CONVALESCENTS.

Dr. W. R. Dutton has published a serviceable little book¹ on the simple games, occupations, and domestic crafts that may be taught convalescents, hospital and other patients by the nurses in charge of them. Partly these will serve to while away the time, partly they will enable the patient to earn a few pence or shillings while he is disabled. Dr. Dutton also provides a full American bibliography of the subject that should be of service to those who wish to pursue the subject, or any of its special branches, further.

"KENT'S CARE FOR THE WOUNDED."

An interesting account of what the County of Kent has done to care for the wounded in the present war has recently been published, and has a preface by Sir Gilbert Parker, Bt.² The first part of the book is copiously illustrated with photographs of Kentish villages, hospitals, and the like; the second part gives a detailed account of the work of the separate detachments of the Kent T.F.A., with lists of the chief workers in each. The volume gives a strong impression of successful effort, and may be commended to the generosity of the public. All profits on its sale will go to the Kent County War Fund. We wish it all the success it deserves.

MEDICAL OFFICERS WANTED.

31st North Midland Field Ambulance.

Three officers are urgently required for the 31st North Midland Field Ambulance. Candidates for commissions must be physically fit for service overseas. Full details as to pay and allowances will be sent on application to Captain Holmes, R.A.M.C.(T.), Officer Commanding 31st North Midland Field Ambulance, Belton Park Camp, Grantham.

21st South-Eastern Mounted Brigade Field Ambulance

R.A.M.C.(T.F.)

Three medical officers are urgently required by this unit. They must be willing to take the Imperial Service obligation. Pay and allowances as in the regular army. Full particulars on

¹ *Occupation Therapy: A Manual for Nurses*. By William Rush Dutton, Jr., B.S., M.A., M.D. 1915. Philadelphia and London: W. B. Saunders Company. (Demy 8vo, pp. 240; 43 figures. Price 6s. 6d. net.)
² London, New York, and Toronto: Hodder and Stoughton. 1915. (11 illustrations. Paper, 1s. net; cloth, 2s. net.)

application to Major Hamilton, Commanding 21st South Eastern Mounted Brigade Field Ambulance, Cricket Ground, Canterbury.

Welsh War Hospital, Netley.

Applications are invited for the posts of Commanding Officer and of four medical officers for the above hospital, as the present staff is proceeding overseas. Applicants must be above the age of 45, or medically unfit for overseas service. One of the medical officers must be a pathologist. Further particulars from the Honorary Secretaries, Welsh Hospitals, 47, Principality Buildings, Cardiff, to whom all communications should be addressed.

England and Wales.

WELSH HOSPITAL FOR OVERSEAS.

At a meeting held at Cardiff last week it was resolved, while maintaining the Welsh Hospital at Netley, to organize a Welsh hospital of 1,040 beds for overseas service. Dr. James Robinson, who presided, said that when the Welsh Hospital was started in August, 1914, it was intended that it should be an overseas hospital. Lieutenant-Colonel A. W. Sheen, the present commander of the Welsh Hospital at Netley, said that it was proposed to raise the personnel of the new overseas hospital in Wales; the War Office would meet all expenses, but there were many things which might be provided for it by the people of Wales, including a portable operating theatre, motor ambulances, and additional equipment. Sir William James Thomas, the honorary treasurer, said that the total sum received from church collections was £3,945, and that by the addition of the 5 per cent. he had promised this was increased to £4,145. He said also that he would be glad to present a motor ambulance for the hospital overseas. We are informed that Lieutenant-Colonel Sheen has been appointed to the command of the new general hospital, and that with him will go four medical officers at present at Netley. Among the staff of the hospital will be a pathologist, and specialists for the eye, ear and throat, and radiography. Owing to the transfer of the commanding officer and four other medical officers, there are vacancies on the staff of the Welsh Hospital at Netley. Applications are therefore invited for the posts of commanding officer, pathologist, and three other medical officers. Applicants should be above the age of 45—the limit of age for overseas service—or should be medically unfit for such service.

BACTERIOLOGICAL DIAGNOSIS IN TYPHOID INFECTIONS.

Professor E. Glynn, at the first pathological meeting of the Liverpool Medical Institution for the session, read a paper on bacteriological problems of intestinal cases from the Dardanelles. He thought that many of the cases diagnosed as typhoid were really paratyphoid A, or paratyphoid B, or dysentery. He considered that, from a statistical point of view, the results of examination of the blood for the specific bacillus could alone afford proof of typhoid being present. The value of serum reactions in diagnosis of convalescents from typhoid fever and the disturbing effects of previous typhoid vaccination were touched upon. The burden of his remarks seemed to be the importance of bacteriology in effecting a correct diagnosis, and with this object in view he expressed his satisfaction that the War Office was sending competent bacteriologists to all base hospitals.

LEASOWE HOSPITAL FOR CRIPPLED CHILDREN.

The city of Liverpool has not delayed long in perpetuating the memory of Nurse Edith Cavell. The Leasowe Hospital for Crippled Children, built by the Liverpool Invalid Children's Association, is to have a memorial ward of twenty-two beds, to be known, with the sanction of Miss Cavell's mother, as the Edith Cavell Ward. This hospital is an excellent institution, and, apart from the fact that suffering children ever stimulate pity, it is most attractive. Situated on the sea and exposed to its health-bestowing breezes, the hospital consists of four blocks with open-air wards. Each block contains forty-four beds. Two of the blocks, known as Faith and Hope, were opened in July, 1914, and have been occupied regularly since. The third block is to be known as the Honour block. Beds in this block, by a donation of

£200, may be named after officers or men who have given their lives for their country in the war. A generous donation of £1,000 has enabled the committee to begin with the Edith Cavell Ward in this Honour block.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

At the meeting of the London County Council on December 7th, the reapportionment of the duties of medical officers of schools was discussed in view of the Council's policy of retrenchment in the educational service. The Chairman of the Education Committee said that hitherto there had been three medical inspections of the children—namely, an entrance, in the middle of the school career, and on leaving school. The proposal was to continue the second and third of these inspections as before, but to require a less detailed inspection of entrants, only those children who on a cursory examination appeared to require it being thoroughly examined. It was also announced that the medical officer of the Board of Education had approved of the change on behalf of the Board. The school medical officers had agreed also that the disturbance caused by medical inspection should as far as possible be limited to one week during a term in any one department.

RULES OF THE CENTRAL MIDWIVES BOARD.

The Central Midwives Board having intimated to the Midwives Act Committee of the London County Council that they proposed to revise the existing code of rules, which will expire on June 30th next, the Committee submitted to the Council certain amendments of the rules which they (the Committee) deemed advisable. The more important alterations suggested were: That the examination of candidates for certificates should embrace the subject of the local manifestations of venereal disease in its effects, not only as hitherto on the newly-born, but on the mother as well; that the duties of the midwife should be more strictly stated by the insertion of the requirement that she should "properly wash and cleanse the mother and child after the birth and during the lying-in period, which shall be held for the purpose of these regulations and in a normal case, to mean the time occupied by the labour and a period of ten days thereafter"; that the abnormalities to be notified in the case of the child should include "increasing jaundice, persistent blueness, rapid breathing with a rise in temperature"; and that a new regulation should be made requiring the midwife to send notice as soon as possible on the prescribed form to the local supervising authority in all cases in which she herself was a source of infection, or in which she had been in contact with any infection.

REGISTRATION OF LYING-IN HOMES AND MESSAGE ESTABLISHMENTS IN LONDON.

The London County Council has issued abstracts of the principal provisions of Part IV (Lying-in Homes) and Part V (Establishments for Massage or Special Treatment) of the London County Council (General Powers) Act, 1915. These provisions make it necessary that any person conducting for payment or reward a lying-in home or an establishment for massage or special treatment in London shall register himself and his premises with the Council. A lying-in home is defined as a place used, whether regularly or occasionally, for the reception of women for childbirth. In the case of massage establishments, the conditions are extended to cover premises in which manicure, chiropody, light, electric, vapour, and other baths or similar treatment is provided. Recognized hospitals are exempted in both cases, as are also, in the case of lying-in homes, approved institutions for the training of midwives, and homes in which only relatives of the person carrying on such a home are received. Lying-in homes and establishments for massage or special treatment which are carried on by a duly qualified medical practitioner are similarly exempted, but in these cases annual certification by two independent practitioners is necessary, to the effect that, in the case of a lying-in home, both premises and equipment are suitable, and in the case of a massage establishment, that it will not be used for any immoral purpose, and in both cases that the practitioner is a fit and proper person to carry on the establishment. Penalties are provided not only for carrying on unregistered establishments, but also for publishing or displaying an advertisement of such an establishment

after the prescribed notice that registration has been refused or cancelled. The date on which the provisions come into operation is February 1st, 1916, but applications in the case of existing lying-in homes must be made before December 28th next, and in the case of massage establishments before December 23rd.

The London County Council has decided that the inspection incidental to registration of the lying-in homes and also of the massage establishments should be undertaken by the chief officer of the public control department. It was understood that the medical officer of health would co-operate with him in any case in which medical questions arose.

Ireland.

LONGFORD COUNTY INFIRMARY.

As was noted in the JOURNAL early this year, Dr. Mayne was dismissed by the committee from his position as surgeon to the Longford County Infirmary, which he had held since 1877, on the ground that he had refused to allow a Dublin surgeon to operate in the County Infirmary on a soldier stationed in the local barracks. The Local Government Board refused to approve the dismissal of Dr. Mayne, and the Irish Medical Association adopted a resolution affirming that in refusing to admit another surgeon to operate in the infirmary Dr. Mayne acted correctly, prudently, and in accordance with the rules of the institution. It appears that Dr. Mayne's salary, which was at the rate of £94 a year, had been paid quarterly up to June 30th, but not since. The rules required a certificate signed by five governors of the County Infirmary, and in May last Dr. Mayne obtained a certificate signed by four governors at a meeting, and by a fifth outside the meeting. On this he obtained a decree in the county court for the amount against the county council, but at the assizes the decree was reversed, on the ground that the five members had not signed it at a meeting of the body. Since then, although meetings had been summoned, there was never a quorum. An appeal was heard in the King's Bench Division in Dublin, and a conditional order of mandamus was made directing the members of the committee to sign a certificate.

Correspondence.

THE MEASLES NOTIFICATION ORDER.

SIR,—I am writing as a country M.O.H., and my grumble is this, that the powers above issue these orders, which may or may not be useful as far as large towns go, but are of very doubtful utility in the country. They entail a great deal of work, trouble, and clerical labour, for which there is no extra remuneration.

Now, my point is that when the Local Government Board issues a new order, it should also name a definite increase of pay for those who have to work it.

We were all pretty hard worked before, then came the notification of tuberculosis (for which I did manage to get an increase of salary); then the war, causing a great increase of gratuitous work; then notification of births; and now measles follows.

It hardly seems the time to introduce all this new legislation and expense, at least in rural districts, where so much time is taken up in travelling; why not try these experiments in the large towns first for a year or two, and see the results before making the orders general? Ten thousand deaths from measles, at a 1 per cent. death-rate, means 1,000,000 cases a year, or £125,000 for notification fees, leaving out German measles, health visitors, stationery, postage, etc.—I am, etc.,

J. POLLOCK,

December 5th. M.O.H. Tiverton Rural.

TYPHUS FEVER AND LICE.

SIR,—The quotation made by Dr. James W. Allan in the JOURNAL of December 4th, p. 841, from the article on typhus by Captain A. J. Brown and myself has shown me that that portion of the article is—possibly owing to a certain clumsiness of construction—somewhat ambiguous.

What we wished to convey is that the men who returned to their companies free of all lice immediately became infested with lice anew; and being still infectious, infected a new generation of lice, with the result that, in due course, a recrudescence of the epidemic occurred. In fact, the contention we wished to make is that the analogy between the spread of typhus and the spread of malaria is a complete one. We recognize that we have offered no proof of this, and indeed it may be that the louse—such a predominating feature of the picture—has warped our judgement in this, our sole experience of the disease.

While on the subject may I elaborate the point we made in regard to the class of case we call "high tension type"? In this it is quite common for the pulse-rate never to go above 90 during the entire pyrexial period and to remain between 70 and 80 while the temperature remains on a plateau of 103 to 104 for several days. It is a feature so peculiar as to impress itself on the notice. "The exigencies of the service" prevent me from communicating with my late collaborator before writing this, but I feel sure he will concur with me.—I am, etc.,

P. C. T. DAVY,
Maj r R.A.M.C.

London, W., Dec. 7th.

BROMIDES IN EPILEPSY.

SIR.—Whether epilepsy is one disease or several diseases cannot be decided, cannot even be discussed, until we have some clear understanding of what is meant by a disease; and there is no such understanding. It is the business of our lives to treat diseases, but we none of us know what we mean by diseases; at least I know of no satisfactory definition of the term. Some months ago I offered to open a discussion on the matter at the Royal Society of Medicine, but that society was at the moment engaged in discussing something much more important and more practical—I think it was, "What is good for a cough?"—and my offer was courteously but firmly declined. I know what I mean by a disease, but I cannot explain it within the limits of a letter, and therefore it is from want of space, not from lack of courtesy, that I am unable to satisfy Dr. Humphrey Davy, and I trust he will forgive me.

Dr. Hume Griffith's statistics are scarcely convincing. His experience is that in 1900 a set of patients, whose number and the peculiarities of whose cases are not specified, were not treated with bromide, and had fits averaging 13.3 per month. In 1907 a set of patients, whose number is not specified and the peculiarities of whose cases are not specified, and who may or may not have been, but probably were not, the same set of patients as were observed in 1900, were treated by heavy doses of bromide, and the fits averaged 1.99 per month. Again, after seven more years, another batch of patients, some or all of whom may have been different from those in the previous batches, were treated with moderate doses of bromides, plus individual treatment, and the fits averaged 1.5 per month. I am afraid that from these data no trustworthy conclusion whatever can be drawn. The frequency of the fits varies in different patients from scores in one day to one or two in a year. It is clear that the presence in the first batch of a single case of unusual frequency and its absence from the later batches would account for the whole of the average difference, supposing the bromides to have had no influence whatever on the fits, or even supposing that it increased their frequency.

Dr. Stephens finds bromides of use in three ways: First, as a means of controlling the increasing frequency and intensity of the attacks: this, of course, assumes that the bromides do exercise this control. My case is that there is good evidence of the exercise of such control in some cases, but no evidence of any such control in other cases. Second, he uses it as an adjuvant in status epilepticus. Thus used, it certainly does no harm, but I could never satisfy myself that it increased appreciably the effect of the chloral. Third, he finds that epileptics, when temporarily suffering from other diseases, are often benefited by the addition of bromides to the mixtures prescribed for those diseases. But, in the first place, Dr. Stephens does not say that they are always benefited, and thus does not contravene my assertion; and, in the second place, it is, if not impossible, extremely difficult to disentangle the several effects produced by several drugs prescribed in a single mixture.

I do not deny, on the contrary, I strongly assert, that in some cases of recurring convulsion, which is what we mean by epilepsy, the discreet administration of bromides is followed by great diminution of the frequency of the fits, without any discernible ill effect; but I assert also that in the majority of cases either the fits are not diminished in frequency; or if they diminish in frequency they are increased in severity; or the diminished frequency of the fits is accompanied by a deterioration of mind which is too high a price to give for the lessened convulsions. My own practice, therefore, is to begin the treatment of most cases of epilepsy by administering bromides, but to watch their effect narrowly; to leave them off from time to time, and watch the effect of the omission; and unless I can satisfy myself that there is a clear gain from their administration, to leave them off altogether, and trust to careful regulation of the diet, attention to the bowels, regulation of exercise, and so forth.

I am surprised to hear from Dr. Hume Griffith that bromide acne is easily avoided by the administration of arsenic. My experience is that the combination of arsenic with bromides delays the appearance of acne, and lessens its severity, but does not prevent it; and it has seemed to me that in proportion as the acne is delayed and lessened, the other effects of the bromides are delayed and lessened.

In estimating the improvement or otherwise of a case of epilepsy, it is not enough merely to count the number of the fits. We must take into consideration also their severity, the increase or decrease of physical energy and of mental capability, the feeling of well-being or the reverse, and other factors; and it is only when all these factors are taken into account that we can strike a balance and say whether the life of the patient is really improved, is better worth living, is more advantageous upon the whole to himself, his family, and the society in which he lives. It is not easy to strike such a balance, but it is to this that our efforts should be directed. Diminution in the frequency of the fits, important as it is in itself, is not the only thing to be considered, and even if we can effect it, it may be bought too dear.—I am, etc.,

Parkstone, Dorset, Dec. 4th.

CHAS. A. MERCIER.

SIR.—Our knowledge of the action of bromine and the bromides upon man can hardly be regarded as adequate and satisfactory. On the one hand a distinguished authority like Dr. Mercier regards the war shortage of bromides as possibly a "blessing in disguise." On the other hand, as testified by general practice and tradition, and more particularly by the correspondents in your issue of December 4th, bromide undoubtedly exercises a considerable control over epilepsy. The main point at issue, I take it, is whether on the whole the bromides may not do more harm than good.

Apart from any special experience in epilepsy, most medical men meet with more or less severe cases of bromism—that is to say, bromism as described in the textbooks and familiar to our observation. Can we be sure, however, that we recognize at all adequately the remote evil effects of bromine compounds upon the human body? Bromine is a powerful drug, and it may be that by its use we are actually setting up various tissue degenerations and other results of unrecognized chronic poisoning. Dr. Hume Griffith mentions the fact that patients treated in the Lingfield Colony with heavy doses of bromide were like "logs" in school. Do the textbooks warn us against such a phenomenon as a result of bromide administration? It would be interesting to ascertain, were it possible, what is the terminal state of patients who have been dosed over long periods with bromides. It has always seemed to me that the last state of many epileptics may have been in reality attributable—in some degree at any rate—to the bromides which form the classical remedy in that malady. In some cases of unconsciousness or what may perhaps be described as cataleptic conditions under my own observation I have been able to trace a history of prolonged bromide administration.

At any rate, in the bromides we are using a powerful drug of whose remote action after prolonged dosage we cannot be said to have an adequate knowledge. Comparative pathology has long ago shown its destructive effect in small doses on internal organs.—I am, etc.,

London, W., Dec. 6th.

DAVID WALSH.

SIR.—Regarding the question of the treatment of epilepsy by means of bromides, I think one class of case has been overlooked by those who do not agree with this treatment—I refer to the patient who develops epilepsy in young adult life and comes under treatment before the habit is firmly established. If this kind of case is treated by bromides for a period of one to two years, with careful supervision a cure will often result. I personally have found the treatment very satisfactory, with no return of fits after an interval of two to three years.

I feel sure that many general practitioners have had the same experience, and that it would be a great pity if the use of bromides fell into disrepute.—I am, etc.,

Bridgwater, Dec. 5th.

RICHARD COATES.

SIR,—I consider Dr. Mercier's views on the bromide question a reasonable reminder to the profession. The routine practice of administering potassium bromide has led some of us in the past to value it too royally. Without wishing to advance any wild speculations with regard to the causes of epilepsy, yet the asphyxial problem of the convulsive seizure deserves a special line of thought. Do we conceive that the central nervous system bursts forth into unconscious fury without a physical agency at work? And of what does the hereditary weakness in each individual case of epilepsy consist which attracts the physical agency? If we believe the arterial vascular system is closely linked to the cerebro-spinal system through the medium of the ganglionic sympathetic system and controls the blood of the brain, then we may promulgate the idea that epilepsy may be set up by an instability of some part or parts of the arterial circuit. This is what I considered in a pamphlet some years ago, *On the Asphyxial Problem of Convulsive Seizures*. In sending these few remarks I do so from some practical experience of epilepsy, having found the preventive dietetic treatment of it most helpful, even when we have to assist with drugs like the bromides or chloral.—I am, etc.,

Bournemouth, Dec. 4th.

JOHN FREDK. BRISCOE.

A COMBINED PHYSICAL TREATMENT FOR WOUNDED SOLDIERS.

SIR,—In your issue of November 27th I notice a communication on the above subject. In plain English I assume that "hyperthermal eau courante" is "hot running water." About the application of this in one form or another there seems nothing very novel to a humble balneologist like myself, even when combined with massage and movements. I speak with all submission to Drs. Fortescue Fox and Campbell McLure.

To take a very localized injury—such as a sprain of ankle or wrist—hot douching (or cold) is a very old and well-recognized form of treatment. Also, every day do I see joints, rheumatic or traumatic, sprayed by the Aix or Vichy method and manipulated concurrently or subsequently, which, of course, the heat makes easy. I think I am not assuming too much in stating there must be all sorts of douches and methods of applying "eau courante" in London, from the pump and kitchen tap upwards, and some of them are probably in use unless the Zeppelins have mishandled the water mains.

One is therefore rather at a loss for a reason for the official utterance of the secretaries of the Balneological Section of the Royal Society of Medicine.—I am, etc.,

Peebles, Dec. 7.

T. D. LUKK, M.D.

THE late Sir James Matthew Moody, medical superintendent of Cane Hill Asylum, Coulsdon, Surrey, left estate valued at £6,981.

In the October number of the *Revue de gynécologie et de chirurgie abdominale* is an article on Professor Gross of Nancy and Professor Koerberlé of Strassburg containing an impartial account of the share which Koerberlé played in establishing ovariotomy as a legitimate surgical operation. A photograph is given of the first set of pressure or haemostatic forceps, made for him in 1855. A note on the development of the pressure forceps, on the testimony of published records between 1853 and 1879, appeared in the *JOURNAL* of March 27th, 1915, p. 555. Koerberlé's monograph, *De l'hémostase définitive par compression excessive*, published at Strassburg in 1877, is a classical work.

Public Health AND POOR LAW MEDICAL SERVICES.

REFORM OF THE POOR LAW MEDICAL SERVICE.
IN a supplement published in the *Medical Officer* of October 30th, 1915, there is set out in full a recent memorandum on the office and duties of workhouse and district medical officers, presented to the Departmental Committee appointed by the Local Government Board to examine and report with regard to the Poor Law orders affecting these officers, and as to amendments of the same.

The memorandum deals with the seven following grievances. Most will be seen to be very real grievances, but as to a very few there may be room for doubt.

1. Tenure.

The claim for a security of tenure for the increasing number of assistant whole-time medical officers who act on the staff of the infirmaries, particularly in London, and carry out the duties of the old district medical officers is particularly well founded. They have to contribute to superannuation funds, but have none of the security to the benefits that the men they replace had.

Hardship is said to have arisen owing to the order which makes it necessary for the doctor to be resident within his district; the alternative proposal is that he should be resident within his district or within a short distance therefrom. That is the suggestion we think most dubious. The doctor for the destitute poor must live where the poor live, otherwise his services may not be available when most wanted. "A short distance" is a very elastic term, even if it were the rabbinical Sabbath day's journey. The citation of London, where the definition is of the desired sort, is not a strong argument, for means of locomotion are exceptional in London.

2. Remuneration.

Guardians add to the duties of their medical servants, but forget to add to the pay. The Local Government Board may make representations, but the guardians ignore them. So far as we can discover, the difficulty arises from the absence of any monetary contributions by the Board to the guardians; it is the old saw, "He who pays the piper calls the tune." The Board can compel the dismissal of an unpaid doctor and the substitution of a properly paid officer, but who will take the risk of such a clumsy process?

3. Duties.

Strong exception is taken: To the demand that certificates necessary under the Mental Deficiency Acts should be given without pay; identical certificates for lunacy are paid for. To the practice of the guardians in recovering fees for attendance on bogus "poor" without sharing these with the men who did the work. To the refusal of guardians to pay for attendance on boarded-out children for which sanction has been given by the Local Government Board.

A very real grievance is found in the practice of police officers of hunting up the Poor Law doctors to attend street accident cases; the public may suffer gravely by the delay caused.

Exception is taken to the requirements for the treatment of school children reported defective. There are stronger grounds for objection to this practice. It is most undesirable that work of State compulsion should be associated with pauperism. In the annual report of the Medical Officer, Board of Education, 1913, p. 96, it is written, "It cannot be considered that this (Poor Law treatment) is satisfactory from any point of view. . . . Nor have the boards of guardians any special facilities." A somewhat similar difficulty arises with adults. The complexity of modern medicine does not allow a man to be an expert in every branch of work; apparently some guardians do expect this, and at the flat rate for ordinary service.

4. Divided Control of the Sick Wards in Non-separated Workhouse Infirmaries.

The claim is that the workhouse master should have no administrative duties in the sick wards, but might act as steward under the medical officer. It is a just one. A case is cited where the patient suffered because the master had control; the Local Government Board strongly condemned, but the local officials condoned.

5. Extra Fees of District Medical Officers.

Such fees are allowed for exceptional services, operations, etc.; the list was drawn up in 1847. It is surely a modest request that it be brought up to date.

6. Provision of Drugs by District and Workhouse Medical Officers.

The claim is that the Poor Law doctors should be put on exactly the same footing as the panel practitioner. Numerous political speeches might be quoted in support of this reform.

7. Periodic Increase in the Salaries of Poor Law Medical Officers.

It is suggested that every Poor Law medical officer, unless it can be shown that his work has diminished considerably, should be entitled to a definite increase of salary every five years up to a fixed maximum. Such increment to be dependent on good behaviour and efficiency. The effect would be to improve the service to the benefit of the public.

Throughout the memorandum there runs evidence of a want of control by the Local Government Board of a large spending authority; until this is obtained, and by that most effective measure, "grants in aid," we see little hope of getting more than a piecemeal rectification of the more glaring anomalies of the work of such local authorities.

Universities and Colleges.

UNIVERSITY OF LONDON.

At a meeting of the Senate on November 17th it was decided that students who have performed clinical service for not less than six months during the continuance of the war be admitted to the M.B., B.S. Examination at an interval of not less than two and a half years from the date of their passing the second examination for medical degrees in anatomy and physiology, provided that they be not admitted to the M.B., B.S. Examination within five and a half years from the date of their matriculation. It was decided also not to transmit gold medals to students to whom they are awarded during the continuance of the war and for one year thereafter, but that such students should be entitled to receive the equivalent in money if they so desired, and to receive the medal awarded on retirement of that sum at such period after the termination of the war as the Senate shall determine.

The following intercollegiate courses were recognized as advanced lectures which a candidate at the B.Sc. Honours Examination in Physiology may name for part of his examination: At University College, Professor Bony, physiological applications of physical chemistry; at King's College, Professor Halliburton and Dr. Rosenheim, physiological chemistry of the animal fluids; at Guy's Hospital, Dr. Pembrey, respiratory exchange; Dr. Hertz, investigation of movements of the alimentary canal by x rays; at Bedford College, Dr. Edkins, advanced practical histology.

Mr. H. L. Eason, M.D., M.S., ophthalmic surgeon to the British expeditionary forces in the Mediterranean, and Sir Wilmot Herringham, C.B., M.D., consulting physician to the British expeditionary forces in France, have resigned their membership of the Senate as representatives of the Faculty of Medicine. Sir David Ferrier, M.D., F.R.S., was elected Chairman of the Physiological Laboratory Committee.

The Paul Philip Reitlinger Prize, founded by Mr. Albert Reitlinger in memory of his son, a student of St. George's Hospital Medical School, was offered this year for the best essay on "The Economic Condition of the People of England in 1815 in comparison with the Present Day," has been awarded to Herbert Roland Hodges, of the London School of Economics. The prize next year will be awarded for the best essay embodying the result of some research on a medical subject carried out by the candidate.

UNIVERSITY OF BRISTOL.

At the recent meeting of Council the degree of M.Sc. was awarded to Major F. Percival Mackie, R.A.M.C., M.D.

ORMSBY of Chicago (*Journ. Amer. Med. Assoc.*, November 6th, 1915) reports a group of twelve cases of self-inflicted dermatitis noted during recent years in the experience of himself and two other practitioners. He considers it probable that the majority of the cases described as "pemphigus gangrenosus," "zoster gangrenosus atypicus" (Kaposi), and "dermatitis symmetrica dysmenorrhoeica" are in reality examples of factitious dermatitis. While the disorder is believed to be comparatively rare, he thinks it probable that it would appear more common if recognized more generally. Dr. Norman Walker, in the clinical lecture on dermatitis artefacta published in the *JOURNAL* of June 18th, 1910, p. 1481, gave some coloured illustrations of the appearances observed in certain cases, and published a rather entertaining correspondence which shows the truth of Dr. Ormsby's statement that the family physician is often loth to admit, even to himself, the possibility that his particular patient should deliberately produce the lesions.

Obituary.

KENNETH WILLIAM MILLICAN, B.A. CANTAB., M.R.C.S. ENG., L.R.C.P. EDIN.

We much regret to announce the death on November 28th, at the age of 62, of Mr. Kenneth William Millican, until recently the assistant editor of the *Lancet*.

He was born at Leicester, where his father was an architect of high position, a leading member of the Conservative party, and a colonel in the Volunteers. He was educated at the Atherstone Grammar School and Emmanuel College, Cambridge, and graduated with honours in the classical tripos. He entered St. Mary's Hospital with a natural science scholarship; he took the diploma of M.R.C.S. Eng. in 1879, and that of L.R.C.P. Edin. in the following year. After acting for a time as surgeon in the service of the Ocean Steamship Company, he settled in practice in Kington, Warwickshire. Afterwards he moved to London, and became surgeon and laryngologist to the Infirmary for Consumption in Margaret Street, and also to the West End Hospital for Paralysis. While in London he wrote two volumes of verses—*Smoke Clouds* (jointly with the late Dr. A. B. Clarke) and *Passion Spray*. He produced, in collaboration with C. H. Stephenson, a domestic drama entitled *Fettered Freedom*, and became well known as an amateur actor. In 1883 he wrote a small book on *The Evolution of Morbid Germs*, in which he anticipated opinions now held by many. He was a captain in the 9th Battalion of the King's Royal Rifle Corps, and took great interest in the Volunteer movement and in military administration.

He left London in 1892, and after again acting as a ship surgeon for a short time, became successively medical officer to mining works in Mexico and in California; in 1897 he was appointed associate editor of the *New York Medical Journal*, a post which he held for six years, leaving it to become the editor of the *St. Louis Medical Journal*. Two years later he joined the staff of the *Journal of the American Medical Association*, and in 1911 that of the *Lancet*. His health broke down last summer, and after some weeks of increasing disability he died of heart failure.

He was twice married, and leaves by his first wife a grown-up son and daughter who are settled in the United States, and by his second wife, who survives him, one daughter 12 years of age.

NICHOLAS PERCY MARSH, M.B. LOND.,

PHYSICIAN TO THE LIVERPOOL INFIRMARY FOR CHILDREN.

It was with great regret that the medical profession of Liverpool and district learnt that Dr. N. Percy Marsh passed away on November 28th, in his 56th year, after an illness of a few days' duration. His death came as a shock to many of his friends, who were not aware that he was indispensed. The immediate cause of death was cerebral haemorrhage. He was the elder son of the late Dr. N. K. Marsh, a well-known Liverpool medical man and city councillor. Dr. Percy Marsh was one of the leading specialists for diseases of children in Liverpool, and during the last ten years had acquired an extensive consulting practice in this branch of medicine. He was one of the physicians to the Liverpool Infirmary for Children, with which he had been connected since 1886. From the very beginning of his professional career he devoted himself to the speciality. He received his medical education at St. Bartholomew's Hospital, took the diploma of M.R.C.S. in 1882, and graduated M.B. Lond. in the following year. He held successively the posts of clinical assistant to the East London Hospital for Children, and resident medical officer to the General Hospital for Children at Pendlebury, before settling in private practice in his native city. In the last few years Dr. Marsh published various observations on children's diseases, more particularly meningitis in its protean manifestations. "Meningitis and lumbar puncture," "Treatment of cerebro-spinal meningitis with Flexner and Jobling's antiserum," "Encephalitis," "Epidemic poliomyelitis," are papers which set forth not only correct clinical observation but reveal critical acumen of a high order.

Dr. Percy Marsh was chairman of the Liverpool Division,

and during the incubation period of the Insurance Act had ample opportunities of showing his ability in conducting the numberless meetings held during those months of medical unrest.

At the last meeting of the Medical Institution Dr. Hope, in proposing a vote of condolence with the relatives of the late Dr. Marsh, who had been a member since 1886, alluded to the loss not only that the institution had sustained but the medical profession in and around Liverpool. He said that many members were personally indebted to Dr. Marsh for the professional help he had so willingly rendered to their families, and that he should be cut off at the zenith of his career was all the more poignant. Dr. Hope touched on the character and amiability of Dr. Marsh, whom he had known intimately for many years. Dr. Peter Davidson, a colleague of the late Dr. Marsh, added a few words, expressing in feeling terms how much he would miss his colleague, with whom he had been associated for so many years.

The funeral took place on November 29th at Childwall Church in the presence of a large number of his professional brethren and friends. On all sides his untimely death is deplored, and many a medical man will miss Dr. N. Percy Marsh for his courteousness, kindness of heart, and professional skill.

He leaves a widow, with whom much sympathy is felt, a son—Captain E. Bertram Marsh, R.A.M.C.—and two married daughters to mourn his loss and to cherish his memory.

FRANCIS T. HEUSTON, M.D., M.Ch., F.R.C.S.I.,

CONSULTING SURGEON, ADELAIDE HOSPITAL, DUBLIN.

We announced last week the death on November 27th of Mr. Francis T. Heuston of Dublin. He was born in 1857, the son of Mr. Robert Heuston of Ballykisteon, Tipperary, and was educated at Queen's College, Galway, and at the Royal College of Surgeons of Ireland. He was at one time professor of anatomy in the Carmichael College and the Royal College of Surgeons, Ireland, and, in addition to his appointment at the Adelaide Hospital, was consulting surgeon to the Rotunda and Coombe Lying-in Hospitals, and to the Cripples' Home, Bray, and surgeon to the London and North Western Railway. He was honorary secretary of the Adelaide Hospital, and governor of the Rotunda Hospital. He was a Fellow of the Royal Academy of Medicine in Ireland, and at one time chairman of its section of anatomy and physiology. He contributed several papers to medical periodicals, including one describing a method of excision of the rectum, published in this JOURNAL in 1895. Dr. Heuston was appointed surgeon to the Adelaide Hospital in 1886, and, as the board noted in a resolution passed shortly after his death, threw himself heartily into its work, and made the interests of the hospital his first object. The board expressed to Mrs. Heuston and to her son and daughter its sincerest sympathy in their bereavement, which came so soon after the loss of a son and brother killed in the war. In this expression of sympathy all those who knew Dr. Heuston will desire to share.

COLONEL FRANCIS JAMES DRURY, Bengal Medical Service, died suddenly of heart failure at Ranchi on November 30th, 1915, aged 55. He was born on May 17th, 1860, and educated at the Adelaide Hospital, Dublin, and at Trinity College, where he took the B.A. in 1881, the M.B. and M.Ch. in 1883. He entered the Indian Medical Service as surgeon on April 1st, 1885, became surgeon-major on April 1st, 1897, and lieutenant-colonel on April 1st, 1905; he was promoted to colonel from April 1st, 1912. His first five years' service were spent in military employ, during which he served in the Burma war from 1886 to 1888, taking part in the operations of the Fourth Brigade, and on the western frontier with the Poonk column, receiving the medal with two clasps. He then went into civil employ in Bengal, and after holding the post of civil surgeon in various districts, Balasore, the 24 Parganas, and Chitragong, he succeeded the late Major Evans, when he died of plague on March 13th, 1899, as Professor of Pathology in the Calcutta Medical College. Subsequently he became principal of the college, professor of medicine, and first physician of the Medical College Hospital. When the new province of Bihar and Orissa was constituted, from April 1st, 1912, he was appointed Inspector-General

of Civil Hospitals therein, with the rank of colonel. But though he took up the post at once he was not formally confirmed in it, and gazetted full colonel (from the original date, April 1st, 1912), till some two years afterwards.

DR. C. W. SESSIONS BARRETT died on November 4th aged 58, at his residence, Appleton House, Hinckley Leicestershire. He was the eldest son of Dr. Charles Albert Barrett, of Wallingford, Berks, and received his professional education at the University of Aberdeen, where he graduated M.B., C.M. in 1886. After holding appointments in the Huntingdon County Hospital and the Doncaster General Infirmary, he settled in Hinckley, where he became medical officer to the Cottage Hospital, to the Hinckley Workhouse, and to the Children's Home, Burbage, Leicestershire. He was interested in the question of the control of phthisis, and was an active member of the National Association for the Prevention of Consumption. He was a member, and for a time chairman, of the Leicester and Rutlandshire Branch of the British Medical Association, and contributed some interesting notes to this JOURNAL. One of these was a report of a case of complete inversion of the uterus (JOURNAL, vol. i, 1887, p. 508). He took an active part in the controversy about the antiseptic after-treatment of vaccination published in the first volume of the JOURNAL for 1890. Dr. Sessions Barrett left a widow, two daughters, and a son—a Lieutenant in the 26th South Staffordshire Regiment. The funeral took place at Hinckley parish church on November 9th, and was very largely attended, as Dr. Sessions Barrett was deeply respected, so that his death occasioned profound feelings of regret throughout the district.

Medical News.

AT a meeting of the Royal Society of Medicine on Monday, December 20th, at 5 p.m., Sir Ronald Ross, K.C.B., F.R.S., who has recently returned from the Mediterranean, will give an address on the treatment of dysentery, which will be followed by a discussion.

DR. J. A. TURNER, Executive Health Officer, Bombay, who has held that appointment for fifteen years, has been reappointed for a further term of five years, and given permission to hold the appointment of Professor of Public Health to the School of Tropical Medicine which the Government is establishing in Bombay.

THREE months' courses of lectures and demonstrations for the diploma in public health will be given at the North-Western Hospital, Hampstead, by Dr. J. MacCombie, beginning on January 4th, and at Grove Hospital, Tooting, by Dr. J. E. Beggs, beginning on January 6th. Inquiries should be addressed to the Clerk to the Metropolitan Asylums Board, Embankment, E.C.

IT is announced that Dr. F. M. Sandwith has been appointed to be a consulting physician with the Mediterranean Force, and will be stationed in Egypt. He was formerly professor of medicine in the Cairo Medical School, and has been for a good many years an active member of the staff of the London School of Tropical Medicine, as well as Gresham Professor of Medicine.

A MEMORIAL tablet to the late Lieutenant W. T. McCurry, R.A.M.C., has been unveiled and dedicated in St. Mary Magdalene Parish Church, Belfast, by the Bishop of the diocese. Dr. McCurry was killed on March 15th at Ypres while attending to the wounded in one of the first-aid stations near the firing line. His name had been mentioned in dispatches for gallantry in the field.

AT a quarterly meeting of the Central Committee of the Medical Benevolent Fund Society of Ireland on December 1st, when Sir Joseph Redmond, F.R.C.P., was in the chair, Dr. J. Agar Matson was thanked for a donation of 10 guineas and elected a life member of the society. Four urgent applications for assistance were considered, and grants amounting to £58 were made; bills amounting to £56 4s. 2d. were passed for payment.

THE New York Medical Record of October 30th states that among the nine German naval officers on the *Prinz Eitel Friedrich* and the *Kronprinz Wilhelm*, interned at Norfolk, who broke their parole, there were two medical men, Drs. Koch and Kronecker. Our contemporary, in

expressing regret for this, said it had hoped that the medical profession at least would have come out of this war without dishonour.

THE death is announced of Dr. James H. Pollock, lecturer on physical and metallurgical chemistry in the Royal College of Science, Ireland. He had given much attention to the investigation of x rays, and had contracted dermatitis in the course of his investigations. On the outbreak of war he organized the Royal College of Science Voluntary Aid Detachment, which, under his command, performed valuable services on the occasions when wounded soldiers have been landed in Dublin.

THE Royal Commission on Sewage Disposal was appointed in 1898. Between 1901 and 1915 it published ten reports in thirty-three volumes, containing some 7686 pages, with maps, pictures, diagrams, and plans. Mr. Kerstlaw has done a useful piece of work in compiling a *guide to this labyrinth of reports, evidence, and appendices*. He has furnished a synopsis of the contents of the volumes and indexes of the names, places, and subjects dealt with. It is published by P. S. King and Son (1915), price 5s. net.

MAJOR W. C. CROLY, R.A.M.C., son of the late Mr. H. G. Croly, the well-known Dublin surgeon, has been awarded the Royal Humane Society's silver medal. During the Nazirich fighting in the Persian Gulf, when the temperature was 113° in the shade, the heat very trying, and many casualties were occurring from heat-stroke, a British soldier jumped overboard from a launch on the Sbat-el-Arab. Major Croly jumped in, and though the water was infested with sharks, attempted to save him, but in vain; being hampered by his clothing Major Croly was nearly drowned himself.

AT the fifty-third annual meeting of the Royal Surgical Aid Society, held at the Mansion House, London, under the presidency of the Lord Mayor, a summary of the work of the society was given by Mr. G. A. Touche, M.P., who said that for the year ending with September 25,741 patients had been relieved, and the number of appliances supplied 39,290. Upwards of 4,000 trusses had been supplied, nearly 4,000 special boots, and 2,000 abdominal belts. A vast number of these appliances had been given absolutely free of charge. The society had also directly helped recruiting by providing artificial teeth for many men who otherwise could not have been accepted for the army. After commendatory speeches by Sir Horace Marshall, Sir William Grey-Wilson, the Rev. G. C. Wilton, and others, a resolution confirming the appointment of Sir Rickman J. Godlee as honorary consulting surgeon in succession to Sir Frederick Treves, and expressing the thanks of the society to its surgical staff, was moved by Sir Dyce Duckworth, seconded by Sir Thomas Crosby, and carried. The vote of thanks to the surgeons was acknowledged by Mr. Muirhead Little.

ON December 2nd a bronze tablet to the memory of Dr. F. M. Bingham was unveiled in front of the Royal Lancaster Infirmary, Lancaster. As noted in the JOURNAL of June 12th, Dr. Bingham, who was captain in the 5th (Territorial) Battalion of the King's Own Royal Lancaster Regiment, was killed in Flanders on May 22nd. His men were engaged during the night making new trenches, and just before dawn one was huried by a bursting shell. Captain Bingham helped in extricating the man, but in the morning light was shot by a sniper through the lungs. The tablet contains a medallion portrait, and bears the following inscription: "Frank Miller Bingham, M.R.C.S., L.R.C.P., captain the 5th Battalion the King's Own Royal Lancaster Regiment, killed in action in Flanders, May 22nd, 1915. In recognition of his life amongst them, and of his gallant death, this tablet was erected by the medical profession of Lancaster and district. He gave his life for his country." Dr. Bingham had been in practice at Lancaster in partnership with Drs. Parker and Dean for fifteen years, and the duty of unveiling the memorial was committed to Dr. G. R. Parker, the senior practitioner of the district. It was, he said, designed to do honour to the memory of a gallant soldier of the King and an honoured member of the medical profession, who lived in Preston for many years, and endeared himself by his bright and cheery manner, and endeared himself by his professional skill, and his blameless life. By his death he has not only added lustre to his profession, but to the town and neighbourhood where he spent so many happy hours. The president of the hospital, in accepting the memorial, said that the appreciation expressed in it by the medical profession was endorsed by the whole of the town and district.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR, the BRITISH MEDICAL ASSOCIATION, *Attingham, Westrand, London*; telephone, 2931. GERRARD. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630. GERRARD. (3) MEDICAL SECRETARY, *Westrand, London*; telephone, 2634. GERRARD. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

DR. MEREDITH YOUNG, County Medical Officer (43, Foregate, Chester) is anxious to find a home within a moderate distance of Chester for a man aged 53, suffering from paralysis of both legs, who could only afford a small contribution towards the cost of his maintenance.

ANSWERS.

MR. H. G. JOHNSTON, F.R.C.S.E. (Adelphi P.O., Jamaica, West Indies) writes to recommend for the treatment of chilblains passive hyperaemia, induced by elastic bandages (the 2 in. crepe Velpeau do very well) on the wrists or higher up on the forearms (the site of application of the bandage should be varied from day to day). A little practice soon shows the amount of tension to put on the bandages to give the best results, the itching and pain is often relieved in a few minutes after applying the bandages, and a couple of hours' wear morning and evening may suffice.

THE DESTRUCTION OF RATS.

S. V. suggests that rats may be destroyed by placing a mixture of equal proportions of flour and plaster-of-paris in a bowl, with a bowl of water near by. The theory is that the rats use the bowls alternately, with disastrous results to themselves.

LETTERS, NOTES, ETC.

SCUTELLARIA IN EPILEPSY.

DR. WILLIAM BRAMWELL (Liverpool) writes: In view of the correspondence on bromides in epilepsy it would, perhaps, be worth while to introduce to the notice of the profession the simple herb scutellap, or *Scutellaria latiflora*, in the treatment of this disease. In many cases a simple infusion or extract in correspondingly suitable doses will lessen the severity of the fits and reduce their number equally with bromides and without any of the disadvantages of the latter. Its efficacy appears to be partly due to its stimulating the kidneys to increased activity not only in increasing the flow of water but also the output of urea and uric acid as shown by the increased specific gravity of the urine, the retention of such toxins as a cause of many cases of epilepsy being too frequently overlooked. The medicinal qualities of this simple remedy are even more marked in chorea than in epilepsy, and it is to be hoped that a similar investigation and a similar therapeutic distinction awaits scutellap as happened in the case of comfrey, the invaluable qualities of which were limited to the use of the herbalist and consequently despised by the profession until Dr. C. J. Macalister, wisely setting aside prejudice, determined to investigate it, and having discovered its cell proliferating properties proved it beyond question one of the most valuable of remedies.

TREATMENT OF FROST-BITE.

DR. J. M. JOHNSTON of Toronto sends a note on the treatment of true frost-bite, in which he recommends the application of very hot water. He once tried it on his own ears, with the result that it at once produced a feeling of comfort, the ears did not swell or peel, and were not tender, as he feels sure you will have been the case had he followed the custom of rubbing with snow.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Note.—It is usual for the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

A CLASSIFICATION OF MENINGOCOCCI BASED ON GROUP AGGLUTINATION OBTAINED WITH MONOVALENT IMMUNE RABBIT SERUMS.

By ARTHUR W. M. ELLIS, CAPTAIN C.A.M.C.,

NO. 5 (CANADIAN) MOBILE LABORATORY, BRITISH EXPEDITIONARY
FORCE, FRANCE.

THAT all strains of meningococci are not affected equally by an immune serum prepared against any one strain has long been known. This has led to the conception that there are within the meningococcus group types of organisms which are more or less immunologically independent. This conception, borne out by the practical results in the treatment of human cases, has led to the universal adoption of a polyvalent serum in the treatment of cerebro-spinal fever. Though this conception of variant types of meningococcus has long existed, the number of types which occur and the degree of specificity which exists within these types has never been determined. It is for this reason that, in the preparation of the therapeutic serums, as many strains as possible have been used and the strains obtained from widely varying geographical sources. In this way it was hoped to include representatives of all existing types.

The purpose of this communication is to show that, by means of a specific immune reaction, two types of organism causing cerebro-spinal fever can be demonstrated, and that of forty-six organisms studied all belonged to one or other of these types. It will be shown, moreover, that both types are widely distributed, representatives of each type having been found in six different epidemic foci; that they occur in some epidemics with nearly equal frequency; and that the differentiation obtained is such as to suggest the probable complete immunological independence of the two types.

The earliest attempts made to differentiate types of meningococci were mainly directed towards establishing points of difference between the organism isolated in cases of epidemic meningitis and those from the sporadic cases of this disease, the so-called posterior basic meningitis. These attempts were unsuccessful.

In 1909 Elser and Huntoon¹ described an organism indistinguishable from the meningococcus except by means of agglutinin absorption tests. To this organism they gave the name "pseudomeningococcus." In their article the source from which these organisms were obtained is not very clearly stated, but apparently they were all isolated from the naso-pharynx. They speak of the pseudomeningococcus as "only rarely encountered in the throats of normal and diseased subjects," and do not consider that it interferes with the practical identification of the meningococcus or of meningococcus carriers. They do not seem to look upon the pseudomeningococcus as a causative agent of cerebro spinal fever.

In the same year Dopter² studied and described a similar organism, also obtained from the upper air passages, to which he gave the name "parameningococcus." This organism, probably identical with the pseudomeningococcus of Elser and Huntoon, has since been found by Dopter and other French workers to invade the blood and meninges, and is looked upon by them as one of the causative agents in epidemic meningitis. An anti-serum against this organism has been prepared by Dopter and successfully used in the treatment of human patients.

Recently Wollstein³ has made a careful comparative study of the immune reactions of the meningococcus and the parameningococcus of Dopter. From her investigations she came to the conclusion that "the parameningococci of Dopter are culturally indistinguishable from true or normal meningococci, but serologically they exhibit differences as regards agglutination, opsonization, and complement fixation. Because of the variations and irregularities of serum reactions existing amongst otherwise normal strains of meningococcus it does not seem either possible or desirable to separate the parameningococci into a strictly definite class. It appears desirable to

consider them as constituting a special class among meningococci, not, however, wholly consistent in itself." It will be seen, therefore, that, though there is apparently some variation in the reaction to immune serums of certain organisms isolated from cases of cerebro-spinal fever, no sharp-cut differentiation of meningococci has as yet been made and no record of the frequency with which these aberrant or parameningococci strains occur is available.

In reviewing the literature of meningococcus agglutination two facts immediately impress themselves—first, the wide variation in agglutinability of different strains of meningococci, and, second, the susceptibility of certain strains to agglutination by any serum, normal or immune, that is, susceptibility to non-specific agglutination. Thus Arkwight,⁴ and also Elser and Huntoon,⁵ have shown that gonococcus-immune serum will agglutinate certain strains of meningococcus in as high dilutions as will meningococcus-immune serum. Elser and Huntoon, however, noticed that in such cases, while the final result with gonococcus and meningococcus serum was the same, the rate at which the reaction occurred in the two instances varied widely, the reaction being much more rapid with meningococcus serum.

In all previous work upon the agglutination of the meningococcus the agglutinations have been studied with increasing dilution of serum, and the highest dilution in which agglutination has occurred at the end of twenty-four hours has been taken as the standard of agglutination. In the light of the above results, it seemed possible that when a period of twenty-four hours was allowed to elapse before readings were made, a more slowly occurring non-specific agglutination might frequently mask all specific results. It seemed advisable, therefore, to see if, by allowing a powerful serum to act over a short period of time, specific differences could be demonstrated which were missed when the ordinary method of diluted serum acting for twenty-four hours was used. Undiluted serum was therefore employed and the agglutinations which immediately ensued noted. It was at once determined that with this method marked differences between strains of meningococci could be demonstrated.

Method.

Monovalent serums were prepared by immunizing rabbits against single strains of meningococcus. The rabbits were immunized by intravenous injections given at weekly intervals, the dose consisting usually of half a slant culture of twenty-four to seventy-two hours' growth. The first two or three injections were made with organisms killed by heating at 60° C. for thirty minutes; subsequent injections were of living organisms. Five injections usually produced a satisfactory agglutinating serum.

Agglutinations were all done macroscopically, equal quantities of undiluted serum and of rather thin bacterial emulsions being drawn into a capillary pipette, thoroughly mixed on a glass slide and the mixture again drawn into the pipette, the tip of which was then sealed in the flame. In the case of a prompt reaction, agglutination takes place before the mixing is completed, all the organisms becoming almost instantaneously tightly clumped, leaving a clear supernatant fluid. The tubes were read immediately and then left at room temperature, readings being again made at the end of an hour and on the following morning. In recording the results of agglutinations the following designations were employed: C, complete clumping of the organisms, leaving a clear or faintly opalescent fluid; 1, majority of organisms clumped, the supernatant fluid remaining opalescent; L, slight clumping; and 0, no clumping, though in the course of twenty-four hours slight sedimentation may occur.

Experimental.

Rabbits were immunized against eight different strains of meningococci. Unfortunately four of these eight strains were lost before their agglutination reactions could be tested, so that cross agglutinations between the whole eight strains and their corresponding serums could not be carried out. They were, however, done with the four remaining strains. The results are shown in Table I. It is to be understood that these results were not all obtained on one day, but represent the combined protocols of three separate experiments.

TABLE I.—Agglutination of Meningococcus Strains by Homologous and Heterologous Monovalent Immune Rabbit Serums.

SERUMS.	MENINGOCOCCUS STRAINS.											
	M. 4.			M. 7.			M. 9.			M. 13.		
	Imm.	1 hr.	24 hrs.	Imm.	1 hr.	24 hrs.	Imm.	1 hr.	24 hrs.	Imm.	1 hr.	24 hrs.
Rabbit 53, M. 3...	0	I	C	L	C	C	0	0	L	I	I	I
Rabbit 76, M. 4...	0	0	0	0	0	0	0	0	0	0	0	0
Rabbit 83, M. 5...	0	I	C	L	L	I	0	0	0	L	L	I
Rabbit 56, M. 6...	0	0	I	0	0	L	C	C	C	0	0	0
Rabbit 58, M. 7...	0	I	C	I	0	0	0	0	I	I	I	I
Rabbit 15, M. 9...	0	0	0	0	0	I	0	C	C	0	0	I
Rabbit 84, M. 11	0	0	0	0	0	I	0	C	C	0	0	I
Rabbit 69, M. 13	I	0	C	C	C	C	0	0	I	C	C	C

C = Complete agglutination. I = Incomplete agglutination. L = Least degree of agglutination. 0 = Negative result.

It will be seen that the three strains M. 4, M. 7, and M. 13 were agglutinated by five of the eight serums employed (M. 3, M. 4, M. 5, M. 7, M. 13), though in the case of three of these (serums M. 3, M. 5, M. 7) the agglutination was feeble. Three serums (M. 6, M. 9, M. 11) failed entirely to agglutinate these organisms. The reactions with strain M. 9 were, on the other hand, exactly opposite, the five serums (M. 3, M. 4, M. 5, M. 7, M. 13) failing to agglutinate this strain, while prompt agglutination occurred with the three (M. 6, M. 9, M. 11) which failed to agglutinate the other three organisms. That the feeble agglutination in the case of the serums M. 3, M. 5, and M. 7 was due to a simple lack of potency of these serums, and not to difference in the organisms, seems probable, since in the only case where it could be tested (M. 7) agglutination was equally feeble with the homologous organism.

On the basis of these results it would seem that two types of meningococci can be differentiated according to their reaction to monovalent immune rabbit serums. These we shall designate Types I and II. To Type I belong M. 4, M. 7, M. 13, and since serums prepared by immunizing rabbits to strains M. 3 and M. 5 agglutinate these organisms, it is evident that they also are of this type. Similarly M. 6, M. 9, and M. 11 are evidently another type, which we shall designate Type II. A second point which is brought out in Table I is, perhaps, worthy of mention. This is the well known variation in the agglutinability of different strains of meningococci. It will be seen that M. 7 and M. 13 show almost identical reactions, while with M. 4, though qualitatively the same, they are quantitatively weaker, the three weak serums failing to give any immediate reaction, and showing, only at the end of an hour, agglutinations comparable to the immediate reactions obtained with the more agglutinable strains.

A preliminary classification into two types having been thus obtained, it was necessary to determine whether such results would hold when applied to a large number of strains of meningococci. All available strains were therefore tested with strongly agglutinating serums of both types. The results are shown in Table II. The Type II serum which was at first employed was not as powerful as one which was afterwards produced, so that the reactions of this group were not at first quite as sharp as those later obtained. In Table II strain M. 33 marks the beginning in the use of more powerful Type II serum.

Table II shows clearly the sharp differentiation of two types of meningococci, all the strains tested with three exceptions (M. 18, M. 39, M. 49) belonging clearly to one or other type. These three inagglutinable strains will be considered later. Excepting them we see that in no case did immediate agglutination fail to occur with the proper type serum. Cross agglutination between types was never seen immediately, but did occur three times at the end of an hour (M. 28, M. 32, M. 56). In two of these three instances, however (M. 32, M. 56), the strains showed agglutination of equal extent with normal serum. Only one example of true cross agglutination therefore occurred (M. 28), and here the reaction was so slight that it could not possibly interfere in the differentiation of the type to which this strain belonged. As will be seen by Table II, three strains could not be classified (M. 18, M. 39, M. 49), failing to agglutinate with serums of either type. Further investigation showed that the inagglutinability of these

TABLE II.—Agglutination of Meningococcus Strains by Monovalent Serums, Types I and II.

STRAINS.	SERUMS.								
	Type I.			Type II.			Normal Rabbit.		
	Imm.	1 hr.	24 hrs.	Imm.	1 hr.	24 hrs.	Imm.	1 hr.	24 hrs.
M. 10	C	C	C	0	0	0	0	0	0
M. 12	0	0	I	C	C	C	0	0	I
M. 18	0	0	I	0	0	I	0	0	I
M. 19	C	C	C	0	0	0	0	0	0
M. 20	C	C	C	0	0	I	0	0	I
M. 21	C	C	C	0	I	0	0	0	I
M. 22	C	C	C	0	0	0	0	0	0
M. 23	C	C	C	0	0	0	0	0	0
M. 24	C	C	C	0	0	L	0	0	L
M. 25	C	C	C	0	0	0	0	0	L
M. 26	0	0	I	L	I	C	0	0	C
M. 27	C	C	C	0	I	0	0	0	0
M. 28	0	L	C	I	C	C	0	0	C
M. 29	C	C	C	0	I	0	0	0	C
M. 30	0	0	I	I	C	C	0	0	L
M. 31	C	C	C	0	0	L	0	0	L
M. 32	C	C	C	0	I	C	0	0	C
M. 33	0	0	L	C	C	C	0	0	I
M. 34	C	C	C	0	I	0	0	0	C
M. 35	0	0	0	C	C	C	0	0	I
M. 36	C	C	C	0	I	0	0	0	C
M. 37	0	0	I	C	C	C	0	0	0
M. 38	C	C	C	0	I	0	0	I	C
M. 39	0	0	L	0	I	0	0	0	C
M. 40	0	0	C	C	C	C	0	0	C
M. 41	C	C	C	0	0	0	0	0	C
M. 42	0	0	L	C	C	C	0	0	L
M. 43	C	C	C	0	L	0	0	0	C
M. 45	C	C	C	0	0	0	0	0	L
M. 46	C	C	C	0	0	L	0	0	0
M. 47	C	C	C	0	0	L	0	0	C
M. 48	C	C	C	0	L	0	0	0	I
M. 49	0	0	0	0	0	I	0	0	0
M. 50	C	C	C	0	0	0	0	0	L
M. 51	C	C	C	0	I	0	0	0	C
M. 53	0	0	I	C	C	C	0	0	I
M. 55	0	0	I	C	C	C	0	0	L
M. 56	C	C	C	0	L	C	0	0	C

TABLE III.—Agglutination Reactions of Relatively Inagglutinable Meningococcus Strains and their Monovalent Antisera.

SERUMS.	MENINGOCOCCUS STRAINS.														
	Type I, M. 20.			Type II, M. 37.			M. 18.			M. 39.			M. 49.		
	Imm.	1 hr.	24 hrs.	Imm.	1 hr.	24 hrs.	Imm.	1 hr.	24 hrs.	Imm.	1 hr.	24 hrs.	Imm.	1 hr.	24 hrs.
Type I, Rabbit 76, M. 4...	O	O	O	O	O	I	O	O	L	O	O	L	O	O	O
Type II, Rabbit 66, M. 12...	O	O	O	O	O	O	L	L	I	I	O	O	O	O	O
Rabbit 4, M. 18 ...	O	O	O	O	O	O	O	O	L	O	L	I	L	I	C
Rabbit 21, M. 39 ...	O	O	O	O	O	O	O	O	L	O	O	L	O	L	O
Rabbit 20, M. 49 ...	O	O	O	O	O	O	O	O	L	O	I	I	L	I	O
Normal rabbit ...	O	O	O	O	O	L	O	O	L	O	O	L	O	O	L

three strains was only a relative affair, and that when more potent Type II serum—for example, rabbit 66, M. 12, obtained by more prolonged immunization of rabbits—was used, some degree of agglutination of even these resistant strains occurred (Table III). It was noticed, moreover, that the agglutinability of these strains varied from day to day, an organism which had failed to agglutinate one day showing typical prompt agglutination the next. In order to prove definitely the relationship of these exceptional strains monovalent serums were prepared against all three, and cross agglutinations were then carried out between these serums, their homologous organisms, and known representatives of Types I and II. The results are shown in Table III.

It will be seen that all three strains are certainly representatives of Type II, since their antisera give typical agglutination of a known Type II organism (M. 37) and fail to show any reaction with an organism of Type I (M. 20). It will be noticed that the three show a graded variation in their degree of inagglutinability—M. 18 the most inagglutinable, M. 39 next, and finally M. 49, which, with a powerful Type II serum, shows immediate agglutination. It is clearly shown that the failure of these organisms to react is due to their inherent inagglutinability and not to any difference in type, since in every case their antisera agglutinate an agglutinable Type II organism more strongly than they do their homologous organism. Moreover, within the group the reactions take place according to the evident potency of the serums and agglutinability of the organisms, and not according to whether homologous or heterologous serum is employed. Thus rabbit 21, M. 39, fails entirely to agglutinate its homologous organism, while it agglutinates strongly the agglutinable Type II organism (M. 37) and weakly the relatively inagglutinable strain, M. 49. The same phenomenon is seen with the serum of rabbit 4, M. 18.

In Table II the results of exposing a number of strains of meningococcus to Type I and Type II serum were shown. By way of confirming these results the effects of exposing organisms of Types I and II to the action of serums prepared against a number of the strains tabulated in Table II have been studied. These results are shown in Table IV.

It will be seen that these results are in every case confirmatory, the antisera prepared against the two organisms of Type I alone agglutinating the Type I strain,

while the Type II organism is agglutinated only by antisera of organisms previously determined as of Type II.

TABLE IV.

Agglutination of meningococcus strains Type I (M. 4) and Type II (M. 12) by monovalent rabbit serums produced by immunizing with various meningococcus strains M. 4 and M. 49, Type I, the remainder Type II. Normal rabbit serum control.

SERUMS.	MENINGOCOCCUS STRAINS.					
	Type I, M. 4.			Type II, M. 12.		
	Imm.	1 hr.	24 hrs.	Imm.	1 hr.	24 hrs.
Rabbit 76, M. 4...	O	O	C	O	O	L
Rabbit 56, M. 6...	O	O	L	O	C	C
Rabbit 15, M. 9...	O	O	L	O	O	C
Rabbit 66, M. 12...	O	O	O	O	O	C
Rabbit 27, M. 18...	O	O	I	I	C	C
Rabbit 22, M. 39...	O	L	O	O	O	O
Rabbit 47, M. 42...	O	O	O	O	O	C
Rabbit 11, M. 48...	O	O	O	O	O	L
Rabbit 90, M. 49...	O	O	O	O	C	C
Normal rabbit...	O	O	L	O	O	L

Distribution and Relationships.

It has thus been shown that without exception all strains of meningococci, so far met with in this investigation, can be placed in one or other of two types. There remains to be considered the distribution of these types and their relations to the parameningococcus of Dopter.

The strains of meningococcus which have been studied were isolated from patients in six different epidemic foci. For those from the Tidworth, Reading, Woolwich and London epidemics I am indebted to Dr. J. A. Arkwright of the Lister Institute, and for some of the strains isolated in France to Captain J. W. McNee, No. 3 Mobile Laboratory. In Table V is shown the epidemic foci from which individual strains were obtained, and the number of each type found in the strains from these various sources.

Organisms of both types were found in all six epidemic foci. Type I was more common than Type II, but in the

TABLE V.—Classification of Meningococci Isolated from the Spinal Fluid of Patients from various Epidemic Foci. Classification obtained by Agglutination with Monovalent Rabbit Serums.

British Expeditionary Force, France.		First Canadian Contingent, Salisbury Plain.		Tidworth.		Reading.		Woolwich.		London.			
Type I.	Type II.	Type I.	Type II.	Type I.	Type II.	Type I.	Type II.	Type I.	Type II.	Type I.	Type II.		
M. 3	M. 6	M. 7	M. 9	M. 27	M. 26	M. 29	M. 30	M. 31	M. 33	M. 41	M. 42		
4	18	10	11		28			32	35	43	49		
5	39	13	12					34	37	45			
20	40	19						36		46			
21	53	22						38		47			
50	55	23								48			
51		24											
56		25											
8	6	8	3	1	2	1	1	5	3	6	2		
						21 — 63 per cent.							
						17 — 37 ..							
Total						46 — 100 per cent.							

case of the British army in France the difference was negligible. It is perhaps of some significance that this group in which the proportion is more nearly equal, embraces the largest number of organisms, the widest distribution in area, and the most nearly constant conditions of isolation and subsequent growth of the organisms. It will readily be seen that in a heterogeneous collection, such as these forty-six strains represent, a slight variation in case of isolation or in subsequent viability of one type as compared with the other might completely upset all calculations. In contradistinction to the greater frequency of Type I in these strains isolated from the spinal fluid, we have found in five strains of meningococci isolated from the naso-pharynx of healthy carriers Type II four times and Type I once. The exact frequency with which the two types of meningococci occur can, then, only be determined by a study of the infecting organism in every case of a large series. It will probably be found to vary in different places and in different years. It seems obvious, however, that both types are widely distributed, and must be held equally responsible as causative agents of cerebro-spinal fever.

The relation of the parameningococcus of Dopter to the types above described has been determined for one strain of parameningococcus. This strain, known as "parameningococcus St. Quay," was obtained through the kindness of Dr. Armand Netter of Paris, and was isolated by Dr. Matthias Pierre Weil. Its reactions are shown in Tables VI and VII; they are identical with an organism of Type II.

TABLE VI.—Agglutination Reactions of Parameningococcus.

Monovalent rabbit serums of Types I (Rabbit 76, M. 4) and II (Rabbit 66, M. 12) vs. parameningococcus (P. M. St. Quay). Monovalent rabbit anti-parameningococcus serum (Rabbit 42, P. M. St. Quay) vs. organisms Type I (M. 20) and Type II (M. 37). Normal rabbit serum control.

SERUMS.	MENINGOCOCCI AND PARAMENINGOCOCCI STRAINS.								
	Type I, M. 20.			Type II, M. 37.			Parameningo. P. M. St. Quay.		
	Imm.	1 hr.	24 hrs.	Imm.	1 hr.	24 hrs.	Imm.	1 hr.	24 hrs.
Type I, Rab. 76 (M. 4)	C	C	C	O	O	L	O	O	O
Type II, Rab. 66 (M. 12)	O	O	I	O	C	C	C	C	C
Anti-param., Rab. 42 (P. M. St. Quay)	O	O	O	C	C	C	O	C	C
Normal rabbit	O	O	L	O	O	L	O	O	O

TABLE VII.—Agglutination Reactions of Parameningococcus.

Monovalent rabbit serums Types I and II vs. parameningococcus strain P. M. St. Quay. Normal rabbit serum control.

SERUMS.	P. M. St. Quay.		
	Imm.	1 hr.	24 hrs.
Type I, Rabbit 76, M. 4	—	—	—
Type I, Rabbit 11, M. 43	—	—	—
Type II, Rabbit 66, M. 12	—	—	—
Type II, Rabbit 90, M. 49	—	—	—
Type II, Rabbit 15, M. 9	—	—	—
Type II, Rabbit 27, M. 13	—	—	—
Type II, Rabbit 37, M. 42	—	—	—
Normal rabbit	—	—	—

Another strain of parameningococcus, obtained from the Pasteur Institute, has also been studied. Unfortunately, this organism possessed such a high degree of non-specific agglutinability and such low antigenic properties that its exact relations could not be determined. It, too, however, appeared to be a member of Type II.

It would seem probable, therefore, that our Type II meningococcus and the parameningococcus of Dopter are identical. In view of the apparent frequency with which this organism causes cerebro-spinal fever, the identical character of the disease caused by the two types, and, if we except immune reactions, the exact similarity of the two organisms, it would seem desirable to call both types

of organism the meningococcus, and to drop the use of such terms as "parameningococcus" and "pseudomeningococcus," which are only complicating and misleading. In this connexion it may be interesting to point out that the occurrence of types of meningococci differing only in their immune reactions has an exact parallel in the types of pneumococci demonstrated by Dochez and Gillespie,⁶ by whom four types of pneumococci causing lobar pneumonia have been established.

The Bearing of these Observations.

The occurrence of two types of meningococci and the fact that all organisms so far tested will react to a monovalent immune serum of one or other type suggests at once the possibility of the treatment of human cases of cerebro-spinal fever with such monovalent serums. It is probable that in this way more powerful antiserums could be prepared than by the haphazard choice of strains for the immunization of horses such as at present obtains. In the preparation of monovalent type serums the most powerful antigenic strain of each type would, of course, be used. For the first treatment of the patient a mixture of the two serums could be used, to be followed as soon as the type of the infecting organism is determined by the appropriate monovalent serum. Such a scheme would seem to put the serum treatment of cerebro-spinal fever on a much sounder basis and would prevent the occurrence of situations, such as were common in England last winter, where patients were treated with serums which, even *in vitro*, showed no effect on the organism causing the disease. Here we may again point to the parallelism with pneumonia, where the use of a similar method⁷ has led to a much clearer understanding of the difficulties and possibilities of serum-therapy.

SUMMARY.

1. The causative agent of cerebro-spinal fever, the meningococcus, is of at least two types.
2. These two types are, as regards the one immune reaction tested, agglutination, absolutely independent.
3. In a study of forty-six strains of meningococci, obtained from various sources, all were of one or other of these two types.
4. Both types are widely distributed, having been found in each of six epidemic foci. They may occur with equal frequency.
5. Both types have been found in the naso-pharynx of healthy carriers.
6. We have designated these two types, Types I and II.
7. In so far as evidence is available, Type I has been more frequently the cause of the disease in the recent epidemics than has Type II. In view of the wide distribution of the two types, both must, however, be held equally responsible as causative agents of cerebro-spinal fever.
8. The organism herein described as Type II is probably identical with the parameningococcus of Dopter.
9. It is suggested that in the treatment of cerebro-spinal fever better results might be obtained, and more exact knowledge of the adequacy of serum treatment gained, if monovalent horse serum of appropriate type, and therefore known to be active against the infecting organism, were employed in place of the polyvalent serums at present in use.

REFERENCES.

1. W. J. Elser and F. M. Hinton, *Journ. Med. Research*, 1909, 20, 371.
2. Ch. Dopter, *Compt. rend. Soc. de Biol.*, 1909, 67, 78.
3. M. Wollstein, *Journ. Exper. Med.*, 1914, 20, 201.
4. J. A. Arkwright, *Journ. Hygiene*, 1909, 5, 101.
5. W. J. Elser and F. M. Hinton, loc. cit.
6. A. B. Dochez and L. J. Gillespie, *Journ. Amer. Med. Assoc.*, 1915, 61, 727.
7. R. Cole, *Arch. Int. Med.*, 1914, 14, 55.

THE Paris Municipal Council has voted a sum of £2,400 in aid of the scheme of sanitary stations created by the Minister of the Interior for the temporary accommodation of tuberculous soldiers.

THE first National Medical Congress of the Republic of Uruguay will be held at Montevideo in April, 1916 (9th to 16th), under the presidency of Professor José Brito Foresti. Among the members of the honorary committee are the President of the Republic, the Ministers of the Interior and Public Instruction, the Rector of the University, the Dean and Professors of the Medical Faculty, and the officers of the leading medical and scientific societies of Uruguay. Among the subjects proposed for discussion are syphilis, alcoholism, the means of checking the prevalence of abortion, cancer in Uruguay, and the hospital question in that country.

GROUPING OF THE STRAINS OF MENINGOCOCCUS

ISOLATED DURING THE EPIDEMIC OF CEREBRO-SPINAL MENINGITIS IN 1915.

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This following account refers only to strains of meningococcus which were isolated from the cerebro-spinal fluid or meninges of cases of meningitis. All the strains conformed to the usual morphological and staining characters of the meningococcus. Culturally they did not make growth at the temperature of the laboratory and they fermented glucose but not cane sugar.

The formation of a uniform permanent emulsion in physiological salt solution was a constant characteristic of all the strains, except three, which sometimes showed agglutination in salt solution (NaCl 0.85 per cent.).

Several of the cultures gave a distinctly yoke-yellow growth on glucose agar; this was especially noticeable in the case of two strains, M. 13 and 4410, on some occasions. Many strains made a very mucilaginous growth on moist glucose agar. The culture medium found most convenient for applying the sugar tests was Hiss's serum water. After mixing serum one part with distilled water three parts, the mixture can be autoclaved at about 118° for twenty minutes without causing precipitation of the protein; 1 per cent. carbohydrate and litmus can then be added and the tubes steamed three times. Stock cultures were kept on 1 per cent. glucose agar at 37° in closed tin boxes.

Thirty-five strains were examined, which came from the following sources:

Nine from cases occurring in the first Canadian contingent on Salisbury Plain, found February, 1915.

Four other cases occurring in the first Canadian contingent on Salisbury Plain, found March, 1915.

Eight cases occurring in the Herbert Hospital, Woolwich, received through the kindness of Mr. K. Goadby.

Nine cases occurring among soldiers, kindly supplied to me by Major Gordon and Captain Hine, R.A.M.C.

Two cases occurring in France, received from Major S. Rowland, R.A.M.C.

Two cases occurring at Reading, received from Dr. Donaldson.

One case occurring at Watford.

Agglutination tests have been performed with two main objects: (1) With polyvalent rabbit serum, with the object of obtaining a criterion for the diagnosis of the meningococci. (2) With serum prepared from rabbits with single strains, in order to determine whether these strains of meningococcus, isolated during the epidemic, fell into groups.

At the same time agglutination tests were made with antimeningococcus and antiparameningococcus serums obtained from the Pasteur Institute, through the kindness of Professor Roux.

Preparation of Serums.

In order to obtain agglutinating serums, rabbits were inoculated intravenously with unheated emulsion. Suitable serums, with a sufficiently high titre, were not obtained till the animal had received seven to ten injections; the maximum dose given was two glucose agar slopes. For the tests detailed below three rabbit serums were used:

A. prepared from a single strain—Plank.

B. prepared from a single strain—M. 13.

C. prepared from six strains—Carter, Crisp, Plank, Palmer, M. 1, M. 13.

Agglutination Technique.

Cultures of one day's growth on glucose agar were emulsified in distilled water containing 0.5 per cent. phenol. The serum was diluted with salt solution (0.85 per cent. NaCl). The density of emulsion used was judged by eye, and was of about the consistence obtained by adding 10 c.c.m. of water to one glucose agar slope. Several strains were tested on the same day, and two or four serums were used on each occasion; the results, therefore, to some extent controlled each other. A control

tube with salt solution was always included for each strain, and each strain was tested with normal horse or rabbit serum.

Agglutination was not obtained with $\frac{1}{2}$ normal serum with any strain unless agglutination also occurred in salt solution. It was found that rather higher specific agglutination was obtained when the tubes contained salt solution of half or one quarter the usual strength, than when both the emulsion and the serum dilutions were made up with physiological salt solution (NaCl 0.85 per cent.).

The agglutination tests were carried out macroscopically in small tubes which were put in the incubator at 37° C. for eighteen to twenty hours, and then kept on the bench at the temperature of the laboratory. When complete agglutination (C) occurred there was complete clearing of the supernatant fluid and marked deposit.

The least degree of agglutination (L) noted was shown by the absence of the small round collection of sedimented cocci, rather larger than a pin's head, seen in the control tubes, and by an irregular granular deposit scattered over the concave bottom of the tube.

The results obtained with the multivalent serum C. are shown in Table I. Of 32 strains tested, 30 showed agglutination complete or almost complete in a dilution of 1 in 100. One strain (Llandindod) agglutinated completely, 1 in 800; another strain (Carter) reached 1 in 400, and ten strains were completely agglutinated by a dilution of 1 in 200. Of the remaining two strains, one (Kennedy) only gave incomplete agglutination (I) in 1 in 100, and the other (McPhail) agglutinated slightly in salt solution, and only incompletely 1 in 100. Tests with serum C. of strain of *Diplococcus flavus*, which did not agglutinate in the salt solution control, were negative.

The table also shows the agglutination results obtained with the two univalent rabbit serums A. and B., and also with antimeningococcus and antiparameningococcus serum from the Pasteur Institute.

By means of the two serums A. and B. it was possible to place 27 out of the 35 strains in one or other of two groups:

17 in Group A. were agglutinated best by Serum A. prepared with strain "Plank."

10 in Group B. were best agglutinated by Serum B. prepared with strain "M. 13."

By means of the two Pasteur Institute serums 27 out of the 35 strains could be divided into two groups:

15 into Group M. agglutinated best by antimeningococcus serum, and

12 in Group P. agglutinated by antiparameningococcus serum.

Whenever the strains could be grouped definitely by both pairs of serums—that is, A. and B. and M. and P. respectively—a strain falling into Group A. also fell into Group M., and those agglutinated by B. serum were also agglutinated by antiparameningococcus serum, except in the case of two strains.

It seems, therefore, justifiable to speak of two main groups, A. M. and B. P., corresponding to the meningococcus and parameningococcus groups of Doetzer. Whenever a strain fell into the B. P. group it appeared to do so quite definitely; the A. M. strains varied more in their agglutinability, and were more influenced by the B. P. serums than the B. P. strain were affected by the A. M. serums.

By means of these four serums it was possible to definitely group 30 strains—18 in the A. M. group, and 12 in the B. P. group. One strain could not be classified. One strain (Chandler) agglutinated not very strongly, but equally with A. and B. serums. One strain (McPhail) agglutinated in salt solution. Two strains (Chase and Berkhamstead) fell in different groups on two occasions. Chase was agglutinated best by P. serum on June 25th, and by M. serum on August 18th. Berkhamstead was agglutinated by P. serum on July 20th, but not on August 30th, on which later date it reacted better with A. serum than with B. serum. One strain (Littledale) gave no reaction with the Pasteur Institute serums, but agglutinated completely with serum C.

Some inquiries were made into the sources of the strains to find out (1) whether the different localities yielded more of one group of meningococcus than the other; (2) whether the clinical symptoms were different or more severe in cases infected with one group than with the other. No decisive answer could be given to either

TABLE I.

Strain.	Meningococcus Serum: Pastor Institute (Horse).					Parameningococcus Serum: Pastor Institute (Horse).					Multivalent Serum (Rabbit) C.					Univalent Serum (Rabbit) A. Strain: Plank.				Univalent Serum (Rabbit) B. Strain: M. 13.				Salt Solution (0.5% per cent.)				
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1
	50	100	200	400	800	50	100	200	400	800	50	100	200	400	800	50	100	200	400	50	100	200	400		50	100	200	400
Carver	0	0	0	0		C	C	C			C	C	C	C	I	I	0	0		C	C	0	0				0	
Cyber	C	I	L	0	0	0	0	0	0	0	C	C	C	L	0	C	C	C		C	C	0	0				0	
Fa	C	C	L	0	0	0	0	0	0	0	C	C	I	L	0	I	C	I		0	I	0	0				0	
Good	L	I	C			0	0	0			C	C	L	0	0	I	C	C		C	C	0	0				0	
Kenn	0	I	0			0	0	0			0	I				C	C	C		C	0	0	0				0	
Randa	0	0	0			C	C	L			C					0	0	0		I	0	0	0				0	
Chase:																												
(1) June 28th, 1915...	0	0	0	0	0	C	C	C	0	L	C																	0
(2) Aug 18th, 1915...	C	C	L			0	0	0							L	0	0		I	0	0	0					0	
Murray		I	I	L		0	0	0	0		C	C	C	0	0	C	C	I		C	I	L	0				0	
Chanler	0	0	0			0	0	0			C	C	L	0	0	C	C	L	0	C	C	L	0	0			0	
Plank	L	I	I			0	0	0	0		C	C	I	I	L	C	C	C		C	I	0	0				0	
Atkin	C	C	C	L	0	0	0	0	0		C	C	I	L		I	C	0		L	0	0	0				0	
Somers	0	0	0			C	C	I			C	C	L	0	0	I	L	0		C	C	L	0	0			0	
T. 167	0	0	0			C	I	L			C	C	L	0	0	C	L	0		C	C	L	0	0			0	
Lewis	L	C	I			0	0	0			C					I	C	C		C	I	0	0				0	
Clifford	0	0	0			L	I	C			C	C	C	0	0	L	0	0		C	C	I	0	0			0	
4378	C	I	L			0	0	0			C	C	C	L	0	0	C	C	I		C	C	L	0	0		0	
4409	C	C	I	0	0	L	0	0	0	0	C	L	0	0		C	L	0		C	C	L	0	0			0	
4420	0	0	0	0	0	C	I	0	0	0	I	0	0	0	0												0	
4411	0	0	0			C	C	C			C					I	L	0		C	C	I	0	0			0	
4412	0	I	L			0	0	0			C	C	C	0	0	C	C	C		C	C	L	0	0			0	
4422	C	I	L			L	0	0			C	C	L	0	0	G	C	C		C	I	L	0	0			0	
Lambert	L	0	0	0	0	L	I	C	C	I	C	C	C	C		L	0	0		I	I	0	0				0	
Tring	0	0	0			0	0	0			C	C	0	0	0	C	C	C		C	0	0	0				0	
Littleton	0	0	0	0	0	0	0	0	0	0	C	C	L	0	0												0	
Beckhamstead:																												
(1) Jun 20th, 1915...	0	0	0	0		I	I	L	0	0	C	C	L	L													0	
(2) Aug 20th, 1915...	0	0	0			0	0	0								G	C	L		I	0	0	0				0	
Andrews	0	0	0			C	C	C			C	C	I	L		L	0	0		C	L	0	0				0	
Turnpenny	L	L	0			0	0	0	0		C	C	0	0		C	C	C		C	I	L	0	0			0	
Adamson	0	0	0			0	0	0			C	C	C	L		C	C	C		C	C	L	0	0			0	
Jones	0	0	0			0	0	0			C	C	L	0		C	C	C		C	C	0	0				0	
McPhail	L	I	I	L		I	I	I	I		I	I	L	L													L	
King (Walford)	C	C	C	L	0	0	0	0			C	C	C	I	L		C	C	0		L	0	0	0			0	
D. III	0	0	0			C	C	C			C					L	0	0		C	C	L	0	0			0	
D. V	I	I	0	0	0	0	0	0	0	0	C	C	L	0	0	C	C	C		C	L	L	0	0			0	
M. 7	0	0	0			I	L	L	0							L	L	0		I	L	0	0				0	
M. 13	0	0	0			C	C	I								I	0	0		C	C	I	0	0			0	

C = Complete agglutination.

I = Incomplete agglutination.

L = Least degree of agglutination.

0 = Negative result.

question, and neither inquiry supported the view that these two groups of meningococcus are permanently different stocks causing different types of disease, or were confined to different epidemiological outbreaks.

Table II (p. 837) shows the sources of the strains and their grouping by agglutinating serums.

The strains from Woolwich and those from Major Gordon and Captain Hine no doubt came from patients of various origin, but the Canadian strains were all isolated in January and February, 1915, and the four other strains from Salisbury Plain also came from cases in the same area in February and March. Of these thirteen strains from Salisbury Plain, seven fell in the A. and M. group and four in the B. and P. group. D. III and D. V, both coming from Reading in the spring of 1915, fell in different groups.

On analysis of nine cases occurring in the First Canadian Contingent, from which strains of meningococcus were isolated and tested, five cases were infected with meningococci of the A. and M. group; of these one recovered, the remainder died within four days of the onset of the disease. Two yielded cultures of the P. and B. group; one lived five months but eventually died, the other died within two days. The two strains from France—M. 7 and M. 13.—were both B. and P. strain, and both cases were fatal.

This small series shows that severe and fatal cases of the disease may be associated with either group of the two strains of meningococcus found in this epidemic.

Three strains of meningococcus isolated from the throats of persons in contact with cases of cerebro-spinal meningitis have been so far examined with the same

TABLE II.—Classifications of Strains into Groups A. and B. by Serums A. and B. and into Groups M. and P. by Antimeningococcus and Antiparameningococcus Serums.

Strains from Cases on Salisbury Plain, First Canadian Continent.		Cillian.	
Strains.	Groups.	Plank ...	Groups. ... M. and A.
Crisp ...	M. and A.	Strain from Major S. Rowland (France).	M. 7 ... P. and B.
Talmer ...	M. and A.	M. 13 ...	P. and B.
Goodyear ...	M. and A.	Strains from Major Gordon and Captain Hine.	Tring ... A.
Kennedy ...	M. and A.	Turpenney ...	M. and A.
Murray ...	M. and A.	Adamson ...	A.
Chase ...	?	Jones ...	A.
Chandler ...	P. and B.	Lisandrindod ...	F. and B.
Carter ...	P. and B.	Andrews ...	P. and B.
Haudall ...	P. and B.	Berkhamstead ...	P. and A.
Strains from Cases, Mr. K. Goobly (Woodrich).		Littledale ...	?
Lewis ...	M. and A.	McPhail ...	?
4578 ...	M.	Strain from Dr. Donaldson (Reading).	
4469 ...	M.	D. III ...	P. and B.
4410 ...	P.	D. V ...	M. and A.
4411 ...	P. and B.	Strain from Watford.	
4442 ...	M. and A.	Watford ...	M. and A.
Chiford ...	P. and B.		
4412 ...	M. and A.		
From Lieut. Treadgold.			
Atkin ...	M. and A.		
Somers ...	P. and B.		
167 ...	P.		
Total 35:	17 Group A. 15 Group M. 18 Group A. and M.	10 Group B. 12 Group P. 12 Group B. and P.	

serums. Two of these strains fall definitely into the B. and P. group; the third was feebly agglutinated by both M. and P. serums, but more by M. serum.

REMARKS.

In the first twenty years after the discovery of the meningococcus by Weichselbaum (1887) the tendency to accentuate the variability of this organism was carried by Jaeger (1895) to the point of claiming for it an ability to change into a Gram-positive diplococcus, which grew readily at 20° C., and was very resistant to drying. The observations of Councilman, Mallory and Wright (1898), Albrecht and Ghon (1903), and others confirmed the description of Weichselbaum, and von Lingselsheim (1906) claimed a very high degree of uniformity for the strains isolated by him during the Silesian epidemic, and stated that all these strains of meningococcus agglutinated with a univalent serum obtained by injecting a rabbit with one strain.

Many other writers have reported on the value of agglutinating serum for identifying the meningococcus. Several workers, however, especially Eberle (1908), Elser and Huntoon (1909), Traubmann and Fromme (1908), Arkwright (1909), described undoubted strains of meningococcus which were inagglutinable with antimeningococcus serum, and pointed out the irregularity with which univalent serums affected strains which had not been used in their preparation. Eberle, and Elser and Huntoon, moreover, showed that the serum made with one strain might have a far higher agglutination titre for some strains than they had for others, even if the homologous strain remained relatively inagglutinable. Most of these writers, especially Eberle, and Elser and Huntoon, attributed the irregularities observed to the varied agglutinability of different strains and to their different value as antigen (agglutinogen). Houston and Rankin (1907) claimed to be able to differentiate strains of meningococcus obtained from cases of infantile posterior basic meningitis from strains derived from epidemic cases.

In 1909 and 1912 I was able to divide the sporadic and epidemic strains of meningococcus with which I was working into groups which did not inter-react, by agglutination and complement fixation tests. The groups appeared to overlap somewhat. By absorption of agglutinins the groups could be further subdivided. My results led me to the conclusion that epidemic and sporadic strains were both divisible into an uncertain number of groups which were not closely related serologically, but which were connected by intermediate strains.

Dopter (1909) described a strain which he called parameningococcus. It was isolated from the naso-pharynx, and resembled the meningococcus except in serum reaction. Antimeningococcus serum did not agglutinate the parameningococcus. Subsequently (1911) he recorded the isolation of the parameningococcus from the cerebro-spinal fluid of severe cases of sporadic meningitis, all of which were fatal. He considered that cerebro-spinal meningitis might be caused by either the meningococcus or the parameningococcus. He also began preparing therapeutic serum from horses for the two classes of cases. In 1914 Dopfer described three groups of parameningococci differentiated by absorbing agglutinin from antimeningococcus and from antiparameningococcus horse serums, and also by univalent rabbit serums. He stated that antimeningococcus serum sometimes agglutinates parameningococcus strains as well as the meningococcus, but that parameningococcus serum usually agglutinates both varieties.

The large majority of the strains examined in the present paper appear to fall into two main groups which are identical with or closely allied to the meningococcus and parameningococcus main groups described by Dopfer. This has been shown by using Pasteur Institute therapeutic M. and P. serum for agglutination tests. These serums, however, are no doubt made by the inoculation of several strains, since Dopfer (1914) stated that three parameningococcus strains were used for the horse.

Of the five strains which I have been unable to classify, two (Chase and Berkhamstead) appear to occupy an intermediate position between the two groups, and perhaps contain individual cocci which react with different serums. One (Littledale) was not agglutinated with the serums used. One (Chandler) was feebly and equally agglutinated by serum for both groups, and therefore perhaps belongs to the M. rather than to the P. group.

The strains belonging to the B. and P. parameningococcus group appeared to give sharper differentiating reaction than those of the A. and M. group. This corresponds with Dopfer's observation that parameningococcus serum usually agglutinates meningococci, but that meningococcus serum as a rule has no action on the member of the other group.

Effect of Therapeutic Serums.

The fact that meningococci are not all alike serologically, but fall into different groups, provides a reason why the therapeutic serums used during the 1914-15 epidemic in this country appeared to have so little value. It is probable that the horses from which the serum was derived had not received the same groups or subgroups as occurred in this epidemic. However, the strains isolated in 1915 appear to fall for the most part into the same main groups as Dopfer's meningococci and parameningococci which have been present in France for some years.

A. Netter (1915) had very successful results in France with the Pasteur Institute serum. His cases showed a mortality of only 22 per cent. without excluding fulminant cases and deaths from other causes.

It has been demonstrated by Elser and Huntoon and other workers that the antigenic properties of different strains of meningococcus are very different in value. It is therefore very probable that where large numbers of strains of meningococcus have not been available for immunizing the horses, those strains which offered the best antigen have not been used.

CONCLUSIONS.

1. Thirty out of thirty-two strains of meningococci tested agglutinated with a polyvalent rabbit serum prepared with six strains isolated in the same epidemic.
2. Thirty strains isolated during the present epidemic fall into two main groups according to agglutination tests. Five other strains presented difficulties in their classification.
3. These two main groups correspond to Dopfer's classification into meningococci and parameningococci.
4. The numbers falling into the two groups—meningococci and parameningococci—were 18 and 12 respectively—that is, 3 to 2.
5. There is some evidence that two of the five unclassified strains were intermediate in character between the two main groups.

6. Neither group was more frequently found among cases from one district than from another.

7. Rapidly fatal cases of meningitis occurred with infection with either type of meningococci.

I must express my thanks to those who have kindly given me cultures, and especially to Captain A. W. M. Ellis, C.A.M.C., who isolated many Canadian strains, and to Major Gordon and Captain Ilinc, R.A.M.C. To these and other workers I am indebted for cultures and for help. I look forward with great interest to the publication of the results obtained from their work during the present year.

BIBLIOGRAPHY.

- Arkwright, J. A. (1909): Varieties of the Meningococcus, with special reference to a Comparison from Epidemic and Sporadic Sources. *Journal of Hyg.*, vol. ix, p. 104.
- Arkwright (1912): The Serum Reactions (Complement Fixation) of the Meningococcus and the Gonococcus. *Journal of Hyg.*, vol. xi, p. 515.
- Dopfer (1909): Etudes de quelques formes isolées du rhinopharynx voisins du méningocoque paraméningococcal. *Compt. rend. Soc. de Biol.*, 1909, vol. ii, p. 74.
- Dopfer (1911): Méningite Cérébrospinale à paraméningocoques. *Bull. de l'Inst. Pasteur*, 1911, p. 940.
- Dopfer et Patron (1914): Différenciation des paraméningocoque entre eux par la saturation des agglutinins. *Compt. rend. Soc. de Biol.*, 1914, vol. ii, p. 231.
- Favle, J. (1908): Ueber Agglutination der Meningokokken. *Archiv f. Hyg.*, Bd. xiv, p. 171.
- Eiser, W. J., and Hinton, F. M. (1909): Studies on Meningitis. *Journal of Med. Research*, vol. xv, (N.S., xv), p. 373.
- Houston, T., and Rankin, J. C. (1907): The Osmotic and Agglutinative Action of Blood Serum in Cerebro-spinal Fever. *BURTON MEDICAL JOURNAL*, vol. ii, p. 144.
- von Linschoten (1906): Die bakteriologischen Arbeiten . . . In O. Schell, während der Genickstarre Epidem. im Winter (1904-5). *Klin. Jahrb.*, Bd. xv, p. 373.
- Neter, A. (1915): Efficacité du sérum antiméningococque dans l'épidémie actuelle de méningite cérébro-spinale. *Bull. de l'Inst. Pasteur*, 1915, p. 477.
- Traubmann, W., and Fromme, W. (1908): Beiträge für Epidemiologie und Bakteriologie der epidemischen Genickstarre. *Muench. med. Wochn.*, 1908, p. 791.

Remarks

OS

SOME OF THE EFFECTS OF EXPOSURE TO WET COLD AND THEIR PREVENTION.

(PREVENTION OF "FROST-BITE," "TRENCH-FOOT," "WATER-BITE.")

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I. FRIGORISM.

In a recent communication¹ I recorded some experiments showing that when the temperature of the skin is reduced by exposure to an external cold medium sensory disturbances, cramps, and anaesthesia are produced when the temperature of the skin is still several degrees above 0° C.

In experiments of this kind it is difficult to ascertain the cutaneous temperature absolutely because the recording instrument cannot be completely protected against the influence of the external medium without causing part of the skin to escape the same influence, but in comparative experiments it is possible to show that a reduction from 30° C. to below 10° C. in the indicated skin temperature is gradually and successively followed by sensations indicating irritation of the cutaneous sense organs, reflex contraction of the vessels, cramps, to which may be added after a variable time more or less complete anaesthesia and motor paralysis. These phenomena are not associated with permanent lesions when the exposure is not prolonged. They are produced in a few minutes when one of the extremities is plunged into salt water at 1° or 2° below 0° C.

They occur more slowly when the temperature of the water is a few degrees above 0° C., but when the water is unlimited in amount and circulating freely, very severe symptoms may be produced even when the temperature of the fluid is as high as 7° C. or even 10° C., more especially when the individual is ill nourished, the general or local circulation is bad, and the exposed part attenuated or protected by an insufficient amount of subcutaneous fat. The latter condition, which is the least important, is not negligible, as is shown by a well-known experiment. A

block of ice being applied to the external, and a thermometer to the internal, surface of one cheek, the thermometer may after one hour indicate a fall of 8° C. in a thin subject, while in a stout person the fall may be 3° C. only.

All these phenomena occur independently of any freezing of the parts. They undoubtedly indicate that cold has a powerful action upon the peripheral nerves and end organs, the vasomotor mechanism, the voluntary muscles, etc. These effects are, however, quite different from the more permanent lesions caused by freezing, and occurring in the blood, blood and lymph vessels, nerves, muscles, etc., which have been described by Pouchet, Tillaux and Grancher, Jamain and Terrier, Cohnheim, and others, in connexion with frost-bite.

Repeated or prolonged cooling of the skin to a temperature a few degrees only above 0° C. is, however, also liable to produce permanent effects, and in the course of my investigations I have observed in a foot which had been cooled several times evidences of permanent increase of irritability of some cutaneous nerves, probably indicating some slight localized peripheral neuritis, and a tendency to disturbances of circulation predisposing to excessive liability to coldness of the extremity.

These effects are not properly covered by the names "frost-bite," "trench-foot," "water-bite," but correspond to a state which is better defined by the term "froidure," used by some French writers, or its English equivalent "frigorism," suggested by me.

This state is produced when the cooling of the body or any part of it is progressive—that is, when it cannot be compensated by the production in the tissues, and the distribution by the circulating blood, of a sufficient amount of heat. Frigorism may be general or local.

When the cooling of a part reaches a certain point, the functions of the tissues are interfered with to an extent determined by the nature of the tissue, the temperature and the duration of the exposure. When the freezing-point is reached certain mechanical complications connected with the change of state are superadded to the effects of lowering of temperature.

When a body is surrounded by a medium at a lower temperature than itself, heat passes from the body into the medium until the temperature of both is the same.

The rapidity of this exchange is determined by many well-known factors. The loss of heat from any part of the body of an animal is governed mostly by the following conditions:

1. The temperature, the thermo-conductivity, the volume, and the movements of the external medium.
2. The duration of the exposure.
3. The bulk, movements, and superficial area of the part exposed.
4. The thermo-conductivity of the tissues and more particularly of the integuments.
5. The amount and velocity of the flow of blood through the part.
6. The state of nutrition, activity and soundness of the tissues locally and generally (the kind and amount of food available being included under nutrition).

The importance of all these factors is a matter of general experience and is capable of experimental proof. Some experiments bearing upon this aspect of the question have been related in my previous communication.

With regard to the share taken by the nature of the external media, it is sufficient to refer to some well-known facts. Exposure to dry air at 0° C. does not materially affect a healthy, active, well-clothed person. Arctic explorers have been able to bear very much lower temperatures without serious consequences on account of the dryness of the air in the polar regions. Exposure to damp air at 0° C. or several degrees higher produces a very marked sensation of cold which is distinctly uncomfortable.

Immersion in water at 0° C. is immediately followed by a sensation of intense cold, and within a few minutes loss of sensation and paralysis occur.

Complete contact of the skin with bars of metal at 0° is immediately painful, and if the temperature of the metal is a few degrees below 0°, the tissues in contact with it are rapidly frozen.

With the object of determining to what extent the low

conductivity of air could be utilized for the purpose of preventing the effects of exposure to cold, I made some experiments which have been described in previous communications^{1,2} (Fig. 1). Within the range of temperature and the period of time covered by these experiments, the effects of exposure of the extremities of a healthy elderly adult to external media colder than the skin were found to be widely different according to circumstances.

1. The lowering of temperature caused by exposure to cold dry air was slight and not progressive. The loss of heat was obviously compensated by the heat yielded by the tissues and the circulating blood.

2. The lowering of temperature caused by immersion in a limited amount of water was rapid and considerable but not permanent. When the bulk of the water did not exceed twice that of the part immersed, enough heat was yielded by the tissues and circulating blood to warm the water to a temperature which was not detrimental to the part (Fig. 2).

3. The lowering of temperature caused by immersion in (a) a large amount of water at a temperature 25° to 30° C. below that of the skin, or (b) water (in limited or unlimited quantity) containing ice, was very rapid, considerable, and progressive. A pathological state, local frigidism, was invariably the result. This state was characterized by contraction of small arteries, more or less complete arrest of flow of blood, various degrees of anæmia or passive hyperæmia (cyanosis of part), irritation of terminal nerves followed by nervous and muscular paralysis (Fig. 3, C, F).

4. Motion of the external fluid medium prevented the formation of a comparatively warm layer of fluid near the surface of the skin and accelerated the loss of heat. The presence of a thick woollen covering retarded the loss of heat, even when the covered part was plunged into water, owing to the warming of the comparatively still layer of water retained within the meshes of the woollen fabric.

5. A thin layer of moderately dry air between the skin and a cold external medium, such as water or ice, was sufficient to reduce the loss of heat to such an extent that the amount of heat brought to the part by the circulating blood was sufficient to compensate for the loss after the temperature of the skin had been reduced by a few degrees (Fig. 3, A, B, C, and Fig. 4).

6. A very thin waterproof covering, used in combination with a woollen covering, was found sufficient to secure an efficient air covering for the skin. The composition of the

covering had no material importance so long as it was completely waterproof.

7. The presence of some moisture under it reduced the efficiency of the waterproof covering, but did not render it useless (Fig. 3, D, E, and Fig. 4).

8. The complete replacement of air by water in the space between the waterproof covering and the skin rendered the covering practically useless (Fig. 3 A₁ to A₂).

II. PROTECTION AGAINST FROST-BITE AND OTHER EFFECTS OF EXPOSURE OF THE EXTREMITIES TO WET COLD (LOCAL FRIGIDISM).

Adequate feeding, perfect circulation, moderate muscular exercise, good general health, warm clothing, all tend to give to the body its maximum power of resistance to cold. It is obvious that anything that tends to im-

pair the nutrition and activity of the tissues, and to interfere with the freedom of circulation, is favourable to the occurrence of frigidism. Tightness of the clothing of the extremities—for example, tight boots, socks, leggings, puttees, etc.—is particularly detrimental. Heavy clothing and other equipment, by increasing fatigue, has also a predisposing influence.

Warm clothing does not mean heavy and thick garments, but clothes capable of keeping imprisoned near the surface of the body a fairly thick layer of air. It is generally recognized that several layers of light woollen or other fabrics form a particularly efficient protection against cold air when the air is not in a state of rapid

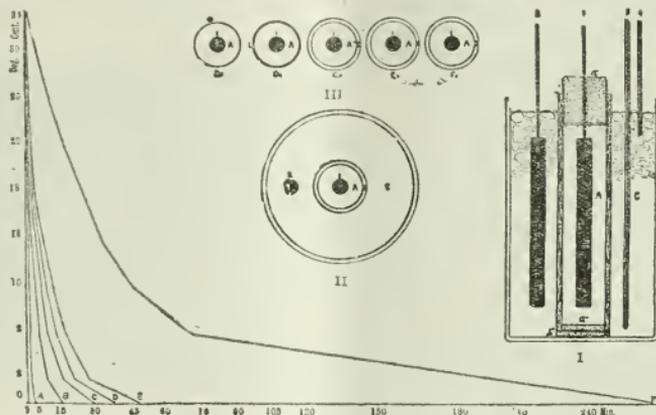


FIG. 1.

I. Apparatus used for determining approximately the rate of cooling of 50 c.cm. of water contained in an oil-silk cylinder, variously protected, immersed in 1,000 c.cm. of melting ice.

A. Cavity of the inner oil-silk cylinder containing the warm water.

B. Annular space between the inner and the outer oil-silk cylinders. This space was occupied during the various experiments by a loose woollen fabric with dry air, or moist air, or water (see III in same diagram).

C. Cavity of the glass jar containing ice and water. *a*. Cork used to close the upper end of the inner oil-silk cylinder. *b*. Lower end of cylinder, closed by means of a cork. *c*. Upper end of outer cylinder. *d*. Lower end of outer cylinder, closed by means of a cork. 1. Part of the recording thermometer indicating the temperature of the water in the inner cylinder. 2. Part of the recording thermometer indicating the temperature of the water in the outer cylinder. 3 and 4. Controlling mercurial thermometers.

II. Transverse section of a apparatus shown in vertical section in I.

III. Diagrammatic representation of the arrangement of experiments the results of which are shown in the curves.

Curves.

A. Shows the rate of cooling from 30° C. to 0° C. of the bulb of the recording thermometers used in these experiments.

B. Rate of cooling of water contained in the inner oil-silk bag without any protective covering.

C. Rate of cooling when the inner oil-silk bag is covered only with a uniform layer of hard 13 mm thick.

D. In the following experiments the annular space between the inner and outer oil-silk cylinders was occupied by a loose woollen fabric of uniform thickness:

E. In addition to the woollen fabric the space was filled with water.

F. In addition to the woollen fabric the space was filled with comparatively dry air.

From the shape of the curves it seems probable that there were some slight errors of observation or defects in the instruments. No attempt has been made to correct these probable errors.

motion. Common experience has also shown that a layer, however thin, of some material impervious to wind, worn outside ordinary clothing, is the most efficient protection against cold draughts and winds. Paper, mackintosh, skins, closely woven fabrics worn outside ordinary clothes, have all been extensively used for this purpose.

With regard to protection against cold water, it is necessary that the external covering should be impervious to and not affected by water. India-rubber stockings, waders, and boots have been used extensively by anglers and men working in water and mud, not only as a protection against wet but also against cold. For the same reason sailors and others have had resort to oilskin.

When at the beginning of the winter of 1914-15 a number of soldiers were invalidated owing to the effects of exposure to cold, there must have been some reason why advantage had not been taken of these well-known methods

of protection. On consideration it appeared to me that the main reasons were that the articles on the market at the time were too heavy, too cumbersome, too expensive, too perishable, and generally incapable of being adapted to the present requirements of the soldier.

The india-rubber boots and the waders available at the time were heavy and clumsy, and would have seriously interfered with that freedom of movement which is so essential to the soldier. Fishing socks or waders, when sufficiently light and well made, are expensive. They are fairly thick and occupy much room; they also require frequent repairs. The india-rubber used in their manufacture is liable to become hard and fissured under the influence of cold, or even when simply stored for any length of time. India-rubber is also easily softened by fatty substances, vaseline, etc.

In addition to the oil of resins, neutral fats, paraffin wax, etc., with the result that lined oil boiled with a lead salt gave satisfactory results when the oil-silk was of moderate thickness.

The methods finally used by me in the laboratory, though comparatively simple, required strict attention to several details, such as the selection of the fabric, the size and uniformity of the meshes, the composition of the "boiled" lined oil, the duration of exposure to various temperatures, the shapes permitting of sound apposition seams being made, the thickness of the oil coating, etc.

I had some difficulty in convincing practical men of the possibility of manufacturing oil-silk bags at a moderate cost, until I met Mr. H. Storey of Lancaster, who took a great interest in the matter. Some modifications which appeared to be convenient for manufacturing in bulk

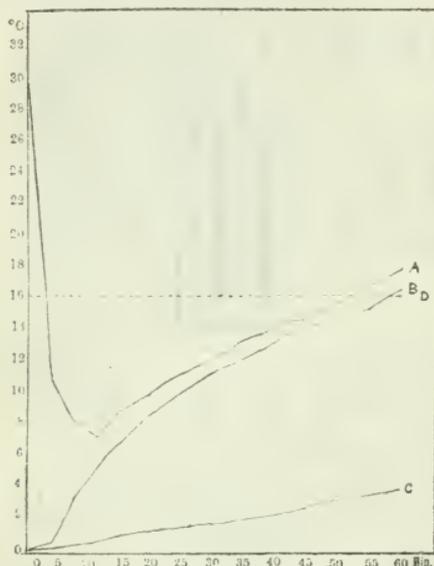


FIG. 2.

Cooling of the skin of the hand and wrist caused by immersion in ice water and concomitant warming of the water.

- A. Indicated temperature of the hand immersed in ice water.
 B. Indicated temperature of the limited amount of ice water in which the hand is immersed.
 C. Indicated temperature of the same amount of ice water exposed in the same vessel to the air of the room at the same temperature. The curve should be even. The slight irregularities observed probably indicate the extent of the errors introduced by the recording apparatus. The much greater irregularities in Curve A are probably due to movements of the hand and to vasomotor phenomena.
 D. Indicated temperature of the air of the room (dotted line).
 By this method the number of calories lost by a part of the body immersed in cold water can be estimated approximately.

It occurred to me that a suitable article might be made of a thin fabric rendered waterproof by means of oxidized linseed oil. After several weeks' trial I succeeded at the beginning of last January in manufacturing by simple means thin and soft oil-silk which could be made into absolutely waterproof bags by means of apposition seams.² These bags were used successfully in a number of experimental tests (Fig. 4).

The same material and method can also be employed for manufacturing very light waterproof coverings for various parts of the body, a matter of some importance, since the protection of the body as a whole against losses of heat is of great value in increasing the resistance of any part of the body against local frigorisim.]

Many experiments were made to test the permeability of oil-silk of various thicknesses to water, and the effects

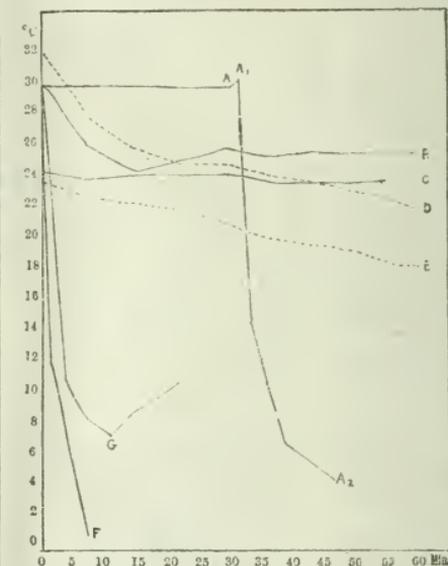


FIG. 3.

Summarizing the results of some of the chief experiments bearing upon the cooling of the hand or foot immersed in ice water, and upon the effects of protecting the hand or foot by means of oil-silk bags.

- A. Hand protected by dry sock and oil-silk bag.
 A1. Water at 35°C, poured into the oil-silk bag so as to wet thoroughly the sock. Very slight rise of temperature, followed by very rapid fall A2. (Compare with F and G.)
 B. Warm foot protected by dry sock and oil-silk bag.
 C. Cold foot protected by dry sock and oil-silk bag.
 D. Warm foot protected by damp and partly wet sock and oil-silk bag.
 E. Cold foot protected by damp and partly wet sock and oil-silk bag.
 F. Foot covered only with woollen sock and plunged into refrigerating mixture.
 G. Hand unprotected plunged into double its bulk of water at 0°C. (For comparison with F and A1 to A2.)

proved disappointing, and led to serious loss of time, for when rather late in the year the opportunity of trying the bags on a large scale occurred, certain defects were discovered from which the bags manufactured in the laboratory early in the year were free. It has been found necessary, therefore, to return to my original methods.

Bags prepared in this way can be immersed in boiling or in ice cold water without any appreciable damage to the material or to the seams.

Properly prepared oil-silk offers considerable resistance to alcohol, ether, chloroform, acetone, benzol, petroleum, solid or liquid neutral fats, 1 or 2 per cent. watery solution of nitric, sulphuric, and hydrochloric acids, mercuric chloride, iodine, phenol, chlorinated lime, iodo, etc.; it is attacked by 2 per cent. watery solutions of the alkalis, and also, but more slowly, by soap. Oil-silk bags can be kept for many months without undergoing any material change.

* Sewing renders the waterproof material useless, so that sewn seams cannot be used.

² This passage is reproduced almost verbatim from the paper already quoted.

Although the material is wetted by water, its permeability is very slight, and water can be kept inside an oil-silk bag for weeks without any apparent wetting of the external surface. Artificial wetting of the external surface of a bag containing water under pressure is not followed by any appreciable oozing, the wetted surface dries rapidly.

The addition of paraffin wax or of a neutral fat to the linseed oil prevents wetting of the material by water, but does not appear to increase as much as could be expected the impermeability of the fabric to water.

This oil-silk bag, after being creased and submitted to friction for some time, usually show evidence of some superficial damage. This is made evident, when the bag is filled with water, by a slight oozing of the fluid through the damaged parts. This defect can be completely remedied by painting the surface of the bag with a layer of quick-drying linseed oil; after exposure to a current of

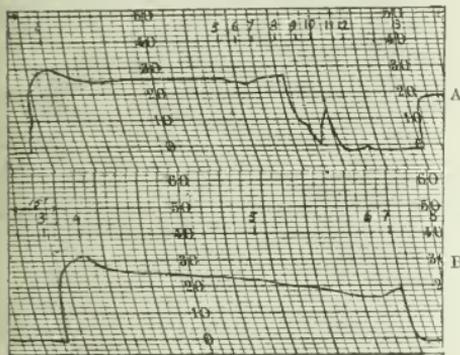


FIG. 4.

Photographs (reduced) of two thermographs taken simultaneously to show the effects of the immersion of the two feet (each foot was protected by an inner sock, oil-silk bag, outer sock, and heavy boot) in a refrigerating mixture at a temperature of about -1°C . In the case of one foot (A) the inner sock was dry (Curve A); the sock over the other foot (B) was damp (Curve B). Total duration of experiment: 24 hours.

COURSE A.

1. Thermometer fixed to the skin by plaster and bandage; inner sock, oil-silk bag, outer sock and boot put on rapidly.
2. Foot A plunged into refrigerating mixture.
3. Foot taken out of the refrigerating mixture; boot removed rapidly. Thermometer distributed.
4. Oil-silk bag removed; thermometer refix d.
5. Foot covered with inner sock only, left exposed to -1°C at 20°C .
6. Foot, with inner sock only, plunged into refrigerating mixture, which is thoroughly stirred. The slight kink in the curve between 8 and 9 is the result of renewed stirring of the refrigerating mixture. Cramps followed by loss of sensation and partial motor paralysis.
7. Foot A removed from mixture; sock removed and foot dried.
8. Thermometer separated from the foot and plunged into the refrigerating mixture.
9. About $\frac{1}{2}$ of the thermometer bulb drawn out of the mixture for three minutes.
10. Bulb pushed back into the mixture and completely immered.
11. Bulb removed from the mixture, dried, and exposed to the air of the room.

In this graph the indicated temperature is a little more than 1°C . lower than that indicated by the mercurial thermometer.

COURSE B.

1. Sand 4 as in A. 5 indicates the moment when Foot A was removed from the mixture.
2. Foot B removed from mixture. Boot, oil-silk bag, and socks removed. Foot B dried and exposed to air at 20°C .
3. Bulb separated from foot and plunged into refrigerating mixture.

air for a few hours the waterproofness of the bag is restored. A solution of nitro-cellulose in a mixture of acetone and acetate of amyl adheres firmly to the oil-silk when dry. A tear in the oil-silk can be easily mended by fixing over it a piece of silk by means of this cement. Slight erosions may also be repaired by painting a thin coat of the same material over them.

The bags I used for the purpose of the practical tests conducted during the early months of this year extended up to the knee, and could be worn for twelve or fifteen hours at a time without discomfort and without

undue condensation of perspiration. When, in later experiments, bags reaching up to the hip were used, it was found that, especially after a march, abundant condensation of water from perspiration took place on the inner surface of the bag, and that this water of condensation gradually gravitated into the foot portion. This accumulation of water round the foot reduced to a considerable extent the protection afforded by the bag.

It is obvious that if the use of long bags is essential, those bags should not be worn during long marches, or if they must be worn, their length should be reduced by suitable method of folding during the march. They may also be lined with some absorbent material preventing the water of condensation running down. The use of an absorbent lining should, however, be resorted to only if other methods are insufficient, for one of the advantages of the oil-silk bag is the ease with which it can be thoroughly cleaned both inside and out. I do not think, however, that waders of any kind are suitable for wear during long marches. What is important is that the men wearing them in the trenches should be able to leave the trenches and march or run without the waders interfering with the freedom of their movements. One of the essential conditions for success is that the foot and leg should be left entirely free from pressure causing any sensation of constriction or tightness or any interference with the freedom of circulation. The foot should be dry and warm when the wader is put on.

Large boots and large socks are indispensable; the inner woollen sock should be thick, the outer sock should be large enough to draw easily over the oil-silk bag. It should not be made of a material liable to shrink when wet. In the first tests I conducted both the inner and the outer socks were woollen.

III. MODE OF WEAR AND CARE OF THE ANTIFRIGOR BAGS.

When the bag is put on the long straight seam should be on the inner side of the leg (the tapes being at the upper end of the outer seam). Before a bag is used the hand should be inserted into it and any parts which may have stuck should be separated gently. When the bags are dusted with French chalk (finely powdered talc), as directed, no sticking should take place.

To put the Bags on.

A dry woollen sock or stocking, as thick as possible and not fitting tightly, should be drawn evenly over the foot and leg, all creases being carefully avoided. The skin of the foot and leg should be quite dry and warm. The sock and skin may be put with advantage be powdered with French chalk. The foot so covered should then be introduced into the antifrigor bag gently, so as not to stretch the bag unnecessarily.

When the big toe is within an inch of the toe end of the bag the pointed end of the bag should be turned under the big toe. A second sock, which need not be thick but must be large, in good condition, and not liable to marked shrinkage, should then be pulled over the antifrigor bag, the folds of which should be flattened and equalized by the hands.

Boots two sizes larger than the size usually worn may then be put on and laced carefully. The inside of the boot should be free from nails.

When the bag is to be used for wading through fairly deep water it is pulled over the trousers and fixed by means of the tapes to the braces. When the bags are put on before a march it is preferable to pull the lower part of the bag up to the knee, then to turn it down and up again so that it covers the leg only up to the knee. It can be fixed above the calf by loosely tying the tapes round the leg. To reduce the bulk of the bag it may be twisted gently round the leg. The bags are intended for use in the trenches; they do not interfere with marching or running, but are not made to stand long marches.

Removal and Care of the Bags.

When the bags are removed care should be taken not to pull them off violently. The folds may sometimes

* A better indication of the fitness of the boot is that when it is put on after the foot has been covered with the two socks and bag, there should be no sensation of uncomfortable tightness. Tight puttees are detrimental to the bags as well as to the men. Loose, soft, laced leggings may be used instead, provided they are not tight.

stick together, and should be opened gently. After the bags have been used, the outside should be washed, dried with a duster and in the air, and powdered with French chalk. They should then be turned inside out and washed again, after which they should be dried with a cloth and in the air. The outer surface of each bag should then be painted with a thin layer of the preparation provided for the purpose.

Bags hung in a well-ventilated place should be ready for use again in about twelve hours. In a well-ventilated, dry, warm place the drying may be completed in four hours. The bags should be then thoroughly powdered with French chalk both inside and out. By this process the waterproofness of the bags—which is reduced by wear, especially after marches—is restored.

Mending of Holes.—The bags should be thoroughly clean and dry, and the parts surrounding the tear or hole should be painted with a thin, even layer of the preparation provided for the purpose. A piece of the repairing silk sufficiently large to cover the place, and allow a margin of at least half an inch all round, should then be well pressed upon the part which has just been painted, after a few minutes the patch should be painted again, allowed to dry for about one hour, and finally powdered with French chalk.

Storage.—Before the bags are put away they should be thoroughly cleaned, repaired, and dried. They should then be dusted with French chalk, both inside and out, and folded (altering, as far as possible, the position of the long creases), or rolled, beginning at the toes to facilitate the escape of air. They should preferably be kept in a dry place.

Bags carefully used and not handled roughly should last several weeks. To make them more lasting would add to their cost and weight. Each man should be provided with two pairs, one being repaired while the other is in use. If the inside of the soles of the boots is rough, a felt, linoleum, cork, or even plaited straw sole placed inside the boot would protect both the bag and the foot against injury during marching.

Testing.—The bag, quiche, is turned inside out. Water is then poured into the bag to a height of 18 in. without wetting the outside. Serious defects in the foot part are at once indicated by dripping of water. Slight faults are shown by a wetting of the outer surface at defective places which can be marked with a copying pencil. The mouth of the bag is closed by clenching it tightly in the hand. The bag is then turned upside down before it is emptied; defects in the upper part are thus made evident. The defective parts which have been marked can be repaired when the bag is dry. Defective seams are very difficult to repair, but this defect should be quite exceptional.

CONCLUSION.

The use of a waterproof covering that can be worn inside the boot is recommended in this communication not because it is the only or even the best possible method. A waterproof top boot so devised as to leave a fairly wide air space between the boot and the greater part of the foot, ankle, and lower part of the leg would be more efficient and probably more convenient, provided the material used was light and did not interfere with movements. To obtain this result a new type of boots would be required.

The object of this paper is to show that it is possible to secure a sufficient amount of protection against the effects of wet cold without discarding the boots at present supplied to the army, provided the size of these boots is adequate.

REFERENCES.

- ¹ *Journal of the Royal Army Medical Corps*, May, 1913. ² *Lancet*, 1915, i, p. 271.

THE CARRIER PROBLEM AT HOME IN TIME OF WAR.

By EDWARD C. HORT, F.R.C.P. EDIN.

WITH the consent of the Director-General of the Army Medical Service I have prepared the following sketch of the efforts that have been made in the past year to deal with the carrier problem at home in the Addington Park War Hospital, in so far as the enteric group of diseases is concerned.

The original idea in starting this hospital was the provision of suitable accommodation in the country near London for soldiers suffering from acute infective disorders, such as enteric fever, dysentery, and septicaemia; and a vital part of the scheme was the provision of a well-equipped laboratory in which bacteriological examinations could be systematically carried out. In order to give effect to this scheme three essentials had first to be secured by the civilian committee which had been called together for the purpose—the loan of suitable premises, the approval of the Director-General, and the necessary funds.

Subject to certain conditions designed to protect the interests of the leasees, the trustees of the Addington Park property generously placed the house and grounds at the disposal of the Committee for the purpose desired. The Director-General at once gave his cordial approval to the undertaking, and the entire cost of maintenance was guaranteed by the War Office, the cost of equipment of the hospital and laboratory being generously defrayed by private subscribers and by the Red Cross Society, on the recommendation, in the first place, of Sir Frederick Treves. Work was therefore at once set in hand, and the necessary staff appointed.

Before the opening of the hospital, however, in December, 1914, with accommodation for 150 beds, the Committee were asked by the Director-General if, for the time being, they would consent to admit convalescents of the enteric group (enterics, paratyphoids, dysenterics) instead of acute cases, in order that a search for carriers, and the necessary detention, should be systematically carried out. And for this purpose they were further invited to assume responsibility for additional accommodation to the extent of 200 beds in huts, the cost of erection, equipment, and maintenance being borne by the War Office.

The Committee without hesitation undertook the desired responsibility, and the Palace accommodation of 150 beds was at once taken up by convalescents who were submitted to periodical tests for "carriage." In a few weeks the huts were also ready for occupation, and up to the present date a total number of 330 resident convalescents, replaced at intervals by fresh arrivals, have been periodically examined.

In the early days of the war there was no justification for the provision of a much larger establishment than this to cope with possible emergencies. It was important, however, to make the existing accommodation as elastic as possible. Provisional arrangements were therefore made to use Addington as a clearing-house, with external provision for such convalescents as were proved to be innocent of "carriage" after repeated examinations over an average period of from six to eight weeks. This external provision included detention in secondary convalescent homes, where they were detained for a further period of some weeks, during which time the excreta were sent at stated intervals to the Addington laboratory for further examination. If still found to be free, patients were then discharged on furlough. No patients found to be carriers, whether convalescing or convalescent, were sent to these secondary homes. Under an Army Order true chronic carriers are eventually invalidated out of the army and return to their homes. The medical officer of health of the district in which they reside is informed of this effect.

This arrangement of using Addington as a clearing-house, with the secondary convalescent homes as auxiliaries, still under bacteriological supervision, made it possible, not only to examine a considerably larger number of cases than would otherwise have been feasible, but also to increase the total period of supervision. The total number that have been passed through Addington in this way is at present over 2,000; and in more recent

A FASCICULUS of the *Philippine Journal of Science* has been devoted to the pathological anatomy of bubonic plague, for which Dr. Crowell, working in the Department Pathology and Bacteriology of the University of the Philippines and the Biological Laboratory of the Bureau of Science, Manila, P.I., is responsible. He states that the study is based on 75 cases examined *post mortem* in Manila between June, 1912, and June, 1914. The work has been carefully and methodically done, and as the material on which it is based is sufficiently extensive, the facts, though in many instances not new, are worthy of note.

months the work of the bacteriological departments has been considerably increased by the examination of specimens from convalescents who, for one reason or another, have not been through Addington. On the other hand, the work has been greatly assisted by the co-operation of pathologists attached to various hospitals, as regards patients who have been kept under their observation till vacancies occurred at Addington. In all such cases the search for carriers has been systematically carried out, and we have been regularly kept informed of the results.

The arrangement of secondary homes described, which was only made possible in many instances by the generosity of private individuals who, in some cases, assumed the entire financial responsibility, and by the invaluable help given by Lady Dudley, as head of the Convalescent Home Department of the British Red Cross Society, had, however, certain disadvantages, which were accentuated by the increasing demand for beds. In view of this increased demand, which itself necessitated centralization of existing convalescent homes in the public interest, the Director-General again invited, and obtained, the consent of the Committee to assume the responsibility for fresh extension in Addington Park. The proposal involved fresh hut accommodation for 350 more beds, in addition to the existing 350, of which, by an arrangement with the Australian Commonwealth, 150 were set aside for the reception of Australian convalescents, the Government of Australia paying for maintenance. In addition, the Director-General proposed that a military dépôt should be established in Addington Park to admit 1,000 patients, in order to replace the auxiliary convalescent homes hitherto relied on to clear the beds at Addington.

Arrangements, therefore, are now being made on these lines, with the result that in a short time the increased accommodation available, capable of yet further extension, will allow for the reception and detention of approximately 1,700 potential carriers, who will be replaced as fast as the exigencies of the war demand, compatible with safety to the general population.

Instructions based on these considerations and with particular regard to continuance of bacteriological supervision for as long a period as is practicable, have recently been issued by the Director-General.

The following is an abstract of these instructions:

Acute cases from overseas to be sent direct to the Royal Victoria Hospital, Netley, or to the Military Hospital, Devonport.

Convalescents are to be transferred to Addington Park War Hospital, if accommodation is available. If accommodation is not available they must be sent to suitable auxiliary hospitals (Class B)—formerly known as "Convalescent Homes"—for four weeks. If found to be free at the end of this time they will be granted furlough, and notifications will be issued to the proper authorities.

Acute cases occurring at home to be treated in isolation hospitals. Convalescents to be sent to Addington. If accommodation be not available there, they may be sent to one of the auxiliary hospitals attached to the hospital, provided they are proved at the time to be free. If carriers, they are to be sent to Addington as soon as fit to travel.

In no case must convalescents be pronounced as temporarily free until three negative examinations have been recorded at intervals of a week.

In all cases of transference to an auxiliary hospital, or of discharge to furlough, the Commandant at Addington must be at once informed, and a nominal roll of all cases, giving the date and address to which they have been dispatched, forwarded at the same time. A copy must also be sent to the War Office. Until the military dépôt in Addington Park for the reception of 1,000 additional convalescents is ready for occupation, convalescents to the number of 1,200 will be located in Woldingham Camp, and the excreta of these 1,200 will be periodically examined in the Addington Laboratory.

The personnel of the medical and bacteriological staffs is as follows:

MEDICAL STAFF.

Colonel H. J. W. Barrow, A.M.S., Commandant.
Sir John Broadbent, Bt., M.D., Honorary Physician.
Edward C. Hort, F.R.C.P. (Edin.), Honorary Physician.
W. J. Stewart, M.D., Medical Superintendent.
O. Folhill Turner, M.D., House-Physician.

BACTERIOLOGICAL STAFF.

Edward C. Hort, F.R.C.P. (Edin.), Director.
C. E. Lakin, M.D., Assistant Director.
T. H. C. Benians, F.R.C.S., Assistant Bacteriologist.
W. Collingwood, Esq., Assistant Bacteriologist.
Miss Delyell, M.D., Assistant Bacteriologist.
Trained lay lady assistants.

The medical and bacteriological staffs have lost through resignation the services of Dr. Williams and of Dr. Elizabeth Lepper.

It should perhaps here be added that in the interests of the patients themselves, as well as of the local population, every reasonable precaution has been taken since the opening of the hospital to prevent the spread of infection through carriers, whether detected or not, by systematic bactericidal treatment of the excreta and linen. These precautions were adopted after consultation with the Principal Medical Officer of the Local Government Board and the local medical officers of health. In all cases the faecal matter has been incinerated in a special form of destructor, the working of which has given excellent results. And the urine has been disinfected in special receptacles containing bactericidal fluid of proved efficiency in the dilutions employed relative to the time limit of exposure. In the case of linen suitable arrangements have been made for its disinfection. In future, owing to the larger numbers of cases requiring bacteriological supervision, the urine will be treated by the application of heat for sufficient periods to ensure destruction of non-spore-bearing organisms. In the hospital and in the huts the men are also instructed in such special methods of personal hygiene as are necessitated by the grouping together in one place of large numbers of convalescents from diseases of the enteric group.

ROUTINE EMPLOYED AT ADDINGTON IN THE SEARCH FOR CARRIERS OF THE ENTERIC GROUP OF ORGANISMS.

The following scheme of identification of these organisms is one that I drew up a year ago for general use at Addington, with one or two alterations since added. It is collated from several sources, particularly from Ledingham and Arkwright's classical handbook on the carrier problem in disease, to which, as well as to Semple and Greig's well-known memoirs on the subject, I am also indebted for much valuable information on other aspects of this problem. For the additions to the scheme referred to I am indebted to Dr. Henderson Smith's admirable paper and chart published in the BRITISH MEDICAL JOURNAL of July 3rd, 1915, p. 3. In no case has any convalescent examined at Addington been labelled as a carrier unless the incriminated organism has fulfilled in all essential respects the details given in this table under its respective name.

Identification Table of Members of the Enteric Group.

<i>B. typhosus</i> (Motile)	Paratyphoid Group (Motile)	Dysentery Group (Non-motile)
— ...	<i>B. paratyphosus</i> A ...	<i>B. Shiga-Kruse</i> .
— ...	<i>B. paratyphosus</i> B ...	<i>B. Flezner</i> .
— ...	(<i>B. enteritidis</i> Gaertner) ...	<i>B. Strong</i> .
— ...	(<i>B. enteritidis</i> Aertryck) ...	<i>B. Y of Hiss</i> .
— ...	(<i>B. Morgan</i> l).	

Group Characteristics (common also to *B. pestis*, the Pasteurellae group, *B. pseudo-tuberculosis*, and to the Gram-negative cocci—*M. melleusis*, gonococcus, *M. catarrhalis*, and the meningococci of Weichselbaum).

- (1) Pleomorphic.
- (2) Gram-negative.
- (3) No liquefaction of gelatin.
- (4) No production of indol.
- (5) No clotting of milk.
- (6) No action on lactose, saccharose (inulin, salicin, amygdalium).

Individual Characteristics:

- (7) Produce alkalinity in milk, except *B. typhosus*, *B. paratyphosus* A and B, *Strong*, which produce acidity in milk.
- (8) Ferment glucose, mannite, dulcitol, sorbitol, maltose, galactose, levulose, as follows:
B. typhosus and *B. Strong* ... Acid in all.
Paratyphoid group, except *Acid* and gas in all.
B. Morgan l.
B. Morgan 1 ... Acid and gas in glucose, galactose and levulose only.
B. Shiga-Kruse ... Acid in glucose, galactose and levulose only.
B. Flezner ... Acid in all but dulcitol and sorbitol.
B. Y of Hiss ... Acid in all but dulcitol, sorbitol and maltose.

- (9) Agglutination tests (absorption when necessary): Use serum Y for *B. Y* and *B. Flezner*.

Exceptions to Group Characteristics:

- (1) The gonococcus and the *M. catarrhalis* are not known to be pleomorphic.
- (2) Indol is produced by *B. Morgan* 1, *B. Flexner*, *D. Y of Hiss*, and *B. Strong*.
- (3) *B. Strong* clots milk late.
- (4) *B. Strong* produces acid in saccharose.

Note.—Dulcitol, sorbitol, galactose, haeculose have been unavailable in bulk owing to the war. Dulcitol is now being tested as a substitute for dulcitol.

To the list of organisms here given, for which systematic search is made, should be added the *M. melleitensis*. The search for evidence of amoebic dysentery has not yet been made part of the routine.

In the case of strains of organisms from which from cultural and biochemical reactions a positive serum reaction might reasonably be anticipated, but in which, nevertheless, only negative results have been met with, such strains are not at once rejected. On the contrary, whenever practicable, repeated subcultures are made, if necessary, for a period from seven to fourteen days, and serum tests are again applied before final rejection is recommended. The necessity for this, especially with urinary strains, appears to be generally admitted.

On the other hand, numerous aberrant strains have been met with, which one is not really justified always in rejecting as of no pathogenic importance, but which, under the stress of a strenuous routine, it has not been possible further to examine. Some such strains have been reserved for further study in the hope of the advent of less laborious days.

Routine for Faecal Examinations.

Once a week, if possible, each patient provides a specimen after purgation. Notwithstanding this precaution, the number of solid specimens is surprising. An emulsion is made of the fresh specimen in 5 c.cm. of sterile broth, inoculated with two large loopfuls of material. It is then allowed to stand for one hour at room temperature, and a 5-in. MacConkey plate is inoculated with a large loopful of the supernatant fluid. From this plate a second is inoculated without recharging, and both plates are then incubated at 37° C. for about eighteen hours. Whenever possible, the plates are warmed before inoculation in order to diminish the amount of condensation water, and to obtain larger colonies than can be obtained in the colonies. It is absolutely essential that the surface of the medium when inoculated should be free of condensation water. This we ensure by pouring the medium into warm plates, which, when the medium is set, are dried at 37° C. for some hours.

If possible, in each case presenting colourless or orange-tinted colonies, three colonies are picked off and individually emulsified in lactose litmus peptone water. If after incubation for one night growth has occurred and there is no change of colour, milk, peptone water and the available sugars are inoculated from each lactose tube. If growth has not occurred and if no change is noted in the lactose tubes, further incubation is allowed. The complete set of sugars is examined after a suitable period of incubation in order to determine the presence of late lactose fermenters and to reject them. The final examination is made in seven to eight days, and subcultures are then made from likely cultures in order to apply the necessary serum tests in the following day.

Our experience with the actinic rays, recommended by Dreyer on account of their reputed selective inhibition of *B. coli*, has been disappointing, and their use has therefore been abandoned by us, as by other observers. It appears, in fact, to have been unsafe to assume that a laboratory culture will necessarily react in the same way as a culture direct from the faeces, though in the hands of one of us even the former did not yield the results expected. Our experience with endo-fuchsian, and with malachite green, has so far not justified us in using either of these media as a routine optimum medium in preference to MacConkey's medium for faecal examination, though we preserve an open mind as to the possible superiority of brilliant green and other synthetic media not yet fully tested. In the mean while MacConkey's medium is the routine medium for faecal work.

Before leaving the subject of faecal examinations, it may be well to observe that we have deliberately chosen to make serum tests the end point of identification methods, in order to carry out in each case the fullest investigation possible with a view to the study of strains that might prove to differ biochemically from type. In the investigation of acute cases such deliberation is impossible owing to the necessity for early diagnosis. Time in our work, however, is not the primary consideration.

Moreover, a negative serum test early applied rather favours rejection of a strain that repeated subculture, the necessity for which has been indicated by biochemical orthodoxy, may eventually show, when a late serum test is applied, to have been only temporarily inagglutinable.

Routine for Urine Examination.

I have elsewhere shown that in the bacteriological examination of urine the time at which the urine is collected is of some importance. And this applies to haemic infections of the urine in convalescing cases as well as to tract infections in convalescent cases. If, for example, urine be examined which has only recently traversed the renal filter, as in specimens passed during the day after a short interval, the number of pathogenic organisms present per cubic centimetre may be insufficient to allow of their survival when transferred to a solid laboratory medium. On the other hand, if the first specimen after a night's rest be examined, the number of pathogenic organisms present per cubic centimetre is often sufficiently great to survive transference to a laboratory medium.

In the former case, incubation in the bladder has been cut short, and in the latter case incubation in the bladder has been prolonged. Hence the difference in the results obtained.

In other words, the urine in many cases of pathogenic infection is an excellent medium for growth of the organisms causing the infection, and I showed by a large number of observations, published in 1914, that by the simple device of incubating the urine in the laboratory for a night before inoculation of the laboratory medium selected as an index of infection, far better results can often be obtained than if this precaution be omitted. We repeated these observations at Addington a year ago with a small number of urines suspected of containing members of the enteric group, and we found that, examined in this way, the percentage of ordinary carriers in a mixed population of inoculated and uninoculated typhoid convalescents was considerably higher than is commonly believed. This only applied, however, to the convalescing carrier within six weeks or so of his discharge from an enteric hospital, presumably because the degree of haemic infection was slight, requiring incubation for its intensification. In the case of the convalescent or true chronic carrier with a tract infection, incubation in the laboratory appears to be unnecessary if incubation in the bladder be first allowed, presumably because the degree of tract infection—allowing of free discharge of pathogenic organisms—is considerable. As a routine method, therefore, all the specimens of urine at Addington are incubated, usually for forty-eight hours, in the laboratory before inoculation of the medium selected for picking off colonies. In all other respects, except selection of medium, the procedure of urinary examination and identification is the same as for faecal examination.

As regards the optimum solid medium for isolation of urinary organisms, we are not yet satisfied. MacConkey's medium in the commonest form of urinary carrier, the convalescing carrier, is certainly too severe a medium, however suitable it may be for isolation from the convalescent or tract carrier. And the fact that the convalescing carrier is commoner than the convalescent carrier makes this class potentially more dangerous, especially as by the ordinary routine method of examination, without preliminary incubation of his urine, he is more liable to be missed. Even, however, in the case of the incubated urine a MacConkey plate will often show no colourless colonies, or even no growth at all, whereas some of the nasagar plates inoculated in parallel will show colonies of non-lactose fermenting Gram-negative bacilli. For example, forty plates of MacConkey were inoculated from twenty samples of incubated urine, and the same number of nasagar plates were inoculated from the same urine at the same time in parallel. No less than 30 per cent. of the MacConkey plates showed no growth at all, even after prolonged incubation, whilst 5 per cent. of the nasagar plates gave colonies which subsequently proved to be non-lactose fermenters, and all showed growth after one night's incubation. The last fact would suggest that a medium such as nasagar favours the growth of extraneous organisms to such an extent as to make it useless as an isolation medium of pathogenic organisms from the urine. In practice this is not the case, since colonies of organisms of the coli-typhoid group are soon detected with a little experience. And, fortunately, lactose-fermenting coliform organisms are relatively rare in males convalescing from diseases of the enteric group. The expense involved is no doubt a serious item. Experiments with agar plates and with casein agar plates have not yet proved satisfactory, and, to repeat, the question of

the optimum isolation medium for urinary examination for our convalescents is still *sub judice*, as is also the question of the advisability of currying the urine with albumin prior to incubation.

Scrological Tests.

The routine method employed is macroscopical only. We have recently adopted Dreyer's suggestions of always incubating at 55° C., using his standard emulsions for all Widal reactions, and of using considerable volumes of diluted serum, bacterial emulsion and normal saline. The results so far obtained have been excellent. We do not find the drop method to be of sufficient accuracy for routine use on a large scale. In carrying out a reaction with *H. typhosus* we test the serum in triplicate against this organism, *paratyphosus A* and *paratyphosus B*, and we propose to employ Dreyer's method of curve-recording by multiple examinations at stated intervals. This procedure, of course, is not in our case so much for purposes of diagnosis as, by a systematic investigation of large numbers of convalescents in terms of Widal's reaction, of obtaining some light on several interesting problems that have emerged from our work. One of these is the question of the effect of inoculation on carriage, which, in the light of data we have already collected, appears to be favourable. Much further study, however, will be required before any definite statement can be made as to this. As regards Bordet-Durham reactions with strains of organisms isolated from convalescing and convalescent patients, we have used twenty-four hour emulsions heated at 58° C. for one hour. In all other respects the procedure is the same as in the case of Widal reactions. We do not find it necessary to check our macroscopical results by microscopy, because we are not aware that the latter procedure does more than intensify a well-marked end result already obtained by microscopy alone.

This, roughly, is an outline of the attempts being made at Addington to deal with the carrier problem, and it is only designed to indicate here in a general way what is being done. Unfortunately, the experiences of the moment do not permit of a more elaborate statement, which must be reserved for our official report.

A PRELIMINARY NOTE ON CHRONIC POISONING BY EMETINE.

By H. H. DALE, M.D., F.R.S.

(From the Department of Biochemistry and Pharmacology, Medical Research Committee, the Lister Institute.)

A FEW weeks ago my opinion was asked as to the possibility of producing symptoms of poisoning by the long-continued administration of emetine in individually harmless doses. Those who have had experience of the treatment of amoebic dysentery with emetine have evidently been alive to the possibility of such a cumulative action. Dr. Low, for example, in a recent article in this JOURNAL (November 13th, p. 715), mentions diarrhoea, secondarily arising during treatment with emetine, as possibly caused by the alkaloid, and suggests that an unduly continued use of the latter in too high a dosage may eventually produce symptoms of intoxication. But there seems to be no certainty on the point, and little hope of attaining such by clinical observation alone, owing to the difficulty of deciding whether local effects on the alimentary canal, or more general effects of toxæmia, are to be attributed to emetine, or to the condition which has led to its being administered. On the other hand, I failed to discover any record of direct uncomplicated experiment on the point. It was evidently desirable, therefore, that the matter should be put to the test of experiment on healthy animals. The investigation is still in its initial stage, but the indications that a cumulative action can be produced are already so positive, that it seems desirable to make mention of the results even at this early period, in view of the practical importance of their implications.

At present I have made experiments only on a small number of cats and rabbits. The question as to what doses, in either of these species, can be regarded as physiologically equivalent to the doses normally employed in human therapeutics, can only be answered by further experiment. Up to the present I have used a dosage which, in proportion to the weight of the subject, would be

regarded as rather high for continued administration to man. If we take 65 kg. as the weight of an average man, a dose of 1 grain for such a patient is about 1 mg. per kilogram. So that 5 mg. for a cat weighing 3 kg. corresponds to rather more than 1½ grains for the average man. This is the order of dosage with which I have experimented up to the present—individual hypodermic injections of 5, or occasionally 10 mg., for animals of 2.5 to 3.5 kg. Such a dose, given once only, has no perceptible action of any kind on the animal, and it may be repeated daily, up to a point, without obvious effect. There is considerable individual variation in respect of the number of such daily injections which can be tolerated with full maintenance of health. It has been as few as three in one case, and as many as ten in another. But in all the experiments which hitherto have been carried on as long as a fortnight, symptoms of intoxication have sooner or later appeared, have become rapidly intensified with persistence in the daily injections, and have terminated fatally. In rabbits a profuse diarrhoea, attended with rapid emaciation, has been the most prominent effect. In cats this symptom has been seen, but is apparently of secondary importance, and may be absent altogether; the most prominent effect in this species is pronounced lethargy and somnolence, deepening to a terminal coma. The pathological examination of the material, in which I am fortunate in having the co-operation of Dr. P. Laidlaw, has barely been begun. It is only possible to mention, therefore, with all reserve, that there is evidence of damage to the liver and kidneys, in addition to the expected signs of intestinal irritation.

I am aware that the dosage above indicated is somewhat, though not greatly, in excess of that which is habitually employed in human treatment. I deliberately so chose it in order to obtain evidence with a minimum delay on the important question, whether a repetition of individually subtoxic doses of emetine can produce a cumulative poisoning of serious importance. The answer is already very definitely affirmative. I am fully conscious, also, of the care needed in applying results, obtained with experiments on different species, to human therapeutics. But, with all allowance for differences in dosage and conditions, I cannot believe that these results are without significance in indicating a serious danger in pushing the administration of emetine beyond a certain point. My object is not to suggest any modification in the accepted dosage and rate of administration, but rather to reinforce, with the aid of direct evidence, the warning, which has already been sounded from other quarters, against the indiscriminate and unguarded use of emetine beyond the limits which expert observation has laid down for its employment with safety and benefit.

Memoranda: MEDICAL, SURGICAL, OBSTETRICAL.

METHOD FOR QUICK DETECTION OF *S. PALLIDA*.

WITH reference to the method of detecting *Spirorchætes* described by Dr. Alfred C. Coles in the BRITISH MEDICAL JOURNAL of November 27th, p. 777, the following is a simple method of demonstrating *S. pallida* which may be of interest. It is well known, but I am unable to say whose original method it is.

Take a smear of blood and serum from the sore, the exudate being obtained after cleaning and rubbing or scraping the sore, or making a small incision in its margin. The sore should not previously have been treated with antiseptics, or, if it has, should be dressed for several days with a simple saline dressing.

1. Fix in 1 per cent. glacial acetic acid and 8 per cent. formalin. Rough dry the slide.
2. Wash in alcohol and flame off.
3. Gently heat in a 5 per cent. solution of tannic acid.
4. Wash in water and stain with slightly warmed ammoniated silver nitrate solution. (To a 5 per cent. solution of silver nitrate add ammonia solution until the precipitate first formed is just dissolved; add a few more drops of silver nitrate solution until the precipitate just reappears.)
5. Wash in distilled water and dry.

The films should be chestnut coloured. If they have

only become yellow the staining from the tannic acid onwards should be repeated at once.

The slides must not be mounted in balsam, but examined in neutral cedar-wood oil in the ordinary way. The spirochaetes are very clearly demonstrated by this method.

W. H. S. STALKART, M.D., F.R.C.S.E.,

Devonport.

Fleet Surgeon, R.N.

FALLOPIAN TUBE AND OVARY IN INFANTILE HERNIA.

In a female child aged 5 months, breast fed, a swelling was noticed on the right side six weeks before admission. It came down several times, but had returned. On September 17th the swelling came down and did not return. When admitted (September 19th) the child, which was well nourished, presented a right inguinal hernia and an umbilical hernia. On the operating table the bowel was returned and the sac exposed. On opening it, it was found to contain the right tube and ovary; the uterus lay just at the neck of the sac, and could be pulled into it. The tube and ovary were firmly adherent to the sac. The ovary was slightly cystic. The adhesion was ligatured and cut, and the operation concluded in the usual way.

H. H. TAYLOR, F.R.C.S.,

Surgeon to the Royal Alexandra Hospital for
Children, Brighton.

Reviews.

OSLER AND McCRAE'S SYSTEM OF MEDICINE.

THE first edition of this excellent encyclopaedia of general medicine came out in seven volumes between the years 1907 and 1909. We now are able to welcome the issue of the second edition in five volumes which have all appeared at one time. By a general condensation, an increase in the size of the page, and by augmenting the number of pages in each volume, the editors have succeeded in reducing the number of volumes from seven to five—a heroic performance worthy of the most widespread imitation, for who is not familiar with the tendency to expansion that proves irresistible to most authors as years advance and editions increase in number? Yet only a few of the articles in the first edition have been excluded, and these deal with subjects such as "Inheritance and disease," and "Life Insurance," that have required no radical overhauling during the few years that have elapsed since their publication. They can still be referred to in the first edition of the *System*. The editors have further made notable changes in the general arrangement of the articles in their five volumes—always a matter of options and arbitrary decision—with every appearance of success. The first two volumes deal with all the various bacterial and parasitic infections, and with diseases of metabolism and of the respiratory tract. The third volume is devoted to diseases of the digestive and urinary systems. The fourth volume is occupied with disorders of the heart, vessels, blood, and ductless glands; the fifth with diseases of the nervous and locomotor systems. In every system of medicine a place has to be found for the rarities and miscellaneous debris of disease that do not fit in elsewhere. The editors have very cleverly managed this in the last volume, an arrangement that does as little violence to the nature of such obscure disorders as achondroplasia, microcephaly, and facial hemiatrophy as any classification we have yet seen.

The individual articles composing the second edition of this *System* are characterized by the same virtues as those in the first, to which reference was made in the reviews published in the *BRITISH MEDICAL JOURNAL* as the several volumes made their successive appearances. While all are excellent, it is not unfair to say that some are better than others, as, indeed, is only to be expected. Discriminative mention, always an odious task, is inevitable in the review of so important a work as this *System*, although it can hardly avoid injustice. Among the most sound and satisfying articles are those by the editors dealing with dis-

orders of the heart and vessels, the kidney, the group arthritis deformans, and syphilis. Dr. Fletcher's accounts of gout and diabetes are first-rate pieces of work, and so are Dr. Poynton's "Rheumatic Fever," Dr. L. Brown's "Tuberculosis," Dr. Garrad's article on renal disorders, Dr. Cushing's articles on the brain, and Dr. Opie's "Diseases of the Pancreas." For full-dress expositions, those on "Diseases of the Peritoneum" and "Congenital Cardiac Disease," by Dr. Rolleston and Dr. Maude Abbott, are models of what writers on medical subjects should aim at producing, and could hardly be bettered. Many of the illustrations in the five volumes of the *System* are good; the paper and printing leave nothing to be desired, the indexes are full, and there are not so many misprints as appeared in the first edition. The *System*, as a whole, contains all that the practitioner of medicine requires, with the exception that it excludes the consideration of mental disorders. It is well arranged, clearly written, full of advice on the many points of diagnosis and treatment that most require elucidation. The editors are to be congratulated upon the skill and care they have lavished upon its production; there is good reason to hope that the second edition of the *System* will enjoy, as it deserves, the great measure of success attained by the first.

PHTHISIS AND DUST.

IN the Milroy Lectures this year Dr. COLLIS gave a most interesting account of the industrial pneumoconioses met with in those who work at dusty trades, and produced a mass of evidence to show that the inhalation of siliceous dust promotes the development of pulmonary tuberculosis in a marked degree. The dangers of the prolonged or repeated inhalation of dust have long been known, possibly Hippocrates refers to them, certainly the elder Pliny describes the use of respirators to protect the lungs of workers in lead. Industrial pneumoconiosis has even made its way into literature, for it seems reasonable to suppose that it was the cause of the hero's death in Hardy's novel, *Jude the Obscure*. Dr. Collis goes fully into the medical literature of the subject from a historical point of view, and has no difficulty in showing that siliceous and granite dusts work havoc on the lungs when inhaled. They are particularly associated in the mortality tables with what is called "dust phthisis"; it is interesting to note his conclusion that some dusts, such as coal, not only appear to have no power of producing pneumoconiosis, but even may possess some inhibitory influence on phthisis. Certain other dusts, such as limestone and plaster-of-Paris, are said to be negative in their action, but most dusts undoubtedly have an injurious influence on the lungs should they be inhaled in large quantities. Among the pulmonary disorders to which occupational dusts give rise are bronchial asthma, pleural adhesions, bronchitis, pneumonia, and, as has been mentioned already, phthisis. Dr. Collis goes fully into the questions raised by these observations, and illustrates the pulmonary changes produced by these conioses with a number of excellent skiagrams and photomicrographs. There is good reason to hope that the pneumoconioses, like other occupational diseases, will in the future be suppressed by the activity of H.M. Home Office until they become as extinct as the dodo. A vast amount of good work in this direction has been done by this office during the past few decades, as, indeed, is shown by not a few of the statistics quoted by Dr. Collis. His lectures should be read by all medical men who have to treat the workers in dusty industries, in factories, mines, quarries, stone-yards, and the like.

A DOCTOR IN HIS LIBRARY.

DR. STUART M. CHISHOLM has collected into a volume bearing the title *Recreations of a Physician* a number of papers read before various societies, some of which have been published in the *Journal of the American Medical Association* and in the *Albany Medical Annals*. Of the

¹ *A System of Medicine by Eminent Authorities in Great Britain, the United States, and the Continent*. Edited by Sir W. Osler, Bt., M.D., F.R.S., assisted by T. McCrae, M.D., F.R.C.P. Lond. In five volumes. Oxford Medical Publications. Second edition, thoroughly revised. London: H. Frowde; Hodder and Stoughton. 1915. (Roy. 8vo, pp. 5,541, 92 plates; 248 figs. in the 5 vols. 35s. net per vol.; £7 15s. net per set of 5 vols.)

² *Industrial Pneumoconioses With Special Reference to Dust-Phthisis*. By E. L. Collis, M.B. Oxon., H.M. Medical Inspector of Factories, Milroy Lectures (1915). Reprinted from *Public Health*, the official organ of the Society of Medical Officers of Health. 1915. (Imp. 8vo, pp. 42; 2 figures.)

³ *Recreations of a Physician*. By A. Stuart M. Chisholm. New York and London: G. F. Putnam's Sons. 1914. (Demy 8vo, pp. 379. 12. 6d. net.)

variety of its contents an idea may be formed from the titles of the chapters—Specialization; Physicians as Men of Letters; Banquo; The Symbolism of Names; Royal Authors; The Inherent Spirit of Medicine; Translations of Horace; The Science of Medicine in the Seventeenth Century; The Picaro in Fiction; and the Prevention of Disease. On all these subjects the author has something interesting and instructive to say, and he says it in a style that makes his book pleasant reading. We fear it is impossible to deny Dr. Chisholm's assertion that of the doctors who have more or less successfully wooed the Muse few have won distinction in their own profession. As instances he quotes John Keats, Tobias Smollett, Oliver Goldsmith, Mark Akenside, Friedrich Schiller, and George Crabbe, who tried doctoring as a means of livelihood with indifferent success when they did not fail dismally. This would seem to show that there is some incompatibility between medicine and literature. There are, of course, exceptions to the rule. Rabelais, Sir Thomas Browne, John Arbuthnot, and Oliver Wendell Holmes were eminent in medicine as well as in literature. It is curious that Dr. Chisholm, while recognizing that Rabelais was honoured by his contemporaries as a physician, makes no mention of the fact that he was one of the pioneers in the establishment of anatomy as a science. The late Professor Lodouin, in his *Rabelais anatomiste et physiologiste* (Paris, 1899), showed that the creator of Pantagruel gave a public course of anatomy at the great hospital of Lyons between 1532 and 1538. He was one of the first who gave demonstrations on the dead body. In passing, attention may be called to one or two inaccuracies into which Dr. Chisholm has fallen. John Arbuthnot did not take the M.D. degree at Aberdeen but at St. Andrews, as is proved by the records of that university for September, 1696, quoted by George A. Aitken in his life of that famous physician. Nor is it altogether correct to say that Marat was "made an M.D. of St. Andrews University, Edinburgh." The author may, perhaps, deem it worth while to correct these slips of the pen in a future edition. The other essays that make up his volume are all interesting in their various ways, and they are all marked by sound scholarship and a true sense of literary values. His knowledge of Spanish literature is particularly wide, and he has a happy faculty of throwing sidelights from different sources on any subject that he handles. We can heartily commend his book to all readers who wish to distract their minds from the unwholesome excitement of "final war editions" of newspapers.

ANAESTHESIA FOR DOMESTIC ANIMALS.

MR. HOBDAJ has condensed in a small book, entitled *Anaesthesia and Narcosis of Animals and Birds*,⁴ the results of his very wide experience in anaesthetizing animals of various species. The conclusions at which he arrives are founded upon the results of many cases which are carefully tabulated; details of a number of individual cases are included. It may be said, generally speaking, that for one well versed in the use of anaesthetics for human beings there is little that is new in the case of animals. What is, perhaps, surprising to the uninitiated is the amount of knowledge and care that is now brought to bear upon the matter in the case of the animal world, and it is here that Mr. Hobday and others of his school deserve so much praise and support. The anaesthetic agents employed for animals are the same as in the case of human beings, both in the case of general and local anaesthesia, and so are the principles upon which they are employed. One important difference in practice is to be found in the case of dogs in whom narcosis by morphine gives such excellent results that this narcotic may be used with the most satisfactory effect, even for major operations, in so large a proportion as three-fourths of the cases. One grain is the usual dose, though for the largest dogs the author employs as much as two. It has been demonstrated that nitrous oxide is as efficient as in the case of human beings; but, as may be readily understood, inconveniences from the point of view of apparatus and expense prevent any wide use of this anaesthetic. Chloroform is the agent chiefly employed; $\frac{1}{2}$ oz. given gradually until the full effect

is obtained and then withdrawn produces an available anaesthesia of about fifteen minutes in the average hunter. The most useful antidote if respiration fails is Scheel's hydrocyanic acid, which is given on the tongue or hypodermically. The best form of mask allows the tongue to be held forward throughout the administration, which is conducted through the nostrils. The horse is particularly amenable to chloral hydrochlorate in the same way as the dog is to morphine. Interesting details are given as to the management of particularly restive and difficult animals, and the book is one that should be of the greatest value to all practical veterinary surgeons.

NOTES ON BOOKS.

CHURCHILL'S MEDICAL DIRECTORY, 1916.

THE *Medical Directory*'s makes its seventy-second annual appearance in the issue for 1916. As every medical man knows, it is a volume that is not only useful, but even indispensable. Last year, in an effort towards economy that was laudable in itself but not wholly fortunate in its effects, the list of registered practitioners with British qualifications resident abroad was cut down from the customary two hundred pages to a mere dozen. This year we are glad to say the omission has been made good, and the full list reappears; in particular we welcome the reinclusion therein of the British practitioners resident in the overseas dominions. It appears from the numerical summary of the medical profession that the total number of British practitioners in the United Kingdom, abroad, and the Services stands at 42,570 this year, as compared with 42,572 a year ago; the figure in 1910 was 40,469. It has proved impossible to give any estimate of the number of medical men employed in war work; the Services this year are set down as employing 3,274 medical men, as compared with 3,366 last year. No doubt the discrepancy would be made up by an increase in the ordinary list, for the war has taken its toll; but in the *Medical Directory* for 1916, as in that for 1915, the ordinary list has been omitted. The total is, however, very far short of the actual fact, for it would seem that medical officers who hold temporary commissions in the R.A.M.C., as well as officers of the R.A.M.C. Territorial Force, are not included in the "Services" list. This, was, no doubt, the best course to adopt—in fact, the only course open to the editors of the *Directory*; but unless this omission is noted, an erroneous impression may be produced. For the rest, the issue for 1916 seems to contain all the customary serviceable articles on legal medicine, and all the lists of medical boards, officers, sanatoriums, health resorts, and the like that add so greatly to the utility of this invaluable annual.

DIARIES AND ALMANACS.

The centenary of Lett's diaries is being celebrated in the issue of this year, for John Lett, who, it is said, was the first diary publisher, began the business in 1816. The paper used in the diaries, which are now called "Quikref," is of a special quality, designed to secure an absorbent, non-glazed, yet smooth writing surface, and care has been taken in a matter in which many diaries fail, namely, that the binding shall stand constant usage. The publishers, Cassell and Co., issue a great many forms of ordinary diaries, and we have also seen specimens of Lett's medical diaries, which have a high reputation, and a nurse's report book and diary, which is likely to be found useful in private work.

Messrs. T. J. and J. Smith, of 26, Charterhouse Square, London, E.C., have prepared for 1916 the very numerous varieties of diaries and pocket-books which they are accustomed to issue; they vary in size from a foilsap volume showing a day on a page to a waistcoat pocket diary showing a week on a page. A useful desk diary, in quarto form, is the Half-hourly Appointment Diary, which may be had with or without blank interleaved pages or with interleaved blotting paper for 2s. 6d. Another quarto diary, interleaved with blotting paper and ruled for cash or memorandum, but bound in cardboard, costs 1s. 6d. They also issue Wall Tablet diaries to enter recurring or special engagements, and a number of private diaries. In all the samples we have seen the paper is good and the binding strong.

The Ulster Volunteer Force Hospital has issued a Christmas Book and Almanac giving an account of the formation of

⁴ *Anaesthesia and Narcosis of Animals and Birds*. By F. T. J. Hobday, F.R.C.V.S., F.R.S.E. London: Baillière, Tindall, and Cox. 1915. (Demy, 6vo, pp. 91, 28 figures. 5s. net.)

⁵ *The Medical Directory, 1916*. Seventy-second annual issue. London: J. and A. Churchill. 1916. (Roy. 8vo, pp. 1941. 15s. net.)

the hospital and of the manner in which it is conducted, together with a list of the medical and surgical staff, all of whom give their services free. It originally consisted of 114 beds in two buildings, lent by the Belfast Corporation, with 50 beds in a convalescent home. In May a new wing for 100 beds was erected and was provided with a verandah large enough to shelter 50 patients to whom open-air treatment might prove beneficial. Mr. J. C. White has provided a furnished house for use as a sisters' home, and the Queen's University has lent its grounds, and also given full use of its pathological and bacteriological laboratories and x-ray apparatus. The book is copiously illustrated by portraits and photographs of the hospital and of men in training.

Messrs. Abdulla, cigarette makers, have issued an almanac in thirteen sheets, copiously illustrated by eminent artists, and have presented 20,000 copies to the British Red Cross Society. It is hoped that in this way at least £1,000 will be realized for the society. Many of the sketches, all of which have reference to war, are in colours and are very admirably reproduced.

MEDICAL AND SURGICAL APPLIANCES.

A New Inhaler for the Open Method.

Dr. J. H. SUTCLIFFE (Honorary Anaesthetist to the York City Hospital) describes an open method for the administration of ether, chloroform, etc., by the use of a hollow metal mask with large capacity for concentrating the anaesthetic vapour, surmounting on upright detachable standards a graduated glass container of 2-oz. capacity, the anaesthetic being liberated by means of a needle valve on to a diaphragm of lint or other absorbent porous material, allowing a concentration of the anaesthetic vapour inside the cavity of the mask, with an uninterrupted supply of air through the fabric of the diaphragm which can be augmented by a further supply of air through the air valve fitted to one extremity of the mask. The porous diaphragm also acts as an indicator of the character and frequency of respiration by rising and falling, and is constantly under the direct observation of the anaesthetist. The container can be refilled very quickly. The anaesthetic can be administered with the patient's head in almost any position, as the curved adjustable dropper and backward and forward movement of the container permits the anaesthetic to drop on to the diaphragm at



any desired spot. The advantages claimed are that the manipulation is easy, that the risk of respiratory complications is diminished, and that patients rapidly recover and rarely suffer from nausea and vomiting. It is also claimed that the apparatus is clean, and that a new diaphragm can be provided for each patient at an insignificant cost. The apparatus is manufactured by Messrs. Reynolds and Branson, Ltd., Leeds.

A COMPACT little volume with the lengthy title *Rules for Employees of the Bureau of Preventable Diseases, including those for All Employees* is issued by the Department of Health for the City of New York. Apparently every employee of the Department of Health is required to be familiar with these rules, ignorance of which "will not be accepted as an excuse for failure to observe them." Though these rules are many and varied, a provident Board of Health has added to this volume several blank leaves, in which the employee is expected to record additional rules. Some of the rules are suggestive of a dame school. The rule that "all employees must be courteous to the public and to each other" might surely have been taken for granted. The volume, however, contains a quantity of excellent practical advice, and the section on the duties of a district nurse in relation to infectious diseases is admirably concise. Detailed instructions are also given for "Health Squad regarding Dog Complaints." Under this heading is given: "Should the dog be at large in a room, cellar, or stable, the patrolman will not shoot at the animal until he has obtained a snare from the Borough Office, by means of which the animal can be held firmly on ground and shot."

ROYAL MEDICAL BENEVOLENT FUND.

(Continued from p. 561.)

At the November meeting of the Committee 39 cases were considered. One applicant was elected to an annuity of £20 and £273 granted to 23 cases, and the others were either postponed for further inquiries or found unsuitable. The following is a summary of the cases relieved:

Widow, aged 52, of M.D.Edin. who practised at Newcastle-on-Tyne. At husband's death left unprovided for. Has one daughter now, aged 26, who is married, and only able to help her mother slightly. Applicant recently fractured her leg and unable to do anything. Relieved once, £12. Voted £12 in twelve instalments.

Widow, aged 58, of L.R.C.P. and S.Edin. who practised at Cardiff. Only income two small pensions from other charities. Has two sons, both married, and now in the army and unable to help. Applicant's health bad. Relieved ten times, £87. Voted £6 in twelve instalments.

Daughters, aged 51 and 63, of M.R.C.S.Eng. who practised at Bexley Heath. Joint income from needlework and friends less than £30 per year. Both have very bad health. Relieved eleven times, £174. Voted £20 in twelve instalments.

Daughter, aged 56, of M.R.C.S.Eng. who died in 1893 and practised at Liverpool. Lives with brother and sister, both of whom, like the applicant, are through ill health only able to earn very little. An uncle pays the rent of the house. Relieved six times, £68. Voted £12 in twelve instalments.

Widow, aged 57, of M.D.Edin. who practised at Ross, in Herefordshire, and died in 1908. Applicant's income from all sources £35. Tries to supplement this by taking an occasional boarder, but too old to do much in this way. Relieved five times, £36. Voted £12 in twelve instalments.

Widow, aged 78, of M.D.Lond. who practised in London and died in 1895. Applicant's only income £40 per annum from two charities, suffered severely from rheumatism and unable to do anything. Relieved eight times, £45. Voted £10 in two instalments.

Daughter, aged 64, of F.R.C.S.Eng. who practised at Chester and died in 1884. Has been able to earn a living as housekeeper until about three years ago. Since, owing to age, she has not been successful in obtaining a post, and is in great financial distress. Relieved three times, £22. Voted £10 in two instalments.

Daughters, aged 56 and 64, of M.R.C.S.Eng. who practised in Cornwall. Applicants endeavour to make a living by taking in paying guests, but have not been successful, and they both have very indifferently health. Live in own house but unable to make ends meet. Relieved six times, £100. Voted £18 in twelve instalments.

Widow, aged 57, of L.R.C.S.Edin. who practised at Langley and died in 1909. Applicant lives in own house, but it is heavily mortgaged. Endeavours to earn a living by taking in paying guests, but has not had sufficient of late to pay her way. Relieved five times, £50. Voted £10 in two instalments.

Daughter, aged 82, of M.R.C.S.Eng. who practised at Newton Abbot, and died in 1839. Only income a small Post Office annuity provided by friends. Has recently lost a source of income which has left her in great difficulties. Voted £20 in four instalments.

Daughter, aged 61, of L.S.A. who practised in Staffordshire, and died in 1856. Applicant suffers from spinal curvature and very bad sight, and quite unable to do anything. Only income £25 per annum from relatives. Relieved fifteen times, £170. Voted £18 in twelve instalments.

Widow, aged 48, of F.R.C.S.Eng. who practised in London, and died in 1901. Applicant left with three young children. The eldest has now joined the army, the second son is a clerk, and the youngest a pupil teacher without salary. Applicant managed fairly well by taking in boarders at an Essex seaside place, but since the war has scarcely had any. Relief once, £59, some years ago. Voted £12 in twelve instalments.

Widow, aged 77, of M.R.C.S.Eng. who practised at Holderness, and died in 1896. Only certain income £30 per annum. Six children, four of whom are married and unable to help, and the two single children only able to help very little. Relieved five times, £92. Voted £12 in twelve instalments.

Widow, aged 67, of L.R.C.P. and S.Glasg. who practised in Essex, and died in 1896. Applicant was left quite unprovided for. Only income a pension of £30 from another charity. Only son married with five children, and unable to help. Relieved four times, £30. Voted £12 in twelve instalments.

The claims on the fund are steadily increasing, largely in consequence of the war, and although the ordinary subscriptions remain at much the same level, there is a constantly increasing adverse balance. To meet this the Committee has had to draw heavily upon its limited reserves, and unless increased support be rapidly forthcoming the work of the fund will have to be very seriously curtailed. Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, 11, Chaudes Street, Cavendish Square, London, W.

The Royal Medical Benevolent Fund Guild appeals for gifts of secondhand clothing, boots, and shoes in good condition, also household linen. The gifts should be sent to the Secretary, Royal Medical Benevolent Fund Guild, 43, Bolsover Street, W.

British Medical Journal.

SATURDAY, DECEMBER 18TH, 1915.

THE MENINGOCOCCUS AND ANTIMENINGOCOCCUS SERUM.

THE meningococcus has always had a hard struggle to maintain its independent existence. Within a few years of its first discovery it was described as an organism with characters so manifold as to deprive it of most of its individuality. Even quite recently there has been assigned to it a pleomorphism so radical that almost any bacterial growth not otherwise identified would have to be looked on with suspicion as a potential meningococcus. It is gradually, however, freeing itself from the chaos due to insufficient characterization, and there is little reason to doubt that it is a real entity with properties of its own sufficient to identify it amongst the crowd of similar organisms. It is, however, a variable organism, with characters no more fixed than those of some other well-known bacteria—for example, Flexner's dysentery bacillus. But bacterial variation does not occur in the haphazard indiscriminate fashion that many appear to think, and with the increase of careful work the common variations will be worked out and the differential characters clearly established. The papers by Ellis and Arkwright, which we publish this week, are a valuable contribution to this end. These two observers, working independently, find that the strains of meningococci isolated recently from cases of cerebro-spinal meningitis are divisible into two main types, distinguishable by agglutination, that both types occur in the same epidemics and the same localities, and occur with much the same frequency. Both types may produce the severest form of the disease, and there is no reason to believe that one is more benign than the other. Both have been met with in the naso-pharynx of individuals not suffering from the disease. Applying another test, the absorption test, Gordon and Murray¹ have recently divided the strains they examined into four groups, over 80 per cent. of the strains falling into two groups. There seems good ground for hoping that order will shortly be brought into the confusion that has so long prevailed in the meningococci group. The progress recalls the steps in the now far advanced disentanglement of the enteric organisms; the separation of typhoid from the rest by cultural characters, the later subdivision of the others by agglutination into the two paratyphoid and Gaertner's bacilli, and then the absorption distinction of *B. paratyphosus* B from the food-poisoning *B. suipestifer*.

The subject is one of immediate clinical importance. Antimeningococcus serum is one of the few therapeutic serums which can claim to be of real value. Yet it often fails, and failed last winter in the epidemic in this country. The failure can reasonably be attributed to the fact that the horses yielding the serum were not immunized with the strains occurring in the epidemic. We can only expect to prepare in advance satisfactory serums if the strains used in immunization are representative of all the types of the organism, and are selected from among those

types as possessing good immunizing powers. It is to be hoped that we shall soon be in possession of serums representative of all the types, and that these will prove of greater efficiency should the occasion unfortunately arise for their extended use.

THE FINANCE OF THE INSURANCE ACT.

A CONSIDERABLE number of questions pressed recently on Mr. C. Roberts in the House of Commons deal more or less directly with the financial soundness of the Insurance Act and the possibility of much greater economy in administration. Until the proper valuation of approved societies has been made it will, of course, be too early to form any precise opinion as to their general position, but from provisional estimates, and according to statements in the blue books quoted in the House on December 1st by Mr. Currie, it appears to be fairly certain that, dividing insured persons into three classes—men, single women, and married women—the actual sickness among men in the older friendly societies has been well below the expectation, and among single women rather below than above; little fear, therefore, need be entertained as to the financial soundness with respect to these two great classes. With regard to the class of married women, however, it appears that the actual sickness experience of many societies has been vastly in excess of what was provided for, and drastic revision of the finance of the Acts relating to this class will certainly be called for. But this is by far the smallest class of insured persons, and though each class ought to be taken separately, the assurance given by Mr. Roberts that there is no foundation for the alarmist reports as to the general financial soundness of the insurance scheme may, on the evidence at present available, be accepted with some confidence.

But when the question of economy in administration is considered, it is easy to point to numerous directions in which enough is known to justify a very close inquiry as to whether there is not a great waste of insurance funds going on. Opinion seems to be divided on the question whether a large saving might not be effected by having one, or perhaps two, bodies of Commissioners instead of four as at present. On the one hand, certain approved societies that have business in all the four countries—England, Wales, Scotland, and Ireland—may quite naturally prefer one Commission, with uniform regulations as far as possible, for all their branches. On the other hand, many Insurance Committees, especially in Scotland, are very strongly of opinion that the separate Commission for Scotland should be maintained, holding that its continuance is necessary to deal properly with the special conditions in Scotland. It might appear *prima facie* that a reduction of the number of commissioners would lead to a considerable annual saving; but if, as is probable, it is impossible to enforce uniformity in administration in the four countries, it is highly probable that any saving in salaries due to amalgamation of the several Commissions might lead to lessened efficiency. The data for deciding this are hardly available to the public.

But one thing is practically certain—that under all four Commissions there has been an almost reckless waste of money in issuing, altering, rescinding, and explaining almost innumerable regulations, orders, and circulars. Mr. Roberts refused in Parliament to state the number of these documents on the ground that it would serve no particular purpose, but he has described in words as strong, perhaps, as can be expected from

¹ *Journ. Roy. Army Med. Corps*, May, 1915.

a responsible Minister who has to consider the susceptibilities of his predecessors, his consternation when confronted with the huge quantity of literature that had fallen upon the committees. He compared it alternately to a snowstorm and a rainstorm. Officially he had admitted that committees have suffered under the complexities of the present system, and has expressed a hope that something would shortly be done to reduce within manageable compass the documents which have to be issued. It is in truth not merely the expenditure of money on the printing and issuing of so many documents to which objection is taken, but also, and mainly, to the wasted labour also inflicted on Insurance Committees, approved societies, Panel and Pharmaceutical Committees, and on other bodies when they make arrangements to carry out orders which are only in force for a short time and are then replaced by other orders needing altogether fresh arrangements.

But apart from such expenses rendered obligatory by the ever-changing orders and regulations, the ordinary working expenses of approved societies and Insurance Committees call for full inquiry. There is ground for believing that the administration expenses of many Insurance Committees are quite unnecessarily high. Some committees are almost as lavish in their printing and postage accounts as the Commissioners, and from time to time instances of reckless waste come to light which would be ludicrous if they were not signs of a carelessness leading to serious extravagance. Under sanatorium benefit there is little doubt that in some areas persons in advanced stages of phthisis have been sent to expensive sanatoriums simply to satisfy a popular fancy, without the least chance of cure and when much cheaper forms of treatment might have been used with equal benefit.

It may not be easy or even possible to calculate how far the complexities that have been uselessly woven round the Act are responsible for waste of money in administration, but it is quite certain that the working of the Act could be made infinitely simpler, and that the result would be an enormous saving in administration expenses.

Mr. Roberts made out a good case against the appointment of a roving commission of inquiry at the present time, a proposal of which the British Medical Association formally expressed its strong disapproval in the letter addressed to Mr. Roberts and the Prime Minister which was published in the SUPPLEMENT last week (p. 215). No committee of inquiry would be satisfactory unless it had the fullest assistance from all the committees and officials concerned, and, owing to the depletion of the staffs due to the war, it is difficult to see how such assistance could be given. Moreover, as was pointed out in the letter mentioned above, for the proper conduct of such an investigation it would be necessary to secure suitable medical representatives to serve on the committee of inquiry, the attendance of medical witnesses from various parts of the country, and the collection of a great deal of evidence. For none of this work has the medical profession now adequate leisure or opportunity. Many of its members directly affected are on military service with the navy or army abroad or at home, and those that are left are hard pressed in many areas to give the requisite attendance on the civilian population. It must also be recollected that the conditions of war times are altogether exceptional, and methods which might be suggested to meet present circumstances would probably be quite unsuited to times of peace. It is practically certain that any inquiry would be followed by some demands for fresh grants from the Government; but at

present it has its hands full of demands for war purposes which, whatever happens, must be met. Thus, while it is easy to point out directions in which greater economy in administration of the Insurance Act might well be practised at the present time, it would seem that Mr. Roberts gave good reasons for deciding that the appointment of a roving commission is at least inopportune.

MEDICAL LESSONS OF THE WAR.

THE Army Medical Service was in the fortunate position at the outbreak of war that its house had been put in order some years earlier, and that army medical administration was in the hands of army medical experts, subject, of course, to the medical department receiving the support of the Minister, which, as is well known, it has had in full measure. The results have fully justified the policy. The relative freedom from disease in France and Flanders is a record of which the whole medical profession may well be proud, and if the results in the Dardanelles have not been so good, it has to be recognized that the conditions which have led to the invaliding of large numbers of men with dysentery and enteric fever were such as no foresight could entirely have obviated.

The enormous increase in the numbers of the British army during the last fifteen months made necessary a corresponding increase in the number of medical officers. From information given in the House of Commons recently by Mr. Tennant, it appears that the total number of army medical officers now employed is about ten thousand, and he stated last Monday that approximately three-fifths of these held temporary commissions. This has involved a very large draft on the civilian profession. It has responded in the most admirable manner, giving of its best. The men who volunteered were wise enough to know that they had much or everything to learn about military medical administration; they also, as it turned out, had a great deal to learn and to unlearn about clinical surgery and applied pathology and bacteriology. This was, perhaps, something of a surprise to many, but the lessons have been readily and quickly applied, to the great advantage of their patients at home and abroad. But, in addition, those medical officers who a little time ago were civilian practitioners have now learnt a good deal about military hospital administration, and their views as to ways in which it may be conducted with greater economy, especially in personnel, and with no diminution but even with an increase in efficiency, must be deserving on every ground of careful consideration. Economy of personnel is a matter which very nearly concerns the members of the medical profession, both those who have joined the military medical services and those who have hitherto remained at home. On the one hand is the insistent demand of the army for medical officers, and on the other, private interests, the demands of civilian patients, and the alarms of the Insurance Commissioners which find some expression in the letter addressed by the Central Medical War Committee, after consultation with them, to the honorary secretaries of local War Committees (SUPPLEMENT, p. 221).

Suggestions from those lately civilian practitioners who have been gathering experience within the areas of military operations would, we feel sure, be welcomed by the responsible heads of army medical services, but we have not heard that any machinery has been devised for ascertaining the nature of this accumulated

experience so that it may be utilized for the benefit of the army and for economy of energy and public expenditure. We are bound to admit the existence of a good deal of disappointment among those who for the last year or more have been serving with temporary commissions or as Territorial medical officers abroad, and it would be well to find means to relieve it. It is not, as a rule, due to personal considerations; men have made sacrifices, often very serious, and are willing to abide by the consequences. The causes of the state of mind to which we refer are rather national and professional. It is due to an uneasy feeling that the best use is not being made of the medical personnel. It is considered that the British army hospitals in France have been habitually over-staffed; many medical officers accustomed to the strenuous life of a civilian hospital have felt that they had not enough to occupy them, that much of the small amount they had to do could be equally well done by men of less experience, and even by senior students, as it is in civil hospitals, and that the kind of work for which a man has been specially trained by his civilian experience as surgeon, pathologist or bacteriologist, has not always fallen to his lot.

There is, and can be, nothing but admiration among the public and the profession for the manner in which the regular R.A.M.C. tackled the immense task it was called upon to undertake sixteen months ago, but professional opinion is exercised by a doubt whether the lessons of the last year have been sufficiently applied. There have been questions in Parliament about the Army Medical Advisory Board, which, it appears, has not met since the war began. On looking at the list of members of that board given in the monthly *Army List* for June, the last issue published, it will be seen that the majority are engaged either at home or abroad in the active service of the army, and Mr. Tennant said in the House of Commons on November 25th that it was not the policy of the War Office to hold formal meetings for no particular purpose, since medical advice was more effective if given in consultation and not collectively by the Board. We can well believe that this policy is correct, for advisory committees often merely lead to loss of valuable time and the division of responsibility; at the same time we are inclined to think that more use might be made of the experience which has been gained, in the various directions indicated, by Territorial medical officers and by those medical officers now holding temporary commissions. The Army Medical Service has had the pick of the young talent of the profession, and a large proportion of those now employed at military hospitals abroad have had experience of hospital work at home. While military hospital administration must differ in many important details from civil hospital administration, the aim of the two is fundamentally the same—to get the patients cured with the greatest economy in time to them and of material and personnel to the country.

At present there seems to be no section of the Medical Department at the War Office to which medical officers of the Territorial Force or holding temporary commissions feel authorized to take their suggestions. So far as we are aware, the Medical Department at the War Office does not contain any one who has himself passed through the mill which converts the civilian surgeon or physician or pathologist into a temporary medical officer, yet the regular Army Medical Service now probably constitutes not much more than a tenth of the total Army Medical Service of the Crown, and this proportion must tend to diminish.

MEDICAL CLERKS.

CLINICAL clerks we know, and clerks in ho'y orders, but who are these medical clerks? They are a new sect of our many-sided profession, bred of that all-devouring monster bureaucracy. With each new Act of Parliament which ordains an extension of the public health service of the country, whether the direction of the new effort be preventive or curative medicine, there is one certain sequel, not truly that striven for in the Act of Parliament, for from past experience we know that the effect of an Act is not always that hoped for. The certain sequel is the establishment of a new public office, new desks, new clerks, little and big; new forms, many and various; and, alas! some more members of our profession enslaved by these forms, clerks, desks, and the whole paraphernalia of an office. All this is done, no doubt, with good intentions; but the road paved with good intentions does not always lead upwards. The latest of these new forms which we have seen is one issued under the Mental Deficiency Act of 1913 at the instigation of the Board of Control. The form takes the shape of a quarto card. It has two faces, but both are distressing in the insignificance of their features and the total lack of proportion these features bear to one another. The one face gives spaces for data on the civil state of the "Defective" and for his or her family history, for data on the person having charge of the Defective, on the conditions under which the Defective was found to be living, for details of past certificates, the character of the control desired, and finally how the case was dealt with. The other face is headed "Medical Particulars"; it is plotted out into no less than eighty-seven spaces, and since the allowance for the several items is much the same, it gives a fair indication of the lack of proportion with which these items are regarded by the compiler of this precious form. For example, "Height (inches)" gets a line $\frac{1}{8}$ in. long, whilst "General Health" is to be summed up in $\frac{1}{4}$ in. The "Skin" has space for five entries and a joint measure of $7\frac{1}{4}$ in. in line, but the "Nervous System," with seven spaces, gets only 13 in. The last space is headed "Deformities, etc.," that little addendum "etcetera" is perhaps a sign of grace that the compiler felt there might be some things he had overlooked, but for the whole "Deformities, etc.," he gets only 3 in. The greater part of the page is devoted to spaces for Mental State and Parentage. "Mental State on Admission" gets a modicum of room, but that for the "Etiological Factors" is a mere trifle, and even so it has to be filled in according to *sons scheidulo* undefined. "Details of Parentage, etc.," is underlined by the instruction: "Any present and former mental disease or neurosis (including intemperance) in the parents, grandparents, or brothers and sisters should be recorded, together with any facts of importance in the present physical health of the parents and brothers and sisters. *Every space should be dealt with, a line will mean no stigmata, and N.K. no information.*" The *N.K.* in the italicized clause suggests the flippant diagnosis of the hospital resident who, stumped for lack of a reasonable conclusion, entered "G.O.K." But that the careful compiler should explain the initials by "no information" is a portent. In the spaces for the parents the dates of birth and marriage and occupation got mere room than "Any mental disease or neurosis" and "Physical health." One would think that the eighty-seven spaces on this face of the card would have exhausted the ingenuity of the compiler. But no! There are footnotes absorbing all the letters of the alphabet from *a* to *t*! What useful medical purpose can such a form serve? We cannot tell. However conscientiously filled it would never give a clinical picture of a Defective. Plainly no research worthy of the name could be founded on such scrappy data as the spaces admit. But we had forgotten, this is not a medical document, it is the dossier of a bureau; it will serve a purpose of a sort—it will furnish pabulum for the piling up of figures wherewith to pad a

blue book. For one brief moment vast tables of figures will bewilder the unwary into a belief in a laborious and assiduous public service, and thenceforward they will lumber the good timber of many shelves, until the hungry bookworm riddles them into the dust of forgetfulness. Meantime the initiative, the insight, and the critical faculty of the doctor who has to furnish them are suppressed, and the possible birth of a discovery is ruthlessly overlaid in a smother which steals away the free air in which alone it can live. And all this is done in the name of progress—but which way, up or down? Such an exhibition of the work of bureaucracy would be passing funny if it were not so sad. The narrow-visaged Philistine is consumed with a deep-seated fear of the medical man and all his works. The pioneer of medical progress impresses his public, an enlightened public demands a reform, and the Philistine masks his hate with a smile as he stifles the new endeavour, and rejoices to see the prime mover in the attempt turned into a mere docketing clerk, a slave of a soul-destroying routine. Well may the lover of our profession echo the cry of St. Paul, "Who shall deliver me from the body of this death?"

MEDICAL CERTIFICATES FOR RECRUITS.

The recruiting campaign now in progress in this country has its influence on the medical profession in more ways than one. One effect appears in the increasing necessity for medical men to take service with the new armies; with that we have dealt. The point we wish to deal with now is of another order; it is one with which our professional brethren in other countries are familiar, but it is new to most of us in these islands. The appeal for every fit man to enter the service of his country in a military capacity and the heart-searchings that must follow these appeals to the conscience of men of military age have caused some to realize for the first time the doubtfulness of their physical fitness for military service, just as some of us have learnt for the first time that others do not think our appearance marks youthfulness, as we had cheerfully fancied. Those men go to their accustomed medical attendant and ask for a certificate of their physical condition for use when they present themselves at the recruiting office. There are other men who desire these same certificates with a different end in view; they feel the moral pressure of the call, they propose to present themselves for attestation, but they wish to do this so well armed that they will be sure of a speedy dismissal from the office in possession of a form which states they are rejected as unfit for military service. The armour these men seek is a medical certificate. A third type of man is of those who are still tied to their mother's apron-strings, and the appeal for the certificate comes from her. We do not wonder at her fears, and we can guess that the claim of unfitness is keenly contested in her heart with her pride in the fruit of her body. What is the private medical man to do in the face of these demands for certificates of physical condition? His position is really quite simple. It is within his province to state the facts of the case, but it is not his province to pronounce on the fitness or otherwise of any one for army service; that rests with his professional brother, the recruiting doctor. As the family doctor he may have valuable knowledge on the life history of a man, he can then and there examine him, and it is quite open to him to write down the facts of which he had knowledge. Such a written statement will be of the greatest value to the recruiting doctor, who, in the pressure of his work, will value it in proportion to the terseness with which the facts are set down. But the duty of determining the relation of these facts to the fitness of the man for military service must rest with the recruiting doctor, who may be a commissioned officer of the R.A.M.C. or a general practitioner doing temporary duty, but in either case he acts for the military authority, and

knows the current standards for enlistment. The private practitioner does not necessarily know these standards, they vary from time to time, they vary for the several branches of the service. Even in the same regiment there is room for variation, for not every man wields a weapon; some have to abide by the stuffs of the fighters and prepare their food for them. It is, of course, open to the private doctor to give expression to his opinion of the man's fitness, basing this on the facts that he cites, but so soon as he essays this task his difficulties will begin, both with his client and with the recruiting doctor. His guarded expression of opinion may be altogether unsatisfactory in the view of the man or his friends and yet go too far in the eyes of the recruiting doctor, so in the end his opinion meets the approval of no one. If the private doctor will confine himself to the statement of the facts of the case, pointing out to the man that the determination of his fitness or otherwise must rest with the army doctor, he defines his own position clearly, there can be no room for difficulty with his patient, and he does not prejudice his statement of fact in the eyes of the recruiting doctor by treachery on his work. One word as to the form of these certificates. Some identification of the paper with the bearer is desirable. Invite the man to sign his name at the top of the paper. Beneath this signature the doctor will write in some such fashion as this: "I have this day examined A..... B....., who has signed his name above; I find that he suffers from etc." Or, "A..... B....., who has signed his name above, has been under my care since He has suffered from etc." The certificate should, of course, be dated, and it should give the address of the doctor and the doctor's qualifications. The certificate should not be addressed to anyone, but handed directly to the man; it is an open document given to the man himself for such purposes as may please him.

"TRENCH-FOOT."

THE Académie de Médecine has resolved to draw up some leaflets for distribution among soldiers, describing in simple terms the prophylaxis of some preventable diseases. A committee appointed for this purpose on November 2nd made a report on November 16th, in which it presented leaflets on venereal disease and on the prevention of local lesions due to cold. The former led to a long debate, but the latter was adopted almost without discussion. After pointing out that such lesions occurred particularly in the feet, owing to standing in water, liquid mud, or melted snow, to wearing damp boots, to contraction of the leather and consequent constriction of the foot interfering with the circulation and producing swelling of the foot and the lower part of the leg, the leaflet proceeds to make certain recommendations. It advises that the men should make every effort to render the bottom of the trenches as dry as possible by means of drains and catch-pits, and laying down shingle or hurdles; that men should not remain standing or sitting longer than is necessary; that they should wear large boots; and that it is worth while to wrap the feet with strips of paper under the sock and to keep two pairs of boots and socks, so that those not in use can be dried. The most important point, however, is to take the boots off at least once a day, and to rub the feet and lower parts of the legs thoroughly for ten minutes, while at the same times the toes and ankles are moved energetically. Afterwards a dry pair of socks should be put on. The soldiers are counselled to use the opportunity of being in camp or billets to give particular care to their feet and boots, washing the feet and rubbing them at least once a day. The boots should be cleaned of all mud, dried without hardening them by bringing them too near the fire, and greased. Further, if he has reason to fear that his feet are beginning

to suffer from cold, the soldier is advised to take off his boots, rub the feet gently, put on sabots filled with straw, and see the medical officer at once. The interesting paper by Professor Sheridan Delépine, published at p. 183, discusses the prevention of what appears now to be commonly known as "trench-foot" from a scientific point of view and describes a waterproof silk bag for the foot and leg, to be worn inside the boot. He considers that a waterproof top boot so devised as to leave a fairly wide air space between the foot and ankle and lower part of the leg would be more efficient and probably more convenient, provided the material used was light and did not interfere with movements, and Mr. Tennant told the House of Commons that a large number of rubber thigh boots have been issued. That the matter has already become one of considerable importance is shown by his further statement that 770 cases of trench-foot occurred during the week ending November 27th. Such discussion as did take place at the Académie arose in connexion with a recommendation to grease the foot and the stocking carefully, using for this purpose by preference tallow either alone or mixed with ox-foot oil. This was referred back to the committee.

MILITARY RECORD CARDS FOR HEALTH RESORTS.

The Advisory Committee of the Royal Society of Medicine (Section of Balneology and Climatology) has now issued a second set of case record cards for recording the treatment of wounded and invalid soldiers at the British health resorts. It is the aim of the committee to obtain a permanent record of the many military cases that are now being treated by waters, baths, and climates in this country. A card was therefore prepared in consultation with the Medical Research Committee, which will eventually form a part of the records for the Medical History of the War. A doubt has been expressed whether these cards ought to be used at the hospitals at health resorts (and there are many) where baths and other physical treatments are not chiefly and primarily employed. Such hospitals are already, to some extent, reserved for cases appropriate to the health resort, which offers facilities for special treatment not elsewhere obtainable, and they will, no doubt, be more and more set apart for cases suitable for the health resort as time goes on. In the meantime it is considered well that the cards should be used as freely as possible, in order to obtain something like a complete record of the results of all cases sent to the British spas and climatic stations. In the second edition, which consists of ten thousand, the cards have been modified as experience has shown to be convenient. The back of the card is now devoted to a tabular entry of the particular physical applications employed. The committee is anxious that all medical men in charge of soldiers at the health resorts should avail themselves of this means of making their observations of permanent value. From the point of view of the health resorts themselves it should be unnecessary to emphasize the value of the present opportunity for accumulating a mass of evidence showing the results achieved by means of the various treatments which they have to offer. Fresh supplies of cards can be obtained on application to the printers, Messrs. Adlard, 76, Newgate Street, E.C.

HYGIENE FOR THE MEN IN THE RANKS.

The Ligue Sanitaire Française was established at the French Ministry of the Interior, with Professor R. Blanchard as President, in February, 1914. Its aim was to disseminate the knowledge of elementary hygiene among the French people, French colonies, and countries in sympathy with the French and speaking their language. The organization of the Ligue was only partially complete when the war broke out, but it at once turned its attention to the distribution of information to the soldiers. It has issued a series of pamphlets giving good advice and stating reasons for each recommendation.

The first pamphlet, of which 25,000 copies were printed, contained instructions as to general hygiene and disinfection in war. The second dealt with the plague of lice. The third, of which we gave some account on October 23rd (p. 612), described means for dealing with the plague of flies; and the fourth discussed in particular the safeguarding of food in the trenches and camps. At a meeting of the Académie de Médecine on November 30th Professor Blanchard was able to produce evidence that these pamphlets had been highly appreciated by the responsible military officers, and he went on to describe briefly what was being done in the same directions in other countries. In particular he referred to the articles on Insects and War, published in the BRITISH MEDICAL JOURNAL by Dr. Shipley, some of which were republished in a small volume entitled *The Minor Horrors of War*. The book, Professor Blanchard said, would remain a pattern for its genial combination of humour and science. We are sure he will be able to express the same opinion of the second volume containing the remaining articles published in the JOURNAL, which the Master of Christ's is, we understand, preparing. Professor Blanchard also said that Italian medical officers had prepared leaflets giving brief instructions without explanations, which the distinguished professor of parasitology in Paris considered to be a mistake unless accompanied by much fuller statements, addressed to officers and non-commissioned officers, explaining the motive of the recommendations, after the manner of the French pamphlets and Dr. Shipley's book.

The offices of the General Medical Council have been removed to its new house at 44, Hallam Street, Portland Place, London, W. In future the business will be transacted at this address, to which all communications should be forwarded. The telegraphic address is "Genmedicins, Eusroad, London."

Medical Notes in Parliament.

War Taxation: The Finance No. 3 Act.

We have dealt in previous issues with the progress of the third Finance Act of the War, which is now on the point of becoming operative, and we propose here to consider briefly some of the alterations made in the bill during its later stages.

The Import Duties naturally came in for a good deal of criticism on the question of principle involved, but little change was made in the actual incidence of the taxes. Professional users of imported motor cars are still denied the exemption granted to commercial users, but veterinary surgeons will be allowed the rebate on the motor spirit duty which medical men have always received.

The questions discussed and the amendments carried in connexion with the income tax proposals dealt for the most part with matters of administration; authority was given to exempt the interest on future war loans from tax so far as it may be paid to persons not domiciled or resident in this country. Banks are, in certain circumstances, to receive an allowance in respect of war loan interest, and a new method of assessment was set up, devised to obtain income tax from foreign concerns artificially reducing or eliminating their profits so far as they arise from operations in this country.

The question of the income tax charged on officers was the subject of an interesting discussion. Mr. Pebo (U., Devizes) moved an amendment providing that officers should be relieved from the additional war taxation unless they were possessed of a private income amounting to £1,000 per annum, and Lord Beresford (U., Portsmouth) and others strongly urged the Chancellor to make the desired concession, but in replying he explained that his view was that if the pay of an officer was brought unduly low by the payment of income tax the proper remedy was to increase the pay rather than to make a special allowance from the tax. Asked whether he would be prepared to find the money if a bill to increase the pay were intro-

duced, Mr. McKenna replied that he would have to see what the War Office proposals were. Ultimately he agreed to move an amendment on the report stage providing that the pre-war rates of tax should be applied to officers whose total incomes from all sources did not exceed £300. Speaking on the amendment, Mr. Peto urged that the concession should be extended to cases where the private income did not exceed £450, but finally withdrew his amendment, intimating that the question would be raised again on the next Finance Bill. In the bill as it originally stood it appeared that all "employed persons" would come under the new quarterly system of collection. As a result of discussion with the General Commissioners of Income Tax and others, it has now been made clear that this system will apply only to "weekly wage earners employed by way of manual labour."

We have before pointed out that the Excess Profits Tax breaks new ground and on that account is open to useful criticism to a far greater extent than a tax which, like the Income Tax, has by constant amendment of an original and still operative Act gradually become so complicated that none but experts can readily grasp the effect of fresh legislative proposals. That this is so is shown by the large number of alterations made in this portion of the Act during its passage through the Commons. The functions of the Board of Referees have been so far extended that the Chancellor suggested that they would probably have to act in panels. The right which the bill proposed to give to revenue officers to inspect books of account has been withdrawn, the tax has been extended to mineral royalties, and many other changes have been made which need not be discussed here. One alteration in principle the Chancellor throughout refused to make—namely, to extend the tax to professional incomes. On the other hand, Mr. Montagu introduced on his behalf, during the report stage, a declaratory amendment exempting "barristers . . . doctors . . . and any profession unconnected with the purchase and sale of property or commodities of any description." He explained that a satisfactory datum line for the pre-war standard of professional profits was regarded as unattainable and also that the yield of such a tax would be "insignificant." In deference to the wishes of the House, Mr. McKenna withdrew his amendment, but the existing clauses of the Act already make it sufficiently clear that medical men are exempt, and in their case at least the abortive amendment was not necessary.

It is now nearly three months since the bill was first introduced, and a considerable amount of parliamentary time has been expended upon it. Embodying as it does novel principles and heavy taxation, the application of the measure will be fraught with difficulties both to the taxpayer and to the administration. The great importance in this country of success in fiscal matters should be sufficiently obvious to render all concerned genuinely anxious to make the Act a means of equitable and yet fruitful taxation. If its practical working is carried out in that spirit the result should not be in doubt.

War.

"Frost-bite."—Sir G. Scott Robertson on December 8th asked whether "frost bite" so-called threatened to be as bad among British troops at the front this year as last; whether it was more or less common amongst our men than amongst French and Belgian soldiers; whether French and Belgian soldiers wore puttees; whether rubber thigh boots were provided in sufficient numbers for actual duty in the trenches, and, if so, whether they were worn with puttees or with long woollen stockings. Mr. Tennant said that during the week ended November 27th approximately 770 cases of trench-foot were reported from France. It was hoped that the measures adopted would cause a great reduction in the incidence of the ailment. Rubber thigh boots had been provided in large quantities for the use of men actually on duty in the trenches and further quantities were being sent. So far as was known puttees were being worn with them. He was unable to say whether frost-bite had been more or less common amongst our soldiers than amongst French or Belgian soldiers.

Marching Boots.—Mr. Tennant, in answering a question by Mr. Bryce, said that the importance of a soldier's footwear was universally known and appreciated. While unable to accept, without consultation with military

authorities, the classification of feet into the normal, the arched, and the rather flat, he could say that he had received no reports indicating that suffering had been caused by boots to suit these three characters of foot not having been provided. Experts with regard both to boots and feet had been consulted before the present boot was introduced, and this practice would be continued when any question arose requiring skilled advice.

Eye-sight Defects.—Sir J. Rolleston asked whether anything could be done to allay the uncertainty due to recruits not being thoroughly medically examined for eyesight and other defects upon attestation, and whether a recruit or his employer could be entitled to demand a final medical examination at once. Mr. Tennant said that when the present recruiting campaign was over it would be possible to examine recruits properly, and due notice would be given with regard to the arrangements proposed to be made.

American Medical Men.—In reply to Mr. Pringle, who inquired whether American medical men had been recruited for medical service with the British Army, Mr. Tennant said that he understood that several of the American universities had combined, under the auspices of the Red Cross Society, to send medical men and nurses to form the staff of two general hospitals. These medical men and nurses were engaged in their civilian capacity. Individual American medical men were not being employed in a military capacity. He did not think it was true that they were being employed by the British War Office and placed in uniform, but promised to inquire.

Dentists.—In reply to questions by Sir C. Kinloch-Cooke, on December 8th, Mr. Tennant said that a considerable number of full-time dental officers had been appointed over and above such as might have been appointed to go with the Canadian contingent and the Australian and New Zealand forces, and any voluntary hospitals. There was no evidence of any increased number of soldiers being invalidated for defective teeth in proportion to the number of men in the field. Whether it was true that eight Red Cross hospitals in France were without dentists he could not say, but all demands for dental surgeons made by the authorities overseas had been met. Another point raised was whether, owing to insufficient dental arrangements at various hospitals in London and elsewhere, men invalidated homo on account of their teeth had to remain in this country a much longer time than would have been necessary had the arrangements been adequate. Mr. Tennant said that men were not kept in hospital for dental treatment, the bulk of the work being done while they were doing their duties. In each command full-time commissioned dental officers had been appointed, and their number was increased when required. General officers commanding were also empowered to employ as many civilian dentists as were needed. The importance of proper dental treatment of officers and soldiers was fully realized.

Invalided Soldiers.—In reply to Mr. Needham, the Financial Secretary said that the War Office had not lost sight of the question of finding temporary work for soldiers without discharge from the Army.

Pieric Acid and Nitrous Fumes.—In reply to Mr. W. Thorne, on December 8th, the Under Secretary of State for the Home Department said that acematous ulceration of the skin and poisoning by nitrous fumes were both scheduled under the Workmen's Compensation Act.

Medical Service of the Army.—Mr. Pringle, on December 14th, asked what was the proportion of regular officers of the Royal Army Medical Corps to officers formerly in civilian practice who have enlisted since the beginning of the war. Mr. Tennant said: The strength of regular officers is 1,034, and that of temporary officers 5,894. This is exclusive of the Special Reserve and Territorial Force.

Sterilized Tuberculous Meat.—On December 9th Mr. Field asked a question as to the sale at low prices in Continental countries of slightly tuberculous meat which had been sterilized, and whether, in view of the existing conditions in this country, the advisability of avoiding wasteful destruction of food would be considered and this economical method, practised with safety in other places, adopted. The President of the Local Government Board said he was aware of the Continental practice, but did not consider its adoption in this country at the present time expedient.

THE WAR.

A MILITARY MEDICAL SOCIETY.

At one of the British hospital areas in France the class of cases treated is very varied and much of the practice is of a nature in which the experience of peace gives little guidance. Beyond the confines of his own mess the medical officer had comparatively little opportunity of meeting his fellows, of discussing with them matters pertaining to his work, or of interchanging the fruits of experience. It was felt that a pooling of the knowledge gained by individuals in the area would be helpful to all. So a few enthusiastic spirits gathered together, and, under the trees by the banks of a river where Napoleon sat to plan his invasion of England, they evolved a District Medical Society. Each hospital nominated a representative to be responsible for its contributions, and these members in turn elected the office-bearers as follows:

President: Colonel H. Carr, C.B., A.D.M.S.
Vice-Presidents: Lieutenant-Colonel K. Cameron (Canadian General Hospital), Major T. J. Horder, Major M. Dunlop.
Honorary Secretary: Captain Archibald Leitch.
Executive Committee: Dr. Francis E. Fraser, Captain H. Pritchard, Captain F. L. A. Greaves.

The difficulty of a meeting place was solved by the kindness of Sir James Clark, commanding the splendidly equipped hospital of the St. John Ambulance Brigade, who placed the recreation hall at the disposal of the new society. The meetings have been very well attended, far beyond the hopes of the founders. For half an hour before the business proper of the meeting starts the members meet socially over a cup of tea and make new acquaintances or revive old friendships. The consequence has been the welding of the hospitals into one unit and the production of a very lively *esprit de corps*, for which the medical officers have to thank the organizing power and good fellowship of the A.D.M.S.

The first meeting of the society was held on September 1st. Colonel H. Carr, C.B., the A.D.M.S. of the district and the president of the society, being in the chair. Over 150 medical officers attended, and the following were among the papers read and discussed.

Partial Section of the Spinal Cord.

Lieutenant C. H. Treadgold exhibited a *post-mortem* specimen of partial section of the spinal cord produced by a rifle bullet which entered the left side of the neck and after a zigzag course embedded itself in the liver, fracturing parts of the first and second dorsal vertebrae in its course. The cord and membranes were completely divided save for a thin strand of dura and subjacent nervous tissue posteriorly. Superficial sensation had been lost up to the level of the clavicles, but deep sensation was at no time impaired. There was no loss of sensation in the arms and no hyperaesthesia.

Optic Neuritis in Gunshot Wounds of the Skull.

Captain M. W. P. Oliver said that during the previous eleven months he had examined the eyes of 68 patients who had had gunshot wounds of the head. In every one of these cases there was a fracture of the skull, which was shown either by x rays or by subsequent operation. In all the cases there was a fracture of the vault and in a few the base was also involved. Of the 68 cases, 31 had optic neuritis. In the remaining 37 the discs were normal. These cases of optic neuritis might be divided into two very distinct classes:

(1) By far the larger, in which there is merely fullness of the veins, blurring of the disc with very little swelling.

(2) In which there is marked swelling of the disc, associated sometimes, though he thought not very commonly, with retinal haemorrhages. The appearance of the disc in these cases is very similar to the condition found in brain tumours,

Of these 31 cases, 6 were of the second class, with swelling varying from 4 D. to 6 D. In the first class there were 25 cases with not more than 2 dioptres of swelling. Of the 6 cases with marked optic neuritis, all showed some signs of cerebral compression. Two of these, when

operated on, were found to have a cerebral abscess; both of these died. Two had very extensive laceration and destruction of the brain; both of these died. Two were still alive in hospital; one of these, a German prisoner, was found to have a cerebral abscess; the other had very extensive laceration of the brain, but no abscess. In the 25 slight cases the optic neuritis disappeared entirely after any form of local treatment, whether an extensive decompression was performed or merely a local clearing up of the wound. He had even seen it disappear without any form of treatment. In 4 of 6 severe cases that died he was unable to notice any diminution after the operation, as the interval between operation and death was too short. In the slight cases the vision was never affected; in the severe cases it might or might not; consequently, unless a routine examination of the eye was made in these cases, the optic neuritis might very easily be overlooked. The cause of the optic neuritis was undoubtedly increased intracranial pressure, the cause of which was not definitely known. It was probably due to oedema of the brain caused by trauma. He did not think it was septic in origin, as he had frequently seen it in cases in which the dura had not been opened, and in one case found it in a fracture involving the inner table of the skull only, which obviously put out of court any sepsis. The importance of optic neuritis might, in his opinion, thus be stated:

The fact that of the 68 cases examined the disc was found to be normal in 37, showing that in these cases there was no increased intracranial pressure.

In 25 of the cases there was only slight optic neuritis—therefore, presumably, only slight intracranial pressure, and this disappeared entirely under either no treatment or purely local treatment, without any extensive decompression.

Thus, in only 6 of the 68 cases was there any great rise of intracranial pressure.

These facts were of importance in deciding the best method of treating these cases, but this subject hardly came within the scope of the eye specialist.

Dr. Greenwood, in commenting on this paper, emphasized the importance of a routine examination of the eyes of every case of head injury. He would add a third class to those mentioned by the speaker, namely, true optic neuritis following meningitis. There were several cases, he thought, of increased intracranial pressure without increase of blood pressure.

The Gas Bacillus in a Brain Injury.

Dr. Hixon gave the particulars of a case of shrapnel wound of the brain. A *post-mortem* examination was performed within an hour after death, and cultures were made at once from pockets of pus in the brain tissue. The *B. aerogenes capsulatus* was isolated in pure culture from these. He asked whether any officers of longer experience had ever found meningitis due to the gas bacillus.

Lieutenant Morrison pointed out that it was easy to find the *B. aerogenes capsulatus* in the blood *post mortem*; therefore the times given by Dr. Hixon were important. This organism was very often present in wounds, but he doubted whether it was a pathogenic organism to be reckoned with. Probably it did not play an active part in the case reported. It was sometimes found alone in rapidly spreading gangrene without pus formation, but it was unusual to get it in head injuries. It occurred generally in wounds of the lower limbs and hands, seldom in the trunk.

Another speaker maintained that the causal agent of very rapid oedema was not the *B. aerogenes capsulatus*, but another quite distinct anaerobe the characters of which he had not fully worked out, as it easily died in culture.

Lieutenant-Colonel Gordon Watson said that the *B. aerogenes capsulatus* ought to have no terrors for the surgeon, as it was not of itself a pathogenic organism. In cases of gas gangrene he had always found a mixed infection. Quick opening and good drainage of these cases was the most hopeful treatment.

Medical Aspects of Gunshot Wounds of the Chest.

Lieutenant-Colonel N. Raw read a paper on the medical aspects of gunshot wounds of the chest. He had had to

deal with 24 cases of perforating wounds of the thorax, in all of which pneumothorax existed. After the initial severe shock of wounding the condition was comparatively favourable. Pain was usually slight, whereas dyspnoea on exertion was very common, and was due to effused blood that required removal. In some cases rise of temperature of remittent type appeared eight to ten days after the injury, but this was not due to sepsis. He considered that the blood came from the intercostal vessels and not from the lung tissue. The effusion was pure blood at first, but was afterwards followed by serous effusion from the injured pleura. In all cases the effusion was sterile. He had not observed any permanent collapse of the lung after removal of the fluid. He advocated aspiration of the fluid at one sitting as far as safety allowed. He had not introduced gas into the pleural cavity.

Captain Branson was of opinion that these cases did extremely well without tapping. In his experience of some 50 cases there was only one in which the amount of effused fluid was sufficiently large to make it worth while to aspirate. He was much against early aspiration, because the effusion might recur if interfered with; left alone it was usually rapidly absorbed, and even if it were not, the lung would not fail to expand if the fluid were sterile.

Lieutenant-Colonel Gordon Watson was averse to tapping, as it subsequently increased the hæmorrhage. Major Horler doubted if these were true cases of pneumothorax. He thought that usually there was a pure serous effusion due to wounding of the pleura, and was against routine tapping.

Colonel Carr said that these cases should not be evacuated to England within a month at least of their admission into the military hospitals.

At the second meeting of the society, held on September 17th, the President, Colonel H. Carr, C.B., was in the chair, and over 150 medical officers were again present.

Localization of Foreign Bodies.

Captain A. H. Pirie read a paper on localization of foreign bodies in special regions, especially in the upper parts of the limbs, the eye, and the pleural and pericardial sacs. He pointed out the importance of placing the patient in the same position in the operating theatre as he was in the x-ray room, in order that the measurements taken in the latter might be useful. He advocated the Mackenzie Davidson method of localization. In some cases in which there would be a difficulty in keeping to the same position in the operating-room he was accustomed to pass a needle through the tissues till it touched the foreign body, observing the while under the fluoroscope; this needle was left *in situ* as a guide to the surgeon. He used the Snook apparatus for the localization of foreign bodies in the eye, and found that he could localize to within 1 millimetre. When the foreign body lay in a cavity such as the pleural or pericardial sac or in an abscess considerable changes in its position might take place in quite a short time.

Major Maynard Smith thought that the usually adopted methods of localization were wrong, because of the changing position of the foreign body in some cases and the altering relations due to changes of position of the part of the body under consideration. He had therefore made it his practice to operate in the x-ray room, viewing the foreign body and the surgical instruments used from time to time in the fluorescent screen enclosed in a sterile aluminium box.

Sir George Makins considered that the methods advocated by the speaker were extremely useful in the majority of cases, but that the x rays were of very little utility when the foreign bodies were in the abdomen.

Malaria Contracted in the Trenches.

Captain H. MacCormac related the case of a private in a Highland regiment who had lived all his life in Aberdeenshire until September 26th, 1914, when he joined the army. He came to France in May, 1915, having been stationed at Bedford in the interval. The first attack of fever occurred in July after he had been two months in the trenches, where his battalion had relieved Indians; further, they had occupied billets previously inhabited by Indian troops. He had been severely bitten about the legs by flies. The first attack, diagnosed as trench fever, quickly subsided,

quinine being given, but a second occurred about three weeks after the first. On August 23rd he was admitted to a general hospital under Mr. Yellowcotes. A typical attack of tertian ague commenced on August 31st. Mr. Lyn Dimond examined the blood films and reported the presence of tertian benign parasites in the early stage of schizogony; ring forms of trophozoites were also noted. Captain MacCormac considered that it was justifiable to assume that the disease was contracted in the trenches or in billets, the parasite being conveyed by a mosquito.

Lieutenant-Colonel Finley said that he had had a similar case under his care, the patient being an Irishman. He knew of some seven or eight cases of malaria contracted at the front. The *Anopheles* had been found.

Amputations for Emphysematous Gangrene.

Captain H. Burrows raised the question of methods of treatment of cases of emphysematous gangrene requiring amputation. He had not yet found the necessity of having recourse to flapless operations. The process of healing after flapless operations was slow, the protrusion of bone sometimes beyond the soft tissues prevented healing, and subsequent operations had to be done to obtain a useful stump at a higher level. He thought this subsequent operation could be obviated if flaps were taken through apparently healthy tissues, holes cut in them, and the flaps left ununited to secure drainage. After the septic process had subsided he secured the flaps together, and in all his cases, some half-dozen, there was a good result, and no subsequent severe operation was required.

Lieutenant-Colonel Gordon Watson, as the surgeon who was instrumental in starting the procedure in question, disowned the name "flapless operation." It was not a set operation; he preferred to call it a means of saving the patient's life. He recalled the conditions under which patients arrived from the front at a hospital in the earlier days of the war, borne from sodden soiled trenches for perhaps many days in improvised ambulances. The only treatment was then to lop off the damaged tissues without regard to immediate pretty results. They had first to save the man's life, and afterwards consider the cosmetic result. He had avoided exposing the medulla of the bones to the streptococcal and anaerobic organisms in the fleshy part, for absorption by the medulla was fatal. He therefore often left the end of the bone protruding several inches beyond the level of the sound tissues. He had given open-air treatment to such wounds. The shock was minimized in these so-called flapless operations by the intravenous injection of ether to produce the necessary surgical anaesthesia. He was not ashamed of the results of these measures, though the changing conditions of trench life and the improved methods of conveyance of wounded had, he was glad to say, obviated much of the necessity for flapless amputations.

Sir George Makins agreed with the last speaker absolutely. The class of cases had now changed. He was afraid that the necessity of very free drainage was not sufficiently appreciated, and he did not think that flaps with holes could have saved the situation in the earlier days. Short flaps gave no better results than no flaps at all.

GERMAN EXPERIENCES OF TETANUS.

DR. B. O. PEBBERM,¹ in discussing the German experiences of tetanus since the outbreak of the war, states that in the military hospitals of the 15th Army Corps 27,577 wounded were treated between August 1st and October 31st, 1914, and the 1,744 cases of tetanus observed in this period represented an incidence of 0.66 per cent. After a comprehensive survey of the subject and a detailed account of many illustrative cases, the author came to the following conclusions:

Prognosis.

Owing to the apparently capricious nature of the disease it was impossible to estimate the value of different methods of treatment by the mortality statistics, unless careful notes were made on every case. The site of the muscular spasms was a valuable guide to prognosis, which, in the absence of pulmonary and cardiac complications, was relatively good in cases of trismus, opisthotonos, and spasms of the peripheral muscles. The prognosis was

¹ *Berl. Klin. Woch.*, August 16th, 23rd, and 30th.

bad when the diaphragm and larynx were affected, even though every other muscle might have escaped. Unfortunately, no method hitherto employed could check the spasms in these two groups of muscles. A sure and early symptom of incipient diaphragmatic spasm was epigastric pain traceable to increased tone of the muscles of the diaphragm. The old observation that the shortness of the incubation period was directly proportional to the virulence of the infection was not altogether to be trusted. The true incubation period must be reckoned from the time that the infecting organisms produced toxins; but this did not necessarily synchronize with the introduction of the organisms into the tissues.

Differential Diagnosis and Causes of Death.

The localization of the muscular contractions was independent of the site of the wound and of the intensity of the infection. However well developed the facies tetanica might be, increased mechanical irritability of the facial nerve was never demonstrable. The absence of this sign, of a strained position of the hand, and of isolated, adductor spasms were of use in distinguishing tetanus from tetany, two cases of which occurred among the many cases of tetanus. The most frequent complication was lobular pneumonia, which was also the most frequent cause of death after suffocation in diaphragmatic and laryngeal tetanus. Pirbram therefore suggested that greater attention should be paid to the treatment of the lungs.

Status Lymphaticus among the Subjects of Tetanus.

Among the patients dying of diaphragmatic tetanus, it was usual to find subpleural hæmorrhages. Hæmorrhages into the heart, liver, kidneys and diaphragm, and congestion of the liver and kidneys were also often found in these cases. The abdominal organs of patients who had not died of diaphragmatic tetanus contained the usual quantity of blood or less. Obvious signs of status lymphaticus were observed in many of the patients, and in practically every patient dying of tetanus. This condition, therefore, probably played a part in predisposing to infection and also in aggravating the course of the disease. In one case a septic embolus induced a relapse of the tetanus.

Treatment.

The best treatment consisted of the radical excision of all necrotic tissues and of the neighbouring freely bleeding tissues. Antiseptics and the cautery were less satisfactory. The decision for or against amputation should depend rather on anatomical than on bacteriological indications. In fact, the nature of the infection was not by itself any indication for amputation. In some cases the patient recovered in spite of severe phlegmon, while death resulted in others in which the wound was slight. In some cases fatal tetanus did not develop till an amputation had been performed. The view that the development of tetanus depended on the severity of the wound was incorrect; and in one of the author's cases the only demonstrable lesions were excoriations between the toes due to perspiration. To confine prophylactic injections of antitetanic serum to cases of shell wounds was, therefore, indefensible. With regard to general anaesthesia, only pure chloroform should be used, as ether was apt to cause pneumonia and laryngeal spasm. Antitetanic serum was often strikingly beneficial, provided large doses were given. Pirbram gave 200 to 300 units every day, and advocated also an additional intradural injection of 400 to 500 units on the first day of the disease, the patient's trunk being in a dependent position during the injection. The spasms of the peripheral muscles could be successfully relieved by the administration of chloral hydrate (up to 10 grama a day) by the subcutaneous injection of magnesium sulphate (20 c.cm. of a 25 per cent. solution five to six times a day)—and by the hypodermic injection of a 20 per cent. solution of luminal sodium. (The sodium salt of phenyl-ethyl-barbituric acid, a modification of veronal.) The combined use of these drugs, he says, was most satisfactory, but all failed when the diaphragm and larynx were affected. The usual doses of morphine were of little value; but given in large doses—up to 0.3 gram a day—they were useful. Failure of respiration, due to the large quantities of morphine given, was not to be feared, provided everything was in readiness for artificial respiration. Artificial respiration with oxygen also proved very effective.

CASUALTIES IN THE MEDICAL SERVICES.

Killed in Action.

LIEUTENANT JAMES RYTON GARDNER GABRETT, R.A.M.C., was reported as killed in Flanders in the casualty list published on December 9th. He was educated at Aberdeen University, where he graduated M.B. and Ch.B. in 1911; afterwards he filled the post of house-surgeon at the General Infirmary, Macclesfield. He took a commission as temporary Lieutenant in the R.A.M.C. on December 7th, 1914, and was attached to the 8th Battalion of the King's Own Scottish Borderers when killed.

Wounded.

Captain J. W. Wood, R.A.M.C. (temporary), France.
Captain J. V. L. Grant, R.A.M.C. (Special Reserve), France.
Captain H. W. White, R.A.M.C. (temporary), France.
Lieutenant L. J. Legris, R.A.M.C. (temporary), France.
Lieutenant E. G. D. Milson, R.A.M.C. (temporary), Mediterranean.
Lieutenant H. Scott, R.A.M.C. (temporary), France.

DEATHS AMONG SONS OF MEDICAL MEN.

Christison, Frederick John, Lieutenant 10th Battalion Argyll and Sutherland Highlanders, younger son of Surgeon-General Sir Alexander Christison, Bt., 1.M.S. (retired), of 40, Moray Place, Edinburgh, killed in Flanders on December 2nd, aged 21. He was educated at Edinburgh Academy, where he was in the eleven and was captain of the Rugby fifteen in 1912-13, and at University College, Oxford, where he was studying forestry with a view to entering the Indian Forest Service. An accident at Oxford cut short his football career and deprived him of the opportunity of gaining a Blue at Rugby football. He got a commission as Second Lieutenant in August, 1914, when the war broke out, was promoted to Lieutenant in February, 1915, passed through the battle of Loos unhurt, and was acting as adjutant of his battalion when killed.
Dunn, George, Private, the Buffs, East Kent Regiment, son of the late Dr. Dunn of Wolverhampton, died of wounds in No. 3 General Hospital, Le Treport, on December 6th.

NOTES.

Honours.

THE *London Gazette* of December 10th announces that the Territorial Decoration has been conferred upon a number of officers of the Territorial Force, including the following medical officers:

Lieutenant-Colonel W. P. Peake, North Midland Casualty Clearing Station.
Lieutenant-Colonel F. H. Westmacott, F.R.C.S., 2nd Western General Hospital.
Major D. J. Penney, M.B., 4th Highland (Mountain) Brigade, R.G.A.
Major J. Taylor, M.D., attached 6th Gordon Highlanders.
Major J. Robinson, attached 3rd London Regiment.
Major J. A. Clark, M.B., attached 6th Scottish Provisional Battalion.

F.M.S. HOSPITAL.

A hospital for sick and wounded soldiers has been established at Blackmore End, Kimpton, Herts., generously lent for the purpose by the owner, Mrs. Vincent, of Blackmore End, and 35, Portman Square. The funds to cover the cost of the equipment and maintenance of the hospital (to be known as the F.M.S. Hospital) have been provided by the public of the Federated Malay States, all classes of the community—Malay, Chinese, and Indian, as well as European, having contributed liberally. The hospital contains eighty beds, and is under the charge of Captain G. D. Freer, R.A.M.C.(T.), formerly Senior Medical Officer, Selangor, F.M.S. Mr. C. S. Atkin, M.R.C.S., L.R.C.P. Lond., is resident medical officer, and Miss E. M. Willis, of the Royal Free Hospital, Gray's Inn Road, E.C., is matron. The first forty-eight patients arrived at the hospital from France on December 3rd.

MEDICAL OFFICERS WANTED.

Wessex Field Ambulance.
Medical officers wanted. Apply to A.D.M.S., Wessex Division, Exeter.

21st East Lancashire Field Ambulance.

Vacancies for medical officers to replace men who have gone to the front with drafts. Apply Officer Commanding, 21st East Lancashire Field Ambulance, Linden Gardens, Tunbridge Wells.

The Welsh General Hospital.

The personnel of this hospital is to be found for the War Office by Walca. Besides the ordinary medical officers, there will be

officers in charge of medical and surgical divisions who must be consultants in their branches, a registrar, ophthalmologist, ear and throat specialist, pathologist, and radiographer. A dental surgeon with a medical qualification would be accepted. The hospital is for overseas service, and will be commanded by Lieutenant-Colonel A. W. Shoen, R.A.M.C. (T.F.). Particulars and forms of application for posts can be obtained from the Honorary Secretaries, Welsh Hospitals, 47, Principality Buildings, Cardiff.

Ireland.

MEASLES NOTIFICATION IN DUBLIN.

SIR CHARLES CAMERON, M.O.H. for Dublin, has written a letter to the corporation, pointing out that measles is prevalent in parts of South Dublin, and stating that his attention has been drawn to the recent order of the English Local Government Board. Sir Charles does not say whether it has been recommended that the English example should be followed, nor does he himself express any view. It is within the power of the corporation to make notification compulsory. For some years measles was one of the notifiable diseases, but in 1904 it ceased to be so, and about a year and a half ago the Public Health Committee was asked to report on the advisability of renewing the order. The answer was that notification had been given up because the results were not satisfactory and the expense considerable. The matter has again been referred to the committee. At the last meeting of the Public Health Committee Sir Charles Cameron reported that twenty deaths due to measles had been registered during the fortnight as against six in the previous two weeks. The great majority occurred on the south side of Dublin, but the disease was spreading rapidly, and would, he had no doubt, penetrate to all parts of the city. He had recommended the closing of infant schools on the south side, and he now considered it advisable to recommend the closing of all the schools in the city until after Christmas. The committee approved of the suggestion.

ALCOHOLIC POISONING IN A CHILD.

A case of fatal alcoholic poisoning occurred last week at Tullyallen, some five miles from Drogheda. A number of schoolboys, when passing through Tullyallen graveyard, discovered a bottle of whisky, which they shared among themselves. One boy, aged ten, took such an overdose of the whisky that he died next day, comatose death being attributed to acute alcoholic poisoning.

DUBLIN CASTLE RED CROSS HOSPITAL.

At the last meeting of the Committee of the Dublin Castle Red Cross Hospital it was reported that owing to the large increase in the price of all foodstuffs, the daily cost for each patient was 5s. 4d. during November, as against the 3s. allowed by the War Office. There are at present 91 patients in the hospital, and 1,052 have been received since the opening of the institution in the early spring.

Scotland.

REQUESTS TO DUNDEE INSTITUTIONS.

LORD ARMISTEAD, who represented Dundee in Parliament for ten years, bequeathed £10,000 to the Dundee Royal Infirmary, £5,000 to University College, Dundee, £1,000 each to the Sidlaw Sanatorium and the Dundee Convalescent Home, and £500 to the Dundee Sick Poor Nursing Society, in addition to other charitable bequests. The residue of the estate, which will probably amount to over £40,000, will ultimately become available for various institutions and charities in Dundee.

FOG DEATHS.

Dr. A. K. Chalmers (M.O.H. Glasgow) reported to the Health Committee, on December 8th, that during the week ending November 20th the mean air temperature was 28.5 degrees, and there was almost continuous fog from the Monday onwards. The effect on the death-rate was shown rapidly and proved to be cumulative. It rose to 20.5 in that week, and in the following week to 26.2, although before November 27th the frost had relaxed and the mean temperature had risen to 33.8. The age distribution of the deaths, and the cause of an appreciable

portion of them, repeated the experience of former years when similar climatic conditions prevailed. For the three weeks ending November 27th the deaths under one year numbered respectively 76, 82, and 74, and over sixty years 93, 114, and 195; while the total number of deaths at all ages rose from 335 to 389, and then to 509. There was an appreciable increase in deaths from phthisis and pneumonia, while deaths from bronchitis and other diseases of the lungs rose from 39 in the week ending November 13th to 51 in the following week, and 132 in the week ending November 27th. The local distribution of the deaths repeated the experience that such climatic variations told with greatest intensity on the sections of the population whose resistance to fatal disease was at all times low. They were highest in those wards where the annual death-rates from all causes were highest.

MILK SUPPLY OF EDINBURGH.

Deputations from the Public Health Committee of Edinburgh and the Edinburgh and Lothian Dairymen's Association have had an interview with the Board of Agriculture for Scotland and representatives of the Local Government Board with reference to the milk supply. The spokesman of the Public Health Committee said that there had been a large decrease in the number of dairy cows in Edinburgh and its immediate neighbourhood, with an estimated diminution of 1,750 gallons a day in the supply of milk. The president of the Dairymen's Association said that the main cause of the diminution in the number of cows kept was the difficulty of obtaining workers. He suggested that steps should be taken to replace the remaining men on the reserved list. The possibility of employing women and children had been fully considered, but they could only replace men to a limited extent. Sir Robert Wright, chairman of the Board of Agriculture, said, in reply, that several of the classes of agricultural workers in the list of reserved occupations might be regarded as including dairymen employed in Edinburgh, and that if such men enlisted under the group system application should be made to the recruiting tribunal for exemption or postponement to a later group. He suggested that female workers might be obtained from the Highlands and Islands, and that more use might be made of milking machines. He concluded by stating that the Board of Agriculture would be glad to take any steps within its power to assist the dairy industry to maintain the supply of milk.

Wales.

ROYAL COMMISSION ON THE WELSH UNIVERSITY AND NATIONAL MEDICAL SCHOOL.

At the sixth meeting of the Welsh University Education Conference it was reported that the University of Wales and its constituent colleges had accepted the proposal for the immediate appointment of a Royal Commission on the terms proposed by the Treasury, and had agreed to do all in their power to assist the Commission in its inquiries. It was reported also that the board of management of King Edward VII Hospital, Cardiff, had agreed to the conditions laid down, and had expressed its readiness to accept the decision which the Government might base on the findings of the proposed Royal Commission, but, in view of the present necessity for proceeding forthwith with the matter of the National Medical School, had expressed the hope that it would be possible to expedite the proceedings of the Commission. The conference adopted resolutions urging upon the Treasury the desirability of forthwith granting permission for the buildings of the medical school to be proceeded with to completion without prejudice to any decision which might be arrived at as to the scheme for the constitution of the Welsh National Medical School at Cardiff, whether as the result of the report of the Royal Commission or otherwise. An undertaking was given that building operations would be so conducted as not to afford employment to men who might otherwise be employed in rendering war service to the State. It was also resolved to represent to the Treasury that the noble benefaction of Sir William James Thomas for the completion of the buildings of the National Medical School was dependent upon the donor's life and his goodwill, and that he was not willing to agree to any delay. The conference appointed a consultative

committee to consider matters arising in connexion with the Royal Commission. The committee consists of representatives of the colleges, of the University of Wales, and of King Edward VII Hospital, Cardiff, those of the last institution being Colonel E. M. Bruce Vaughan (Chairman of the Board of Management), and Dr. Herbert Vachell (consulting physician).

Correspondence.

THE SOLDIER'S HEART.

SIR, It has interested me to find that the effect produced in the soldier's heart by active service resembles that seen in the heart of the young man of about the same age engaged in hard muscular exercise much more closely than might have been expected in view of the fact that the conditions of life of the two classes differ in many other points.

The chief resemblance appears to me to lie in their plain divisibility into two classes. In one class the effect is that due to overwork in a hitherto healthy muscle. In the other the effect is seen in men who give a history of, for example, influenza, typhoid, "cold" accompanied by severe diarrhoea, trench fever, tonsillitis, septic wounds, and so on.

This second class is, I believe, by far the larger of the two, and is responsible for much of the wastage of men in the army due to "heart disease." The men of this class should be separated from those in the first class and treated as convalescents from the disease which caused the weakness of the heart. In a large number of cases this separation can be made easily when a careful history has been obtained.

It seems to me to be a mistake to tell these men that they have anything wrong with the heart, because they do not believe that a heart disorder can possibly be temporary, and they almost always cease to be of any use as soldiers.—I am, etc.,

ROBERT MICHELL,
British Expeditionary Force, France.

December 8th.

THE TOXIC BODIES OF THE BACILLUS OF MALIGNANT OEDEMA.

SIR,—Drs. Barger and Dale have shown in their article in the *BRITISH MEDICAL JOURNAL* (December 4th, p. 808) that the toxic effects which followed injection of guinea-pigs with cultures of the bacillus of malignant oedema were due to the absorption of certain end products of protein metabolism, in particular of ammonium salts of fatty acids, these bodies being produced by the action of the bacterial ferments, or enzymes, on the artificial substrate. This form of protein destruction is apparently similar to that resulting from the action of trypsin, which, in an alkaline medium, carries the destruction of the protein molecule to a very advanced stage, producing the aromatic bodies, amino-acids, and ammonia; peptic fermentation, on the other hand, takes place in an acid medium, and does not get to the length of producing these simple end bodies. I do not know if Drs. Barger and Dale believe that these ammonium salts of fatty acids are produced *in vivo* during natural infection by the bacillus of malignant oedema. Assuming, however, that these toxic bodies are produced in the natural substrate provided by the infected tissues, I should like to offer the suggestion that it might be possible, by modifying the tissue substrate, to alter the form or degree, and thus the results of the process of fermentation.

Among the aromatic bodies resulting from the action of ferments on protein, the production of indol by bacteria has been closely studied, principally in peptone-water cultures, and it has been found that the presence in the culture medium of glucose, glycerine, and other substances prevents its formation. These latter bodies, in most cases at any rate, are fermented by other bacterial ferments, and the proteolytic ferments have then to act in an acid medium. Whether it is this acidity that modifies the action of the proteolytic ferment I do not know, but certainly its action is modified, with the result that cultures which in the ordinary way are very foul, when grown in a solution containing sugar remain quite sweet. Doubtless the ferments of some bacteria would be much more vigorous and less readily held in check than in the case of

others. In applying this principle to the treatment of cases of bromidrosis I was able to show that the foul smell from the decomposition of sweat might be entirely prevented, and the condition completely cured, by the external application of glycerine.¹ It seems that it would be worth while trying to see whether gangrenous infections could not be treated on similar lines.

It would first have to be established experimentally that the presence of a fermentable sugar—for preference glucose or possibly inositol—could modify the action of the ferments of the bacillus of malignant oedema; it would further have to be shown that these modified products of protein digestion, to say nothing of the alternative substance introduced, are less poisonous than are the unmodified products of fermentation. It would then be the work of the surgeon to apply the alternative material to the substrate in the infected area, either locally through incisions, or by infiltration of the tissues coupled with very free drainage. I attempted last winter to carry out an experiment with the organism under discussion, to ascertain whether the prevention of indol formation, by the presence of glucose and other sugars in the culture medium, was consistent with diminished pathogenicity of the culture; but owing to the fact that my strain of the organism proved to be both non-indol forming, and in broth culture non-pathogenic to guinea-pigs, no results were obtained. I noted that on mannite the foul smell of the culture was much less pronounced, and of a different character from that of the peptone-water culture. On the other sugars there was very little alteration to be observed so far as smell was concerned; one per cent. sugars in peptone water were used. Owing to other work the experiment was not followed up.—I am, etc.,

T. H. C. BENIANS, F.R.C.S.,

Pathological Department, Prince of Wales's Hospital,
Tottenham, N., December 14th.

BROMIDES IN EPILEPSY.

SIR,—The difference of opinion upon the action of the bromides in the treatment of epilepsy, revealed in the interesting correspondence appearing in the *JOURNAL*, shows how great is the difficulty in arriving at the real value of those remedies in this disorder.

Some years ago I collected facts bearing upon this subject from the out-patient records of the Queen Square Hospital, where epileptics attend for treatment over many years. The inquiry brought out the fact that in about 25 per cent. of all cases the continuous administration of the bromide salts led to an arrest or great amelioration of the fits within a short period of commencing treatment. These cases were mainly of a mild type, characterized by an absence of mental symptoms and with fits recurring at long intervals. In a second 25 per cent. the bromides induced a lessening in the severity or in the frequency of the fits. In the remaining 50 per cent. the bromides exerted no influence upon the seizures. These last were cases of a severe or confirmed type, with fits usually of the combined major and minor variety associated with some degree of mental enfeeblement. It is obvious from this that a large percentage of epileptics derive no benefit from the bromides, and this is the experience of those through whose hands large numbers of epileptics pass.

As Dr. Mercier points out, diminution in the frequency of the fits is not the only thing to be considered. There are cases of epilepsy which are doomed to incurability whether treated or not. They are recognized by the co-existence of epileptic attacks and the severer grades of mental enfeeblement.

A further point of practical interest shown by the statistical inquiry was that arrest of the fits following the use of the bromides took place within the first year or two of continuous treatment. I have found in practice that this fact is a good guide to estimate the value of bromide treatment or to form a prognosis upon the likelihood of cure.—I am, etc.,

London, W., Dec. 13th.

W. ALDREN TURNER.

SIR,—Fifteen years' close contact with some twenty epileptics at the Exeter Poor Law Institution has diminished my faith in the specificity of the bromides or even in their general utility. They do not cure epilepsy; they diminish the number of fits, but I have reason to suspect they increase their individual severity.

We have no settled pathology in respect of epilepsy. My own view, based on careful records of the exact moment of the occurrence of the fit and its relation to the prevailing atmospheric pressure, is that changes in barometric pressure cause changes in the blood pressure which suffice in people of unstable nervous organization to precipitate a convulsion. Fits almost invariably coincide with a falling barometer. Epileptic fits cease in pyrexial conditions; epileptics with an average of three or four fits a day will go through an attack of influenza or pneumonia without a single fit. It seems that as long as the arterial tone is relaxed by the pyrexia no fits can occur.

There are atmospheric conditions which bring about groups of diseases, the salient feature of which is free hæmorrhage. When one encounters cases of cerebral hæmorrhage, epistaxis, hæmoptysis, bleeding from hæmorrhoidal veins, and even hæmatemesis, occurring in abnormal numbers within the same period of marked atmospheric disturbance, one must look outside the individual and his personal errors, dietetic or hygienic, for a cause. It is a common experience at the Poor Law Institution to have two or three weeks free of fits and then to have two or three patients struck down together. On the hypothesis that it is hypertonicity of the cerebral blood vessels that causes the fit, I have exhibited vaso dilators as a prophylactic, giving a mixture of sodium nitrite with the potassium nitrate and bicarbonate. This combination reduces the number of the fits and preserves the mentality of the patient. Unfortunately the human is sometimes more sensitive than the mercurial barometer, and the patient drops first. This mixture has incidentally another advantage. It does away entirely with the bromide rash. My experience with arsenic has been very disappointing.—I am, etc.,

Exeter, Dec. 7th.

J. A. W. PEREIRA.

THE MEMBERS OF THE ROYAL COLLEGE OF SURGEONS.

Sir,—The astonishing explanation vouchsafed by Sir Watson (Cheyne at the annual meeting of Fellows and Members to Dr. Jones and others when asking the views of his Council respecting the representation of Members in the Council of the College, can only be in keeping with all those Conservative and time-honoured bodies which eventually bring about their own undoing by the avowed belief in their own perfection.

The only question, says Sir Watson, in which they were concerned "was that of the interest of the College"—truly a bald statement. He must have only the Fellows in his mind, for as far as the Members are concerned, if I may judge from experience, they are nonentities in every sense of the word. Excepting as being fully licensed to practise, which I admit is a great concession, there is no function or work in connexion with the College in which a Member may take part or voice his views. Sir Watson infers that the Members do not bear in mind any improvement in their educational and scientific position. Perfectly absurd, I say, for Members of the College up and down the country at home and abroad, are found on boards of education, scientific institutions, sanitary authorities, county councils, magisterial benches, working out the salvation of the State. I go further and say that the extraordinary and highly trained technical skill and knowledge of the Fellows, magistrates as they are, in no way render them more skilful in managing our College of Surgeons than the rank and file of Members and general practitioners. "It would be a mistake," Sir Watson says, "to convert the College from a scientific and academic institution into a political one." By this any one would think that the Members had no notion of science or art, or were not even trained medical men.

This is no time for internecine quarrels; our very existence depends upon whether the Kaiser's military despotism shall prevail or not. Still one sees and feels that an injustice has to be righted, and that what seemed good in 1843 has a very different complexion in 1915. Let me ask, Why is it that there is such reluctance on the part of the Fellows to extend the franchise to the whole College? All honour to the late Dr. Joseph Smith, who vainly devoted so much toil to this cause. Lieutenant-Colonel Josiah Oldfield in his letter is courteous and convincing. Unless more weighty arguments than the shelving and ambiguous reasons hitherto proffered against

the franchise for all, one can foresee loss of sympathy and a feeling adverse to the Royal College of Surgeons looming high as a danger in the near future.—I am, etc.,

Jos. W. GILL, M.R.C.S.

Ella-Mill, Cornwall, Dec. 6th.

THE URGENT NEED OF DOCTORS FOR THE ARMY.

Sir,—My colleague and I cover an extensive district with our two practices. My colleague has been forced to take up a commission by the pressure exercised by the Emergency Committee, and I have had to undertake the responsibility of the two practices. Since June we have had charge of the troops stationed here. Now, when my colleague has gone, the military authorities send a whole-time R.A.M.C. man to take over the troops, and so do an infinitesimal part of the work my colleague would have done if he had remained at home.—I am, etc.,

December 11th.

SENEX.

Sir,—I should like to make a few suggestions *re* the present dearth of medical officers in the army. I think that, where a brigade is stationed in a town, or in places adjacent to one another, one R.A.M.C. officer could be put in charge of the brigade, himself taking one battalion, and a civil medical practitioner be appointed (as part-time man) to attend to each of the other battalions under his supervision, instead of having a R.A.M.C. medical officer to each as at present. This I am sure would greatly increase the number of men available for other appointments. If, on the other hand, the brigade was leaving for overseas and required a R.A.M.C. medical officer for each battalion, these could be extracted from the third line, who are draft-finding units, at least in the Territorials.

Again, in the field ambulances the commanding officer of each unit and one junior officer could quite well carry out the work.—I am, etc.,

December 13th.

R.A.M.C.(T.).

Obituary.

GEORGE WALTER STEEVES, B.A., M.R.C.S., M.D.
It is with deep regret that we have to announce the death of Dr. Steeves.

He was born at St. John, New Brunswick, Canada, and was the only surviving son of the Hon. William H. Steeves, Senator and a Father of Confederation. He was educated at the University of New Brunswick, taking there a degree in arts. Coming to England at the age of 21 he married Agnes, the daughter of the late Mr. G. T. Soley of Liverpool, and shortly after commenced to study medicine at St. Thomas's Hospital in the days of Murchison and Bristow. After taking the diplomas of M.R.C.S. Eng. and L.R.C.P. and L.M. Edin. he set up a practice in Liverpool. Dr. Steeves possessed all the qualities requisite for a successful practitioner; not only was he skilled in all branches of his profession, but he possessed a generous disposition, a charming personality, and a love of children, which, combined with his professional ability, won the confidence and affection of his patients. It is not surprising, therefore, that for many years he had a large practice amongst the wealthier classes in Liverpool, and a wide circle of friends. A highly-cultured gentleman with literary tastes and ability, he made many personal friends among the professors at the university. He loved the works of the great masters of English literature and devoted a great deal of his spare time to the acquisition of rare first editions, of which he possessed a fine collection. Especially had he a great regard for Bacon, whose works he had studied and knew well; in 1910 he published a most interesting book entitled, *Francis Bacon: His Life, Works, and Literary Friends*. This work was very favourably reviewed, and its high merit may best be judged by the testimony of Sir Sidney Lee who wrote: "It is undoubtedly the best contribution to Baconian bibliography that has been yet vouchsafed to us." In 1913 Dr. Steeves published a collection of essays entitled *Some Main Issues*. He was the author of several poems, which were greatly appreciated by Canadians, who were justly proud of his attainments.

It must not, however, be thought that Dr. Steeves neglected the work of his profession. He was specially interested in sanitary science, of which he had an extensive practical knowledge and on which he wrote several useful papers, one of which was published in the *Nineteenth Century*. For many years he was M.O.H. for Toxteth, Liverpool; physician to the Urban District Hospital; and U.S.A. sanitary inspector for the Port of Liverpool. He was a vice-president of the Liverpool Medical Institution, and when, some years ago, he left Liverpool to reside in London, the appreciation in which he was held by his professional brethren and many friends was shown by a handsome testimonial. Since the war began his experience in sanitary science and attainments as a physician led to his being given a command in the National Guard of the City of London. Dr. Steeves was, until a few weeks before his death, actively engaged in examining recruits in addition to his practice and other duties. After a week's acute illness it was found necessary to perform an operation.

In his younger days Dr. Steeves was an athlete, and continued to be a fine amateur billiard player and good golfer. In fact, anything he took in hand he did well. He will be greatly missed by all who had the privilege of knowing him, for his gentle, attractive, sympathetic personality endeared him to all.

He leaves a widow, but no family.

COLONEL RODERICK MACRAE, C.I.E., Bengal Medical Service (retired), died in Edinburgh on December 5th, aged 64. He was born on May 25th, 1851, educated at Edinburgh University, where he graduated as M.B. and C.M. in 1873, and entered the I.M.S. as surgeon on March 31st, 1875, becoming surgeon-major on March 31st, 1887, and surgeon-lieutenant-colonel on March 31st, 1895. He was placed on the selected list for promotion from April 1st, 1901, was promoted to full colonel on February 12th, 1905, and retired, on completion of five years' service in the administrative rank, from March 1st, 1910. His first five years of service were spent in military duty, during which he was present in the second Afghan war from 1878 to 1880, was served in actions against the Ghilzais at and near Jazdalak, accompanied Sir Charles Gough's column to Sherpur, and took part in operations in the Kohistan, Logar, and Maidan valleys, receiving the Afghan medal with a clasp. He then entered civil employment in the province of Bengal, and during the next twenty years held many important civil surgeoncies in succession, among them those of Jalpaiguri, Sarun, Champaran, Gaya, and Dacca, at the last being also superintendent of the vernacular medical school in that city. As an administrative medical officer he held the post of inspector-general of civil hospitals in the Central Provinces, in Burma, and in Bengal successively, being the first and last Bengal officer to hold that post in Burma. A good service pension was conferred upon him from December 3rd, 1909, and after his retirement, on June 24th, 1910, he was decorated with the C.I.E. Since his retirement he had resided in Edinburgh. He contributed two articles to the *Indian Medical Gazette* in 1894, the one on cholera and preventive inoculation in Gaya gaol, and the other on flies and cholera diffusion. He was a Fellow of Calcutta University, and administrative medical officer E.B.S. Railway. He is survived by a widow and family.

It is with great regret that we announce the death, at the age of 54, of Dr. BRYANS of Mount Pottinger, Belfast. He had suffered from a serious illness about eighteen months ago, but had recovered and resumed his practice. On the morning of November 21st he was suddenly seized with apoplexy, and died in a few hours. He received his medical education in Dublin and Edinburgh, and, after taking the triple qualification in Scotland, he practised for six years in West Hartlepool. He then settled in Belfast, where he has carried on a large and laborious practice for twenty-four years; he was for many years a member of the board of Poor Law guardians, and for two their chairman. He was a greatly liked and trusted by his patients, and respected by all with whom he came into contact. Much sympathy is felt for his widow and family. His eldest son is in the reserve of the R.A.M.C., and is preparing for the final medical examination; his second son is a Lieutenant in the Royal Irish Fusiliers, 8th Battalion.

VERY deep regret will be felt by a large circle of patients and friends on hearing of the death on December 5th of Dr. JOHN J. ANSTIN of Clifton Street, Belfast. He had been in his usual health when he was attacked by pneumonia, which ended fatally about the fifth day. He was 57 years of age. He had a distinguished career in Queen's College, Belfast, and graduated M.D. in 1882. After practising for a few years in Larne he settled in Belfast, and rapidly gained one of the largest practices. The deep and implicit trust of his patients was well deserved. He was most painstaking, careful, and skilful. His success in obstetrics in private practice was great. He left nothing to chance, and no detail was too small. He carried the same qualities into all his work. Dr. Anstin was of a retiring disposition. He held no public appointment, but was at one time honorary physician to the Johnston Memorial Orphan Training School, an institution in which he took the warmest interest. His wife predeceased him seven years ago. Much sympathy is felt for his three daughters and only son.

The Services.

INDIAN MEDICAL SERVICE.

APPOINTMENTS DURING THE WAR.

It was recently announced in the press that after the open competitive examination held last July for admission to the Indian Medical Service no similar examination would be held during the continuance of the war, but that such appointments as might be required to meet the absolutely indispensable needs of the service would be made by nomination by the Secretary of State. To assist him in making these appointments, which, as already announced, will be limited in number to the absolutely indispensable needs of the service, Mr. Chamberlain has appointed a Selection Committee, who will summon and interview such applicants as may appear to be *prima facie* suitable, and make recommendations for appointment.

Applications for appointment should be addressed to the Secretary of the Military Department, India Office, Whitehall, S.W., and should contain concise particulars of the applicant's medical degrees and career. Applicants must be over 21 and under 32 years of age at the time of application. Particulars regarding pay, promotion, etc., in the service can be obtained from the Secretary, Military Department.

EXCHANGE DESIRED.

LIEUTENANT R. N. MOFFAT, R.A.M.C.(I.F.), attached 14th Queen's Own (Royal West Kent Regiment), Jubbulpore, India, wishes to find substitute (Lieutenant or Captain), so as to enable him to transfer to a unit at home. Details can be obtained from the Secretary (No. 5997), British Medical Association.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

The following candidates have been approved at the examinations indicated:

FISAL EXAMINATION (*Forensic Medicine*)—Fakir Chand, E. Chapelle, Bhaskar B. Gadgil, J. A. C. Guy, Balkrishna H. Handoo, N. K. Henderson, J. R. S. Mackay, P. D. M'Laren, M.A., C. P. Kenberthy, J. C. Preston, Satyendra N. Seal, J. M. Smellie, D. G. Stout, Daya R. Thapar, J. M. Watt.
FISAL EXAMINATION (*Public Health*)—Johanneb, Ackermann, Fakir Chand, E. Chapelle, Demetrius Colomhos, T. F. Corbhill, W. J. Craig, W. H. Ferguson, Bhaskar B. Gadgil, J. A. C. Guy, Balkrishna H. Handoo, C. Harris, N. K. Henderson, Margaret M. McGarrity, Marjorie I. S. McGregor, J. R. S. Mackay, P. D. M'Laren, J. O. Marais, Isabella Morrison, G. A. Paris, C. P. Kenberthy, J. C. Preston, Satyendra N. Seal, J. M. Smellie, D. G. Stout, Daya R. Thapar, J. M. Watt.
FISAL EXAMINATION (*M.B., Ch.B.*)—W. Brownlie, T. F. Corbhill, H. F. Ferguson, G. W. M. Findlay, Pratul Kumar Ghosh, R. L. Impey, H. B. Kirk, A. J. M'Intor, Premal Trambakari Majumdar, Kamal Sanjar Ray, A. J. D. Rowan, C. I. Stockley, G. M. Torrance, R. A. Warters, J. A. C. Williams, W. Williams, Tin Po Woo, Margaret Kirk Jolly Wright, P. H. Young.

* With distinction.

UNIVERSITY OF GLASGOW.

UNIVERSITY COURT.

At the meeting on November 23rd the Principal (Sir Donald MacAlister) called attention to the communication issued by the War Office to the effect that students who at or before the close of the present winter session will be qualified for entry to one of the examinations for third-year students in medicine and dentistry at the examination will not be attacked until after its conclusion, and, if they are successful, will be included in the class of fourth-year medical students under Lord Derby's scheme, who are to continue their professional studies with a view to graduation in medicine. The Court determined that in March, 1916, qualified candidates who had completed eight terms of medical study should be admitted to the third

professional examination, the subjects of which might be taken singly or together.

At a meeting of the Court on December 9th the Principal intimated the election of Professor Noel Paton to be an assessor to represent the Senate for the next four years, in place of Professor Muir, of whose services the Principal expressed high appreciation.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

An ordinary Council was held on December 9th, when Sir W. Watson Cheyne, President, was in the chair.

Issue of Diplomas.

Diplomas of Fellowship were granted to seven candidates found qualified at the recent examination for which twenty-three candidates presented themselves. The successful candidates were as follows:

Devil John Harries, M.D., B.S. Lond., L.R.C.P., M.R.C.S., University College, Cardiff, and University College Hospital, London.
 Asst. Surgeon Evans, M.A., R.C. Cantab., L.R.C.P., M.R.C.S., Cambridge University and Middlesex Hospital.
 Arthur Hughes Southam, M.Ch., M.B., M.A. Oxon., L.P.C.P., M.R.C.S., Oxford University, St. Bartholomew's Hospital, and Manchester University.
 Arthur Chane, M.D. Dub., F.R.C.S.I., L.R.C.P., M.R.C.S., Dublin University and St. Bartholomew's Hospital.
 William Hugh Cowie Rouasse, B.A. Cantab., L.R.C.P., M.R.C.S., Cambridge University and St. Thomas's Hospital.
 Reginald Harold Bridge, M.B., Ch.B. Sydney, Sydney University and St. Bartholomew's Hospital.
 Michael George O'Malley, M.B., B.Ch., B.A.O., National University Ireland, University College Dublin, St. Bartholomew's and Middlesex Hospitals.

Diplomas were issued to thirty-one candidates found qualified for the licence in Dental Surgery.

The Dalhousie and other Universities.

The Dalhousie University, Nova Scotia, the University of Toronto, and Queen's University, Kingston, Ontario, were added to the list of universities whose graduates in Medicine and Surgery may present themselves for examination for the Fellowship without first becoming members of the College, under the conditions of paragraph 2, section 4, of the regulations for the Fellowship.

Medical News.

The library and offices of the British Medical Association, including the editorial office of the BRITISH MEDICAL JOURNAL, will be closed on Christmas Day, and on Monday, December 27th. The library and offices of the Royal Society of Medicine will be closed from December 24th to December 28th, both days inclusive.

The annual general meeting of the London Cremation Company Limited will be held at 324, Regent Street, W., on Monday next at 3 p.m.

We regret to have to announce that Dr. George Allan Horon, consulting physician to the City of London Hospital for Diseases of the Chest, died on December 10th, aged 71.

The Royal Institution, following an example set by many theatres in London, has arranged that for the present the discourses usually given on Friday evening shall be delivered at 5.30 p.m. The first will be given on January 21st by Sir James Dewar, on problems in capillarity; the second, by Dr. Leonard Hill on January 28th, on the science of clothing and the prevention of trench feet; and the third, by Professor William Bateson on February 4th, on fifteen years of Mendelism.

The Queen's Gift Book is a most attractive volume containing the work of many authors and artists of distinction; it has been published to aid Queen Mary's Convalescent Auxiliary Hospitals, institutions for the relief of soldiers and sailors who have lost their limbs in the war. The need is great; already between two and three thousand names appear on the registers of Dover House and Rochampton House, the convalescent hospitals where the artificial limbs required are fitted to these patients, and more than a thousand cases are ready or nearly ready to be admitted. Workshops and fitting rooms have been installed, and it is hoped that over seventy limbs a week will presently be supplied. The purchaser of the *Queen's Gift Book* not only makes a contribution to this work, but will buy stories or poems from the pens of all the most popular British writers living, and illustrations in line or colour by the most skilful artists and illustrators of the present day. The book is, in fact, one that everybody should buy and enjoy; we cannot imagine that half a crown could be expended to any better purpose. It is published in London, New York, and Toronto, by Hodder and Stoughton.

Letters, Notes, and Answers.

ATTORNS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Strand, London*; telephone, 2531, Gerrard. (2) FINANCIAL SECRETARY and BUSINESS MANAGER (Advertisements, etc.), *Articulate, Strand, London*; telephone, 2529, Gerrard. (3) MEDICAL SECRETARY, *Medicera, Strand, London*; telephone, 2531, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

INCOME TAX.

ENQUIRER I asks whether the gratuity payable to medical officers leaving the navy is liable to income tax.

* There are several forms of gratuity, but we presume that our correspondent refers either to a gratuity for wounds or injuries or a gratuity to a retiring officer not entitled to superannuation. Such payments appear to be regarded as of a capital nature and not subject to income tax; a pension being an annual payment would of course be on a different footing entirely.

LETTERS, NOTES, ETC.

IRISH UNION HOSPITALS.

DR. THOMAS LAFAN (Cashel) writes: I have exception to that paragraph in your Irish correspondent's letter, in which he writes of the exclusive power of Irish union hospital physicians to send on grave cases to Dublin. Now if we are deprived of the power of keeping these cases in our hospitals and only sending on those which, from their rarity, can only be dealt with by hospital men whose patients are recruited from all Ireland, a deadly blow will have been struck at a great provincial hospital system. It is not red tape which is at stake, but the efficiency of a network of hospitals which has been growing yearly in popularity and efficiency.

* What our Irish correspondent protested against was the red tape of the Local Government Board's regulations, which do not permit Poor Law medical officers, whether they are dispensary or workhouse doctors, to send Poor Law patients requiring immediate operations or other treatment which cannot, in some instances, be performed at their homes or at the workhouse hospitals, to Dublin and other hospitals without first sending such patients to the workhouse, where they must wait perhaps one or two weeks for a meeting of the board of guardians to give the medical officer the necessary permission to send them away. It is evident that Poor Law patients whose only chance of recovery depends on as early an operation as possible, may be sacrificed to meaningless departmental red tape which has no better justification than to prevent the possibility of the occasional abuse of Poor Law medical officers sending for treatment to city and other hospitals patients who are not entitled to free treatment at the expense of the ratepayers.

SEA-SICKNESS AND ACIDOSIS.

A. W. S. writes: Among the theories concerning the etiology of sea-sickness, has an acidosis ever been considered? Sodium bromide has sometimes proved effectual, in which cases the soda as well as the bromide has to be considered, and the combination of chlorotone with the three bromides is still more alkaline. Perhaps some ship surgeon might think it worth while to investigate this question.

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NOTE.—It is against the rules of the Post Office to receive postage letters addressed either in initials or numbers.

The Bradshaw Lecture

ON

WOUNDS IN WAR.

[WITH SPECIAL PLATE.]

BY

SURGEON-GENERAL SIR ANTHONY BOWLBY,

K.C.M.G., A.M.S.,

SCURGEON IN ORDINARY TO H.M. THE KING; CONSULTING
SURGEON TO THE BRITISH EXPEDITIONARY FORCE IN
FRANCE; SURGEON TO ST. BARTHELOMEW'S
HOSPITAL.

It is a striking testimony to the advances made in our knowledge of the healing of wounds that one of the most important points for prescut consideration in connexion with the wounds of war is the geographical situation of the battlefield. In all old treatises on gunshot wounds we find that the authors devoted their attention mainly to the nature of the projectile and its direct effects on the tissues of the body; but, important as are still these considerations at the present day, they must now be studied in conjunction with the terrain of the war.

It is for this reason that I would preface what I have to say to you to-day with the statement that my own experiences are limited to two wars, the one in South Africa in 1899-1900, and the other the present war in Northern France and Belgium. So widely different have I found the conditions of the wounds in these two campaigns that I realize it would be unwise to speak too dogmatically of wounds in those many other fields of the war now being waged in different parts of the world. I propose, therefore, to speak only of the wounds I have seen during the past fifteen months, for it was in September, 1914, that I went to France, at a time when the battle of the Aisne was in progress. From that time until the second week in October I was chiefly occupied at the hospitals at Rouen, although I also visited Paris and its neighbourhood.

Early in October, however, I was directed to join the General Head Quarters in the North of France, and ever since that time I have visited daily the various casualty clearing stations at the front, and have also seen from time to time the work done in the field ambulances. My experiences, therefore, are on the whole concerned with recently wounded men, but many of these latter have been kept under observation for several weeks, either in the clearing station or in the large stationary hospital where Mr. W. Dickie is in chief surgical charge.

COLLECTION OF WOUNDED: GENERAL CONDITIONS.

In the first place I wish to point out how radically different are the fields of war in South Africa and in France. In the former we had to fight in a very thinly inhabited country which supported very few domestic animals, and which for the most part was quite uncultivated.

The soil was dry and sandy, and in many places the rocks projected in the form of the well remembered "kopjes." The ground was uncontaminated by manure and was to a great extent "virgin soil." Rainfall was slight, cloudy days were few, and a hot sun with fresh breezes or strong winds desiccated the soil and prevented the growth of any luxuriant vegetation. The consequence of all these conditions was that, in the absence of decaying vegetable and animal matter, the soil was almost entirely free from all pyogenic organisms, and bacteriological examination proved that all forms of pathogenic bacteria were absent from the soil of the veld except in the neighbourhood of the dwellings of man.

At the present seat of war we find all these conditions reversed. The country is thickly populated with human beings and supports many cattle and pigs; the soil is a rich loam, and rocks nowhere project through it; it is more heavily manured with the excrements of men and animals than almost any other land, and is covered by luxuriant crops. Rainfall is copious, cloudy days are numerous, and in many months sunshine is almost absent for long periods. One result of these conditions is that every form of micro-organism flourishes, and even in soil

taken from a considerable depth below the surface the spore-bearing pathogenic organisms abound.

The behaviour of the wounds in the two wars presents an unfortunately grave difference, which corresponds to some extent with the conditions I have just enumerated. But, in addition to the differences in the soil and surroundings, the wounds of the South African war also differed in almost every way from the injuries of the present campaign. The "ogival" bullet of that day produced much less smashing and rending than does the pointed bullet now in use; and, while in this war the majority of the wounds are inflicted at close range by a missile travelling at the height of its velocity, in South Africa they were more often due to bullets fired at a distance of half a mile or more, and which, travelling at a much lower speed, had infinitely less power for harm.

In addition to this, shell wounds amongst the British troops were extremely rare in the African campaign, while in this war they are, perhaps, quite as numerous as those caused by bullets. In general terms it may be said that the injuries seen in the Boer war were infinitely less severe, and the complications due to them far fewer and less serious than those of the past year in France, so that it very soon was evident that we had to unlearn most of our South African experiences. I will give but one example to illustrate this. In January, 1900, two Australian troopers were sent into the Portland Hospital in South Africa, in each of whom the femur was fractured and comminuted in its upper third by a bullet wound. The injuries were three days old, and the only treatment had been the application of a small first field dressing and the bandaging of the limb to a rifle with puttees thick with dust. The blood-stained breeches had not been removed and the first dressing and the puttees had not been changed. Yet the men were in excellent condition, and their wounds never gave the slightest trouble. But similar injuries with similar treatment in the present war would almost certainly have resulted in the death of the patients from gangrene, or at least in prolonged suppuration and probable loss of the limb, and many surgeons who are familiar only with South African conditions seem unable to realize the completely altered picture of the present war.

I am very well aware of the difficulty of explaining with sufficient clearness the conditions under which our men in France are wounded and treated; nevertheless, before I attempt to describe the general nature and treatment of their wounds, I will endeavour to put before you the circumstances in which these wounds are received.

All are well aware that ever since the battle of the Marne the opposing armies have lived and fought in trenches, but it must be remembered also that in both of the battles of Ypres, as well as at Neuve Chapelle and Loos, and on many other occasions, there has been a great deal of fighting in the open as well. Still, the fact remains that, owing to their partially subterranean life, men are usually covered thickly with either mud or dust at the time when they are wounded, and their comrades who help them are in a similar condition. When a man in one of the advanced trenches is hit and falls he lies in mud or dust, or else in muddy water a foot or more in depth. Close at hand, or else perhaps some hundred yards distant, the regimental medical officer has prepared a larger and deeper excavation commonly known as a "dug-out," and to this the wounded man will walk if he is able. If unable to walk, he must be carried, but he cannot be carried on the usual stretcher, because it is too long to pass along the narrow trench, which is rendered tortuous by the many "traverses." In these circumstances he may be carried sitting on sacking slung from a pole, if he is well enough to help himself, or else he may be taken on a "trench stretcher," which is much shorter than the usual stretcher and is a very simple and ingenious invention which has been of great service. His wound is not infrequently dressed by his muddy and dusty comrades if it is accessible to them, and in any case it is dressed in the dug-out, if not before. From here the patient has now to be transferred to the first-aid post, which is established by a section of a field ambulance at some place which is as much sheltered from fire as may be, half a mile or more in the rear. Access to this is generally obtained by passing along a "communication trench," which may be 6 ft.

or 8 ft. deep and more or less muddy or wet. The first-aid post is usually above ground, but may be in a "dug-out" or in a cellar. The patient is not detained here longer than absolutely necessary, but is transferred by a horse drawn vehicle or on a wheeled stretcher to the main field ambulance a mile or two further back. Here are either tents or buildings which have been adapted for use, and here fresh dressings and food and much-needed rest on stretchers are all provided. The wounded man is now in comparative safety, and if his injury is slight and there is no crowd of wounded he may remain here for some hours. If, however, his wound is serious or dangerous, or if a battle is in progress, he is taken in a motor ambulance to the "casualty clearing station," a very few miles further back, and usually placed so as to be just out of the range of ordinary shell fire.

These clearing stations were the invention of a date subsequent to the Boer war, and were for the first time put to a practical trial in the present war. Their personnel and equipment were provided for the treatment of 200 wounded, and they were originally intended merely to enable the field ambulances to "clear" themselves and then to pass the wounded on to the stationary hospitals or to the base. The circumstances of this war, however, soon showed that they could be made infinitely more useful than this, and before the end of the year 1914 they had been transformed into well-equipped hospitals capable of dealing with all urgent operations and of retaining and nursing those patients whom it was not advisable to send on by rail. It is into such hospitals as these that the wounded come from the field ambulances, and at which they often arrive within a very few hours of being injured.

It must next be realized that in the early days of trench warfare the long "communication trenches" of the present day did not exist, for they may take months to complete, and, as a consequence, men had usually to be retained in the advanced or support trenches till night afforded some protection from the enemy's fire, and in this way much delay necessarily ensued in getting the patient out of his muddy surroundings and to a place where he could be adequately treated. There are some trenches in which similar conditions still prevail and from which the wounded can only be evacuated after dark.

On many other occasions, after a fight in the open, badly wounded men have been left lying between the opposing trenches, because any attempt to rescue them at once drew the fire of the enemy, and might easily have resulted in the death of the patient as well as of his would-be rescuers. In such circumstances, after night-fall men will crawl in even with badly smashed limbs, and in other cases they are brought in by stretcher-bearers at very great risk. Others of them, however, cannot be brought in, and, especially after an unsuccessful attempt to capture an enemy position, they sometimes lie out for even days and nights. No doubt many such have died, and in others who have been ultimately rescued the condition of the wounds has been very bad. It was, of course, the men who were the worst wounded who had the most difficulty in getting into our lines, for those who had badly fractured legs or thighs or were shot through the head, the lungs, or the abdomen were quite unable to save themselves, and had to wait till the enemy was driven back or till darkness allowed their comrades to try and help them, in spite of the light given by the frequent "star shells" and the subsequent fire from the German lines.

One man lay out in a coppie last January for ten days with only a little pond water to drink, and lost both his feet from gangrene but escaped with his life. Another man lay for eight days in a German "dug-out" with a completely smashed leg and in constant expectation of being discovered and killed, yet he also survived after amputation of the leg.

THE MISSILES.

It is now time to turn attention to the nature of the missiles which cause the wounds we are considering, and they are certainly more varied and numerous than in any previous war. It is not yet possible to say with any accuracy what proportion rifle bullet wounds bear to the whole, and it must be remembered that the quick-firing machine gun, which has borne so prominent a part in the German armament, fires the ordinary rifle bullet, as does

also our own quick-firer. The rifle bullet of British, German, and French alike differs from all the bullets of the Boer war period. The point of the older bullet was rounded or ogival, and the whole bullet was of the same diameter in nearly its whole length. The point of the present bullet is like that of a sharpened lead pencil, and the consequence is that the balance of the bullet is altered, so that its posterior half or base is much the heavier, and its centre of gravity further back. The importance of this to the patient and the surgeon is that the bullet is very easily caused to turn completely over on its long axis and so to enter the body sideways or base first. This is all the more likely to occur because in trench warfare bullets often pass through the earth of the parapet or strike a sandbag, but it is also true that when the speed of one of these pointed bullets is much diminished towards the end of the flight it will readily turn over within the body after entering with its point first.

The German and the British bullets are much alike. Each of them consists of a soft core of lead or other metal contained in a sheath or "mantle" of hardened steel, and, though the German bullet has a higher muzzle velocity, I do not think there is much difference in the effects it produces in the human body, and I have seen a considerable number of Germans who have been wounded by our bullets. As is well known, the impact of the mantle-coated bullet on a rock or stone may break the mantle and allow the core to extrude, so that when it strikes a resisting structure, such as a large bone, it spreads and breaks up, and causes much more extensive damage to the tissues as a result. It is seldom in my experience that the bullet is broken up by mere impact on a bone, though no doubt this does occur.

The French bullet is made of a copper compound, and is solid and homogeneous throughout, so that it has neither core nor mantle. It is longer and heavier than either of the other bullets, but, as I have not seen very many patients wounded by it, I do not propose to allude to it further beyond saying that I think there is very little difference in the effects it produces on the human body.

In addition to bullets, an immense number of other forms of missiles have been employed, so that wounds have presented the utmost variety. It is not possible or necessary to describe in detail all the forms of shell, but in order to understand the nature of wounds it must be realized that shells differ immensely in their structure and in the way in which they produce injury.

1. Shrapnel.

Shrapnel shells of all kinds and sizes are characterized by the fact that they contain some 250 to 400 round bullets of lead which is in some shells soft but in others is hardened by various agents. These bullets vary in size—in proportion to the size of the shell, but are never more than about $\frac{1}{2}$ in. in diameter. The shell is usually timed by a fuse to burst in the air over the object aimed at, and the shell case being blown open by the explosion, the bullets are propelled in a cone-shaped stream whose velocity is dependent on the velocity of the shell, and is not due to the force of the explosion which bursts the shell. The violence of their impact is great in proportion as the shell is still travelling at high speed and is not too far from the ground where it bursts, and the direction of the blow is generally downwards. Wounds may also be caused by the metal case, which is a foot or more long and weighs several pounds at least, but such wounds do not differ from those caused by the solid variety of shell. The velocity of the bullets is never as great as the muzzle velocity of a rifle bullet, and, as they very quickly lose force and power of penetration, their effective range is not a long one.

2. High Explosive Shells.

These shells vary in weight from a few pounds to about a ton, and they consist of a thick iron case containing in a central cavity a violent explosive charge. The latter is, in the case of German shells, trinitrotoluene, and as much as 200 pounds weight of the latter may be present. Such shells are usually burst on percussion by a detonator which acts by the impact of the shell on the ground or on some other object. These shells do not contain bullets, and the injury they do is caused in chief part by the jagged fragments into which they are split by the explosion, and also to some extent by the impact of portions of buildings,

such as stones or bricks, which are scattered with immense force by the violence of the explosion. The fragments of the shell are always very rough and ragged, and of every variety of size and shape. For example, the base of a 17-in. shell may weigh 150 pounds, and if it struck the body of a man would completely destroy it. Other fragments may weigh a few pounds and may tear off a limb or crush it to pulp, while in the smaller shells there may be scores of fragments about the size of the end of a finger, or much smaller.

It must also be kept in mind that the mere explosive force of the gases of a large shell exercises great powers of destruction. The expansion of the gases is alone sufficient to kill, and in the only case in my experience in which an autopsy has been made, the brain was the seat of very numerous petechial hæmorrhages.

3. Bombs, Hand Grenades, Rifle Grenades, Shells from Trench Mortars, etc.

All these are characterized by a shell case of iron or other metal containing a relatively large charge of a high explosive. In the German projectiles this is always trinitrotoluene. The bomb case varies immensely. In some it is composed of iron about half an inch thick, often partially cut up into segments about half an inch square. In others, chiefly German, it is composed of quite thin steel



Fig. 4.—Pole and racking for sitting cases.



Fig. 5.—Major Rogers's trench stretcher in use.



Fig. 6.—Orderly carrying Major Rogers's trench stretcher.

or other metal. When a bomb or grenade bursts, the case is commonly broken up into very numerous fragments of every size, from a pin's head to a lump of metal weighing as much as an ounce. Some of these may be quite pointed, and with an edge like a knife; others are often quadrilateral. Some of the German bombs contain also irregular jagged pieces of loose metal, and others are loaded with rough iron boot nails about half an inch long and pyramidal in shape.

All forms of shell and bombs also scatter stones, earth, or sand from the parapets, and these all become projectiles, and are specially liable to injure the face, neck, and shoulders of men standing in the trenches.

THE WOUNDS.

Such, then, are the various projectiles by which the wounds of the present war are caused, and it will be readily appreciated that the wounds are as various as the projectiles themselves.

The so-called "normal" bullet wound, such as was common in the South African war, and was characterized by a tiny aperture which might have been made by a gimlet or a trocar, is in this war quite rare, and even if the entry is of this nature the exit is almost always ragged and large. In many of the cases bullets tear the soft tissues to rags and blow out the muscles and fascia through great rents in the skin, and when no bone is struck such injuries as these are always due to the discharge of the rifle at close quarters, and generally within fifty yards. When a large bone is struck the damage is yet greater, and the part looks as if it must have been struck by a large fragment of shell. This is due to the fact that the bullet, travelling at the height of its velocity, not only smashes the bone, but also imparts its momentum to the shattered fragments and drives them in every direction, so that the injury to the soft tissues is inflicted in great part by the fragments of bone themselves.

Wounds caused by shrapnel bullets are not so extensive as the worst of those caused by the pointed rifle bullet, for although the former may make a large hole of entry they do not exercise the same divisive or explosive force as the latter; they are, however, often multiple, and on account of the fact that this form of shell bursts in the air, the bullets very often wound the skull and brain.

The wounds caused by shell high-explosive fragments and by bombs and grenades are so infinitely various that it is not possible to describe a characteristic shell wound as a type. It may be noted, however, that all shell fragments being rough and jagged, tear away parts of the clothing and carry the latter into the extreme depths of the wound. The large fragments tear away from the limbs or trunk huge masses of skin and muscle, so that the whole of the calf or the front of the thigh, or the gluteal or deltoid regions may be destroyed and the tissues from which these have been avulsed are themselves so crushed and lacerated that all the vessels are pulped and extensive areas die. In the neighbouring tissues there is, of course, widespread contusion and extravasation of blood, and, as a result of these injuries, the exposed muscle often loses all its natural characteristic appearance and looks exactly like a mass of mud, for it becomes a homogeneous mass of dark brown or slate-coloured matter without any appearance of striation or vitality, and, as it is quite dead, it may

be cut away without causing either bleeding or pain. The condition is one which I have never seen in even the worst machinery accidents in civil life. In other cases fragments of big shells may tear away the abdominal wall and expose the viscera, or may carry away portions of the face or neck, while the bones of the limbs may be fractured or the limb itself may be completely shot away.

Nothing is more striking than the immense amount of destruction wrought by even quite small pieces of a shell burst by a large charge of a high explosive, for the wound in the tissues may be ten times as large as the missile. Thus I have seen a man in whom a piece of shell not so big as the end of the little finger tore a large wound in the liver and then rent completely away the whole of the hepatic flexure of the colon, while in the limbs I have seen wounds as large as a clenched fist caused by quite small fragments which evidently mainly owed their power of destruction to the extraordinary velocity with which they travelled as well as to their jagged edges.

The various forms of bombs and grenades are specially liable to cause multiple wounds, for they generally wound by bursting close to the patient; they break up into very numerous fragments, some of which are large and heavy and some of which are quite minute. At very close quarters quite small, sharp-edged strips of metal may penetrate very deeply, and even be driven into the intestine or lungs through tiny apertures, while many other men who are hit at some little distance by similarly small pieces of these bombs suffer little violence, for, as the fragments quickly lose their great initial velocity, such wounds as these are often slight. It has thus happened during the last months of the war that a very large number of men have had small wounds from which they quickly recovered, although, on the other hand, it is often noticeable that many of these grenade and bomb wounds are on the face, and that one or both eyes are often blinded by small pointed fragments or by gravel or

stones. These wounds are also specially liable to be badly infected, and for the reason that, as the bomb usually falls to the ground before bursting, it scatters showers of mud in every direction and plasters it into the wounds.

It will thus be seen that the wounds in this war are often quite unlike those of previous wars because they have been caused by new and different missiles, and it is further to be noted that the proportion of wounds by rifle bullets compared to wounds caused by shells or bombs is certainly much less than in previous wars. It is well known that never before has such extensive use been made of artillery and bombs, nor have armies ever previously faced each other over fronts of hundreds of miles at a distance of a few yards. It is this proximity and shortness of range which has caused bullet wounds to be so severe, and it is by the same proximity that the injuries by bombs have been made possible and frequent.

GENERAL CHARACTERS OF GUNSHOT WOUNDS.

The very various wounds I have thus briefly described are for the most part quite different from injuries met with in civil life, and all surgeons in past years who have had war experience have recognized that gunshot injuries form a class apart. It is of course true that a very large number of slight and superficial wounds and some cases of fracture present no striking features, but where missiles have penetrated the body at high velocity the differences between such injuries and those of civilian life are radical.

The essential nature of all accidents such as are caused by machinery in motion, by vehicles of all kinds, or by kicks or blows is a crushing and mangling of the limbs or trunk by force applied from without inwards, so that the parts involved are crushed by a comparatively slowly moving object. On the other hand, in all penetrating wounds by bullets of all kinds, and by shell fragments moving at immense speed, the main injury is done by a force of a divisive or expanding nature, so that the tissues are torn asunder

from within instead of being crushed slowly from without. It is this rending asunder which is the special characteristic of all typical "gunshot" wounds, and it has been shown that the injury caused by a bullet is largely due to the wave of compressed air which the bullet drives in front of it, and which expands within the tissues. In all wounds which completely traverse the tissues this divisive or explosive force is present to a greater or lesser extent, and the effect produced is heightened by the resistance offered to the explosive power. The result is that the injury, instead of being limited to the tissues on each side of the bullet track—as it would be if the wound were not made by a bullet but by a trocar—is diffused in every direction, and radiates through all the surrounding structures. It is of course well known that in the case of the brain enclosed in the skull, or in the liver enclosed in its capsule, explosive effects are typical, and this is attributed to the enclosure in a strong capsule of tissues which are largely composed of water. But it is not sufficiently appreciated that these same effects are produced in every other part of the body and limbs also, and are directly proportionate both to the speed of the whirling projectile and to the resistance offered it by the structures which it encounters. The truth of this may be demonstrated on any limb shattered by a bullet or a fragment of a high velocity shell perforating it, for it will be found on examination that the missile has not only shattered the tissues in the line of its flight, but that the divisive force has separated the fascia from the skin and split the muscles from each other along their intermuscular planes.

The effect of the injury may, indeed, spread up and down

a great part of the length of the limb, and vessels may be burst and extravasation of blood may be found far from the obvious track of the missile.

But, although the effects of a bullet or piece of high-velocity shell are so evident and extensive, it will be found by microscopical examination that they are even more extensive than appears to the naked eye, for if muscles whose sheath is yet intact, which appear perfectly normal, and are at some distance from the wound, are so examined there will be found fractures of the muscle bundles, extravasation of blood, and necrotic changes in the surrounding fibres.

This microscopical evidence of widespread injury is found not only in the limbs but also in the viscera, so that the liver and the kidney may show extensive interstitial hæmorrhage and a very remarkable disintegration of the cells at a considerable distance from the site of the obvious injury. I am much indebted to Lieutenants Adrian Stokes and McNece for the following reports on various specimens they have examined, and on which, amongst others, the above statements are based.

KIDNEY.

CASE 1.—Sergt. C. died about twelve hours after shrapnel wounds of the chest and the abdomen, and the right kidney presented a perforation in its lower pole. A piece of kidney was taken from what was apparently a healthy portion of the upper pole, for microscopical examination. It was hardly recognizable as kidney. There was present only a fibrous stroma of the tissue without any of the specific kidney cells, and only one or two glomeruli were recognizable. The tubules had apparently desquamated all their lining epithelium, and in a few of the collecting tubules there was present some granular material perhaps representing the destroyed cells. The whole section was full of small hæmorrhages, and in places there was a slight infiltration with polymorphonuclear cells.

LIVER.

CASE 11.—Pte. C. C. S., wound by bullet of anterior margin of liver, 2.30 p.m., October 6th, 1915; died 8.20 p.m., October 7th.

Condition of Liver.—The bullet had penetrated the organ close to the anterior margin, just internal to the line of the gall bladder. The laceration extended for a depth of $\frac{1}{2}$ in. into the liver substance. On cutting the liver into two parts so as to include the line of the laceration an irregular area was observed, different in colour from the other parts of the organ, and situated almost 3 in. from the tear. No direct track could be found leading from the site of the injury to this yellowish area.

Microscopic sections from this yellowish zone showed the following appearances:

"The cells of the lobules are in many places very well preserved, the only abnormal feature being the great vascular engorgement of all the capillaries. Scattered throughout the sections, however, are numerous hæmorrhages, some of them exceeding in size two liver lobules. Round the margins of the areas of hæmorrhage the liver cells are definitely necrotic, nuclear staining being lost, and the protoplasm granular and faintly staining. In most places the ring of necrosis is narrow, but in others a wider area is involved in the process. In some sections areas of necrosis alone seem present, but these are evidently in relation to hæmorrhages not included in the same section. No leucocytic infiltration or other evidence of sepsis is present anywhere."

MUSCLE.

CASE 111.—Corp. (S.F.), wounded by shell, 9 a.m., on October 11th, 1915. Superficial injuries to foot, hand, and scap. Three deep wounds on front of right upper arm, just below insertion of pectoral muscles. The patient collapsed from hæmorrhage on admission. Amputation was performed at the shoulder-joint on October 15th, and tissue was taken for examination from the belly of the biceps muscle, 2 in. below the lower margin of the wound, at a place where the muscle appeared to be quite normal.

Condition of Muscle Examined.—The most interesting finding is the presence of a definite transverse rent, tearing across several bundles of muscle fibres, as seen in longitudinal section. (See Fig. 3.) The ends of the muscle fibres torn across show necrosis, and the rent itself is filled up entirely by a mass of red cells and polymorphs, showing an intense

DESCRIPTION OF SPECIAL PLATE.

[From drawings by Mr. J. R. Ford.]

Fig. 1.—From the upper pole of the kidney of a soldier who died about twelve hours after shrapnel wounds of the chest and abdomen, the kidney having been passed through its lower pole. The epithelium of the tubuli is desquamated, and most of the tubuli contain red blood cells; on the lower left-hand side there is shown part of a hæmorrhagic extravasation, in which there is an excess of polymorphs.

Fig. 2.—From the liver of a soldier who died thirty hours after being wounded. The bullet perforated the anterior margin of the liver; the section is made at a distance of about 3 in. from the laceration. It shows extensive hæmorrhage, and areas of necrotic tissue in which the hepatic cells are no longer recognizable. An undamaged area is shown at the lower left-hand corner of the drawing.

Fig. 3.—From the biceps humeri, taken from the belly of the muscle, 2 in. below the lower margin of the wound, at a spot where the muscle appeared to be normal. The section shows one of several microscopic ruptures, the fissures between the retracted fibres of which are filled with blood. (In some fields the injured muscle fibres were necrosed.)

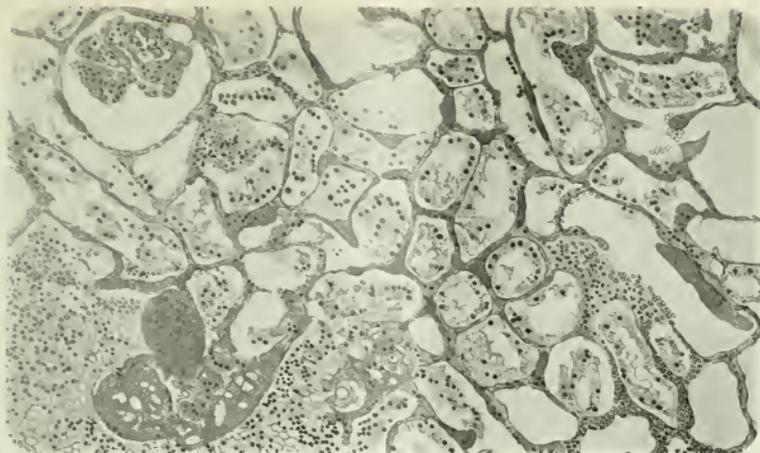


FIG. 1.

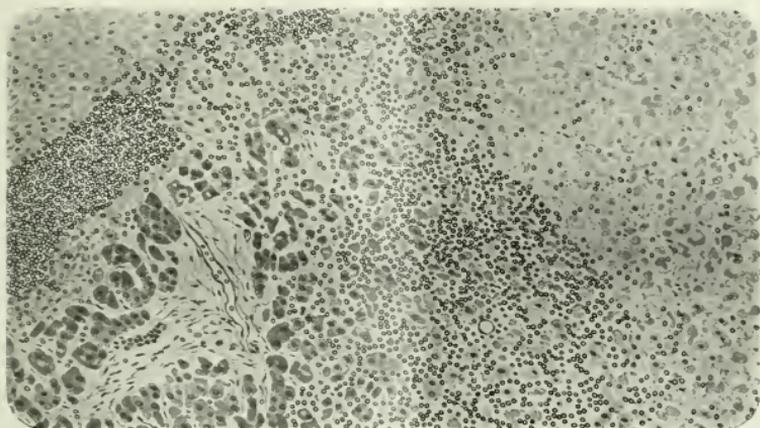


FIG. 2.

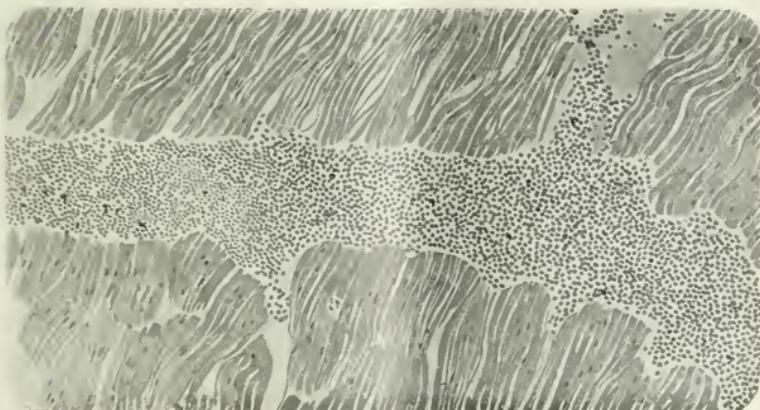


FIG. 3.

inflammation to be present. Everything points to this small tear having occurred at the time of the original injury higher up the arm.

"In other parts of the sections bundles of muscle fibres are widely separated, the interval between the bundles being filled entirely with polymorphs and red cells. One such bundle, separated from its neighbours on either side by a gap containing inflammatory cells, shows absence of all striation of the fibres, and is evidently approaching a condition of necrosis."

CASE IV.—Pte. F. (D.C.L.I.), gunshot wound of left leg above the ankle, causing compound fracture of both bones. Wounded October 11th. Amputation 24 hours after the wound was received.

Muscle tissue taken for examination from the tibialis anticus several inches above the seat of the wound.

Condition of Muscle Examined.—"The most striking feature in the sections is the wide separation of bundles of muscle cells from one another. A condition of very acute inflammation is present, all the spaces between the bundles being full of polymorphs. A distinct transverse tear is seen going half-way across one bundle. The muscle fibres involved in the tear are quite without striation and obviously necrotic. The gap between the torn ends (see Fig. 3) is filled in by polymorphs and red corpuscles, indicating, along with the necrosis of the muscle fibres, that the rupture occurred *ante mortem*, and not during the preparation of the sections."

It is very easy to demonstrate the far-reaching effect of bullets when the bones are involved, and I will quote the two following cases as striking examples.

In the first case a man was shot across the face and through the nasal cavities, the entrance wound being below the zygoma on one side and the exit through the zygoma on the other side. His symptoms were those of a man shot through the brain, and he died on the fourth day. The autopsy by Mr. Adrian Stokes showed that, although the track of the bullet was an inch or more below the level of the base of the skull, yet the latter was fractured right across, and although the dura mater was unharmed, one frontal lobe and one temporo-sphenoidal lobe were more or less pulped.

In the second case a young officer was shot across the back of the neck and became completely hemiplegic, although the wound was apparently superficial. He died in two days, and an autopsy by Mr. Stokes showed that the bullet had only broken off the tip of the sixth cervical spine. The laminae were not fractured and the dura mater was intact, yet the cord had been contused and its grey matter was broken up by haemorrhage. But it is possible also for the spinal cord to be injured by a bullet which does not even touch the vertebral column, and one patient died with haemorrhage into the spinal cord in whom the bullet had merely passed through the muscles at the side of the neck and had caused no hurt to any of the vertebrae.

Other very striking examples may be cited in which the intestines have been torn open by bullets without the peritoneal cavity being opened. In one case a bullet passed across the pelvis at the level of the trochanters, causing immediate collapse, from which the patient never rallied. He died in about ten hours, and at the autopsy it was found that the bullet had passed in front of the sacrum and had not entered the peritoneum. Yet, when the peritoneum was opened anteriorly it was found that a coil of the ileum 6 in. from the caecum had been completely torn across. In a second case of the same kind a bullet entered the upper gluteal region and emerged in the inguinal region, cutting the spermatic cord, but not opening the peritoneum. Nevertheless, the patient died from rupture of the intestines.

It will thus be seen that, whatever tissue is examined, or whatever part of the body is involved, all the evidence goes to show that in gunshot wounds the passage of the missile results in injuries to tissues which appear to be quite remote from its track, and it must be concluded that the vibrations set up by the projectile in the fluids of the body result in very widespread disintegration of both the small blood vessels and of the cells of the parenchyma themselves.

As will be seen on further consideration, these changes are of great interest in considering the resistance of the body to microbic infection.

CONDITION OF THE WOUNDED MAN.

The next matter which demands consideration is the condition of the wounded men themselves. This necessarily depends on other circumstances besides the nature and extent of the wound, for it is influenced by the time

that elapses before assistance arrives, by the amount of blood lost, by exposure to cold and wet, by want of food and drink, and by exhaustion due to want of sleep; and it is seldom that, even in the case of slight wounds, none of these factors complicate the injury.

I think that the thing that would strike most forcibly any observant person who was brought into a room filled by large numbers of recently wounded men from a big fight would be the fact that nearly all of them were asleep, in spite of wounds which one might well suppose would effectually banish sleep. There they lie on their stretchers with muddy or wet clothes, with bandaged limbs or head, quite content with the transition from the turmoil of battle to the comparative peace of a crowded room which in itself offers little comfort. Some of them ask for food, but with many this is a secondary consideration, for when a man is worn out by long periods of watchfulness and laborious work in the trenches, and when the intense excitement of fighting for life and killing other men in the midst of the crash of shells and the clatter of rifles and machine guns has passed, then there comes the reaction and exhaustion of a tired-out man and an overwrought nervous system. It is only a few of these men who are excited and talkative, and still fewer who wish to talk of their recent experiences, and these who only see wounded men in the base hospitals have little idea of the silence of a crowded room in a clearing station when heavy fighting has been in progress for a day or more.

But as the surgeons work their way from man to man it soon becomes evident that some of those who are asleep are also suffering from profound collapse, so that there are many in whom the hands and feet are cold, the lips pallid, and the pulse either very small and rapid or quite imperceptible at the wrist. The wound of such a patient may, for its own sake, demand prompt treatment, but all who have had experience know that there are hundreds of men whose best chance of life is to be kept warm and left absolutely quiet, and persuaded to take hot soup, or cocoa, or perhaps alcohol, before again going to sleep. It is at first surprising to find how many quite pulseless men will slowly pull round if they are only given time and kept thoroughly warm, and there are no more striking cases of this than men with bad compound fractures of the lower extremity, or with multiple injuries. They are indeed often so nearly dead that it may be several hours before any attempt can be made to dress their wounds, and, even with every care, there are not a few who die. The common causes of this collapse I have enumerated above, but it is often true that various causes all combine to bring about the condition. It thus happens that when a man has had a bad smash of a limb by a bullet or shell, the shock caused by such an injury is alone sufficient to cause much collapse. Yet in many cases this is followed by the anxiety of prolonged exposure to further wounds and often by hours of wet and cold spent in the open, with no food, and with an undressed wound which hourly becomes more painful. And after all this there is the unavoidable pain of moving him from the battle-field to the hospital.

It is also a very noticeable fact that in many of these cases the patients are quite unable at first to retain any food, and that, even if no food is taken, retching and vomiting are very common for many hours. This is a complication of shock of which I have had no similar experience in civil practice, but it is, unfortunately, not only common, but often serious in gunshot wounds, as men who are much in need of food are unable to retain it.

In many of these cases of vomiting, and also in all cases of severe collapse, numerous lives have been saved by the subcutaneous or intravenous injection of normal saline solution to the extent of several pints, and enemata of hot water and brandy have been similarly useful. As far as drugs are concerned, nothing has been more helpful than pituitary extract. There are also very many men who have sustained multiple injuries from bombs or shells and some of whom have had two or even three compound fractures, and no class of case suffers more from shock than this. In others of these cases of multiple injuries the whole chest or back, or the surface of both thighs or legs, is covered with numerous wounds which are caused either by fragments of the bomb or else by gravel and mud from the parapets, and, although the wounds may be quite superficial, the patients are very frequently severely collapsed. I have been in the habit of comparing

these cases of multiple surface wounds with those of extensive superficial burns where there is also much shock, and I think the two classes have much in common, for not only do they suffer from shock, but the sepsis following a burn is more than paralleled by the severe infection with anaerobes due to the multiple infection carried in by the mud and bomb fragments. As in the case of burns, also, picric acid is at once an excellent analgesic and antiseptic.

SECONDARY COMPLICATIONS OF WOUNDS.

The primary complications of haemorrhage and collapse are accompanied or followed by the secondary complications of bacterial infection, and it is practically true that every gunshot wound of this war in France and Belgium is more or less infected at the moment of its infliction. I have already described the condition of the men and their clothing, and how mud and dirt pervades everything, and bacteriological investigations of the soil, of the clothing, and of the skin, demonstrate the presence of the most dangerous pathogenic organisms in all three.

No more interesting work on this matter has been recorded than that done by Mr. Alexander Fleming,¹ in Colonel Sir Almoth Wright's laboratory, and his whole paper is well worth study. I will here only quote some of his conclusions, and, in the first place, the results of his examination of the clothing of wounded men. He says: "From this it will be seen that of the twelve samples of clothing examined *B. aerogenes capsulatus* was found in 10, *B. tetani* in 4, *Streptococcus* in 5, and *Staphylococcus* in 2, besides other organisms." It is therefore evident that the patient and all his surroundings when he is wounded are grossly infected, and all missiles which pass through the contaminated skin as well as through the clothing are liable to carry bacteria into the depths of the wound. And it must also be kept in mind that, even when no large piece of clothing is found in the wound, in practically all cases of injuries by shells or shrapnel bullets minute shreds of coat, shirt, or jersey, will be found by a careful search.

Mr. Fleming gives the following table, showing the microbial infection of 127 patients at different stages.

Time after Infection.	Total No. of Cases.		B. tetani.		Putrefactive Bacilli.			Streptococci.		Coliforms.		Staphylococci.		Wisp Bacilli.		Diphtheria and Leucoc. Bacilli.	
	B.	Streptococci.	B.	T.	B.	X.	Y.	S.	C.	S.	S.	S.	S.	S.	S.	S.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)							
STAGE I: 1 to 7 days ...	127	103	22	14	5	102	37	40	9	0	2						
STAGE II: 8 to 20 days ...	56	19	5	4	1	51	18	16	17	4	4						
STAGE III: Over 20 days ...	27	5	0	0	0	24	19	19	16	0	6						

He adds: "The spore-bearing anaerobes . . . progressively diminish in relative frequency as the age of the wound increases. . . . In the early stages these spore-bearers are present in much greater numbers than anything else, whereas later . . . their numbers are relatively few." He considers also that all the first eight of the group of organisms tabulated above are of faecal origin, including the streptococcus which is so common an infection.

The work of pathologists at the front (Major Rowland and Lieutenant Stokes and McNece) has also demonstrated the presence of anaerobic and other organisms in quite recent wounds, and the conclusions arrived at in the British army are all supported by the surgeons in the armies of our allies.

Such, then, are the main facts as to the nature of the infection of the wounded parts, and it is the result of this infection that is the all-important question which has so deeply interested not only the medical profession, but also the public in general.

TREATMENT OF SEPTIC INFECTION.

I think it may truly be said that nothing has more impressed the public mind than the septic nature of many wounds and the prolonged sufferings caused thereby. It may also be said that this sepsis came as a surprise to

most surgeons, and as a disappointment to those who had believed that in antiseptic surgery we had forged a weapon to combat all such conditions. Many, indeed, have not hesitated to blame the surgeons in France for the conditions of the wounds, while others have devised and advocated many new remedies to deal with the unexpected condition.

It becomes, therefore, a matter of much interest to try and analyse the different bearings of this septic infection and to suggest how it may best be combated.

Gas Gangrene.

In the first place we must realize that, in the gas-forming anaerobes at least, we have to deal with an infective agent which is to all intents a new experience, and not only are these bacteria found in almost every wound, but they also attack the tissues more rapidly and violently than any other organism. They are practically unknown in civil practice in Great Britain as a regular wound infection, for they are so rarely encountered that prior to this war most of the younger British surgeons had never seen a case of gas gangrene.

I will not here interpose a long description of this condition, but will merely state that these anaerobes cause an inflammation characterized by great swelling and a copious sanious discharge full of bubbles of gas. This may only result in a cellulitis, or may involve the whole of the tissues of a limb, and has a special tendency to extend in muscles. It may cause discoloration and death of the skin alone, or else the whole limb may swell enormously and be rapidly converted into a gangrenous mass of putrefying material emitting the odour of a newly manured field. The patient in the worst cases presents all the appearances associated with severe shock or collapse, is often very sick, rapidly becomes pulseless, his hands and feet become damp and cold, the tongue dry and furred, and death follows the onset of the disease within about forty-eight hours. There is often very severe pain in the early stages, and most of this is due to the extreme swelling and tension, but, as the tissues die, all sensation is lost, and the end is usually quite painless. In the vast majority of wounds, however, although the same anaerobes are present, they are comparatively powerless to do much harm, their action is localized to the wounded area, and they produce merely a local sepsis and inflammation. The question naturally arises why such very various results should ensue from the same infection, and it is a noteworthy pathological fact that the action of the gas-producing organisms is greatly assisted by the presence of staphylococci or other bacteria.

In considering the explanation of these phenomena we are at once struck by the fact that these anaerobes attack a recent wound with the most alarming rapidity, and they produce their characteristic local and constitutional effects more rapidly after being inoculated than do any other organisms. I have, indeed, seen well-marked infection with the formation of gas within five hours of the receipt of a wound, and I have seen a whole limb gangrenous in ten hours, and the patient dead from haemic infection sixteen hours from the time he was injured. It was evident, therefore, that in such cases the organisms meet with no resistance from the tissues, and the question to decide is why do not the tissues resist in some cases when in very many other wounds the anaerobes have evidently but little power for harm?

A good deal of light is thrown upon this matter by the behaviour of the anaerobes in question when a limb dies from injury to its main vessels. I have seen many cases of gangrene due to injury to the iliac, femoral, or popliteal vessels, and some due to injury of the axillary artery, and in every case but one as soon as ever the limb has died from loss of its circulation it has at once been invaded by the gas-forming anaerobes, and, if it has not been removed, typical gas gangrene has extended and killed the patient. In other patients where wounds have been infected to only a slight degree before death, as soon as death has occurred typical gas gangrene has so rapidly spread that within three or four hours the limb has become a putrefying mass.

The important facts to keep in mind, then, are, first, the extreme rapidity with which recent wounds become infected, and, secondly, the fact that these anaerobes develop most characteristically on dead or dying tissues. Keeping these in mind, we can appreciate why certain

wounds are affected more than others, for, other things being equal, it may be briefly said that "the more severe and extensive the injury, and the more the tissues are lacerated and devitalized, the more is the wound likely to be badly infected."

I have already described how the tissues are pulped by bad shell smashes and by bullet wounds with explosive effects, and I have mentioned that the muscles which have been crushed out of all resemblance to muscle may be cut away without causing pain or bleeding because they are dead. The fact is that the tissues left behind when a piece of shell has torn away a great mass of skin, cellular tissue, and muscle are either dead or partly devitalized over a very large area, and I have described how microscopical examination shows that the injury is really very much more extensive even than it appears to be. It is in the widely extravasated blood and in these dead and dying tissues that the anaerobic bacilli in particular find an unresisting prey, and it is a matter of daily experience that in the very large shell wounds of the shoulders and pelvic region, where amputation cannot be performed, gangrene almost inevitably supervenes. In simple flesh wounds it is quite rare, and the peritonium is practically immune even when the abdominal wall is fatally infected.

Streptococcal Infection.

Much of what I have said of the anaerobic bacilli is true also of the streptococcus, which is found in such large numbers by Mr. Fleming, for Sir Almoth Wright has specially pointed out that this organism, like the anaerobic bacilli, also grows with extreme rapidity. It is therefore evident that in the wounds in France there are at least two organisms with which in civil practice in England we are not familiar, and the whole group of faecal bacilli has been hitherto comparatively unknown in modern surgery. It must, of course, be evident that the common pyogenic streptococci and staphylococci are also liable to infect wounds in France as well as in England.

Effect of Exposure on Wound Infection.

But, important as are the nature of the wounds and of the microbic infection, if we are to realize to the full the conditions that favour the growth of organisms we must turn from the conditions of the wounds to the conditions of the patients, for the wounds that undoubtedly do the worst, apart from the severity of the injury, are those in which the patient could not be rescued for some time, and has been left lying out and got thoroughly chilled, or has had severe bleeding, and these two conditions are often combined.

As I see it, the whole picture is much as follows: The man is wounded, and simultaneously inoculated with organisms which immediately fasten upon any dead tissue. The safety of the patient depends for the time on his own inherent ability to resist, and if he is collapsed from loss of much blood, and is wet, cold, and starving, his leucocyte defence is enfeebled or absent; the bacteria grow unopposed, and either destroy the unresisting dead or partially devitalized tissues locally, or else, in addition, poison him by their toxins. The condition of the man himself to a great extent determines the reaction of the injured part, and must be taken into consideration, together with all the local complications, if the infections of wounds are to be really understood.

It is very natural, therefore, that suggestions should have been made for the application of an antiseptic agent by the wounded man himself or his comrades as soon as he is wounded. But, although such treatment sounds plausible, it is really perfectly useless, for not only would very large quantities of any agent be required for the numerous large wounds, but it would be obviously useless to employ antiseptics unless they could penetrate to all injured tissues and unless the wound could at once be protected from further contamination. If the man lies in the open he cannot generally get at his own wound at all, either because of its situation or because he cannot remove his clothes, while he is also tolerably certain to be shot if his movements show that he is yet alive. Or if one pictures to oneself the wounded man lying in a deep and narrow trench, still covered by his muddy clothes, possibly in the dark, and perhaps with a broken limb, his own hands and those of his comrades grimed with mud, and no one know-

ing till clothing is removed where the wounds are situated or how numerous they are, it becomes evident that to apply antiseptics under these conditions is worse than useless, and no one familiar with these conditions would ever think of advising such treatment. It is indeed clear that the very best thing is to get the patient away as soon as is possible to some place where he can be thoroughly treated and kept in safety for a sufficient time, and in the British army that place is in some cases the field ambulance, and in all the worst cases the casualty clearing station.

Antiseptics.

It is at this stage that we find there are two different schools of thought amongst those who are not at the front as to what is best to be done in the treatment of the wound. One school, which draws its experience mainly from the surgery of civil life, would persuade us that all our wounds, if properly treated, should be completely sterilized—at a single dressing if seen early enough—by the application of this or that antiseptic agent, and can only see in any subsequently septic wound evidence that the surgeon's work has not been done as well as it ought. The other school, which draws its limited experience from this present war, asserts that antiseptics are useless as such, and considers that they should not be used at all.

I am myself very decidedly of the opinion that neither school is right, and that, on the one hand, the badly infected wounds in badly injured men can seldom be completely sterilized at a single dressing, and, on the other hand, I am quite certain that antiseptics are useful and necessary for the proper treatment of all the wounds of war, and that they have been of the utmost service.

For many years I have been on the staff of St. Bartholomew's Hospital, and I have seen both the end of the pre-antiseptic days of surgery, and the whole of the antiseptic period since Lister's views became generally accepted. I have seen many changes in methods and practices, and I know full well that in each succeeding decade the results obtained by surgery have been better and better. Consider for a few minutes what is the practice which is commonly accepted as correct for a bad compound fracture of the leg caused by the wheel of a heavy vehicle. My own house-surgeon would proceed much as follows: The patient would be deprived of his dirty clothes and washed, and would then be taken into an operating theatre where every one would wear sterilized gloves and gowns. His skin would be shaved and washed with acetone or ether, and then painted with a 2 per cent. solution of iodine in spirit. The wound would be enlarged if necessary; the dirty ragged skin edges and bits of torn muscle would be cut away; sufficient drainage would be provided; loose bone fragments would be removed; the whole wound would be thoroughly washed again and again with a solution of mercury bichloride (which I prefer to perchloride because it does not coagulate albumin), sterilized or cyanide gauze would be applied, and splints would be fitted to the limb.

And what would be the result? In my experience, in nine cases out of ten the fracture would heal as well as if there had been no wound, and the wound itself would heal either by first intention, if not too lacerated, or else by granulation with the minimum of suppuration if it was extensive and if some of the skin had been destroyed. What has the treatment effected? I should reply that it has at least mechanically cleansed the wound without adding to its previous contamination any microbes on the hands of the surgeon or on his instruments, and that further, it has rendered harmless any bacteria in the skin of the patient, and has both mechanically removed organisms already in the wound and has temporarily inhibited the growth of those remaining, so that the healthy tissues could quickly destroy them.

And if I am told that the antiseptics I have employed to the skin and to the wound itself have played no part, and that sterilized water would have done as well, I should reply that I know by experience that until we did use antiseptics very thoroughly we did not get these results, and that the wounds which have been treated in the manner described have done consistently better than those of previous years. I should add that practical experience has shown that suitable dilute antiseptics have never done harm, and that consequently there can be no possible objection to their use.

But if, on the other hand, I am taken to task as to why we cannot get as consistently good results in war as in peace, my answer is to be found in what I have said—namely, that, in the first place, neither the conditions of the patients themselves nor the character of their wounds are at all comparable; and, in the second, that the microbial infection is also quite different from that in civil life.

And if the question be asked, Are, then, antiseptics to be used in the case of the recently wounded men, and, if so, what good can be expected from them? I should unhesitatingly answer that, whenever possible all these soiled wounds should be treated just as carefully and thoroughly by antiseptics as any dirty wounds would be in any great British hospital, and that exactly the same amount of good is to be expected in recent gunshot injuries from the cleansing of the skin and of the wounds. The ordinary pyogenic organisms, at least, can be eliminated in sufficiently early and favourable cases, and the patient has in consequence a much better chance in his fight against his new enemies. If we cannot kill all the bacteria there is no reason why we should not kill as many as we can, and as we have in civilian practice already succeeded in sterilizing for all practical purposes by a single dressing very many of the septic wounds which we habitually treat, we naturally do not credit those who assure us, as a result of experimental evidence, that this cannot be done, and we not unreasonably hope that we are already succeeding in finding better methods than we have hitherto possessed for the wounds of war and the anaerobic and faecal infections. I altogether object to the attitude that antiseptics never have and never will overcome early sepsis.

The line of treatment I have indicated above, with minor variations such as more extensive excision of injured tissue, has been carried out in thousands of patients in this war, and I claim that practically all those who have had slight wounds, as well as many who have had serious wounds, have done exceedingly well. We have, indeed, had abundant evidence of this both in the way our patients have recovered, and also in the numbers of wounded men who have returned to the colours, and it should be a satisfaction to every one to know that except when overcrowded by the rush of battle the conditions for the treatment of the wounded in well-equipped operating theatres are not one whit behind the best that can be found in civil life. No better work has been done during this war in the saving of lives and limbs than the thorough cleansing and dressing of severe wounds, whether complicated by fractures or not, and except for the very great difficulties inherent in warfare which I have already described, there is no more delay in conveying the patient to field ambulances and clearing stations than in getting a patient from an accident into a civilian hospital. I am also quite certain that it is most inadvisable to teach that no wound can ever be sterilized by the proper use of antiseptics, for in the first place the statement is contrary to the experience of surgeons for many years past, and in the second it is liable to discourage well intentioned efforts.

Bad Fractures and Shell Wounds.

But if it be asked whether the treatment I have advised can be relied upon to sterilize completely the large lacerated shell wounds and the bad compound fractures, the answer must be that up to the present time neither this nor any other treatment yet adopted and described in the armies of the enemy or of the Allies can claim to have accomplished this end in this class of injury by any single dressing or cleansing, even when the wound is treated at once. It is, indeed, a notable fact that no surgeon who is familiar with the wounds and conditions at the front has ever made such a claim, and it is only those who know these wounds subsequently who are prepared with antiseptics which have each failed when put to trial. And it is for this reason and with this knowledge that we, who see these men soon after injury, say that such wounds should never be treated as if they had been rendered aseptic, and as if they could be safely closed by suture. There is, of course, no doubt that slight and simple wounds may be so completely excised that all infected tissue is removed, and all the surrounding skin cleansed so thoroughly that primary aseptic union may ensue in a large percentage, but no such result as this has been obtained in the very large lacerated wounds where com-

plete excision is an impossibility as a routine consequence of any method of disinfection at a single dressing. The best we can reckon on is that only after several or many days may the wounds become free from dead tissue and virulent bacteria.

DRAINAGE.

It is especially in these cases of bad compound fractures and in the lacerations by shells that free drainage is so absolutely essential, and my colleague, Surgeon-General Sir George Makins, directed special attention to the need for this very early in the war. Colonel Burghard and Lieutenant-Colonel Sargent were each subsequently insistent, yet in spite of this it was some time before we could get free drainage universally adopted at the front, and for the following reason: It became evident that some of the most recently qualified medical officers had been so much accustomed to deal with clean wounds which could be safely sutured, and had got so accustomed to obtaining union by first intention, that they could not believe that the gunshot wounds they treated had not also been satisfactorily sterilized. The fact is that owing to the very success attending the practice of surgery in recent years there was a certain amount of ignorance of septic wounds—an ignorance which is easily accounted for when one considers how very little suppuration is to be found in the wounds in all civil hospitals of the present day. But when sutures were finally given up and large drainage tubes were used freely all the wounds did better, and the stimulus supplied by the work of Colonel Sir Almoth Wright was of inestimable value in promoting sound practice on these lines. Let us clearly recognize, however, that the provision of efficient drainage is no new thing, and that it is, of course, quite easy to appreciate its benefits in the infections by anaerobes when we remind ourselves of the fact, on which I have already laid stress, that the anaerobes live mainly in dead tissue and are quickly killed by healthy cells. It is not material whether they find dead muscle or dead fluid, and the surgical principle that septic wounds should be drained is an established practice of surgery and was thoroughly understood in all its bearings long before the present war supplied so large a field for its use.

MEANS OF COMBATING ADVANCED SEPSIS.

But while we should strive to cleanse all recent wounds, it must constantly be borne in mind by all military surgeons that the longer the time that elapses between the infliction of the wound and the first thorough dressing the more impossible does it become to obtain a good result. I have already pointed out the many reasons why and how this delay is so fatal, but all of them lead finally to one paramount reason—namely, that the longer the wound is left in its primitive state of blood-stained and crushed tissues, contaminated by a bacteria-laden soil and muddy clothes, the more extensive and far-reaching is the growth of the micro-organisms, and the more impossible does it ultimately become to attack them with any hope of immediate success. The more likely, also, is the patient to be already infected beyond hope of recovery, and I have known men who, before they could be rescued, were already dying of the results of the infection by gas-forming organisms. How, then, are we to treat cases where advanced sepsis is definitely established beyond hope of early sterilization?

Hypertonic Salt Solution.

We have the choice between the hypertonic salt solution of Sir Almoth Wright and the use of antiseptics, and each of these has many supporters. The object of each is the same in reality, for it is recognized by the advocates of both that it is necessary for dead tissue to be disintegrated or cut off as sloughs, and for granulation tissue to grow before healing can take place; and as one watches the blood-stained unhealthy discharge from the dead and dying tissues give place to the formation of pus by healthy granulations, one appreciates more clearly than ever before why the older surgeons spoke of "pus laudabile et bonum." They understood that when the velvety granulations and the creamy fluid appeared destruction had ceased and repair had begun, and we recognize to-day, as they did, that there is such a thing as a relatively "healthy" suppuration.

I think that those who prefer antiseptic to saline treatment have found, as in all sloughing wounds and cellulitis of civil practice, that nothing is so good as prolonged immersion in an antiseptic fluid; but unfortunately most of the wounds are not so situated that this is possible. When this is the case then the next best thing is to employ constant irrigation, and very many wounds have done exceedingly well under this method, whether saline or antiseptic fluids have been used. But, whatever fluid is employed, every surgeon knows by an experience which is far more valuable than any other source of information that good results in complicated wounds can only be obtained if the treatment of the wound is varied according to its conditions. It could only be inexperience of wounds that would limit a surgeon to a single form of lotion, and it is the merest truism to say that in complicated and septic wounds a change of lotion or other application is as necessary as is a variation in the diet of the patient.

It has seemed to me that the period during which the saline hypertonic treatment is useful is strictly limited to the separation of sloughing and unhealthy tissue, and that once a granulating surface is obtained throughout it had better be abandoned, for it is generally painful, and if it is continued the skin becomes irritated, the granulations often become exuberant and flabby, and the healing process is correspondingly slow. The use of such well-tried applications as silver nitrate and zinc sulphate may then well prove more beneficial than that of the most potent solution of antiseptics or salines, for to treat wounds according to the daily report on their microbial infection to the neglect of all else is as foolish as it would be to treat every symptom of an illness rather than to treat the patient who is ill.

Hypochlorous Acid.

Within the past few months the treatment by solutions of hypochlorous acid has been most extensively tried, and the methods of producing it, advocated by Dakin and Carrel and Lorrain Smith respectively, seem to most observers to be equally good. Personally I may add that, as far as I have seen, there is nothing to choose between the two solutions, and I think I may safely say that almost all surgeons are pleased with the results obtained in the early treatment of recent wounds, and many have given up other methods in its favour. Where wounds of the hands and feet have been immersed in the solution, they have cleared up with great rapidity, and where extensive lacerated wounds and bad compound fractures have been treated by irrigation many patients have done extremely well. I think that wounds of this class have done better under treatment by hypochlorous acid than under any other, but I cannot say that they have become sterilized as rapidly as the cases recently described by Carrel, and I do not think that the good results he obtained were in wounds of the class I specially refer to—namely, extensive lacerations by shells and bad compound fractures. It is, however, my very decided opinion that the hypochlorous acid treatment is an important advance, more especially when used in recent wounds and before separation has occurred, and I find that it has to a great extent displaced all other forms of treatment in many of the casualty clearing stations. It is generally believed to have prevented the occurrence of gangrene in many bad lacerated wounds and to have arrested its progress in others; and, although I am well aware that it has not always been successful, I consider that it has already been productive of very much good and to be more useful in this class of wound than any other application we have yet tried. It is also a very remarkable fact that, unlike most antiseptics, it can be used in solutions sufficiently powerful to destroy virulent microbes very quickly without at the same time injuring the tissue cells. It should, however, be only used in solution, for if used as a powder, it, like many other powders, is liable to form hard lumps, which obstruct free drainage and so counteract its good effects.

CONCLUSION.

I have now, Mr. President, completed the task I set myself at the beginning of this lecture, and I have placed before you as well as I am able to do in so brief a space of time the circumstances and conditions of our wounded

soldiers in France and Belgium and the nature and treatment of their wounds.

But there remains yet a duty which I feel I owe both to the army itself and to the medical profession at large, and that duty is to express to you how deeply I feel the whole country is indebted to the medical officers in whose hands are ultimately placed the duties of caring for our sorely tried soldiers.

I do not propose to say one word about the general efficiency of the corps to which I have the honour to belong, for it needs no words of mine. What I do wish to say is that nothing has impressed me so forcibly or so favourably as the qualities of many of the younger surgeons on whom has rested the chief stress of the actual treatment of the wounded. There is not a medical school in Great Britain or Ireland that has not reason to be proud of its pupils, and the work of the surgeons has been equalled and supported by that of their pathological colleagues.

I do not know whether to admire most the energy and keenness which has enabled the staffs to work days and nights without adequate rest, or the technical surgical skill in the complicated and difficult operations on the abdomen and limbs alike, which has been so conspicuous a quality in so many officers. The care, the zeal, and patience displayed in efforts to save limbs and life have been no less praiseworthy than operative dexterity.

The Royal College of Surgeons of England has influenced and guided the teaching of surgery during many years, and all who have shared in this responsibility may feel a legitimate pride in the splendid work now being done by its pupils. "The tree is known by its fruit," and the future of British surgery is in safe keeping, for many of the best brains and hands which guide its course are yet young.

REFERENCE.

¹ *Lancet*, September 18th, 1915.

IODINE AND SODIUM HYPOCHLORITE AS WOUND DISINFECTANTS.

BY

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WHILE the use of iodine and the recently revived hypochlorites as surgical disinfectants is of old standing, very little in the way of laboratory records of their efficacy, particularly with regard to the special difficulties occasioned by the sterilization of wounds, is to be found in the literature, and although the actual lethal effect of a disinfectant on the bacterial flora of a wound to which it is being applied is only one of a number of qualities desired from an antiseptic, it has been thought of interest to carry out a number of comparative tests with phenol, iodine, and Dakin's hypochlorite solution. Noguchi,¹ Turner and Catto,² Kutscher,³ Brünnig,⁴ Réclus,⁵ Firth and Macfadyen,⁶ among others, have investigated the sterilizing power of iodine, but in most cases from the point of view of its application to the skin before operation, in the manner advocated by Grossich.⁷ Based for the most part on the older thread and garnet methods, the results are in marked conflict. Firth and Macfadyen employed both the thread and Riddell and Walker's drop method, and used as test bacteria *B. prodigiosus* and *B. typhosus*; with the latter they determined as well the efficiency of iodine in the presence of a certain amount of urine.

In the experiments which are described below the drop method was followed; the organisms used were *Staphylococcus aureus* and *B. oedematis maligni*, as examples of the sporing and non-sporing groups; and, as a test of the efficiency of the disinfectant in the presence of organic matter, in one series disinfection was carried out on bacteria suspended in distilled water; in another series on bacteria suspended in sheep serum.

In the case of the staphylococcus, an emulsion was prepared in distilled water and in serum from a twenty-four hours agar shape culture. These suspensions were then counted in Thoma-Zeiss slides; the predetermined density was effected, and to 4 c.cm. placed in a sterile test tube were added 4 c.cm. of disinfectant. In this way both emulsion and disinfectant were diluted one half, and it is in this ultimate working strength that the disinfectants

and emulsions are reported in the tables below. Each test tube had its own 1 c.c.m. pipette bound in with the cotton-wool plug, the two being removed together when it was required either to open the tube or to take out a measured quantity of its contents.

To determine when sterilization was complete a 0.1 c.c.m. sample was taken from time to time by means of the pipette and dropped—when iodine was the disinfectant—into 0.2 c.c.m. of a 10 per cent. sodium thiosulphate solution placed in a sterile Petri dish—when phenol was the disinfectant into an empty Petri dish; the plates were then poured with agar. An incubation of one to two days revealed whether the sample taken was sterile or not, sterility being roughly taken as meaning the disinfection of all bacteria present in the disinfectant emulsion mixture.

As a control of a possible inhibitory power of the neutralized iodine or of the surplus sodium thiosulphate in the amounts used in the experiments a series of plates was poured as given in Table I. The figures tend to show—and on other occasions similar results have been obtained—that inhibition of growth does not occur at all, but that, on the contrary, in those samples in which iodine and serum are present a somewhat greater number of colonies is obtained, either owing to a stimulating effect of these substances on the growth of the cocci, or more probably as a result of clumps of cocci being broken up by an alteration in surface tension.

TABLE I.

Number of cocci per c.c.m. of a *Staphylococcus aureus* emulsion estimated from an average of four agar plates, poured after the addition of 0.1 c.c.m. of the emulsion to a Petri dish containing:

0.1 c.c.m. (serum and iodine) neutralized with		
0.2 c.c.m. sodium thiosulphate:		
Not mixed before plating	2,412	
Mixed before plating	2,570	
0.2 c.c.m. sodium thiosulphate:		
Not mixed before plating	2,155	
Mixed before plating	2,210	
0.2 c.c.m. distilled water:		
Not mixed before plating	2,007	
Mixed before plating	2,250	

The serum-iodine mixture was one containing equal parts of sheep serum and 2½ per cent. iodine in 5 per cent. potassium iodide. The sodium thiosulphate solution = 10 per cent.

TABLE II.

Disinfectant.	Environment.	14.5 Million <i>Staphylococci</i> per c.c.m. at 22° C.	
		Are not all Killed after	Are all Killed after
0.0015 % iodine	Distilled water	—	2 minutes.
0.125 % iodine	50 % serum	16 minutes	32 minutes.
1.0 % phenol	Distilled water	16 minutes	33 minutes.
1.0 % phenol	50 % serum	32 minutes	—
1.5 % phenol	50 % serum	8 minutes	16 minutes.
1.75 % phenol	50 % serum	4 minutes	8 minutes.

In the experiments with malignant oedema spores, the method of procedure had to be slightly varied. To obtain a finely divided emulsion, a seven to nine days' old broth culture of *B. oedematis maligni*, which generally contains about one fully developed spore to three or four rods, was centrifuged and the deposit resuspended, partly in distilled water and partly in serum. After enumeration in Thoma-Zeiss slides and regulation of the number of spores per cubic centimetre according to one's wishes, 4 c.c.m. of emulsion were added to 4 c.c.m. of disinfectant. When the disinfectant was iodine or hypochlorite, the sample taken as a test of sterility was 0.2 c.c.m. in amount, and was dropped into 0.4 c.c.m. of 10 per cent. sodium thiosulphate, contained in a sterile test tube; after neutralization 0.15 c.c.m. of this, representing 0.05 c.c.m. of the original disinfectant-emulsion mixture, was dropped into a test tube of meat medium, and incubated under anaerobic conditions for five to seven days. The meat medium employed consisted of finely minced fat free meat, preferably heart muscle, autoclaved with a small quantity of water and brought well to the alkaline side of the litmus neutral point; the meat is then ground to a paste in a mortar, and

portioned off into test tubes with sufficient of the liquid extract to cover the fine meat deposit half an inch or so; the tubes receive a final sterilization by steam at atmospheric pressure or by autoclave. The medium has been found by Miss Robertson, working in the institute on the anaerobe group, to be one of the best for the growth of *B. oedematis maligni*.

Where the disinfectant used was phenol, 0.05 c.c.m. of the disinfectant-emulsion mixture was dropped directly into the meat tube. The higher concentrations of iodine were obtained by dissolving in a potassium iodide solution double the percentage of the iodine required. The hypochlorite solution was prepared according to Dakin,⁵ and consisted of a mixture of bleaching powder and sodium carbonate solutions neutralized with boric acid. That used in these experiments was very kindly prepared, and its percentage of sodium hypochlorite estimated, by Professor Harden. It will be observed that the amount of sodium hypochlorite in the solution fell from 0.337 per cent. to 0.24 per cent. after an interval of eight days, during which period the solution stood in a corked glass cylinder on a laboratory bench.

TABLE III.

Disinfectant.	Environment.	102 Million Malignant Oedema Spores at 19° C.	
		Are not all Killed after	Are all Killed after
Dakin's solution, diluted one half, containing 0.1685 % NaClO	Distilled water	—	½ hour.
Ditto	50 % serum	5½ hours	—
5 % iodine	Distilled water	1½ hours	2 hours.
5 % iodine	50 % serum	2 hours	3½ hours.
10 % iodine	Distilled water	½ hour	1 hour.
5 % phenol	Distilled water	8 days	—

Table III shows the failure of 5 per cent. phenol to sterilize malignant oedema spores and the difficulty with which iodine does so, whether serum be present or not. Dakin's solution, even in half the strength at which it is usually employed, is, on the other hand, in the absence of serum, most effective, though, as seen in Table IV, even small quantities of serum can interfere with its action; this would lead one to expect no direct lethal effect of the solution on similar resistant spores embedded in the tissues of a wound unless by irrigation the serous fluid surrounding those spores could be replaced to well above 95 per cent. by the hypochlorite solution.

TABLE IV.

Dakin's Solution (full strength, containing 0.24 % NaClO) and Sheep Serum.	Serum.	84 Million Malignant Oedema Spores per c.c.m. at 15° C.	
		Are not all Killed after	Are all Killed after
80 %	20 %	6 hours	—
90 %	10 %	6 hours	—
95 %	5 %	5½ hours	—
99 %	1 %	10 minutes	20 minutes.
100 %	—	8 minutes	16 minutes.

REFERENCES.

- ¹ Noguchi, *Arch. f. Klin. Chir.*, 1911, No. 96, 2. ² Turner and Catto, *Lancet*, 1911, i, 733. ³ Kutscher, *Deut. Klin. Woch.*, 1910, p. 390. ⁴ Erünnig, *Arch. f. Klin. Chir.*, 1911, No. 94, p. 587. ⁵ Béclus, *Bull. de l'Acad. de Méd.*, 1910, No. 63, p. 375. ⁶ Firth and Macfarlay, *Journal Royal Sanitary Institute*, 21, p. 17. ⁷ Grossich, *Centralbl. f. Chir.*, 1908, No. 44, p. 1282. ⁸ Dakin, *BRITISH MEDICAL JOURNAL*, 1915, ii, 318.

THE Director of the United States Bureau of Mines recently announced that the cost of radium had been reduced from £24,000 to £7,200 a gram. This reduction is the outcome of the work of the research bureau which has been engaged during the past year in studying the problem of the cheaper production of radium.

THE USE OF QUININE HYDROCHLORIDE SOLUTION AS A DRESSING FOR INFECTED WOUNDS.

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It was found in previous experiments in this laboratory that quinine hydrochloride possessed the following qualifications which are desirable in a dressing solution for infected wounds:¹

1. It had high bactericidal properties *in vitro*, especially marked in the case of the *B. aerogenes capsulatus*, against which it was more than ten times as effective as carbolic acid. It reduced the mortality of experimental gaseous gangrene in guinea-pigs from 100 to 41 per cent. It did not inhibit phagocytosis in the animals treated.

2. It had a strong antiferment (antitryptic) action *in vitro*, preventing the digestion of proteins and the consequent production of a medium favourable to bacterial growth.

3. It formed no stable chemical combination with proteins, so that its activity was not greatly reduced by the presence of serum or pus.

4. It was practically non-irritating when applied in effective concentration to exposed tissues, or even when injected hypodermically into muscles.

5. It was non-toxic when used in adequate dosage, producing no systemic reaction except a frequently desirable antipyretic effect.

6. The cost of the materials used was not prohibitive for general application.

7. It presented no difficulties of preparation and did not alter its composition on standing.

On the basis of these observations the treatment of clinical cases of infected wounds has been undertaken.

The majority of the cases have been subjected to wet dressings of a 1 per cent. solution of quinine hydrochloride in cold boiled water. The same solution has been used for instillation. In about 12 cases a continuous drip of $\frac{1}{2}$ per cent. solution of quinine hydrochloride, with the addition of $\frac{1}{2}$ per cent. of hydrochloric acid or of 1 per cent. of alcohol, has been used. In addition to these procedures, a few patients have received hypodermic injections into the tissues about the wounds of the same solution as that used for wet dressings.

About 125 cases of infection have so far been treated in this hospital with one of these solutions. These cases have been for the greater part fairly fresh wounds, having usually been received within forty-eight hours of injury. Most of them (70 per cent.) have been heavily infected with the gas bacillus, and all with staphylococci, streptococci, and the usual flora of putrefactive bacteria. About one-half have had open fractures of long bones of arm or leg.

Clinical Course of the Infections.

Most of the wounds treated with quinine solution have run a very favourable course. There has been a rapid improvement in the appearance of the wound itself, manifested by the speedy disappearance of the sloughs, by the vanishing of the putrefaction odour (frequently within twenty-four or forty-eight hours), by a marked decrease in the discharge, and by the unusually rapid appearance of red vascular granulations.

Nearly all the most serious wounds showing heavy mixed infections, or those showing the presence of the gas bacillus, have been placed upon this treatment immediately, so that control cases have been difficult to obtain. Ten patients, however, on admission to the hospital were treated with dressings other than quinine; the treatment was continued for a number of days and then changed to the quinine solution. All of them showed sudden improvement associated with the change. In three instances there was an almost immediate drop in temperature coincident with a marked improvement in the appearance of the wound.

Bacteriological Findings.

An examination of the discharges from the wounds in a series of 35 cases showing the heaviest infectious bas

been conducted by Dr. Bertram H. Buxton, of this laboratory, with a view to ascertaining the time at which the gas bacillus disappeared from the wounds. The annexed table shows the result of his investigations. It may be noted that the incidence of this bacillus in the wounds decreases rapidly under the treatment. All the 7 cases in which the gas bacillus was obtained in the last culture from the wound showed clinical improvement and a great decrease in the number of bacilli present.

Table of Cases Infected by *B. aerogenes capsulatus*, and Treated by Dressings of Quinine Hydrochloride.

No. of Cases.	Interval between First and Last Cultures.	<i>B. aerogenes capsulatus</i> Present in Last Culture.	<i>B. aerogenes capsulatus</i> Absent in Last Culture.
2	4 days	1 case	1 case
12	10 days	5 cases	7 cases
15	14 days	1 case	14 cases
6	18 days	0 cases	6 cases

In previous examinations of cases infected with the gas bacillus in this hospital it has been found that the organism has usually persisted for three weeks or more in wounds of the same type—for instance, in a group of 19 cases treated with dressings other than quinine hydrochloride the bacillus was found

In 7 cases 10 days after injury.
In 7 cases 30 " "
In 3 cases 60 " "
In 2 cases 100 " "

There appears to be associated with the decrease in the incidence of the *B. aerogenes capsulatus* in the wounds treated with quinine a progressive increase in the occurrence of the *B. pyocyaneus*. It was found in the first series of cultures that while the latter bacillus was reported in only 4 out of 35 cases at the first cultures, it was reported in 14 out of the same 35 cases in the last cultures. This bacillus seemed to occur much earlier in wounds treated with quinine dressings than in those treated with other routine antiseptic solutions. (It was found in previous investigations in this laboratory on the sterilization of pus with quinine that the *B. pyocyaneus* was the most resistant to this alkaloid of the organisms commonly present in pus.)

Special attention has been paid to the leucocytes present in the discharges from the quinine-treated wounds. These cells have shown a healthy appearance associated with the clinical improvement of the wounds, and frequently active phagocytosis of the organisms present, with the exception of the *B. aerogenes capsulatus*, which is rarely ingested by them.

As a result of the observations on the cases treated by these solutions and the bacteriological examination of the wounds, considerable confidence has been placed in the use of quinine as an antiseptic as well as in its specific action upon the gas bacillus. Surgeons at this and other hospitals where the treatment is in use have consistently reported that the wounds treated by wet dressings of 1 per cent. quinine hydrochloride have done unusually well. Several have reported that they are using this dressing exclusively for all types of fresh wounds.

SUMMARY.

1. The clinical experience with quinine hydrochloride has been consistent with the laboratory work previously reported.¹

2. It has been active in ridding heavily contaminated wounds of the gas bacillus.

3. The solution has appeared to act as an antiferment, inhibiting the activity of the putrefactive organisms and reducing the offensive odour associated with them.

4. The solution has not appeared to be precipitated by the serum or discharge from the wounds in the case of the 1 per cent. solution. At this concentration it had been found previously that its bactericidal activity *in vitro* was not very markedly diminished by the presence of serum or pus. The $\frac{1}{2}$ per cent. solution has occasionally shown precipitation when used without the addition of $\frac{1}{2}$ per cent. hydrochloric acid or of 1 per cent. of alcohol. The addition of neither of these drugs has appreciably increased

the bactericidal activity of the quinine solution *in vitro*, but appears to prevent precipitation of the alkaloid caused by the strongly alkaline discharge present in some profusely suppurating wounds.⁵²

5. There has been no report of any injurious effects from the application of any of the methods described above.

6. There has been reported no unfavourable systemic reaction from the absorption of the solution, while a few cases have shown a desirable decline in temperature associated with the substitution of quinine dressings for others.

The cost of the solution should not prevent its fairly general use. The 1 per cent. solution amounts to about 8d. per litre—rather more expensive than some of the other solutions in general use—but as it has seemed considerably to shorten the course of convalescence, it is not regarded as an expensive solution. It is further believed, from observations on *in vitro* experiments, that a solution of $\frac{1}{2}$ per cent. would be effective on the wounds if the acidity of the solution were increased by the addition of $\frac{1}{2}$ per cent. of hydrochloric acid. This latter solution has not been used clinically except on a few cases, each of which has run a satisfactory course.

It is a pleasure to acknowledge the laboratory's financial assistance from Mr. Robert Walton Götzel; the co-operation of Dr. Joseph A. Blake, in whose wards much of the work has been conducted; and the aid of Dr. Bertram H. Buxton, who has made the bacteriological examination of the wounds.

REFERENCE.

¹ The Use of Quinine in the Treatment of Experimental Gaseous Gangrene, *Lancet*, September 4th, 1915, p. 538.

NOTES ON TRAUMATIC AND ARTERIO-VENOUS ANEURYSM.

By CAPTAIN F. L. A. GREAVES, R.A.M.C.

The following notes of one case of traumatic aneurysm and four of arterio-venous aneurysms will afford an opportunity for discussing some of the symptoms and treatment of this condition.

CASE I.—*Traumatic Aneurysm of Right Popliteal Artery.*

Multiple shrapnel wounds sustained July 25th; admitted three days later. Severe compound comminuted fracture of left tibia and fibula badly infected by *B. perfringens*. There were smaller wounds at the back of both popliteal spaces, which were much cleaner, and no operation was done on them, but the left leg was carefully cleaned up and wide drainage established. Continuous irrigation with isotonic saline was employed and the leg speedily became healthy.

About three weeks after admission a swelling was noticed in the right popliteal space, lying just internal to the biceps tendon. The skin was hotter over it than normal, the swelling was soft and fluctuant, but there was marked expansile pulsation. No thrill was present, palpation elicited slight pain; movement of flexion of the right knee-joint was limited. A definite systolic bruit was heard with the stethoscope over the swelling; this was conducted upwards to the external iliac artery and downwards to the posterior tibial at the ankle and also to the femoral puls. Neither of these vessels was palpable. The foot was quite warm and no swelling or pain was present in the leg.

For two days the swelling increased slightly and was softer and more superficial; after this it became gradually and progressively harder, more defined, and more circumscribed. The skin became cooler and the pulses eventually returned in the posterior tibial and dorsalis pedis arteries. At the time of receipt of injury there was no hæmorrhage from this right popliteal wound. An x-ray plate showed the presence of a bit of metal.

The patient was evacuated for England on September 25th (nine weeks after injury) with a small, firm aneurysm of the right popliteal artery still contracting, a united left tibia and fibula, and all wounds healed.

Treatment of the aneurysm was simple rest, obtained by pillows and sandbags, with the limb in position of slight flexion and elevation.

CASE II.—*Arterio-venous Aneurysm of Third Part of Subclavian Vessels.*

Single wound from bomb explosion, August 27th, 1915, on the right side of the neck, with severe hæmorrhage, which was arrested by a private soldier compressing the wound with his

⁵² It was reported from one hospital that this solution showed the formation of a precipitate on standing, but it was found that the water used came from a very highly alkaline spring. No difficulty was experienced after the addition of a few drops of hydrochloric acid to the litre.

thumb. Admitted next day, very pale and faint, rapid respiration and feeble pulse; perspiring slightly about forehead and nostrils. There was a wound horizontally placed above the junction of the inner third and outer two-thirds of the right clavicle, and swelling of supraclavicular triangle, and upper pectoral region. Marked pulsation was felt above and below the clavicle and very marked thrill, like the purr of a cat. On auscultation with a stethoscope a loud continuous murmur was heard like the whirr of machinery; the point of maximum intensity of thrill and bruit was just below the mid-point of the clavicle. The bruit was well heard all over the right pectoral region and conducted to the axillary and radial arteries. No radial pulse could be detected, and only a possible brachial puls. The right hand and arm were cold. He had pain in the hand and arm, which was quite paralysed and anæsthetic up to a point 2½ in. above the elbow. Presumably, therefore, a severe injury to the brachial plexus had occurred.

Treatment.—Isotonic solution to the wound, rest and elevation and warmth to hand and arm; he was kept very quiet in semirecumbent posture. The after-history was that of a gradual general improvement; respiration soon became normal, the pulse-rate dropped very slowly, the pain in hand and arm diminished in intensity, but never quite disappeared. No power of motion or improved sensation occurred, and where he picked at the skin of two fingers he developed very indolent little sores. There was never any pulmonary complication. He was evacuated to England on September 1915, in good general condition with the signs of arterio-venous aneurysm much localized, but with a completely useless right arm. X rays showed a bit of metal lying vertically below the mid-clavicle anterior to the upper part of the scapula, below and internal to the coracoid process.

CASE III.—*Arterio-venous Aneurysm of Second Part of Right*

Single wound on right side of neck from piece of shrapnel from a "whizz-bang," sustained on September 5th, 1915. Not much immediate bleeding. When admitted, three days later, he was pale, with rapid pulse and respiration; he had not coughed up any blood; general appearance that of internal hæmorrhage. Small entrance wound, moderately septic on the right side of the neck close to the inner end of the clavicle. There was a small amount of swelling and ecchymosis over the clavicle and upper pectoral region, and well marked thrill and bruit very like the former case, and conducted in a similar way. The brachial plexus was damaged; he could flex his fingers and use his biceps group. Other muscle groups of arm and hand were paralysed. There were two days' loss of vocal function. A small aneurysm at the right base (? right hæmothorax). The bruit was heard with a stethoscope all over the right chest and conducted to the radial artery at the wrist. The radial pulse was present, but feeble; no swelling of hand or arm.

The general condition improved with treatment similar to that in Case II; circulation in radial pulse also soon improved. The thrill and bruit became more localized to a point internal to the mid clavicular line. He was evacuated to England on October 6th, 1915. The fluid in the chest had cleared up, and his general condition was excellent; there was no improvement in sensation or muscular power in the right arm. X rays showed a bit of metal posterior to the fifth rib 1½ in. from the front of the chest.

In neither of these two cases could the patient hear his own bruit.

CASE IV.—*Arterio-venous Aneurysm of Axillary Vessels.*

Sustained a circular wound over the upper part of the right deltoid region from a high explosive shell on September 6th, 1915. Some smart hæmorrhage was stopped by dressing. When admitted, two days later, the wound was moderately septic; there was general swelling of right shoulder and slight ecchymosis, and a diffuse swelling extending from the axilla a short distance down the arm on the inner side. Expansile pulsation was seen and felt. A very marked thrill was present. A loud continuous murmur was heard with a stethoscope over the swelling and conducted to the root of the neck and down to the radial at the wrist. The distal circulation was good; the radial artery was easily felt. There was an area of anæsthesia of the hand and forearm corresponding to the ulnar distribution. No loss of motion. In addition to the swelling mentioned, a tumour (? foreign body) could be felt high up on the inner wall of the axilla. No pulmonary complications were present.

The swelling gradually contracted and became harder and more defined; the point of maximum intensity of thrill and bruit also became more localized, the ulnar anæsthesia gradually passed off, and he was evacuated to England on October 12th, 1915. X rays showed a metal fragment on the outer side of the chest wall high up in the axilla, with eight other tiny fragments lying along the track of the larger piece.

CASE V.—*Arterio-venous Aneurysm (Femoral).*

Struck by shrapnel bullet on outer side of the left thigh on September 6th, 1915; not much hæmorrhage at the time. Admitted two days later with nearly clean entrance wound just in front of the left great trochanter. The general condition was good, but he had pain in the outer side of the left thigh and leg—distribution of long saphenous nerve. A probe introduced into the wound failed to reach the bullet. An x-ray photograph showed a shrapnel bullet in the adductor region. An anæsthetic was given and, the dressing being moved,

Captain Addisell) noticed that there was diffuse pulsation, with a thrill over the base of Scarpa's triangle. No operation was attempted.

When I saw the case, two days after admission, there was slight swelling over the base of Scarpa's triangle, a very marked thrill, and a bruit so loud that it could be heard by approaching the ear to the thigh without touching it. The murmur was conducted to the tibial vessels and upwards to the abdominal aorta. The whole leg was slightly oedematous. Although rest by sandbags and elevation of the limb were used, the leg and thigh became progressively more oedematous, and the pain persisted. After ten days this gradually passed away and the posterior tibial and dorsalis pedis arteries became palpable. The point of maximum intensity of thrill and murmur became more localized to a point just below Poppart's ligament. He was evacuated to England on October 8th, 1915, with his leg normal in size, less pain, and in good general condition.

Having briefly related the symptoms and history of these cases, I should like to compare some points with the description given in Keen's *Surgery* (edition 1914).

1. *Time of Appearance.*—The textbook statement gives from four hours up to many weeks after injury. Three of my cases were noticed on admission—that is, twenty-four hours to three days. The femoral case was not noticed until two days after admission—that is, four days after injury. It is possible that this case was overlooked, but I do not think it likely, as the medical officer in charge had examined it carefully and probed the wound. Possibly the communication between artery and vein took place in consequence of this probing. The popliteal aneurysm I know, from my own observation, had no swelling in the popliteal space until at least a fortnight after admission. That it appeared suddenly was borne out by the fact, for two days after its appearance it became larger and softer and the skin became hot. If one had not been on the look-out for pulsation, it was very like an abscess arising from a foreign body coming up to the surface, and might have been incised with disastrous results.

2. *Primary haemorrhage* is said rarely to be severe, and this was so in all my cases, except possibly in Case 11—the arterio-venous aneurysm of subclavian—where the haemorrhage was stopped by a private soldier.

3. *Local swelling* is stated to be diffuse, at first increasing for a few days and then contracting. This was so in all cases.

4. *Echymosis of skin* is stated to be seen when the vessels are superficial. This was only noticed in one case, and was never a marked symptom.

5. *Thrill*, a very marked and striking symptom, quite absent in ordinary traumatic aneurysm where the vein is not involved. This was well marked in all cases.

6. *Murmur* is described as like the whirr of machinery, or a fly in a paper bag. This describes the condition in all the arterio-venous aneurysms, and is quite different from the blowing systolic bruit heard in the traumatic aneurysm. The pitch of the murmur varies in different cases and also from time to time. In one of the subclavian aneurysms Sir George Makins pointed out the slamming character of the murmur, possibly due to vibration of a tag in the vessel. The murmur is stated to be heard by the patient if in the subclavian or carotid regions. Neither of my subclavian cases could hear his own murmur.

7. *Changes of Pulse.*—The pulse is said to be fuller than normal proximal to the aneurysm, and absent or feeble distal to it. This was so in all cases.

8. *Superficial veins* above or below the aneurysm are said to be (a) dilated—very slight dilatation of veins was seen in one subclavian case, none whatever in the others; or (b) tortuous—not seen in any case; or (c) pulsating with systole—not seen in any case.

9. *Peripheral temperature* is stated to be lowered at first, but soon compensated. Cold extremities were noticed in four out of five of my cases, but it is important to note the coincident damage to important nerves in those of my cases in which this coldness was noticed.

10. *General Effects.*—Faintness and rapid pulse until the system has learnt to tolerate the altered arrangement of the circulation. This is a very difficult thing to say much about. It is quite true that in both subclavian cases it was noted, but the coincident injury was severe. In the case of the femoral arterio-venous aneurysm, which apparently was formed whilst in our hospital, it was absent. As a whole, my cases all had rather rapid pulses, and they were still rapid—about 100 to 110—on evacuation.

I can say nothing about the secondary result of these

lesions, and I much regretted having to part with the cases before I could observe the effect subsequent to their moving about.

The question of after-treatment also does not come into the scope of this very imperfect note.

ARTERIO-VENOUS ANEURYSM: ANASTOMOSIS OF VEIN, AND SUTURE OF ARTERY.

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In the following case arterio-venous aneurysm of the popliteal vessels, caused by gunshot wound, was successfully treated by end-to-end anastomosis of the vein and suture of the artery.

Private H. was wounded on November 2nd, 1914, in France, the bullet passing through the lower third of the right thigh; it was a clean wound and healed up quickly, but an arterio-venous aneurysm developed.

On November 19th he was operated on in France; the surgeon exposed the femoral vessels, did not find the communication, ligatured the anastomotic magna, and closed the wound.

The patient, after being in various hospitals in England, returned to his depot at Winchester for light duty, but, owing to pain and swelling in his leg after exercise, was admitted to the military hospital, and from there transferred, on April 9th, 1915, to the Royal Hampshire County Hospital for operation. He complained of pain in his right leg, especially after exercise, and said that sometimes his right foot would go white and cold and become very swollen. There was some swelling and oedema of the leg, and on palpation a very distinct thrill was perceptible over the whole of the inner side of the right thigh and popliteal space, and a very loud, harsh, roaring bruit was heard all over the femoral and popliteal vessels. The patient was kept at rest for two weeks, but as the pain returned after allowing him up, it was decided to operate.

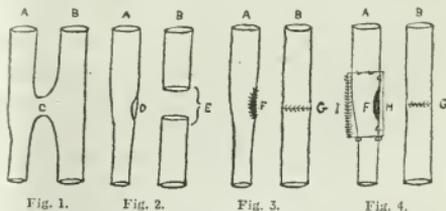


Fig. 1. A, Artery. B, Vein. C, Communication between artery and vein. D, Hole in artery after dissecting out communication and refreshing edges. E, The two ends of the vein, ready for end-to-end anastomosis, the dilated portion having been cut away in order to get healthy vein tissues for anastomosis. F, Artery sutured laterally with fine silk suture. G, Vein sutured, end-to-end anastomosis. H, Graft from internal saphenous vein surrounding the sutured artery, and sutured on opposite side to sutured artery at I.

Operation.

An elongated incision was made in the line of the adductor magnus tendon, giving enough room to have control of the lower end of the femoral and popliteal vessels. It was found that the communication between the artery and vein was just below the opening in the adductor magnus tendon, and that there was quite a small sac between the artery and vein (Fig. 1). A careful dissection of the vessels was made, and Cric's clamps applied to the vessels about and below the aneurysm. On removing the small sac it was seen that the hole in the artery was smaller than that in the vein (Fig. 2). After removing the dilated portion of the vein and excising it as far as healthy tissue, it was found possible to do an end-to-end anastomosis of the vein without producing any tension on the vessel. It was not possible to do an end-to-end anastomosis of the artery because the diameter of the artery on the distal side of the hole was a good deal smaller than that on the proximal side, and because it was found that there would have been too much tension. The edges of the hole in the artery were refreshed, and

the artery sutured laterally with fine silk sutures. A graft taken from the (Fig. 3) internal saphenous vein was sutured to the opposite side of the sutured artery (Fig. 4). The operation lasted two hours. On removing the clamps the circulation was perfect, and there was no haemorrhage from the line of suture. The wound was closed without drainage and the stitches were removed on the tenth day.

The patient made an uninterrupted recovery. I examined him five months after the operation; he was then doing light duty, and the circulation in the limb was normal.

THE CHARACTER AND TREATMENT OF FROST-BITE.

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WHILE reading with interest *The Memorandum on the Treatment of Injuries in War*, issued under the authority of the War Office, it occurred to me that, in view of the possibility of another winter campaign and the importance of adopting the proper treatment in "frost-bite," a few remarks on this subject might be of interest to those who, owing to climatic conditions, may not have had an opportunity of treating this injury.

The prophylactic measures, so far as protection of the feet is concerned, may be summed up in three phrases: (1) Loose, water-tight boots should be worn; (2) dry woollen socks changed daily; (3) maintenance of the circulation of the feet by moving them freely.

The toes and heel are the parts most liable to be attacked, and, unless the circulation is re-established by friction or heat, the condition will spread until the whole foot is involved. This extension is painless. Pain is experienced before the part becomes frozen. A few sharp stings following a period of pain is the usual experience. These stings, followed suddenly by cessation of pain, is a sure indication that the limb is being frozen.

I had an opportunity of observing a few cases among the soldiers from Flanders during the winter of 1914-15. They could not be regarded as true "frost-bite," but rather erythema pernio, as the borders of the feet and not the toes were the parts involved.

Three degrees of frost bite were generally recognized: (1) Erythematous, (2) bullous, (3) gangrenous.

1. In the first degree the skin only is affected. The anaemic appearance rapidly disappears with friction or exposure to the higher temperature. The localized anaemia is followed by erythema and occasionally slight oedema, which disappears in a few days.

2. The second degree is characterized by the formation of blebs filled with serum. These blebs, as a rule, appear within eighteen hours of exposure of the part to a higher temperature. The skin is a bluish colour, more oedema is present than in frost-bites of the first degree, which indicates the involvement of the superficial tissues in addition to the skin.

3. The third degree follows the exposure of the part to prolonged intense cold, and involves the skin and superficial and deep tissues. If the part is seen when in a frozen condition it is white, cold, and sensation is absent; on exposure to a higher temperature it assumes a swollen and congested appearance. Within eighteen hours the proximal area of the limb involved assumes the characteristic erythema of the first degree, while lower down the limb we have an area of blebs indicating the second degree of frost-bite. The distal portion of the limb—namely, the heel or toes—becomes cyanotic and later shrunken, and may become definitely gangrenous within forty-eight hours.

The treatment consists in using every available means to prevent an excessive reaction. Left to nature the partially devitalized cells become destroyed by the sudden engorgement of the part. The more severe the frost bite the more oedema is present and the more pain is complained of. If the patient is seen while the part is still frozen, the circulation should be gradually restored by placing the limb in ice-cold water, or by using gentle friction, with snow when available. The part may be covered with gauze or absorbent cotton, which should be

frequently saturated with an evaporating lotion. I use a lotion composed of liq. plumbi subacet. ʒi, spirit. rectif. ʒiij, aquam ad ʒj. When blebs form, they should be punctured. The application of the evaporating lotion is continued for the first twenty-four to thirty-six hours, until the swelling begins to subside or there is an indication of a cyanotic or shrunken appearance in the toes, or fingers if the hand is involved. Hot boracic fomentations should now be employed in order to overcome the reactive vasomotor constriction and consequent anaemia of the parts. This treatment is kept up for twenty-four hours, or until the cyanotic and shrunken appearance disappears or gangrene has definitely formed.

Amputation of a gangrenous area should not be undertaken until the line of demarcation between the dead and healthy tissues is well formed, which indicates the line of operation. While waiting until amputation should be performed, a powder of boracic acid and charcoal may be employed if any moisture or perceptible odour is present.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL

APPENDICITIS AND MEDICAL TREATMENT.

I HAVE full notes of 9 typical cases of appendicitis which occurred among the average daily population of 3,000 Indian labourers, consisting chiefly of Tamils and Telugas during a space of eight years. These cases were of all grades of severity, and in at least five of them immediate surgical operation was deemed advisable. But as is well known, the illiterate coelic classes always dread the knife, and owing to the strong opposition raised in every one of these individual cases, the idea of operation had to be abandoned. Blood examination revealed leucocytosis, and there were other unmistakable symptoms of the malady, subjective and objective, present as well. In the last two cases of the series, one a male and the other a female, the life of each was considered to be in imminent danger, as it was thought that infection of the general peritoneum through perforation of the appendix, could occur at any hour. Of these 9 cases, 8 recovered fully under conservative treatment; the one death was in an infant 15 months old. *Post-mortem* examination showed that the appendix was gangrenous and that there was generalized peritonitis; the causative organism of the infection was the pneumococcus; the appendix was widely ruptured, and an orange pip was found adherent to its interior. The adhesions round the affected cul-de-sac were poorly formed and were therefore unable to protect the general peritoneum.

The recovery in the last two cases was really most instructive. A careful consideration of the facts of these cases fully justifies the opinion that even seemingly hopeless cases might at times do well under proper medical care and treatment.

T. A. R. AIYAR, L.R.C.P. and S. Edin.,
L.F.P. and S. Glasg.

Sitiawan, Lower Perak, F.M.S.

PNEUMOTHORAX FOLLOWING PNEUMONIA.

A BRICKLAYER, aged 40, of healthy appearance, had had a cold for a few days before he sought advice but had been able to continue at work. I saw him about midday on October 6th, diagnosed pneumonia, and ordered the routine treatment.

At 10 p.m. of the same day I was hastily summoned as he was feeling very ill. He had great dyspnoea and marked cyanosis, and pain over the right hypochondriac region, and evidently was suffering from a good deal of shock judging by his small and rapid pulse. Percussion over the right lung and liver areas was markedly tympanic, and with the *bruit d'airain* and a very soft amphoric breathing over the right posterior base gave all the signs of pneumothorax.

The liver on deep pressure could be felt extending to four fingerbreadths below the costal margin, the heart appeared to be little displaced, no fluid could at any time be made out. A few days later the sputum was examined by the thorough bacteriologist, and found to contain numerous pneumococci, a fairly plentiful number of staphylococci, but no tubercle bacilli.

The patient improved rapidly, but the air was slowly

absorbed. I kept him in bed for ten days and then gradually increased the amount of daily exercise. He returned to work on November 4th, a month after the commencement of the illness. Before permitting his return I made him vigorously exercise his arms, and found his pulse very little raised as a result. He appeared and felt quite well.

Treatment consisted in the first place of relieving the pain and shock by a hypodermic injection of morphine followed by small doses of brandy during the night, later by a heart mixture, and a diet carefully chosen to avoid flatulence.

Dr. Arthur Latham informs me that "some few years ago the pneumonia cases at the London general hospitals were analysed for a period of ten years at the Medical Section of the Royal Society of Medicine. As far as I know, in over 7,000 cases there were not more than three complicated by pneumothorax, and two of them proved fatal."

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Reports of Societies.

TREATMENT OF DYSENTERY.

At a meeting of the Royal Society of Medicine on December 20th, Sir RONALD ROSS gave a lecture on the treatment of dysentery.

Historical.

In sketching the history of the treatment of dysentery he said that he was a convinced believer in the specific value of ipecacuanha. It was formerly customary to repeat the ipecacuanha at least once a day for about a week or more in spite of vomiting. Later on he used to prefer giving opium every night and the ipecacuanha in a bolus with a single mouthful of milk at about 4 a.m., the patient not being allowed to eat or drink until about 9 a.m. He thought that, with this method, one daily dose sufficed. Later in the case it had been usual to combine 5 to 10 grains of tannic acid with the ipecacuanha, especially in cases of "running" dysentery, but practice was generally opposed to the use of astringents until the disease had first been mastered by ipecacuanha. In those days no distinction had been made between the bacillary and amoebic forms and ipecacuanha was given in both; he was not yet convinced that it was of no value in the bacillary form. Bismuth, calomel, and the sulphates of sodium and magnesium were little used, and many were opposed to enemata, at least in recent cases. In chronic dysentery ipecacuanha was often given daily for some weeks, then omitted for another week or so, then begun again, and so on. Enemata were much more certainly useful than in acute dysentery, and silver nitrate was almost a classical drug for the purpose. The dietary was almost a science in itself.

After speaking of the recognition of the intestinal amoebae as pathogenic organisms, which he ascribed to Kartulis, in Alexandria, and of his own studies on amoebae and on intestinal flagellates, he said that it still seemed to him to be safe teaching that all intestinal amoebae and flagellates should be considered potentially dangerous.

Emetine.

He then referred to the introduction of emetine, first recommended by Bardsley in 1829, and given by the mouth by Tull Walsh in 1891. The elaborate studies of Leonard Rogers had first established its use in 1912. It was accepted everywhere, not perhaps as being essentially superior to ipecacuanha powder, but because the hypodermic injection was much less troublesome to the patient. By this method the drug was brought more directly into conflict with the amoebae at the bottom of the ulcers, whilst ipecacuanha did more to attack amoebae on the surface of the mucous membrane and in the lumen of the intestine, so that he favoured the use of both at the proper stage in the treatment. As an immediately applicable routine treatment the hypodermic injection of emetine had become a great boon to humanity. The use of the sulphates of magnesium and sodium had now become almost universal for bacillary dysentery. According to many, ipecacuanha and emetine were powerless against bacillary dysentery, salines powerless against amoebic dysentery.

Recent Experiences.

Sir Ronald Ross then narrated his experiences of the recent cases of dysentery among soldiers. Both forms had occurred largely among the troops near the Mediterranean and the Red Sea. Apparently bacillary dysentery prevailed in the earlier part of last year, but there was certainly an epidemic of amoebic dysentery in July and August. As Consulting Physician for Tropical Diseases, he had had unusual opportunities for studying the practice of the physicians in all the hospitals in Alexandria. Up to June amoebae had not easily been found in Egypt, but towards the end of July they began to be recovered without difficulty in a large number of cases, and this continued till the end of September or later. After that amoebae began to be more scarce, and the amoebic dysentery was likely to be supplanted by the bacillary form in the winter. Unfortunately, however, amoebic dysentery tended to be so chronic a complaint that its treatment continued to be of interest long after the commencement of epidemics, and it was necessary to guard against not only the chronic form, but hepatic abscesses. As soon as the presence of amoebic dysentery was recognized among the troops, emetine began to be employed by, he thought, every officer in charge of medical wards, and the Principal Director issued orders to use it in every suspicious case. This order proved to be very beneficial, for the sooner that treatment was commenced in dysentery the more likely was it to prevail. Every hour counted at the beginning of the infection, and the delay of a few weeks often meant almost irreparable damage to the colon, even if the patient survived. It was useless to wait for laborious laboratory examinations as to the exact nature of the infection, for emetine was so benign a drug that it might well be administered on the chance that the infection was amoebic. The results were remarkable. After the order had taken full effect the newer cases were not so grave as the earlier ones.

The bulk of the troops came from Britain, Australia, and New Zealand, and were therefore men who had never had amoebic dysentery before. Many of the cases were exceedingly grave, and many men died before reaching the base hospitals; those that survived had frequently acquired the condition of "running" dysentery. Among the Indian troops, on the other hand, severe cases were much less frequent; they did not suffer much from the disease, and such cases as occurred were comparatively slight. From this it appeared that a certain amount of immunity to dysentery was acquired during childhood in localities where it was endemic. Among the European and Australasian troops the acute amoebic dysentery had to be dealt with in its most unmodified and malignant form, a point to be remembered in estimating the results from emetine treatment. Equally rapid results could hardly be expected as those obtained by Rogers among Indian patients, yet all were convinced of its remarkable efficacy. Usually doses of 1 grain a day were prescribed, either as one subcutaneous injection or in two doses, morning and evening. Practice differed considerably as to the number of doses administered. In one hospital the rule was that of three days on and three days off, in another of five days on and five days off, whilst many practitioners preferred to give it daily, even for some weeks without intermission. In one hospital three cases of dysentery died without obvious cause, and some suspicion was aroused that it might have been caused by cumulative action of the drug, but the case against the drug was weak. Nevertheless practice gradually crystallized into the formula that unless there was very strong reason for continuing emetine, it should be remitted, at least for a time, after about ten days, especially if it had ceased to do good. In about 10 or 20 per cent. of the cases emetine failed to cure. Most, but not all, of these were patients who had not received emetine early in the infection, and in whom, therefore, the mucosa was probably largely destroyed before the treatment was begun. Emetine could only destroy the parasites in the ulcers, and could not heal the lesions themselves. It was almost certain that in most cases the original trench work of the amoebae was followed by an extensive bacillary invasion of some kind. Complex infections were exceedingly common. Both forms of dysentery occurred together in a certain

proportion of cases, and in others both forms complicated the typhoids, or were complicated by obstinate diarrhoeas, many of the latter being probably due to flagellates. In such cases it could not be expected that emetine would do more than its own proper work; it destroyed the amoebae, but the patient was afterwards obliged to combat the secondary or complicating maladies. The conditions found at 33 *post-mortem* examinations carried out by Lieutenant G. B. Bartlett forced the conclusion that the amoebic ulceration did not always declare itself during life in the form of a typical dysentery which could be diagnosed by the well-known signs. Much mischief might be caused by amoebae without any signs resulting, and in many cases the disease did not manifest itself until some secondary infection had supervened. Indeed, he was much inclined to recommend that emetine should be given to all hospital patients as a preventive measure.

The cases practically divided themselves into two groups—those in which one week's emetine treatment practically resolved the dysentery, and those in which it failed to do so. The latter generally resulted in "running," or even incontinent, dysentery. *Post mortem* such cases always showed most extensive lesions, amounting to almost complete destruction of the mucosa. Many of the severe cases died; others ended in chronic dysentery.

The Sulphates.

The sulphates of sodium and magnesium had long been recognized as invaluable for the treatment of bacillary dysentery. Their purgative action was due to an increase of the secretion of fluid, and to retardation of its absorption. Recent experiments by Cook and Schlesinger suggested that the drugs were first absorbed from the stomach and then caused a rush of fluid from the mucosa of the large intestine. He inferred that the salts in this disease acted simply by flushing out the large intestine and washing away the parasites, amoebic or bacillary, by a strong current from within. This hypothesis encouraged their use in both forms of dysentery, and the practice of administering the sulphates, together with emetine, in the earliest days of a dysentery was becoming almost universal; the emetine killed the amoebae, and the salts washed them and injurious bacteria out of the follicles. In more advanced cases the value of salts was more problematic in the case of amoebic dysentery, and the risk of exhausting patients by further purging had to be guarded against. Many practitioners, however, gave the salts in almost all cases of whatever duration.

"Running" Dysentery.

The treatment of "running" acute dysentery was a difficult problem. Antidysenteric serum was tried in many such cases; it was beneficial in some; other observers had seen little benefit from it, and still others argued that ordinary horse serum would probably have been just as useful. A heaped teaspoonful of bismuth subnitrate three or four times daily, as recommended by Deeks, was largely employed, and he thought, proved distinctly useful. It was generally administered continuously, beginning a day or two after the initial treatment with emetine had been commenced. He had always favoured tannic acid in conjunction, say, up to 10 grains with each dose. It was a good general rule, however, not to use astringents until the specific remedies had had time to take effect. Afterwards opium, bismuth, tannic acid, catechu, and others often succeeded in terminating the attack very rapidly. Many cases became examples of established running dysentery in spite of all treatment.

Collapse.

Collapse was another difficult condition to combat. Lieutenant-Colonel A. H. Lister often used the subcutaneous infusion of hypertonic saline together with 10 minims of adrenalin solution (1 in 1,000) every four hours, hypodermically, with very good results.

Opium was an invaluable drug at certain stages, though some practitioners appeared to fear it.

Enemata.

The use of enemata was a vexed question. There was no question of their value in chronic dysentery, especially when the ulceration was low down, but some felt that they were contra-indicated in very early cases. He could not understand the *rationale* of using massive lavations,

which depressed the patient, and might rupture the thin walls of the ulcers; the morbid purging and the sulphates continually washed the bowel from within. Some objected to enemata on the ground that they might engender secondary infections from without, others adopted enemata as a standard treatment. Thus Professor Kartulis was most confident that tannic acid was most beneficial from the first, Rogers often recommended quinine lavations, and Colonel Lister was an advocate of 3 or 4 oz. of olive oil containing a drachm of ichthyol, preceded by a morphine suppository half an hour before the injection. Silver nitrate had always been employed in chronic dysentery, but nowadays was replaced by protargol or similar salts, which were employed with fairly good results in many of the fresh cases. If lavations were employed at all he preferred warm water without salts, or warm and weak permanganate solution, or warm and weak solution of quinine, but he did not favour this form of medication in very acute dysentery. He did not speak with much favour of appendicostomy, but said that irrigation with oil through the appendix appeared more promising than that with other fluids.

Subsidiary Treatment.

Among subsidiary items of treatment he mentioned the general use of cholera belts or warm applications to the abdomen. Very hot hip baths gave great relief, often lasting for several hours, and could be repeated several times a day if the patient were not too weak. He favoured the use of oils administered by the mouth. A dessertspoonful of olive oil with a pinch of salt might be given several times a day, but the patient soon sickened of it. It might then be replaced by non-purgative medicinal paraffin, or this might be given from the first. He was sceptical whether any particular form of diet presented any real advantage. Cases not given the advantages of perfected hospital diets often suffered least. Large bulks of fluid diet were injurious in very "running" dysenteries and caused sometimes within ten minutes copious evacuations, harmful to the patient. In such cases he preferred a comparatively dry but varied dietary.

Hepatic Abscess.

The most important question of all was the prevention of hepatic abscess. It followed in a large proportion of amoebic infections whether they had presented dysenteric symptoms or not. No history of previous dysentery was obtainable in about a quarter of the cases; in fact, he had often thought that abscess followed the milder cases more frequently than those more severe. The abscesses might appear years after the infection. The only way to avoid this danger was to give courses of emetine or ipecacuanha in convalescent cases every month or so. He suggested emetine in doses of 1 grain for three days every month until the patient was finally returned to duty, whether symptoms of dysentery persisted or not, even in the absence of a positive diagnosis. Acute dysentery was a grievous malady, but it was only the first act of the tragedy; chronic dysentery was the second act, and was still worse; but hepatic abscess was the third act, and was worst of all. Some clinicians thought that ipecacuanha was still useful in the later stages of dysentery, and especially as a prophylactic, and he was inclined to agree with them. Although emetine destroyed the parasites in the mucosa, he doubted whether it had the same effect upon those which were living in the lumen. For these, perhaps, the powder was still useful, and could be administered in smaller doses when emetine had preceded it. For example, 5 grains each of ipecacuanha powder, Dover's powder, tannic acid, and quinine sulphate could be given the last thing at night on an empty stomach without precatory opium, and would not cause vomiting, at any rate after the first few doses. If abscess began to manifest itself, return to full doses of emetine should be enjoined, combined, of course, with suitable diet.

The treatment of chronic dysentery was a very large subject, upon which he had no time to dwell.

Diagnosis.

In conclusion, he referred to two methods of diagnosis. Lieutenant Glasson had worked out a method of diagnosing dysenteric ulceration by means of x rays. A bismuth meal was given and then cleared by means of oil. Some of the bismuth remained in the ulcers and showed in

radiograms. The nuclei of the amoebae could be beautifully and rapidly stained by H. C. Ross's jelly method, but unfortunately permanent specimens were difficult to obtain by this process.

Reviews.

OBSTETRICS AND GYNAECOLOGY.

ANY attempt to divide up the subject of gynaecology into obstetrical and non-obstetrical sections is bound, if pursued far enough, to end in failure. There are certain conditions, it is true, which fall at once into one or the other category, but there are many which cannot either helpfully or scientifically be so classified—conditions which sometimes do and sometimes do not have any etiological connexion with childbirth, or in which the link is too remote to have any important bearing. Disappointment therefore lies in wait for the many who will be arrested by the suggestive title, *The Gynecology of Obstetrics*,¹ assumed by Dr. HADDEN for a volume which purports to be "an exposition of the pathologies bearing directly on parturition." Perusal of the volume shows it to contain a full account of the anatomy of the cervix and of the pelvic diaphragm and floor. The relationship of the anatomical points to the occurrence and repair of cervical and perineal lacerations is well brought out and emphasized. A well illustrated chapter on the pathology of the cervix covers such subjects as primary tuberculosis of the cervix, epithelioma, and adeno-carcinoma. Other chapters deal with ectocele, post operative complications, sterility, bladder infections, and ptosis of the kidney. Dr. Hadden has put much painstaking work into his book, and this deserves every acknowledgment. His views are surgically sound, and much benefit may be derived from a study of the volume. But we must lodge a protest against the title as being misleading in its comprehensive claims. There are several notable subjects omitted that ought to be included if the title is to be justified—for example, the study of fistulae and of backward displacement of the puerperal uterus, to mention only two of the more obvious. And there are others which have no real place under such a title, such as fibro-sarcoma and primary tuberculosis of the cervix, and ptosis of the kidney. The illustrations are a striking feature of the book. The photomicrographs are excellent, and the coloured photographs of dissections admirably reproduced. It is all the more pity that, as the author himself admits, they are too small to be helpful in elucidating the text. The general appearance of the book is in keeping with the usual high standards of its publishers.

The usefulness and popularity of Professor DE LEE'S *Principles and Practice of Obstetrics*² is evidenced by the appearance of a second edition two years after the first. The author is well known on this side of the Atlantic as the editor of the volume on *Obstetrics* in the Practical Medicine Series, and his work in that capacity must unquestionably have given him an exceptional command of the current literature of the subject. Like most second editions, the present volume is larger than its predecessor; but although it runs to nearly eleven hundred large pages, the actual cubic size and avoirdupois weight of the book have been diminished by the use of a thinner paper. The general get-up of the book is excellent, and the illustrations, many of them specially drawn for this edition, are both lavishly numerous and well designed and executed. It is an eminently practical book; indeed, considering its immense size, it is disappointing to find how abbreviated some of the more theoretical sections are. Some are not up to date either, as, for example, the section on the development of the ovum, in which Peters's original work is closely followed, although in some points his conclusions have been shown to be wrong. While the whole text has been revised, special additions have been made in the sections dealing

with the biological test for pregnancy, "twilight sleep," and extraperitoneal Caesarean section, amongst others. In regard to the first of these subjects Professor De Lee is wisely non-committal. Such work as has been done upon it in his own clinic indicates that a negative result is strongly against the probability of pregnancy existing. His recommendation that the method should be tested to the fullest extent, in view of the light it may shed on numerous dark problems, will be cordially homologated by all. "Twilight sleep" he uncompromisingly damns. In view of the extremely unbalanced and ignorant advocacy of this discovery in lay magazines and books by writers incompetent to judge its merits or demerits, an authoritative warning of this kind was probably not undesirable, especially in America. We entirely agree with Professor De Lee that the method is not one to be used indiscriminately in private practice, least of all in general practice, where the physician may often be unable to remain beside his patient all the time. But we cannot help feeling that his own experience of it has been so particularly unfortunate as to have prejudiced his judgement of its value in skilled hands. The section on extraperitoneal Caesarean section offers a very judicious summary of the possible advantages of a method of operating which has been little tried in this country. The author adopts no strong views here, but awaits the result of further trials. In his introduction Professor De Lee makes a strong plea for the wider recognition of what few would deny to be the fact—that parturition is becoming less and less frequently a strictly physiological act. There may be some difference of opinion as to the percentage of cases in which labour is definitely pathological, but with the general plea there will be unanimous agreement. It cannot be doubted that the fuller recognition of this point would be followed by greater care of the mother in pregnancy as well as in labour and the puerperium, and the benefit which would thus accrue to the race and the State is a subject which in these days merits the most serious consideration.

The editor of the Oxford Medical Publications is to be congratulated upon having secured the services of Dr. COMYNS BERKELEY and Mr. VICTOR BONNEY for the production of *A Guide to Gynaecology in General Practice*.³ Apart from the fact that the wide experience of the authors at once gives it the stamp of authority requisite in a work of the sort, the volume is another example of that very harmonious literary collaboration which they have so successfully established in recent years. There is no patchwork in it; the literary style—easy, fluent, and lucid—is the same from beginning to end; and there is an apparent concord of opinion in regard to the teaching which the authors wish to drive home. The book is more deliberately and successfully designed to meet its specific object than, unfortunately, is often the case. It is arranged for the use of general practitioners and there is no attempt to make it subservient any secondary purpose. Accordingly it is not loaded with any unnecessary information, and everything is put as concisely as perspicuity permits. The limitations of time and opportunity under which the general practitioner has to do his work are always wisely borne in mind, and he is never left in doubt as to which method of treatment is thought most desirable by the writers in cases where there is a choice. The book is divided into several sections, the first of which is devoted to the examination of the patient by abdominal, vaginal, and bimanual methods, and to the diagnostic use of such instruments as the speculum and uterine sound. The second section deals with the significance of symptoms—menorrhoea, haemorrhage and other discharges, pain, and sterility. This is followed by a discussion of the interpretation of physical signs, which forms the longest section of the whole. Then comes a section on treatment; and, lastly, what is more or less a novelty, a section upon the medico-legal aspects of gynaecology. Between the various sections there is an elaborate series of cross-references which is calculated to save the reader much time and unnecessary hunting in the excellent and very complete index.

¹ *The Gynecology of Obstetrics: An Exposition of the Pathologies bearing directly on Parturition.* By D. Hadden, B.S., M.D. New York: The Macmillan Co. 1915. (Roy. 8vo, pp. 213; 63 figures, 14 plates. 7s. net.)

² *The Principles and Practice of Obstetrics.* By J. R. De Lee, A.M., M.D. Second edition, thoroughly revised. Philadelphia and London: W. B. Saunders Co. 1915. (Imp. 8vo, pp. 1087; 917 figures. 35s. net.)

³ *A Guide to Gynaecology in General Practice.* By C. Berkeley, M.A., M.B., M.C.Cantab., F.R.C.P. Lond.; and V. Bonney, M.S., M.D., B.Sc. Lond., F.R.C.S. Eng., M.R.C.P. Lond., Oxford Medical Publications. London: H. Frowde, and Hodder and Stoughton. 1915. (Cr. 8vo, pp. 475; 160 figures. 2s. net.)

In the section on treatment the authors have, very judiciously we think, omitted all details of operative methods. The practitioner who wishes to operate himself, or is by force of circumstances compelled to do so, will in any case require more detailed instructions than could well be given in a book of this kind without enlarging it to a burdensome extent. The medical aspects of treatment, on the other hand, receive full attention, and many useful prescriptions are given, the quantities being stated both in the ordinary and in the decimal scales. Two or three useful pages are devoted to the treatment of a class of cases very familiar and very troublesome, but usually ignored altogether in textbooks—cases of abdomino-pelvic pain in which no physical signs can be detected. Many harassed practitioners will welcome not only the suggestions as to treatment, but even the frank avowal that the existence of such cases is recognized by the most experienced. The discussion of the less common problems, such as sterility, is very satisfactory, and the family practitioner who is called upon to give judgement in regard to sexual union in the relationships of his patients will find full and wise guidance. The chapters on medico-legal questions will be of the greatest value. They include sections on the nullity of marriage, rape, a full discussion of that thorny problem—the attitude and responsibility of the physician in cases of criminal abortion, known or suspected—and an alarmingly long list of conditions in which the practitioner or gynaecologist may render himself liable to claims for damages. The volume is profusely and well illustrated through the pencil of Dr. George Dupuy. The only slip we happened to notice is in the legend under Fig. 135, which is called a cyst of the right "labium minora"! The book is well got up and strongly bound. From every point of view it forms a very distinct enrichment of the Oxford series.

*Operative Gynaecology*⁴ is a modern treatise of a type familiar to those who study the finely illustrated textbooks and "systems" issued in the United States. The first ninety-four pages of the treatise are occupied by descriptions of operations for retro-displacements of the uterus, then follow fifty-two on prolapse of the uterus and bladder, three on chronic inversion, and forty-five on pelvic floor relaxation and fistulae. Dr. Crossen admits that the treatment of displacements of the pelvic organs is unsatisfactory, and, in reference to methods which have been employed to hold the uterus in anterior position, he judiciously reminds us that "certain factors in uterine support are not yet fully understood in physiological conditions, much less in pathological conditions." The reader cannot but be struck by the multiplicity of operations still in favour, a certain indication that surgery is yet far from a solution of the question. The illustrations, nearly all made by Mr. Ivan Summers, are good and instructive. The application of sutures is indicated much more clearly than in most works of this class. As in all current books on gynaecology, ovariectomy occupies a very small space, compared to what would have been the case had the treatise been issued thirty years ago. Dr. Crossen, like most younger authorities, seems to dread a short incision as much as Spencer Wells and Lawson Tait feared a long one. It is satisfactory to find Dr. Crossen teaching that "a patient who has a small fibroid that is causing no symptoms requires no treatment for the fibroid." He advises that when the fibroid must be removed, supravaginal hysterectomy "is the form of operation preferable in most cases." The physiological and technical advantages of leaving the cervix and keeping the pelvic floor intact are, he considers, beyond question, though he does not deny that malignant disease of the stump has frequently been noted. To amputate the cervix with the uterus in every case would be an easy solution of the problem as far as the operation is concerned, but the mortality and the morbidity would both be higher, and Dr. Crossen holds that the necessary security can be obtained by proper inspection of the cervix before, during, and even after operation; if in the subsequent examination of the specimen any suspicious area be proved to be malignant on microscopical examination, the cervical stump must be promptly removed. Radical procedures for the extirpation

of carcinoma of the cervix are described at full length with a copious supply of instructive illustrations, among the best of which are those which indicate the manoeuvres for keeping the ureters intact and for treating them if wounded. Unfortunately bladder complications of a distressing nature not rarely develop many months after a "successful" operation, even by an experienced operator. As to radium therapy and roentgenization, Dr. Crossen expresses the opinion, which will command general agreement, that until they can show as large a proportion of permanent cures as can be claimed by radical operations they cannot be recommended in removable tumours. Dr. Crossen very properly avoids any suggestion that operations on the pelvic or external organs of relatively small extent are "minor." "The excision of a cyst of the vulvo-vaginal gland is a small operation, but not so simple as might be imagined by the inexperienced. The tendency to haematomata present in all the loose connective tissues of the genital tract, is especially marked here because of the masses of veins (the bulbs of the vestibule)." We regret to find that Dr. Crossen cannot dispense with stem pessaries, though he rejects the vaginal holder, once held to be an essential part of the stem. As far as description can teach the reader, Dr. Crossen's work is an excellent guide.

FORENSIC MEDICINE AND TOXICOLOGY.

THE title-page of Professor Buchanan's *Textbook of Forensic Medicine and Toxicology*⁵ states that it is the "eighth edition, revised and enlarged"; the preface tells us that it is the forensic medicine and toxicology section of the late Dr. Husband's work on these two subjects combined with hygiene. Accepting the latter view, our only objection to Professor Buchanan's editorship is that he has so altered the dimensions of the volume that it will now no longer fit an old coat pocket as a companion; otherwise he is to be sincerely congratulated on the new garb with which he has clothed the old "Husband," for it seems to have been almost entirely rewritten and vastly improved in the process.

A textbook intended for students and young practitioners must necessarily be written in a somewhat dogmatic style, otherwise principles are lost in discussion. Professor Buchanan seems to us to have hit a very happy mean between dogmatism and discussion. Those tables of points, to be noticed in various subdivisions of the subject which admit of no discussion, are full enough for students and for refreshing the minds of practitioners, while the more debatable tables which have to be treated by the touchstone of experience are elucidated by just enough discussion to enable experience to dovetail in with them. Perhaps the happiest illustration of Dr. Buchanan's success is the section dealing with the distinction between the two questions, "Has this child breathed?" and "Was this child born alive?"—a distinction which it is particularly difficult to drive into the student mind; he has said just enough on the subject without confusing the very important distinction between the two positions.

We can very strongly recommend the book to all students, and prophesy that if it be, as it would seem to be, Dr. Buchanan's first edition, it will speedily reach the position which the title-page claims for it.

There is an unfortunate error in the make-up of the book, which we hope will be remedied in the next edition; the pulse tracings taken "after execution by hanging," should be so labelled and inserted between pp. 126 and 127, instead of being left without a title and placed between pp. 120 and 121, to which they have no reference.

HAEMATOLOGY.

DR. GORDON R. WARD'S book on *Bedside Haematology*⁶ is intended to serve as an introduction to the clinical study of the so-called blood diseases; the author holds that the subject has been unduly overshadowed by exclusively pathological investigations. After a short discussion of the blood-forming organs, the marrow, lymphoid tissues,

⁴*Operative Gynaecology*. By Harry Sturgeon Crossen, M.D., F.A.C.S., Associate in Gynaecology, Washington University Medical School, etc. London: Henry Kimpton. 1915. (Sup. roy. 8vo, pp. 670; 770 illustrations. 31s. 6d. net.)

⁵*Textbook of Forensic Medicine and Toxicology*. By R. J. M. Buchanan, M.D., F.R.C.P. (Lond., etc.). Eighth edition, revised and enlarged. Edinburgh: J. B. and S. Livingstone. 1915. (Demy 8vo, pp. 427; 46 figures. 7s. 6d. net.)

⁶*Bedside Haematology: An Introduction to the Clinical Study of the So-called Blood Diseases and of Allied Disorders*. By G. R. Ward, M.D., (Lond.). Philadelphia and London: W. B. Saunders Co. 1914. (Roy. 8vo, pp. 394; 45 figures. 15s. net.)

and the spleen, a description is given, with suitable illustrations, of the blood and its cells, and in a separate chapter a detailed account of the method of making a blood examination. Thereon follows a discussion on generalized affections of blood-forming tissues, and the consideration of this subject is succeeded by an account of localized affections of blood-forming tissues, and by a series of chapters on other conditions in which the blood is affected. The author gives a classification of some forty blood diseases and allied conditions, in which the attempt is made to arrange the disorders in accordance with their pathological causation. The attempt is bold, and certainly appears to break new ground. It is interesting to find Dr. Ward describing chlorosis and haemophilia as "primary affections of the plasma," a view that is worthy of full consideration even if it does not command immediate acceptance. Good clinical descriptions of the various diseases treated are given, while diagnosis and treatment are fully described. Although Addisonian (or pernicious) anaemia is said to be a specific infection of the alimentary tract nothing is said as to its treatment by intestinal disinfectants, a line of therapeutics not infrequently adopted. The book is well worthy of study by medical practitioners who have to treat patients with disorders of the blood.

CERTIFIED INSTITUTIONS FOR IDIOTS, IMBECILES, AND FEEBLE-MINDED.

THE Earlswood and Royal Albert Asylums are now known respectively as the "Royal Earlswood Institution for Mental Defectives" and the "Royal Albert Institution, Lancaster, for the Feeble-minded of the Northern Counties"; and it would seem that, in view of the statutory definition of the term "feeble-minded" connoting one only of the four classes into which mental defectives are divided for the purposes of the Mental Deficiency Act, the designation adopted by the Earlswood Asylum is the more accurate, as both institutions receive cases belonging to each of the four classes. In the report of the acting medical superintendent of the Royal Albert Institution we find an animadversion upon the difficulty some certifying practitioners experience in selecting the appropriate statutory term, and the impression that "feeble-minded" is inclusive of all types may perhaps be fostered by the title of the institution. Further, the fact may not be generally known that Section 3 of the Mental Deficiency Act requires that where the defective is not certified as an "idiot" or "imbecile" the medical certificates must be endorsed by a judicial authority before becoming legally valid.

The report for 1915 of the Royal Earlswood Institution refers to the year ending December 31st, 1914. The board of management, in alluding to the alteration in name, notes that the word "asylum" does not now convey exactly the same idea as it did in 1847, when the pioneer labours of this national institution began. The effect of the war in curtailing subscriptions to permanent home charities is mentioned, as also the increased expenditure entailed by the enhanced cost of provisioning so large an establishment. The new regulations (termed "provisional") made by the Secretary of State under the Mental Deficiency Act are criticized as likely to defeat the intended object of legislation—to retain the feeble-minded under control—by imposing hardships on poor parents as regards cost of certification and unnecessary clerical labour upon officials by requiring a multiplicity of notices and reports not appropriate in the cases of stationary and unimprovable patients. Favourable reports from Visiting Commissioners of the Board of Control are quoted. The financial statement shows amongst receipts over £10,000 in voluntary contributions and £16,000 in payments for patients, in addition to legacies, income from investments, etc.; but a loan of £1,000 from the bankers has been needed to meet payments amounting in the year to £38,079 (including £1,943 invested).

The report of the Resident Physician and Superintendent (Dr. Charles Caldecott) records the fact that fourteen officials, including Dr. Gage (senior assistant medical officer), are serving with the army and navy, their places being kept open till the end of the war and allowances being made to wives of married attendants when needed.

Trenchant criticism is bestowed upon the legislative changes and administrative regulations under the Mental Deficiency Act, which have had the practical effect of bringing once more the old voluntary charitable institutions for mental defectives under provisions similar to those of the Lunacy Acts, owing to the Idiots Act having been repealed, and no compensatory changes having been introduced into the new Act, as had confidently been anticipated. The consequence has been that, while admissions are rendered more difficult, there is considerable risk of certain cases being injudiciously discharged. The number of admissions during 1914 had been 45 (21 males, 24 females); of discharges 41 (26 males, 15 females)—all but 2 "relieved"; of deaths 10 (6 males, 4 females); so that the number of inmates remaining on December 31st, 1914, was 484 (327 males, 157 females) as compared with 490 at the beginning of the year. The average number resident in 1914 was 490 (335 males, 155 females). The percentage death-rate, calculated on this average was 2.04 (1.78 males, 2.57 females), the lowest rate recorded for many years, and remarkable in view of the advanced age of some of the inmates: 30 per cent. of the deaths were due to tuberculosis and 20 per cent. to pneumonia. Nothing had occurred in the way of infectious disease beyond a few cases of chicken-pox. Investigations as to Wassermann reactions have been undertaken by Dr. Stephen, assistant medical officer.

The fifty-first annual report of the Royal Albert Institution includes the period from July 1st, 1914, to June 31st, 1915. A mournful note is added in the reference to the lamented death in August of Dr. Archibald R. Douglas, who had ably filled the post of medical superintendent for upwards of ten years, in addition to an equal period of medical service to the institution under other designations. The report of the Central Committee refers to war services rendered by its chairman (Lord Richard Cavendish) and by two other of its members, and to the fact that twenty-two of the male staff had joined the colours (two of whom had been killed in action). Six ex-patients, improved by institution training, had also been accepted for military service. Notwithstanding the disturbing effect of the war, an all-round increase of about £900 in receipts had taken place during the year. The financial statement showed an income of over £31,000, including £3,760 in voluntary contributions (legacies amounting to £2,750 odd were invested for the sustentation fund) and £17,574 in payments for patients, while £6,840 is derived from interest on sustentation fund investments. The Central Committee have been earnestly considering how best to extend the activities of the institution in view of the responsibilities cast upon public authorities by the Mental Deficiency Act; and with regard to this, they have had the advantage of conferences with Sir George Newman, Chief Medical Officer, Board of Education, and Sir William Byrne, Chairman of the Board of Control. Extracts are quoted from the official report of a two days' visit made by the Inspectors of the latter board.

The report of the Acting Medical Superintendent (Dr. W. H. Coupland) states that during the twelve months ending June 30th, 1915, 51 patients (31 males, 20 females) had been admitted, 50 (30 males, 20 females) discharged, and 25 (11 males, 14 females) had died, so that 705 patients (462 males, 243 females) remained at the end of the period under review, as compared with 729 (472 males, 257 females) at its commencement. The daily average had been 711 (459 males, 252 females), and the percentage death-rate, calculated on this, works out at 3.5. Seven of the deaths are attributed to tuberculosis, 6 to pneumonia, 1 to acute bronchopneumonia, and 7 to influenza. An epidemic of measles affected 73 patients, and influenza in a severe form was prevalent in the winter months. The addition of a balcony for open-air treatment on the southern aspect of the Rodgett Infirmary is recommended, and would, no doubt, prove serviceable.

The report is embellished with numerous artistic illustrations, which afford graphic representations of the occupations of the patients.

THE American College of Surgeons, which held its fourth convocation in Boston recently, has endorsed the request to American universities to create a distinct degree differentiating the surgical and medical branches of the profession.

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SATURDAY, DECEMBER 25TH, 1915.

MEDICAL CERTIFICATION OF SICKNESS BENEFITS IN IRELAND.

THE letter, signed on behalf of the Irish Medical Committee, recommending the acceptance by the Irish medical profession of the agreement for the certification of sickness benefits under the Insurance Act, which was published in the SUPPLEMENT to the JOURNAL last week, p. 224, was sent by the Irish Insurance Commission to every member of the profession in Ireland. Before making its final recommendation to the profession the Committee had to be satisfied by the Commissioners that the main principles—especially those of an ethical character—were safeguarded, and, as stated in the letter which appeared on behalf of the Committee, the Commissioners met the deputation in a friendly spirit, and accepted the majority of the proposed amendments, which they undertook to embody in a memorandum to be circulated to the profession at as early a date as possible. The Irish medical profession is to be warmly congratulated on its well-deserved victory; to win it it made very great sacrifices, and made them cheerfully.

For the proper understanding of the prolonged controversy between the Irish Commissioners, the approved societies, and the medical profession it is necessary to recall how it came to pass that Irish doctors had to fight only the question of the certification of sickness benefits under the Insurance Acts.

The Irish profession was eventually prepared to accept the medical benefit clauses of the Insurance Act as intended to apply to Great Britain, and made representations to that effect to Mr. Lloyd George. In July, 1911, however, the Irish Parliamentary Party decided, with the view of making the bill more popular in Ireland by reducing the contributions of employer and employees, that medical benefit should be deleted from the bill in its application to Ireland. The party sought to justify its action on the ground that the vast majority of the insured had free medical treatment at the hands of the Poor Law medical officers under the Medical Charities Acts in Ireland, which it further alleged, for the first time, was not only an efficient but an excellent system. The decision of the Irish Parliamentary Party caused much dissatisfaction amongst Irish doctors, who felt that it was as the result of gross abuse of the Medical Charities Acts that so many wage-earners in Ireland received free treatment and medicine, and that the opportunity presented by the Insurance Bill should be taken to relieve a very underpaid body like the Irish Poor Law medical officers of the obligation of affording free medical treatment to workers of a class similar to that for which the Insurance Act made provision in Great Britain. Notwithstanding all the representations made by the British Medical Association and the Irish Conjoint Committee for the reinstatement of medical benefits in the Insurance Bill in its application to Ireland, the wishes of the Irish Party prevailed, so that the only question of any interest to the Irish medical profession that remained was the certification of sickness benefits.

At a meeting of delegates representative of the entire Irish profession, held in the Mansion House, Dublin, on June 11th, 1912, amongst the resolutions passed dealing with the new situation was one demanding for the certification of sickness benefits under the Insurance Act in Ireland, 3s. per insured person in rural districts; and in the case of urban districts (with a population of over 10,000) 2s. 6d. per certificate. At this meeting another resolution was unanimously passed making it a cardinal principle that all certificates, in the first instance, for sickness benefits under the Insurance Act should be issued by the medical attendant on the insured patient. No special provision was made by Parliament for a grant to defray the cost of medical certification of sickness benefits under the Insurance Act as it applied to Ireland. In Great Britain the capitation fee for each insured person covered treatment and certification. It was only when Parliament made the additional Imperial grant of £1,650,000 for Great Britain that an equivalent grant became available for Ireland, which the then Chancellor of the Exchequer stated could be used for the purpose of paying for the certification of sickness benefits. Medical treatment under the Insurance Act in Great Britain came into effect on January 1st, 1913, while the payment of sickness benefits did not take effect in Great Britain and Ireland until the following April, and as medical benefits were deleted from the Act in its application to Ireland there was no urgent necessity to arrive at a settlement as regards certification until the approach of April, when the payment of sickness benefits would come into force; and it was not until January 1st, 1913, that the Commissioners met the representatives of the Irish medical profession. At this interview the Commissioners were undoubtedly desirous to come to a friendly arrangement with the Irish doctors, and they believed that owing to the Chancellor's additional Imperial grant for the British doctors they would find no difficulty in providing the full equivalent grant for the Irish doctors, which would have been sufficient to meet their demands for certification. When, however, the chairman of the Irish Commission applied to the Treasury for the equivalent grant, which, at the rate of 2s. 6d. per insured person in Ireland, amounted to about £91,000, the application was refused by the Treasury: though the claim was made on the ground of an equivalent grant, it appears not to have secured the support of the Irish Parliamentary Party, which considered that a considerable portion of the grant should be expended for purposes other than medical certification. A grant of £50,000, however, was made by the Chancellor of the Exchequer, with which, as remuneration for the doctors, the Commissioners formulated a scheme to supply medical certificates for sickness benefits to insured persons in Ireland free of cost. This scheme offered to the doctors capitation fees for the certification of insured persons varying from 9d. in urban areas to 1s. 6d. in rural areas. Though each member of the profession in Ireland was invited to accept the Commissioners' terms, yet so few did that in twenty-two counties in Ireland the Commissioners were compelled to abandon the scheme. In the remaining ten counties, which, especially in Ulster, contained the chief industries of the country, the scheme was only a partial success, and even this was due to the impossibility, from the doctor's point of view, of conducting working men's practices without the medical attendant certifying for sickness benefits, rather than to any satisfaction with the Commissioners' terms. In the twenty-two counties in which the Commissioners failed to form panels of

doctors for certification they appointed as many local doctors as were willing to accept service under the name of medical advisers, whose duties were, for the most part, to certify for insured patients attended by the doctors who had declined the Commissioners' terms. Tempting salaries were offered; in many instances it meant doubling their income, but the duties were so objectionable from a professional point of view that for whole counties only two to four doctors could be found to accept such positions, while there were counties that did not even supply one man. The inconveniences to which insured persons were subjected, as the result of the very vexatious and imperfect arrangements made by the Commissioners for medical certification, can easily be imagined; they were frequently under the necessity of making a special double journey of twenty miles to get a certificate from a medical adviser when they could have got it under other arrangements at their homes or at the house of their medical attendant when undergoing treatment. The Irish Insurance Commission even went so far as to permit approved societies to accept certificates from lay persons. This state of affairs lasted from April to August, 1913, when the Chancellor of the Exchequer was made aware, through parliamentary representations, of the very unsatisfactory state of medical certification under the Insurance Act in Ireland, and he stated in the House of Commons that he had satisfied himself that his original grant of £50,000 was inadequate and that he was prepared to increase it to £21,000, which, so far as it was a question of money, would have satisfied the doctors. Owing to the Chancellor's statement, an early settlement was expected, but in the negotiations that followed, in the hope of arriving at an agreement between the profession and the different interests concerned, some representatives of the approved societies refused to accept any system of medical certification at the hands of the medical attendants, even when supported by a further system of medical referees or second opinions. This led to an immediate renewal of hostilities, as the veto was interpreted by the members of the profession in Ireland as a wanton insult, implying that they were unworthy to be trusted with the discharge of a public duty. This was the condition of medical certification in January, 1914, and, notwithstanding the general protests of public bodies in Ireland, and in spite of the fact that even some approved societies had, in the interests of the insured, repudiated the very unsatisfactory certification arrangements made as the result of the irreconcilable attitude of certain officials of approved societies by the Commissioners, so remained until last summer, when, owing to the friendly offices of Dr. C. Addison, M.P., Dr. Macdonald, Chairman of the Council of the British Medical Association, and the Medical Secretary, Dr. Cox, an interview was arranged between Mr. C. Roberts, M.P., who had assumed responsibility in Parliament for the administration of the Insurance Act, and the representatives of the Irish medical profession. Thenceforward the negotiations for a settlement progressed satisfactorily though slowly, with the result that the new arrangements will come into force on January 1st, 1916. The conditions of certification from an ethical and a monetary point of view are on the whole satisfactory, especially when, as the Commissioners guarantee, they have been amended in some respects.

As regards remuneration, the doctors in rural districts have got their full demand of half a crown per insured person, the mixed urban and

rural areas 2s. per insured person, and in urban areas with over 10,000 population, where the doctors demanded 2s. 6d. per certificate, they are to be paid at a capitation rate of 1s. 3d., which may or may not be the equivalent of 2s. 6d. per certificate. The provisions made in the certification scheme for the appointment of whole-time medical referees have been abandoned for the present lest they might interfere with the supply of doctors for military service. The Commissioners have not reached any final decision as regards the distribution of the money beyond admitting the principle that the remuneration must bear a direct ratio to the work done, and undertaking that they will adopt no scheme that shall not be acceptable to the representatives of the profession.

TRENCH FROST-BITE.

THE results of clinical and experimental observations on the pathology of "trench frost-bite" carried out by Professors Lorrain Smith and James Ritchie, and Dr. James Dawson, in the department of pathology of the University, and in the laboratory of the Royal College of Physicians, Edinburgh,¹ are of considerable interest at the present time, when again a large number of cases of trench-foot are occurring among British soldiers serving in France. How far this renewed incidence might have been prevented by an earlier use this autumn of rubber thigh boots we are unable to say, but it appears that there was considerable delay in their issue in sufficient numbers.

The authors justify their retention of the term "frost-bite" on the ground of its convenience, but explain that the effects observed are broadly divisible into two groups—those in which extreme cold directly and immediately causes death of the tissues, and those in which cold originates an impairment of vitality of the tissues with or without subsequent death of the affected cells. The investigations, which were made at the request of the Medical Research Committee, were partly experiments on animals and partly clinical, the cases observed being soldiers invalided from the front suffering from the affection.

From their experimental investigations the authors conclude that the essential change consists in the damage to the blood vessels. There is probably an initial constriction of the vessels; when this passes off it is due to their damaged condition that the swelling of the feet occurs while the circulation is being restored to the normal. The damage is evidenced by the swelling of the endothelial cells in vessels of all kinds, and by the vacuolation of the muscle fibres in the arterial walls. An excessive amount of fluid is poured out into the tissues, and in some cases the vessels rupture and haemorrhage follows. Along with the injury to vessels there is also an interference with the vitality of the cells of the surrounding connective tissues. Evidence of this was found in the readiness with which fibrin formation occurred in the exuded fluid as contrasted with the absence of thrombi in the blood vessels. Further evidence of injury was afforded by the infiltration of the parts with leucocytes and other phagocytic cells whose function is the removal of the products of tissue destruction. These cells were abundant immediately around the blood vessels, and were scattered through the tissue spaces. The fibrous bundles of the connective tissues were separated by the accumulated fluid, and became swollen and disintegrated. It is considered probable that the etiological factors concerned in the damaging of the vessels and tissues are

¹ *Journal of Bact. and Path.*, vol. xx, p. 159.

complex. The condition may be due, on the one hand, to the direct effects of the cold, and on the other to the starvation of the parts resulting from the vascular constriction and the sluggishness of the circulation generally. The necrobiotic changes affected muscle, but the nerves were found, comparatively speaking, resistant, though oedema was noted in the axis cylinders, and was thought to indicate a slight depression of vitality. The exudation must throw a great strain on the lymphatic arrangements of the parts. Not only are the lymph channels dilated with a fluid richer in proteins than natural (as shown by the presence of fibrin), but the germinative capacities of the lymph glands are called into reaction by the necessity for disposing of the dying cells, of the cellular products, and of the fibrinous exudate which are passing through them.

When the experimental results of moderate wet cold for long periods and those of very low temperatures for a short time were compared, it was seen that there was no difference except in degree. When the results in animals were compared with those observed in soldiers a very close similarity was observed. Though the pathological changes in man could not be observed histologically, it seemed clear that a close parallelism existed between them and the artificial lesions in animals. All the clinical observations could be rationally interpreted in the light of the experimental results.

The nature of the changes produced sufficiently explains the slowness of the recovery in man. For this to be complete not only must there be subsidence of the swelling, but there must be a restoration of the vessel walls so that they can bear the strain of the changes in the circulation which take place in walking, for example. There must also be a clearing of exudates from the lymphatic paths. Both processes require time, and it often happens that, even when the swelling has disappeared, pain, tenderness, and disturbance of feeling still persist; the patient is unable to walk about freely, and any application of warmth to the feet tends to bring back the symptoms.

It is necessary to lay stress on the need for care during the stage when, immediately after the exposure to cold, circulation of the limb is returning to normal. As has already been noted in the *JOURNAL*, LARRY came to the opinion, from his experience during the Napoleonic wars, that the application of heat in these circumstances favoured the production of necrosis. The experimental results recorded by Professor Lorrain Smith and his colleagues bear this out. Although the heat applied by them was below the temperature of the animal's body, yet its damaging effect was clearly demonstrated in oedematous swelling and a considerable amount of haemorrhagic infiltration. The warmth had caused congestion in the damaged foot, and the blood vessels were unable to stand the strain. Dry warm air had less effect than warm water, but under field conditions heat is very likely to be applied to limbs which still have their ordinary coverings saturated with wet mud.

With regard to the way in which the condition is brought about special attention is directed to pressure and constriction. The latter, which may often be due primarily to the boots, may be aggravated through the soldier's common habit of wearing two pairs of socks; and it is noted that in all the cases observed the lesions were confined to the feet and were specially apt to occur in the parts where corns and callosities are common—that is to say, on the inner and outer aspects of the toes, over the joints, on the anterior part of the plantar aspect of the foot, and on

the plantar aspect of the heel. Puttees may not only constrict the leg and so obstruct the circulation, but when wet may cause a continuous loss of heat from the limb, for even when the wearer comes out of the mud it is a considerable time before the interstices of the clothing of the limb are refilled with air, the non-conducting qualities of which are so important to the effect of clothing in maintaining warmth.

MEDICAL EXAMINATION OF RECRUITS.

FROM communications received from medical officers of units both at home and abroad it appears that a serious proportion of men are being enlisted into the army who are physically unfit and who, after a longer or shorter trial, have to be returned home and discharged. This causes great and unnecessary expenditure of energy and money. Stories are going round of men with deformities of the upper limbs, and even the lower limbs, due to injuries received years ago, of chronic epileptics, of men suffering from pulmonary tuberculosis in a more or less advanced stage, and of men suffering from chronic bronchitis and rheumatism, who have managed to pass the examination of the medical recruiting officer. Nobody will attempt to excuse such cases, which must have been due either to carelessness, or to the recruiting medical officer allowing himself to be hustled, or his own judgement to be overborne by too ardent recruiting officers, but we are informed that cases of hernia, and varicose veins, and very defective vision, have also been passed in considerable numbers. It appears also that the standard of fitness in the foot is not always sufficiently high; men with flat-foot, hammer-toe, or bunions cannot stand the hard foot-work entailed by marching, by labour in making trenches, and by fatigues. Many of these men have gone to France or other areas where fighting is going on, and have there broken down and have had to be sent home. No doubt the degree of flat-foot or hammer-toe which justifies rejection is a matter of opinion, but in all doubtful cases it would seem right that the recruiting medical officer should reserve the decision and send the man before the travelling medical board, which periodically visits each unit. The primary duty of these travelling boards is to invalid unfit men out of the army, but we believe that they would equally undertake the duty of deciding whether men were physically fit to be enlisted.

THE BRADSHAW LECTURE.

AS was expected, a large audience awaited Surgeon-General Sir Anthony Bowlby when he entered the theatre of the Royal College of Surgeons of England on Monday afternoon to deliver the Bradshaw Lecture. Having gained experience for many years as a hospital surgeon, and having also served in two campaigns, the lecturer has enjoyed unrivalled opportunities of comparing civil with military surgery. The full text of his lecture is published in this issue. He contrasted the conditions under which war was conducted in South Africa with those that have prevailed in Flanders. The Boer campaign was mostly conducted in dry sunny weather in wide wastes never brought under cultivation, and far from human habitations. France and Belgium are lands of copious rainfall, with frequent cloudy days, civilized and cultivated for nearly two thousand years; their population for long has been dense, their rich loamy soil allows of luxurious crops, is freely manured, and supports cattle, swine, and poultry in abundance. In consequence all septic micro-organisms, including one of the worst, practically unknown in civil life, flourish even deep down from the surface of the soil. Wounds are therefore infected from the first and at the same time are very severe owing to mechanical causes.

Mud, dust, and pieces of stone from the soil or the trenches are blown into the wound; the expansion of gas is alone sufficient to kill, as in one case where numerous minute hæmorrhages were detected in the brain; a bullet in its passage through the tissues exerts great force from within outwards, and imparts its momentum to the fragments of bone that it shatters. Muscles and solid organs are widely damaged, as shown in the microscopical drawings reproduced in the special plate with which the lecture is illustrated, and this far-extended microscopic damage must favour septic complications. As might be expected, Sir Anthony Bowly admitted the beneficial results of subcutaneous or intravenous injection of normal saline solution, of enemata of hot water and brandy, and of pituitary extract. Speaking particularly of the gas-forming anaerobes, now almost unknown in civil practice, he said that they are found in almost every wound in this war; they attack the tissues more rapidly and violently than other organisms, and multiply freely in the dying substance in the midst of the muscles and harder structures damaged by the expanding force of the projectile. While admitting that severe wounds caused by modern projectiles can hardly be completely sterilized at a single dressing, he at the same time expressed his conviction that antiseptics are useful and necessary for the proper treatment of wounds. With regard to the organization for the care of the wounded, he said that except during occasional rushes, when extensive fighting was in progress on a narrow front, the conditions of the treatment of the wounded in war are in no way behind the best that can be found in civil life. He illustrated his discourse by aid of the epidiascope.

PROPORTION OF RECOVERIES AMONG WOUNDED.

THE *Times* published on December 20th a paragraph to the effect that the German newspapers had been supplied "with extraordinary figures concerning the low rate of mortality and the high rate of recoveries among German wounded." The figures for the first month of the war are the same as those given in an article on the proportion of recoveries among the wounded in the German and British armies published in the *BRITISH MEDICAL JOURNAL* of September 11th. So far as the German army was concerned, the statistics dealt with the first eight months of the war, and were taken from an article contributed to the journal of the Danish Medical Society (*Ugeskrift for Læger*) by Louis Fraenkel. The paragraph in the *Times* states that "the monthly average for the first year of war was in the German army," for every 100 wounded, 89.5 fit for service, 8.8 discharged or sent on leave, and only 1.7 deaths. It is added that the German comment on the figures is that "no army in the world can show such favourable returns," and our contemporary's comment is that "if the figures are even approximately accurate, they certainly very greatly impair the value of most of the rough calculations of German casualties." The claim that no army in the world can show such favourable returns is a boast which cannot be accepted without fuller information and more detailed examination. When considering the figures published by the Germans for the first eight months of the war we were able to state that the percentage of wounded who had died in British military hospitals in Great Britain and Ireland during the first year of war was 0.86, the percentage permanently unfit 4.14, and the percentage discharged to duty, on furlough, or sent to convalescent homes, 95. In the German returns originally published the percentages now given as "discharged or sent on leave" were returned as "rejected." This either corresponds to or must include the percentage returned from the British military hospitals as "permanently unfit." Such statistics, however, though they possess a certain interest, do not render it possible to draw any conclusions as to the ratio

of men who have died of wounds to those who have recovered more or less completely, much less do they warrant any conclusions as to the number of those who can again take their place in fighting units. With regard to the first point the figures refer to soldiers treated in the military hospitals in Germany and in Great Britain and Ireland respectively, and it cannot be doubted that a large number of men treated in the most advanced medical units, and on the lines of communication, must have died before they reached the hospitals in Germany or the United Kingdom. As to the second point, it is obvious that much depends on the definition of the terms "fit for service" and "discharged to duty." It is certain that a large proportion of the men in both cases, though they return to the army, will only be fit for light duty in the auxiliary services. In connexion with this subject, we note that in a communication to the Academy of Moral Sciences on December 18th, M. Jacques Bertillon, director of medico-surgical statistics of the French Army, stated that the mortality among the French wounded is now 2.5 per cent. as compared with 5.8 per cent., the rate at the beginning of the war.

THE BIRTH-RATE IN WAR TIME.

In a letter published in the *Spectator* of November 13th a correspondent who signs himself "F." quotes some interesting statistics tending to show that in time of war many more males than females are born in belligerent countries. "F." writes from Lucknow in India, and draws his figures from the births recorded in the *Times*. He finds that for one period in 1914 there were 353 male and 352 female births recorded in this daily paper, whereas for a longer period in 1915 the figures were 1,292 male children and 1,091 female. As "F." himself suggests, his figures are so arbitrary, as indeed is inevitable considering the method of their collection, that they cannot serve as a basis for any general conclusions as to the relative proportions of male and female births. But Dr. Peck, writing to the *Spectator* a fortnight later, is able to bring forward some interesting figures relating to the births recorded in the Chesterfield district, of which he is medical officer of health, that possess a distinctly greater value for the determination of the point at issue. At the census of 1911 the district contained over 38,000 male and 34,000 female inhabitants. During the five years 1909 to 1913 there were born 6,010 male and 5,773 female children, giving the male sex an average preponderance of just over 4 per cent. But during the period May to November 20th, 1915, the male births were 10 per cent. more than the female. Naturally these statistical results would require confirmation and great extension before they could be taken as proving that war is a factor in the increase of the proportion of male births.

THE FIRST OPERATION UNDER ETHER IN ENGLAND.

In the *American Journal of Surgery* for July Dr. F. William Cook, of London, gives an interesting account of the first major operation performed in this country under ether. It was done, as is well known, in University College Hospital by Robert Liston, on December 21st, 1846. That great surgeon had not long before received an account of Warren's historic operation in Massachusetts General Hospital and determined to make a trial of what he described to the onlookers in the theatre as "a Yankee dodge for making men insensible." The anaesthetic was administered by William Squire, on whom its effect had been tested the day before by his uncle, Peter Squire. The patient was Frederick Churchill, a butcher aged 36, who was suffering from disease of the tibia caused by a fall. The limb was amputated, the patient feeling no pain; as he was carried out of the theatre Liston turned to the audience so excited that he had some difficulty in saying, "This Yankee dodge, gentlemen, beats mesmerism hollow."

The following is an extract from the official record of the case: "Not the slightest groan was heard from the patient nor was the countenance at all expressive of pain. This is the first capital operation which had been performed in this country under the narcotising influence of ether vapour, and it was perfectly successful. The patient did not know that the limb was removed, and declares distinctly that he has no remembrance of having suffered any pain, either in the theatre or coming away. There was a great sensation of cold and a desire to be covered up expressed as he was being removed back; and this is remembered now one hour after the operation. It was some minutes after being laid in bed before any pain was felt. There is a remembrance of 'something like a wheel going round his leg.'" After the tedious recovery, with offensive suppuration and slow granulation, usual in those days, the patient was discharged cured on February 11th, 1847. In 1911 Dr. Cook had an interview with an old man of 77 who, when a boy of 13, had had his leg amputated by Liston for white swelling of the knee. The operation was done without anaesthesia a week or two before Churchill's leg was removed under ether. The man said he was blindfolded and taken to the theatre, where he was laid on a table and firmly held there. He had been assured by Liston that the operation would not hurt more than having a tooth out, and, as a matter of fact, although, in his own words, he was bowling all the time, it was not painful; but "then," he added, "he only took twenty seconds to take off my thigh." Nowadays we are perhaps apt to exaggerate the horrors of surgery before the advent of anaesthesia. Dr. Cook says it is recorded that a man on whom Liston performed lithotomy declared that the sensation was not worse than that of being shaved with a blunt razor. But the stories of patients hopping off the table and running away, sometimes to the relief of the surgeon, show what dread was caused by the thought of the operating knife. Yet the blessing which the discovery of ether brought to mankind was not recognized even by some among the leaders of the profession whose business is largely the relief of pain. The following passage from the *Edinburgh Medical Journal* of April 1st, 1847, should be a warning against hasty judgement and premature prophecy in regard to innovations in medicine: "At present various members of the profession think of nothing but the inhalation of ether as a means of mitigating pain, and enabling patients to undergo operations. Before twelve months are completed many shall have recovered from this etherising reverie, and the subject will then be considered on its actual merits." *O cecitas hominum mentes!*

SIR HENRY ROSCOE.

SIR HENRY ROSCOE died suddenly on December 18th at his residence near Leatherhead. He was born in London on January 3rd, 1833, and was a grandson of William Roscoe of Liverpool, the biographer of Lorenzo de Medici and Leo X. From an early stage of his career he showed a bent towards chemistry, which he studied first under Thomas Graham and Williamson at University College, London, and afterwards under Bunsen at Heidelberg. When he was awarded the Royal Medal by the Royal Society, it was for his photo-chemical work with Bunsen from 1855 to 1863, and for his work on vanadium after he had gone to Manchester. As professor of chemistry in Owens College he was, from his appointment in 1857 until his resignation in 1887, one of the small band of men who raised that college from an apparently moribund condition to the great place which it now holds. His name is well known to many generations of medical students by his *Lessons in Elementary Chemistry*, a work which only a master of his subject could have written, and one worthy to stand beside Huxley's *Physiology*. It

was, perhaps, after he began to take an interest in public affairs, and especially after his election to Parliament as Liberal representative of South Manchester, that he did his most important work for science. Before this he had said "the spirit of research must be in the air of the laboratory." He was a man of strong character and convictions, but of a genial temperament, which enabled him easily to make friends, so that his influence with the governing classes became very great. Few men did more for scientific education, both directly and indirectly, than Henry Roscoe. He had lived out his life and died full of honours, but the country very much needs men of his type to day to take up his mantle.

THE NATIONAL DOLL LEAGUE.

AN entirely praiseworthy attempt to raise money for the British Red Cross and the Order of St. John of Jerusalem has been set on foot by the recently organized "National Doll League." This league, backed by a list of influential patronesses, has acquired the rights of an invention known as the "Unconscious Doll Exerciser." The name, perhaps, requires a little explanation. The "exerciser" is a child, aged from 4 to 14 years, who employs the doll in the execution of various exercises or drills of Swedish or eurythmic type, speaking broadly. With each doll goes a large diagram, to be pinned up in the nursery, to show how the exercises may best be performed. The "doll" may be regarded as the spoonful of jam with which childhood is traditionally beguiled into doing what is good for it. Any child who acquires so admirable a doll (in the form of a hospital nurse or a boy scout) as that issued by the league is to be congratulated; the jam is good jam. The "unconscious" stands for the powder traditionally concealed in the jam. The child is to believe that it is playing with the doll when in reality it is going in for a course of stereotyped physical exercises which, to quote the league's pamphlet, "prevents spinal curvature, round shoulders and stooping, promotes suppleness, assures a good deportment, and builds up a vigorous constitution." The doll, made entirely by British labour, is solidly constructed of papier-mâché, strongly articulated in defiance of all anatomical precedent, and provided with spiral springs for its arms that are capable of expanding and contracting as the child does its exercises, holding the doll's hands in its own. The price of the doll is a guinea, and all profits resulting from its sale are to go to the two funds already mentioned. The head quarters of the National Doll League are at 64, Regent Street, W., and the dolls may be purchased either there or at any of the great shops where such toys are usually to be found. We wish the league all success in its effort to combine the amusement of the young idea with its physical training, and trust that it will be able, as it deserves, to make solid financial contributions to the war funds it designs to support.

LIVINGSTONE COLLEGE IN WAR TIME.

DURING the last two-and-twenty years nearly four hundred missionaries have received two terms of training in elementary medical and sanitary science at Livingstone College, Leyton, while over a hundred and fifty more have received one term's instruction. The teaching given at this institution is of very great value to men who have chosen the arduous calling of missionaries in Central Africa, China, and other such countries where health, the prime necessity of life, is precarious and apt to be wholly neglected. To illustrate the excellence of the work done by such centres as Livingstone College the following quotation may be made from a speech delivered six months ago by the secretary of the London Missionary Society: "In the first years of the history of our mission in Central Africa eleven of our missionaries died and six were invalided home and, with one exception, were never able to return to their work. In the last twelve years we have not had a single death in the mission, nor a single case

of a man being invalided home. Let me put it another way—take the first ten men who were sent to Central Africa, and we find that their average term of service was well under three years; take the last ten men sent to Central Africa, already their average term of service is over fourteen years." Comment is needless. For the last five months Livingstone College has been converted into a hospital for wounded soldiers and accepted by the War Office, with the principal, Dr. L. E. Wigram, as resident medical officer in an honorary capacity. As a place of instruction for missionaries the college is therefore temporarily closed; the college staff is temporarily scattered. But when the war is over the intention is to fill once more the great need and to start again the courses of elementary medical training that have proved of such striking utility in the past. May that day be soon! Personal hygiene and the sanitation of communities are subjects of daily increasing importance in tropical and backward countries, and missionaries go doubly armed when they carry knowledge of such things with them to heathen countries.

THE HALF-YEARLY INDEXES FOR 1915.

THE usual half-yearly indexes to the JOURNAL, to the EPITOME, and to the SUPPLEMENT have been prepared and will be printed. They will, however, not be issued with all copies of the JOURNAL. Any member or subscriber who desires to have one or all three of the indexes can obtain a copy of what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C. Such copies will be dispatched shortly after the middle of January.

Medical Notes in Parliament.

War.

Soldiers Discharged as Medically Unfit.—In reply to Mr. Stewart, on December 17th, the Financial Secretary to the War Office said that the question of expediting the discharge of soldiers who had no further military value was receiving the close attention of the Army Council. "The duty of the travelling medical board is," he said, "to bring to the notice of the local medical authorities men who, in their opinion, are unfit for further service, in order that these may be invalided and discharged from the service in the usual way." In reply to Mr. Needham, on December 20th, Mr. Forster said that wounded or invalided soldiers physically of no military value and willing to be discharged to return to their civil employment had the right, like other soldiers, to see the medical officer in charge of their unit. If the medical officer considered that the case justified discharge he would take the necessary steps to have it brought before the proper authorities for decision.

Recruits: Minor Physical Defects.—Mr. Boyton asked, on December 20th, whether a number of proposed recruits were rejected for minor physical defects, many of which could be successfully treated in general hospitals, and whether it was desirable to pay those who offered to undergo operations or treatment at army rates with dependant allowances whilst they were detained in hospitals. The Financial Secretary to the War Office replied that the number of men rejected for physical defects of a kind which could be cured by surgical operations was inconsiderable, and the risk and disadvantages of the course suggested were so serious that he feared it could not be adopted.

London Ambulance Column.—In reply to a question by Mr. Evelyn Cecil, Mr. Tennant said that he understood that the London Ambulance Column was a purely voluntary body. If a promise had been made to its members that certificates of indisposability would be granted them, it had been made without the sanction of the War Office.

He did not think that certificates of such a nature would have any influence with local tribunals in view of the fact that the Red Cross Society had arranged with Lord Derby to release every available man possible for military service.

Dentists.—Mr. Tennant stated on December 20th, in reply to Sir Arthur Markham, that 43 dentists are employed with the expeditionary forces in France, exclusive of those employed with the Canadian contingent.

Antityphoid Inoculation.—The heckling of Mr. Tennant with regard to the right of soldiers to refuse to submit to preventive inoculation against typhoid has been resumed. On December 20th the Under Secretary for War said that a commanding officer of any unit would be within his rights and powers in preventing any uninoculated officer from proceeding on active service overseas, because such an officer might, if he contracted enteric fever, be a grave source of danger to his brother officers and the men under his command. He denied that men were refused Christmas leave on the ground that they had refused to be inoculated.

Revaccination.—In reply to Mr. W. Thorne, on December 20th, Mr. Tennant said that vaccination or revaccination was a condition of enlistment to the regular army; for the Territorial Force it was not.

Dry Powder Fire Extinguishers.—In reply to Mr. Denniss, the Home Secretary said that the warning to the press against publishing anything likely to promote the sale of dry powder chemical fire extinguishers was issued because the claims put forward by the makers of certain of these devices were likely to mislead the public into believing that such powders could be relied upon in preference to water as a means of extinguishing or controlling incendiary bombs, and the fires caused by them. An investigation made by the Commissioner of Police with the aid of a committee of experts, showed that the powder extinguishers were ineffective as compared with water for dealing with such fires, and that the danger and serious damage caused by such fires would be greatly increased if the public relied on these appliances. There had been no actual prohibition of advertisements, but extravagant advertisements were to be deprecated, especially in cases where a panic might be caused if a bomb were dropped.

German and Austrian Red Cross Employees.—On December 20th Commander Bellairs asked how many German and Austrian doctors and so-called German and Austrian Red Cross employees had been allowed to go through our naval blockade under safe conducts to Europe; how many under instructions from the Foreign Office without safe conducts, and what equivalent was obtained from Germany in the number of British subjects released. Lord Robert Cecil said: The number of such persons given safe conducts is eighty-six, and the number of those who were to be allowed to pass without safe conducts is sixty-nine. I am not aware of the precise number in each category who may have been arrested on the way owing to suspicion of fraud, but the number is not large. With regard to the last part of the question, His Majesty's Government have not so far felt obliged to refuse requests made to them on the ground of the Geneva Convention for the free passage of enemy doctors and Red Cross employees returning to their own country from overseas. In most cases doctors and Red Cross officials captured or detained by the Germans have been also released. But as in some cases they have not done so, His Majesty's Government are considering the advisability of detaining similar German individuals who would otherwise be returned.

Midwives (Scotland) Bill.—The Midwives (Scotland) Bill was read a third time, as amended by the House of Lords, on December 16th. The Lords' amendments were considered and accepted on the same day by the House of Commons. By one amendment the provision empowering the Midwives Board in Scotland to suspend a midwife from practice "for such period as the Board think fit" was altered by the omission of the words within quotation marks. The only other amendment had reference to the selection of an accountant. The clause as amended provides that the financial statement of the Board shall be certified as correct by an accountant practising in Scotland, appointed annually by the Secretary for Scotland.

THE WAR.

A MILITARY MEDICAL SOCIETY.

THE third meeting of the Military Medical Society, the formation of which was mentioned last week, was held on October 13th, Colonel H. Carr, the President, presiding over an audience of about 120.

Splint for Fractures of the Arm.

Major T. C. Lütler Jones gave a demonstration of his splint for fractures of the arm. This simple and ingenious splint is made of iron wire framework moulded to distribute the weight of the arm on to the trunk and chiefly the hip, and allows the patient to walk about or to lie down in bed. It obtains flexion and abduction of the arm, and allows septic wounds of the arm to be dealt with without disturbing the position of the splint. The cost of making should not exceed 1s. It does not press in the axilla and yet it can be adapted for the application of traction to the long bones. Major Lütler Jones did not claim for it that it was absolutely ideal in every case, and he admitted that it did not prevent internal rotation of the lower fragment in cases of fractures of the humerus. The weight of the splint was negligible, and one felt as if one's arm was resting lightly on the arm of a chair. This splint has become very popular at the hospitals.

Traumatic Aneurysm.

After Captain F. L. A. Greaves had read the paper published at p. 924, Surgeon-General Sir George Makins remarked that arterio-venous aneurysm was in comparison with its frequency in the last war proportionately rare. One reason for this probably was that the German bullet causes more serious injury to the blood vessels. Now they were becoming fairly common, and he attributed this to the fact that they were the result of shell wounds. It was a strange fact that the shell fragment caused less damage to the blood vessel than the bullet: the shell incised, the bullet contused. He wished to emphasize the point that though all wounds by shrapnel were infected, yet these wounds of blood vessels did not show signs of infection; he thought this was due entirely to the bactericidal power of the blood. He believed that the aneurysm began at the time when the artery was wounded, though it might not be detected for some time. There might be a considerable hæmatoma at first; sometimes the blood clotted and became hard, and a secondary change took place in the clot, the blood emerging from the wound meeting a cavity in the clot with the production of a false aneurysm; in other words, there might be clotting at the periphery with a large irregular cavity. The latter was a serious condition, for secondary hæmorrhage was a probable sequel. Dealing with arterio-venous varices, Sir George said that generally there was a direct communication between the two vessels without any trace whatever of blood effusion, the two vessels uniting at once and the anastomosis being established within a few moments after the man was struck. The wounded vein might become thrombosed after injury, but when the thrombus softened the double murmur became evident.

Paratyphoid Infections.

At the fourth meeting of the society, held on October 27th, Captain J. M. Fortescue-Brickdale, M.D., M.R.C.P., said that the group of diseases which included typhoid fever, paratyphoid A, and paratyphoid B, was conveniently designated the "enteric group." An individual might be protected against one without necessarily acquiring protection against the other two, and two infections might coexist in the same person, or at least follow each other very closely. The presence of two causal organisms in the blood of one patient had not been demonstrated in the area of the society, but one might be shown to be present in the blood and another in the excreta. In making a diagnosis the clinician and bacteriologist must work together. If a certain one of the organisms was found in the blood, nothing more need be said, but in many cases it might not be possible to demonstrate its presence; the faeces and urine must then be searched, but this was not such a satisfactory proof, as the "carrier" question came in, and additional evidence from agglutination reactions

was required. A well-marked agglutination was no doubt a strong point in diagnosis, but in the absence of direct bacteriological evidence must be considered in relation to the clinical picture. On the other hand, it was often impossible to diagnose a case on purely clinical grounds, but it was possible in a large number of cases to form a fairly accurate opinion when looking back on the case as a whole (epignosis). Certain types of cases would be found to harmonize with the bacteriological findings. Local experience of the group so far showed roughly the following proportions: Paratyphoid B, 81 per cent.; paratyphoid A, 4 per cent.; true typhoid, 10 per cent. About 5 per cent. showed no sufficient evidence, either clinical or bacteriological, to allow of their being placed, and these were diagnosed as belonging to the "enteric group."

Paratyphoid B Infection.—The degree of severity varied extremely. It might be a very severe and even fatal disease, or it might be a moderately severe case. Mild attacks were the most frequent. They were very liable to be overlooked, and labelled influenza or P.U.O.; the characteristic clinical symptoms might be few or absent, and the diagnosis depended mainly on careful bacteriological investigations. The illness might last only three or four days. In one such case, in which the fever only lasted four days, there were six rose spots, the patient was dull and apathetic, the tongue was furred, bronchitis was present, and there was tenderness over the spleen. Paratyphoid B was demonstrated in the blood, faeces, and urine, and the agglutinations to paratyphoid B were positive. In other cases the symptoms were not so typical; the spleen might not be enlarged and no spots might be present, yet the organism might be demonstrated. A very large majority of the cases gave a history of abrupt onset, but occasionally a vague indisposition of a week or two's duration preceded definite onset. In cases in which spots appeared they were generally quite well marked on the tenth day. In mild cases a few might appear on the fourth or fifth day or earlier. They might persist for a long time, coming out in crops for three weeks; the last crop might appear after the temperature had fallen. The rash was marked by pleomorphism, and roughly three sorts might be distinguished: (1) Small, well-defined, dark pink, not much raised; (2) large, light pink, well raised, with ill-defined irregular margins; (3) fairly well-defined, bright pink, surrounded by faint pink or purplish irregular areola. These groups melted into one another and all might be represented on the same patient. Enlargement of the spleen was a very important diagnostic point in diseases of the enteric group. In any case of acute fever where it was present a full bacteriological investigation should be made. Herpes was seen in several cases. Mild conjunctivitis was present in a few at the beginning. Cough was common, but definite bronchitis uncommon; when present there was generally a history of asthma or chronic lung trouble. Headache was almost universal at the onset and was apt to persist. It might continue after the temperature had fallen, especially in older men. Epistaxis was fairly common. The general constitutional disturbance was not so great as would be expected from the temperature and other signs. The temperature was apt to be very intermittent, falling to normal in the morning or remaining normal for several days and then rising again. In other cases it was markedly remittent. In some there was a sharp initial rise, followed by a low type of fever continuing for some weeks. The serious complications of true typhoid might occur in paratyphoid B, but were not very common. The mortality was not high—probably under 2 per cent. The *post-mortem* findings resembled those of typhoid fever, the large intestine and colon, however, being more usually markedly involved. Only a few cases of paratyphoid A had been seen. The temperature chart was much more regular, and more like the typical typhoid chart, and a larger portion of the cases were severe, and no mild cases had been seen. Typhoid inoculation seemed to alter the degree rather than the characteristics of the disease. Severe cases, which occasionally occurred, did not differ from the ordinary type; the very mild cases were of course atypical, but only in the same way as "ambulatory cases" in uninoculated persons.

In the discussion Captain Parsons related his experiences with cases of similar fever in Malaya. In none did

the temperature remain up after the fourteenth day; in none was there a rash afterwards, and the malaise lasted for over three days. Ho had, however, no bacteriological evidence of the identity of the disease.

Captain Wood related what he had seen in sixteen *post-mortem* examinations on patients who had had paratyphoid B. The lesions were varied and peculiar. In nearly every case the large intestine was involved, and usually extensively, being deeply ulcerated. In three cases the large intestine had perforated once at the caecum, once at the splenic flexure, and once at the sigmoid flexure. In two cases the appendix had perforated. The small intestine showed lesions similar to those seen in true typhoid. In other cases he had seen abscess of the liver and spleen. In all cases the *B. paratyphosus B.* was isolated, and it was an interesting point that the lesions of the large intestine were similar to those seen in swine fever, with which was associated an organism, *B. suispestifer*, which the German school did not differentiate from *B. paratyphosus B.* His Indian experience was that paratyphoid A was a milder and shorter fever than paratyphoid B, but he had not seen one case of the latter in India. The paratyphoid A he had seen in France was, on the whole, a more severe disease than that seen in India, but perhaps the milder cases had not reached an isolation hospital.

Captain Pritcheard said he had isolated an organism of the colou-typhoid group from a case with renal symptoms, without, however, attempting further to classify it. This case died in England, and extensive ulceration of the intestines was found *post mortem*.

Captain A. Leitch remarked on the great uncertainty that prevailed as regards the subdivision of the typhoid group of fevers. It was questionable, from the clinical point of view, whether anything was to be gained by the attempted subdivision. The differentiation of the various organisms included in the group on cultural grounds was difficult, and the characters were not constant. Agglutination tests were important, but not specific. He was interested to learn that the *post-mortem* appearances of paratyphoid B and hog cholera were the same, and he agreed that *B. paratyphosus B.* and *B. suispestifer* were practically indistinguishable. The latter organism, however, though frequently, if not invariably, found in hog cholera, was not the causal agent of that disease. A similar position might be reached eventually regarding paratyphoid fever.

Captain Adler recalled Twort's experiments on the mutability of organisms of the coli-typhoid group, and Colonel Carr expressed a doubt whether anything was to be gained by a subdivision of the typhoid infections; unless the practitioner had a bacteriologist at his elbow he would be unable to distinguish the one from the other.

Oxygen and Suppuration.

Captain Clarke read a paper in which he contended that as free oxygen was essential for the growth of pyogenic organisms in culture media, he considered that, in the treatment of septic wounds, precautions ought to be taken to exclude it. In test tube experiments he had found that the streptococci were less inhibited by anaerobic conditions than the staphylococci, but in the wounds with which he had to deal the latter organisms were the chief noxious agents. He condemned the use of hydrogen peroxide in septic wounds. He believed that secondary haemorrhage was favoured by the access of oxygen allowed by drainage tubes. In all cases gauze drains should replace tubes. Major Coupland joined in the condemnation of the use of hydrogen peroxide. Surgeon-General Sir George Makins pointed out that in his experience streptococci were extremely prevalent in the septic wounds, and that the staphylococci were relatively less important. Gauze plugs were often fairly good, but they were very apt to become clogged, and to arrest the drainage of the discharge.

"Trench Shin."

Captain J. G. Brown (C.A.M. Corps) described under this name a group of cases characterized by the syndrome "fever, leucocytosis, and pain in the shin bones." The pain felt in the tibia was of a dull, aching character, always bilateral, increasing when the patient attempted to walk, and diminishing when he lay in bed. It increased at night time, and required analgesics. Tenderness was marked all

over the tibia, in the head of the bone, and also in the malleolus; even light pressure on the crest of the bone caused the patient to wince. There was no pain in the femur. X-ray photographs showed no abnormality. Head-ache and general malaise accompanied the condition. Blood examination showed that the red cells were normal, but the white cells were increased over 9,000; in differential counts there was an increase of lymphocytes. Blood cultures were negative. Most of the cases showed a low-grade fever, lasting from five to ten days, and gradually dropping to the normal. Syphilis was excluded by the results of the Wassermann reaction and the lack of improvement after the administration of iodides. From the enteric group the disease could be differentiated by the negative results of the Widal reaction, blood cultures, and bacteriological examination of the stools. The symptoms of the disease did not correspond with the textbook descriptions of those of dengue. Colonel Carr pointed out that the distribution of pain and tenderness corresponded to the parts covered by puttees and thought that the local bony disturbances might be the result of tight puttees. He agreed that this explanation failed to account for the general condition, but suggested that the other symptoms might be fortuitous. Lieutenant-Colonel Finley said that he had seen cases corresponding to those described by Captain Brown, but they were not so sharply defined, and he had been content to label them as myalgia. The bony pains were not confined to the tibia. In many of these obscure cases he had found that there were leucocytic counts of 14,000 to 25,000.

GERMAN EXPERIENCES OF WAR SURGERY.

TREATMENT OF ABDOMINAL WOUNDS.

THE vexed question as to the treatment of abdominal wounds in war has drawn from Professor Wieting Pasha¹ a memorandum in which he attempted to harmonize conflicting views. He argued that a procedure which was sound under certain conditions, such as the nature of the fighting, of the locality, the roads, or the weather, might be altogether indefensible under other conditions. All surgeons, he said, agreed in advocating early operation for abdominal injuries under favourable conditions in times of peace; and this view could be modified in war time only by the local conditions obtaining at a given time. The choice of treatment accordingly depended on what he called "sanitätstaktische" considerations rather than on purely surgical factors. As for these medico-tactical problems, they were, he said, understood and provided for, and there should, accordingly, be little or no differences of opinion on this score. Apparently this point of view has also been accepted by the authorities; for Professor Wieting Pasha referred to certain orders given to the surgeons of the various army corps. These orders, he said, ranged from the complete prohibition of all operative treatment, to the organization of laparotomy stations, such as were established and soon given up again in the fighting around Port Arthur in the Russo-Japanese war. Though this arrangement seemed unnecessarily arbitrary, in practice considerable latitude was, he said, allowed to the operating surgeon, whose views might not coincide with orders from head quarters.

TREATMENT OF FRACTURES OF THE THIGH.

With an experience of about 180 cases of fracture of the thigh, Dr. M. Alexander² has undertaken to outline the most suitable treatment for such cases. His patients were treated in every stage of fracture, from recent fractures to fractures inflicted eight weeks earlier and treated elsewhere. He was thus enabled to control the results of other surgeons' methods as well as his own. He employed three methods of immobilization—extension, plaster-of-Paris, and splints. He came to the conclusion that each case must be treated on its merits, and that no one method should be adopted to the exclusion of others. But he had also learnt to classify his cases, and to adopt a definite line of treatment for every case belonging to a particular class. In a recent case in which the wound was slight, and the discharge so insignificant that infection was improbable, a plaster-of-Paris splint fulfilled every requirement.

¹Deut. med. Woch., August 12th, 1915.

²Beri. litn. Woch., August 9th, 1915.

On the other hand, wounds which had remained undressed for a considerable time, with extensive shattering of bone or severe suppuration, called for other treatment, including free incisions and drainage, as in the following illustrative case. A reservist was wounded in the right knee by a fragment of shell, and was admitted to hospital two days later with the limb fixed by large splints. The whole of the thigh was much swollen, and there was extensive subcutaneous effusion of blood. On the outer side of the knee was a wound as large as a hand, covered by a gangrenous crust, from under the borders of which pus escaped. The knee-joint was much swollen, and there was abnormal mobility of the bone above the joint. There was, however, no crepitation and little pain. The parts were immobilized by splints and extension aid. The temperature remained normal, the wound healed by granulation, and an uninterrupted recovery followed. In such a case the employment of plaster-of-Paris was indefensible, for under it suppuration was apt to escape notice, and pus could track a considerable distance before its presence was detected. On the other hand, the employment of readily adjustable splints enabled the operator to change the dressings frequently and to control the progress of the wound. The importance of this control, notably in febrile cases, could not be over-estimated. Yet, obvious as these principles might seem, they were not always appreciated, as the following cases showed:

A non-commissioned officer was wounded by a rifle bullet which shattered the middle of the femur. When he reached Dr. Alexander's hospital on the eleventh day, his limb was found to have been put up in a fenestrated plaster-of-Paris splint. There were two large wounds in the outer side of the thigh, and the temperature was very high. When the plaster-of-Paris splint was removed, on the twenty-first day, large abscesses were found. Several drains were inserted, and the limb was immobilized by extension. This change of treatment was rapidly followed by improvement in the local and general condition; the temperature fell to normal, and the limb was saved. In another patient, a volunteer, a rifle bullet had entered a breadbreadth below the great trochanter, had fractured the bone, and had made a large wound of exit on the inner side of the thigh. When the patient was admitted to Dr. Alexander's hospital, on the eighteenth day, the wounds of entry and exit were freely suppurating. Dressings and splints were applied; but on the advice of a consulting surgeon the splints were replaced by a fenestrated plaster-of-Paris cast; three days later the temperature was above 39° C., and as the patient continued to be febrile, the plaster-of-Paris was removed after it had been in use for twelve days. Its removal was followed by the free opening and drainage of the wounds, the limb being put up in ordinary splints, which were replaced some days later by extension apparatus. Under this treatment the temperature fell to normal, and the patient recovered sufficiently to be transferred to another hospital.

Dr. Alexander had learnt to confine the use of plaster-of-Paris in fractures of the femur to temporary immobilization of the limb during transport, to recent cases in which fracture of the femur was uncomplicated by large wounds of entry and exit or by sepsis, and to the immobilization of limbs at a late stage of the wound, when suppuration had ceased and severe injuries were well on the way to recovery.

CASUALTIES IN THE MEDICAL SERVICES.

Killed.

LIEUTENANT ANDREW HEGARTY, R.A.M.C., is reported to have been killed in France on December 16th. He was the fourth son of Dr. A. Hegarty, of Magherafelt, co. Londonderry. He took the diploma of L.A.H.Dubl. only this year and joined the R.A.M.C. as a temporary Lieutenant last July; he was attached to a battery of Royal Field Artillery when killed. Two of his brothers are now on active service, one in the R.A.M.C. and one in the motor transport.

Wounded.

Navy.—Surgeon C. F. Schuller, R.N., Hawke Battalion, Dardanelles.

Army.—Captain H. P. Brownell, 7th Field Ambulance, Australian Army Medical Corps, Dardanelles.

Captain K. K. Mukerji, I.M.S., Persian Gulf.

DEATHS AMONG SONS OF MEDICAL MEN.

Blake, Harry Douglas, 10th Battalion Royal Fusiliers (City of London Regiment), son of the late Dr. E. H. Blake, of Upton, Essex, killed in action recently in France, aged 25.

MEDICAL STUDENTS.

Hogben, Henry Francis Thomas, Lieutenant 10th Battalion Middlesex Regiment, attached 2nd Battalion Norfolk Regiment, killed in the battle of Ctesiphon in Mesopotamia, November 22nd to 24th, aged 25. He was born in 1890, the eldest son of Mr. F. Hogben, of Sunderland, and was educated at Parsonsloan School, Ireland, at Bedford Grammar School, and at Guy's Hospital, which he entered in 1907, gaining the London University Open Scholarship. He was a member of the Bedford School Cadet Corps, 1905-09, and of the Artists' Rifles, 1909-15. He got his first commission in the Middlesex Regiment in July, 1915, was promoted to Lieutenant on August 26th, 1914, went with his battalion to India in October, 1914, and in April, 1915, was selected to take a draft from the 10th Middlesex to the Persian Gulf. He played football for Guy's, and was a skilful boxer and a powerful swimmer, but specially excelled as a shot. He was in the Bedford school shooting eight, twice captained the London University eight, won the open championship of London University Athletic Union Rifle Association, and the All Comers' aggregate at Bilsley in 1915, and was in the King's Hundred in 1915 and 1914.

The Aberdeen University "Roll of Fallen" up to December, 1915, includes the names of seven medical students. Notices of the two following have not previously appeared in our columns.

Mackay, Keith, Corporal 4th Battalion Gordon Highlanders, died in a casualty clearing hospital in France on April 28th, of wounds received on March 20th, aged 20. He was a first year medical student at Aberdeen.

Munro, Gordon Dean, Private 4th Battalion Gordon Highlanders, died of wounds received in action near Ypres on September 25th, aged 20. He also was a first year medical student at Aberdeen.

MEDICAL MEN AND DENTISTS KILLED OR DIED OF WOUNDS WHILST SERVING AS COMBATANTS.

The following is a list, as complete as we have been able to make it, of medical men and dentists holding commissions as combatants who have been killed or died of wounds since the beginning of the war. The list is very possibly incomplete, and we shall be obliged if relatives of any other medical men who have been killed or died of wounds while holding commissions as combatants would communicate with us. We should also be glad to receive particulars of any medical man who may have been killed or died of wounds whilst serving as a combatant but not holding a commission.

The names in the list are arranged in alphabetical order:

MEDICAL PRACTITIONERS.

Bingham, F. M., L.R.C.P., M.R.C.S., Captain 5th King's Own Lancaster Regiment, Flanders, May 22nd, 1915.

Clifford, A. C., L.R.C.P., M.R.C.S., Second Lieutenant 3rd Dragon Guards, Ypres, Flanders, June 1st, 1915.

Crowthor, S. N., L.R.C.P., M.R.C.S., dispatch rider, Flanders, October 13th, 1914.

Huddleston, S. C., M.B.Édin., Second Lieutenant 3rd Black Watch, France, January 25th, 1915.

Hughes, B. M., L.R.C.P., M.R.C.S., Captain 14th Norfolk, Dardanelles, September 15th, 1915.

Hunter, H. G., M.B.Édin., Captain 6th Northumberland Fusiliers, Ypres, Flanders, April 26th, 1915.

Jessop, J. W., L.R.C.P., M.R.C.S., Lieutenant-Colonel 4th Lincoln, France, June, 1915.

Lukis, T. S., M.D.Lond., Lieutenant 13th London Regiment, France, March 15th, 1915.

Maitland, W. E., M.B.Glasg., Lieutenant 3rd Seaforth Highlanders, France, December, 1914.

Wallace, A., M.B.Édin., Captain 14th K.O.S. Borderers, Dardanelles, July 12th, 1915.

DENTISTS.

Dykes, J. J., L.R.C.P. and S.Édin., L.R.F.P.S., L.D.S., Captain 15th K.O.S. Borderers, Dardanelles, July, 1915.

Morham, J., L.R.C.P. and S.Édin., L.R.F.P.S., L.D.S., R.C.S.Édin., Captain 4th Royal Scots (missing), Dardanelles, September, 1915.

Neely, H. B., L.D.S., 2nd Lieutenant 1st Suffolk, Ypres, Flanders, April 25th, 1915.

NOTES.

ARRIVAL OF HOSPITAL SHIP IN DUBLIN.

ON December 16th a hospital ship arrived at Dublin from Havre, bringing 536 wounded and invalid soldiers from

France. The St. John Ambulance Brigade and the Dublin and Kingstown divisions of the British Red Cross Society had made ample arrangements for the disembarkation and transfer of the men. The cases were distributed—120 to Belfast by special train, 100 to Cork, and 50 to the military hospital at the Curragh Camp. The remaining 266 cases were distributed among the Dublin hospitals, 143 being sent to the Castle Red Cross Hospital. There were no very serious cases; a fair number of the men had been wounded; the majority, however, suffered from such diseases as pleurisy, pneumonia, acute rheumatism, and appendicitis. The malady, however, most in evidence was the condition now generally known as "trench-feet." It is to be noted that the cases of this kind are not so severe as those met with last winter; this is probably due partly to the precautions taken to avoid prolonged exposure of the feet to cold and wet, and also to the fact that the condition is recognized at an earlier stage and not allowed to advance too far.

MEDICAL OFFICERS WANTED.

Field Ambulance.

The Officer Commanding a Field Ambulance, who has had ten months' experience at the front in France and Belgium, is fitting out a Territorial London Field Ambulance for service abroad, and has vacancies for five medical officers. Rates of pay, etc., higher than temporary commissions abroad. Gratuity after one year, 296 2s. Address, No. 999, BRITISH MEDICAL JOURNAL OFFICE, 429, Strand, W.C.

2/2nd North Midland Field Ambulance, R.A.M.C.

Wanted immediately, four medical officers. Pay and allowances as in regular army, with bonus at termination of service. Those accepting commissions must sign for foreign service. Applications to Officer Commanding, 2/2nd North Midland Field Ambulance, Harpenden.

2nd South-West Mounted Brigade Field Ambulance.

To King's men and others. Two officers required to complete 2nd South-West Mounted Brigade Field Ambulance (Imperial Service). Apply, Lieutenant Colonel Benson, Officer Commanding, "Federation," Lexden Road, Colchester.

2/2nd South Midland Mounted Brigade Field Ambulance.

Medical officers are urgently wanted for the above. Intending candidates must be willing to sign for foreign service, and should apply to Major A. G. Magrath, Officer Commanding, 2/2nd South Midland Mounted Brigade Field Ambulance, London Road, King's Lynn.

Canada.

THE MILITARY HOSPITAL COMMISSION.

THE problem of providing employment and a new start in life for the members of the Canadian Expeditionary Force on their return to Canada has been engaging the attention of the Dominion Government for some time. Steps were taken some months ago by the Department of Militia and Defence to arrange for convalescent homes for those who will require a period of rest in order to recover the health which they have lost. This work was later committed to the charge of the Military Hospital Commission which was appointed by the Government for this purpose by Order in Council. A recent amendment empowers the Commission to deal with the question of employment for members of the Canadian Expeditionary Force on their return to Canada, and to co-operate with provincial governments and others for the purpose of providing employment as may be deemed necessary. At the invitation of Sir Robert Borden, the Premiers of the nine provinces of the Dominion and the representatives of the Commission have met in Ottawa to discuss the problems which arise. The meeting had before it a statement setting out a plan whereby employment could be provided for both disabled and, if necessary, able-bodied men on their return from the front. Particulars of the measures taken in Great Britain and on the Continent of Europe were given in appendices. As representatives of the provincial governments, the Ministers signified the willingness of each province to do the utmost in its power to aid the Commission. The facilities offered in each province will be investigated, and it is probable that a subcommission will be appointed in

each province to act under the control of the Commission, and that the provincial commissions in turn will appoint local committees. In Canada all matters pertaining to education, etc., are in the hands of the provincial governments, and the conditions differ in each province; for instance, in Quebec the technical schools belong to the government, but the universities and agricultural colleges do not; in Ontario the technical schools are not under governmental control, whereas the Guelph Agricultural College is a government institution; in some cases the sanatoriums are maintained by the provincial government, in others by private subscription. The intention is to arrange with a number of sanatoriums for the reception of soldiers suffering from tuberculosis, with schools for the blind for those who have lost their sight, and with universities, technical schools, agricultural colleges, and so on, for the training of such men as are unable to follow their former occupation; whenever feasible the men will be allowed to choose the part of the country to which they wish to go and the calling they wish to pursue. Negotiations will be entered into with the Canadian Manufacturers Association, which will be asked to provide employment for able-bodied men who were out of work at the time of enlistment, or partially disabled men who cannot resume their former occupation, and to co-operate with the provincial governments in giving training to men, either in the form of apprenticeships or by placing workshops at the disposal of technical experts or foremen who are willing to give instruction as a service to their country. It is suggested also that land should be placed at the disposal of the Commission so that men who wish to do so may become farmers. Major Doherty has now returned to England; his mission to Canada was one purely of enquiry; all matters connected with the reception of wounded men from the front are in the hands of the Military Hospital Commission.

MUNICIPAL CONTROL OF HOSPITALS.

At the annual meeting of the General and Marine Hospital at Collingwood, Ontario, Dr. David Williams criticized the present system of management; the responsibility so far as financial matters are concerned rests upon a few who are willing to undertake the burden and entails constant appeals to the public. He gave notice that at the next annual meeting he would make the following motion:

That, in the opinion of the meeting, the present system of controlling and conducting the hospitals scattered throughout the province of Ontario has outlived its usefulness, and that the time has now arrived when it is deemed advisable that these institutions should be made part of the municipal system, controlled by a board of governors appointed by the municipal councils and such other bodies as may be deemed advisable, the appointments to rotate and to extend over a term of years, such as may be determined to be in the best interest of these institutions. That this proposal be recommended for the serious consideration of the Ontario Hospital Association and the provincial legislature, with the view of memorializing the legislature of the province of Ontario to enact such legislation as will provide for the taking over of hospitals at present in existence by the municipalities and for the conversion of them into municipal institutions; also for legislation governing these and controlling the establishment of hospitals in the future.

PATRIOTIC MEDICAL BUREAU IN REGINA.

The physicians of Regina have formed a Patriotic Medical Bureau, which, in co-operation with the local branch of the Canadian Patriotic Fund, will give medical assistance to all dependants of those who have gone to the front. Applications for assistance must be made to an attendant, whose duty it is to investigate the case. Patients will be sent either to the outdoor department of the general hospital or to the office of one of the physicians who has joined the bureau. Those who are too ill to go out will be visited by a physician, and in cases of emergency a physician will be called immediately. If the patient cannot be admitted to the hospital, a nurse will be supplied by the Patriotic Fund Committee. If assistance is required in the home of the patient, a woman will be sent by the Patriotic Fund to give the necessary help, and in cases where there are no relative or friends able to look after the home and the patient a housekeeper will be sent, who will be under the supervision of the visiting attendant.

Scotland.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

At the meeting of the Aberdeen County Committee on Secondary Education on December 17th it was reported that the Education Department had been informed that the county scheme of medical inspection had been suspended owing to the medical officers being on military duty, and that it was proposed that the scheme of medical treatment should also be suspended. It was arranged that cases of defective eyesight obviously requiring treatment reported by school boards and head masters should still be referred to the oculist for treatment. At the meeting of the Stirlingshire Committee on December 14th, Dr. Thomas Adams, the chief school medical officer, reported that of 1,457 school children examined between August 17th and October 18th, 57.1 per cent. were found to be medically defective. The Committee resolved to submit to the Education Department a scheme for the education of mentally defective children in the county.

SPHAGNUM MOSS WORKS IN EDINBURGH.

Works have been erected close to the workshops of Messrs. Redpath, Brown, and Co., engineers, Edinburgh, for the preparation of sphagnum moss as a surgical dressing. At the opening ceremony, Mr. Cathcart, who described the merits of this dressing in our columns for July 24th, 1915, p. 137, said that he believed sphagnum moss properly prepared was superior to absorbent cotton-wool as a surgical dressing. Cotton wool absorbed the discharge, but did not spread it, whereas sphagnum moss absorbed like sponge and did not exude until every part of it had taken up the discharge. There were, he said, several tons of prepared moss in hand, including forty-nine sacks from Shetland, the largest single consignment. We understand that in France an order has recently been issued directing that cotton-wool used for surgical dressings shall be collected, disinfected, and used for the manufacture of explosives.

Ireland.

PRESENTATION TO ALDERMAN DR. J. J. O'SULLIVAN, WATERFORD.

THE medical colleagues of Dr. J. J. O'Sullivan in the City of Waterford recently presented him with a piece of plate to mark their appreciation of the services he rendered the profession as their local representative on the Irish Medical Committee. Owing to the position Dr. O'Sullivan occupied in the civic affairs of the City of Waterford, he had frequent opportunities of rendering very important services to the medical profession not only in Waterford but throughout Ireland. He was, on different occasions, the spokesman of medical deputations which, in connexion with matters under the Insurance Act, waited on Mr. Redmond, M.P., Chairman of the Irish Parliamentary Party, and the late Most Reverend Dr. Sheehan, Bishop of Waterford.

IRISH WORKHOUSE AMALGAMATION.

At a conference of delegates of the Poor Law boards of the co. Kilkenny to consider the amalgamation of unions, the Local Government Board inspector said that the county was to be congratulated on being the first to take practical steps towards carrying out a scheme of workhouse amalgamation with a view of benefiting the ratepayers. It the number of unions in the county could be reduced from five to two a very substantial saving would be effected. A resolution was passed agreeing to the principle of amalgamation, so that there might be only two unions in the county. The matter will now be submitted to the Local Government Board, which will hold a sworn inquiry. The two unions of Dublin have received letters from the Local Government Board asking them to consider the question of amalgamation; the South Dublin Union has appointed a day to discuss it, but the North Dublin Union merely marked the letter "noted"; but the Local Government Board has the power itself to effect the amalgamation. Better progress might have been made if the Local Government Board had taken the

initiative in drawing up at least the outlines of a scheme. It was stated at the last meeting of the North Union that the expenditure will, it is feared, by the end of the financial year exceed the estimate by £6,000. The guardians are reported to be engaged in a complete revision of outdoor relief cases, and the guardians of the South Union seem to be undertaking a similar task. A careful investigation by the guardians should result in a number of small savings, which, when taken together, might reach a considerable figure; but this should not blind them to the great advantages and economies to be made by adopting a scheme of amalgamation for the two unions.

Correspondence.

DIFFERENTIATION OF MENINGOCOCCI.

SIR,—The valuable and independent papers of Captains Arkwright and Ellis on this subject published in your last issue are of great general interest, and are particularly welcome to those working in this laboratory, since they corroborate the observations here made on the same subject partly with the same strains, but mostly with others isolated from the cerebro-spinal fluid of military cases in this country during the recent outbreak of cerebro-spinal fever.

As our observations have been published in the *Journal* of the R.A.M.C. for May and October it is unnecessary to describe them in detail. The chief object of the present letter is to refer as briefly as possible to the present stage of this investigation, and to explain the steps taken to obtain antisera.

The agglutination test, valuable though it be, is of course handicapped by the fact that even a univalent serum contains, in addition to specific homologous agglutinin, group agglutinins. Hence the need, when possible, of checking the result by an after-test to see if the specific agglutinin has been absorbed or not. Proceeding by this method, the results obtained in this laboratory up to the present with meningococci isolated from the cerebro-spinal fluid of cases during the present outbreak are as follows:

Number of specimens tested	...	...	72
Number classified	...	...	63
Number unclassified as yet	...	...	9

Relative Frequency of the Four Types among the Sixty-three Classified Meningococci.

Type.	Specimens.	Percentage.
I	31	50
II	20	31.97%
III	10	16
IV	2	3

It is seen that Type I, which includes the strains Plank, Palmer, and Goodyear, given to us by Captain Arkwright (who generously placed his stock at our disposal for the purpose), still keeps its lead, followed by Type II, which includes Captain Ellis's M. 13, also given to us by Captain Arkwright. Between them, these two types account for 81 per cent. of our classified meningococci. It should be mentioned that meningococci belonging to Type III frequently agglutinate with the antiserum of Type I, but they fail to remove the homologous agglutinin therefrom.

Of Type IV so far only two specimens have been obtained. The nine unclassified cocci fail to agglutinate or absorb with any of the univalent serums prepared against the four types. These meningococci are being further investigated. There are certainly three more types among them; probably more.

Dr. Louis Martin of the Pasteur Institute kindly sent us a culture of parameningococcus in order that it might be compared with our strains. This has been done both by putting up this coccus against the four univalent serums, followed by absorption tests, and also by the reverse test. As a result, it has been found that although it agglutinates to some extent with the antisera to Types II and III, the parameningococcus fails to absorb the specific agglutinin of any of these types; and, conversely, specimens of those types fail to absorb the specific agglutinin of Dopter's coccus. In view of this evidence the parameningococcus—using that term—only as applying to the particular culture received by us—would seem to be acquitted of a share in our outbreak so far.

Now, at first sight, this plurality of types of the meningococcus is somewhat perplexing. Practically, however, as regards the epidemic, this is not so, because of the comparative rarity of Types IV and onwards. It has been stated that up to the present no less than 81 per cent. of the classified cocci belong to Types I or II; if Type III is included, 97 per cent. of them are accounted for.

A further point of particular interest is that Type I, which had been getting scarcer during the decline of the epidemic, and was not found in the autumn, has recently reappeared.

As regards the preparation of antisera, specimens of the first four types of meningococcus are in the hands of Dr. MacConkey, of the Lister Institute Serum Department, and also of Dr. O'Brien, of Messrs. Burroughs and Wellcome's Laboratory, Brockwell Hall. Towards the end of September Mr. E. G. Murray kindly took cultures of them over to Paris and presented them to our allies and colleagues at the Pasteur Institute. Dr. Louis Martin and Dr. Dujardin-Beaumez at once took steps to prepare trivalent sera against Types I, II, and III, and it is hoped that these sera, as well as the others, will be available in case of a recrudescence.—I am, etc.,

M. H. GORDON,
Major R.A.M.C.

The Central Laboratory for Cerebro-spinal Fever,
Royal Army Medical College, S.W.,
Dec. 21st.

THE AUSCULTATION OF THE HEART.

SIR,—I find that your issue of December 4th (p. 807) contains an attack upon me by Sir James Mackenzie, in which I am held up to scorn as a person who is unaware of the great advances that have been made during the last twenty-five years in our knowledge of affections of the heart.

The ostensible reason for this attack is that I republished in your issue of November 20th extracts from articles written in 1890. I should have thought that it was fairly obvious that I wished to make it clear that certain fundamental facts about the examination of the heart and the significance of murmurs were known at that date—for example:

1. That many fallacies attend the auscultation of the heart.
2. That the mere presence of a murmur is no evidence of valvular disease.
3. That loud murmurs often disappear when the patient lies down.
4. That serious organic disease of the valves, causing, for example, aortic stenosis and regurgitation combined with mitral regurgitation, is quite compatible with life prolonged to over seventy years, during which the patient for fifty-five years carried on a laborious occupation, without a day of illness.

I can assure Sir James Mackenzie that I have read and, if he will allow me to say so, admired his works, and that I have before me now the Register of the Beit Fellowships for Medical Research, in which, amongst more than fifty such entries, I find one which always gives me special satisfaction. It is:

No. 1. Thomas Lewis, D.Sc.(Wales), M.D.(Lond.), etc.

Nature of research authorized: The Mechanism of Irregularities of the Heart.

I am, at any rate, well acquainted with the work of Dr. Thomas Lewis, and also with the depths of my own ignorance, but I do not wish that prospective candidates for the Beit Fellowships should think that they will find me unsympathetic towards those who desire "to advance the science of medicine by research."—I am, etc.,

JAMES K. FOWLER,
Trustee, Member of the Advisory Board,
and Honorary Secretary of the Beit
Memorial Fellowships for Medical
Research.

London, W., Dec. 21st.

THE NEED OF DOCTORS FOR THE ARMY.

SIR,—It was with a feeling of surprise amounting almost to consternation that I noted in the JOURNAL of December 11th a remark to the effect that next year the needs of the army might demand almost half the registered medical practitioners in the country.

The obvious question arising is, How will the general public fare? For such a drastic arrangement will mean that close upon 47 million people will have to depend upon the same number of medical men as an army of 4 million. Is this reasonable? Is it just? Is it in harmony with national interests? That the necessities of the fighting services should be fully met everyone must desire, and the successful prosecution of the war demands this. But the suggestion that such necessities demand the services of half the medical community surely requires some substantiation. It savours of the extravagant; indeed, it is impracticable. Before disturbing thousands of busy practitioners, a thorough investigation of the efficiency and economy of the present Army Medical Service should be made, and inquiries should be instituted to ascertain whether that service is being managed in the best possible manner.

While it may appear presumptuous for a mere layman to offer an opinion on the organization of a great army department, nevertheless I am of opinion that the maximum of medical work is not at present produced by the medical service of the army. The allocation of medical officers is on too generous a scale. Under the present system, as is well known, each unit (battalion or battery) has its own medical officer, and this system obtains throughout the army wherever possible. After six months' experience as civil medical officer to three battalions at different times, I am of opinion that the medical work of each of these units could easily be done in three or four hours. It is no uncommon experience amongst home battalions to find that the medical officers have finished all the necessary work by mid-day. After that they have nothing to do. This is not the fault of the doctors. They have not joined the army to enjoy a well-paid holiday; they want work, but it is not there to be done. The system is altogether too extravagant in allocating one medical officer to each unit, and more men than are absolutely necessary are taken up by it. There is certainly room here for a thorough remodelling of the medical organization. Where there are large numbers of troops congregated together in training centres and behind the actual fighting lines it is difficult to believe that each separate unit must have a separate medical man. A medical station or dépôt with an adequate staff of medical men could be established in these centres, a part of which would be always available at call; thus the requirements of the troops could be met in a very satisfactory manner.

The advantages of such a centralization are obvious:

1. The medical service in these dépôts would be mobile yet unified under medical supervision (as distinct from purely military).
2. A great economy of medical men would be effected. Twenty-five doctors could do the work of forty without hardship.
3. Incidentally medical men attached to those centres would be members of an army medical corps in reality as well as in name. At present medical officers belong to a corps distinct from that to which they are attached. They are not of the mess.

Such a grouping is applicable only to troops not engaged in the actual firing line. The first line must of necessity be well supplied with medical men, but the extravagant allocation of men does not take place in this direction. It undoubtedly is to be found in the training centres. The system of individual attachment is cast-iron and antiquated in its application, but such an arrangement as suggested, assisted by telephone and automobile, could be rendered elastic, effective, and economical. This is but a general illustration of the kind of readjustment that suggests itself, and no attempt is made to cover the whole ground. The point, however, that I desire to emphasize is that when mention is seriously made of calling upon one-half the medical men in the country for army service it is time to make vigorous investigation as to whether the best and most economical use is being now made of the material available. Every eligible medical man will gladly offer his services, but he will do so all the more readily if he can be assured that such services will be put to the best possible use.—I am, etc.,

December 16th.

J. C. ASHTON, M.B., Ch.B.,
Late M.O. 30th Divisional (C.P.), R.F., etc.

THE PROPHYLAXIS OF TRINITROTOLUENE POISONING.

Sir,—Replying to a question as to the prevalence of trinitrotoluene poisoning at Woolwich Arsenal, Mr. Lloyd George stated in Parliament that some workmen are injuriously affected, but that the degree of susceptibility varies greatly, many workers being immune.

Experiments carried out under the direction of the American Board of Health some time ago seem to show that susceptibility to the action of such nitro compounds depends on the activity of the thyroid gland. When this gland secreted freely the animal became comparatively immune. It was also found possible, by feeding the animal on oatmeal, to increase the activity of the gland very many times.

It would therefore appear worth while to insist that workers with trinitrotoluene who experience ill effects should feed largely on oatmeal porridge.—I am, etc.,

J. C. McWALTER, M.D., LL.D., D.P.H.,

Dublin, Dec. 15th.

Lieutenant, R.A.M.C.(T.).

The Services.

WAR PENSIONS AND GRATUITIES.

RETIRED PAY, WOUNDS PENSIONS AND GRATUITIES, WIDOWS' PENSIONS, ETC., DURING THE PRESENT WAR.

A Royal Warrant dated November 26th, 1915, was published in Army Orders of December 6th, 1915, amending the regulations for officers' retired pay, wounds pensions and gratuities, widows' pensions, etc., for casualties during the present war.

Its provisions apply only to combatant officers; and it is stated that regulations as to retired pay, etc., for disabled medical, veterinary and other officers, whether regular permanent officers or officers of the Special Reserve or Territorial Force, and non-combatant officers holding temporary commissions, will be made known at a later date.

Officers' Wounds Pensions and Gratuities.

Lieutenants and second lieutenants may be granted wounds pensions and gratuities at the rate laid down for captains in the Royal Warrant for December 6th, 1914. Total loss of vision occurring within five years after the wound, and solely attributable to it, will entitle the officer to not less than £300 a year in wounds pensions and retired pay taken altogether.

Pensions to Widows and Children.

The highest rate of pensions and the accompanying gratuities may be granted if the deceased officer was killed in action, or suffered violent death due directly and wholly to war services, or died within seven years from wounds or injuries so received. A pension at the intermediate rate may be granted if the officer died from disease due to active operations in the field or otherwise directly attributable to military services within seven years, provided the illness is certified to have commenced during the war, or if he died within seven years in consequence of wounds or injuries received through the performance of military duty, but not in action, or wholly or directly due to war services. In the case of a permanent regular officer who married after he received the wound or contracted the illness, the widow and children will not be eligible unless he survived his marriage by at least a year; and in the special case of officers of the Special Reserve or Territorial Forces, or holding temporary commissions, the widow and children will not be eligible for the highest or intermediate rates unless the marriage took place before he received the wound or contracted the illness. If an officer dies from other causes while on full pay and his widow is disqualified only through the insufficiency of the officer's services for an ordinary pension, she may be granted a gratuity of not less than one and not more than three years' pay. In cases of peculiar need the Army Council may grant an education allowance not exceeding £3 a year for a boy and £25 for a girl, commencing at the age of 15 and ceasing at the age of 18, with power to extend until the age of 21 in the recommendation of a competent educational authority. The grant of double pensions for motherless children will be discontinued.

The provisions of the Warrant are applicable to all cases arising out of the present war, even though the casualty occurred before the date of the Warrant, but the increased rates will not be payable for any period before March 1st, 1915, except in the case of wounds gratuities for lieutenants and second lieutenants.

PARENTS AND SISTERS.

A Royal Warrant, dated December 10th, 1915, was published in Army Orders of December 15th, 1915, amending the conditions under which allowances may be granted to the relatives of a deceased officer. It is in substitution for articles 675 and 676 of the Royal Warrant of December 1st, 1914.

On the death of an officer who leaves no widow or legitimate child under conditions such as entitle an officer's widow to pension at the highest or the intermediate rate, allowances may be granted as under:

MOTHER.

The mother may be granted an annual allowance, provided that:

(a) The mother is a widow, or her husband is totally incapacitated by age or infirmity, or he had permanently deserted her and ceased to support her; or

(b) She was largely dependent for support upon the deceased officer; and

(c) She is in distressed circumstances, and is not in receipt of pension as an officer's widow or of any other charitable provision of any kind from the public.

The amount of the allowance shall be determined in each case by the Army Council with regard to the mother's pecuniary circumstances. It shall not in any case exceed the pension which would have been awarded to the officer's widow had he left one, or the annual value of the support afforded by the officer. It shall cease in the event of the recipient remarrying or attaining to pecuniary circumstances which in the opinion of the Army Council disqualify her, and shall not in any case be transferrable.

FATHER.

The father may, subject to the same conditions so far as they are applicable, receive an allowance similar to that granted to a mother, provided he is a widower and totally incapacitated by age or infirmity.

SISTERS.

The sister or sisters jointly may be granted an allowance, provided that—

- The officer did not leave a mother;
- The sister or sisters are single and unmarried;
- They were largely dependent on the deceased officer;
- The surviving brothers, if any, are unable through youth or bodily or mental infirmity to give them support;
- They are in distressed circumstances, and are not in receipt of any other charitable provision of any kind from the public.

The amount of the allowance shall be determined in each case by the Army Council, with regard to the pecuniary circumstances of the sister or sisters.

Not more than £50 a year shall be granted to any one sister, and the total shall not in any case exceed the pension which would have been awarded to the officer's widow had he left one, or the annual value of the support afforded by the officer.

Except in special cases where the officer's sister is shown to be unable by age or infirmity to earn her living, an allowance will not be granted if she is over 21 years of age, nor be continued beyond that age, or shall also cease in the event of the recipient marrying or attaining to pecuniary circumstances which in the opinion of the Army Council disqualify her.

Further, the mother or sisters of a deceased officer shall be entitled to have granted to them, in lieu of the allowances granted by this Warrant, the benefits of the Warrant of December 1st, 1914, in respect of the rank held by the deceased officer before the date of this Warrant.

APPLICATIONS FOR WAR PENSIONS.

In the official report of the House of Commons for December 16th the following written answer (to a question by Mr. Hogge) appears under the name of the Financial Secretary to the War Office (Mr. Forster):

APPLICATIONS FOR NAVAL WAR PENSIONS.

Officers.

Disability and service pensions are awarded in the ordinary course of routine without special application.

A claim for wounds or injury gratuity or pension must be made within five years after the officer was wounded, and should be addressed to the Secretary of the Admiralty.

Applications for pensions to widows, compassionate allowances to children, or allowances to other dependants should also be addressed to the Secretary of the Admiralty.

Such pensions and allowances commence from the day following the date of death of the officer—except in the case of warrant applications in which the pension or gratuity commences from the date of cessation of the period of compulsory separation allowance or allotment—provided application be made within twelve months. Otherwise they take effect from the date of application.

Men.

Pensions to men are awarded in the ordinary course of routine, without special application. Payment begins normally immediately after the man's discharge from the Navy or Marine (or discharge from hospital, if later).

When there is reason to suppose that a case has been overlooked, or that the award is not in accord with regulation, application should be made in writing to the Accountant-General of the Navy, Admiralty, S.W.

There is no limit of time within an application for an award must be made.

Pensions to the widows and children of seamen and marines are awarded in the ordinary course of routine, without special application. Payment begins normally immediately after the cessation of separation allowance, or when there is no separation allowance, from date of death.

Where there is reason to suppose that a case has been overlooked, or that the award made is not in accordance with regulation, application should be made in writing to the Director of Greenwich Hospital, Admiralty, Whitehall, S.W.

Applications for allowances to other dependants of seamen and marines should be addressed to the Accountant-General of the Navy.

APPLICATIONS FOR MILITARY WAR PENSIONS.

Officers.

Disability and service pensions to officers are awarded in the ordinary course of routine, without special application. Claims for wounds pensions and gratuities, and pensions for widows and other dependants, should be made in writing to the Secretary, War Office.

Other Ranks.

Pensions of all kinds are awarded in the ordinary course of routine, without special application. Payment begins normally immediately after the man's discharge from the army (not from hospital), or in the case of widows and other dependants immediately after the cessation of separation allowance.

When there is reason to suppose that a case has been overlooked, or that the award made is not in accordance with regulation, application should be made in writing, in the case of officers, to the Secretary, Royal Hospital, Chelsea, and in case of widows or dependants to the Secretary, War Office.

Time Limits.

Under the preamble of the Royal Warrant for Pay, payments not claimed within a period of twelve months are forfeited, unless exceptional circumstances are shown, satisfactorily explaining the delay. A delay in claiming pension for more than one year thus invalidates the right to receive more than one year's arrears of the pension, but does not affect the claim to have the pension granted.

An officer's claim for a wound or injury gratuity or pension must be made within five years after he was wounded.

EXCHANGE DESIRED.

CAPTAIN, Field Ambulance, desires exchange with another officer at Casualty Clearing Station, General or Stationary Hospital, B.E.F. Address No. 6560, BRITISH MEDICAL JOURNAL Office, 423, Strand, W.C.

Public Health

AND

POOR LAW MEDICAL SERVICES.

POOR LAW ADMINISTRATION.

REDUCTION OF WORK.

THE President of the Local Government Board has notified in a circular dated December 17th, to boards of guardians, that in view of the depletion of the staffs both of the boards of guardians themselves and of the central authority, owing to the large number of men who have joined or will shortly join His Majesty's forces, it is recognized that some reduction of the work which normally falls upon Poor Law authorities and the department is necessary. Mr. Long considers that the ordinary methods of administration should, so far as practicable, be modified and adapted to the present exceptional circumstances. A list is given of the matters in which for the present applications for sanction or reports may be dispensed with. They include:

The reappointments of district medical officers who are not resident in their district and who require to be reappointed periodically. (For a further period similar to the last and upon the same terms.)

Appointment of temporary substitutes for officers absent on naval or military service, or prevented by sickness or accident from the performance of their duties. (It will, however, be convenient that arrangements relating to the office of clerk to the guardians, or to principal officers of institutions, should be notified to this department. Men eligible for military service should not be appointed unless already attested under the recent recruiting arrangements.)

Medical and general relief arrangements approved for a temporary period. (For a further year.)

Payment of reasonable fees to medical officers for minor operations and assistance of anaesthetists.

Alterations of the dietary tables made in conformity with the regulations in the Poor Law Institutions Order, 1913.

In all or any of these cases, if the guardians so desire, sanction may be understood to be given without any reference to the department.

After January 1st, 1916, monthly instead of weekly reports on pauperism will be required, and certain other minor reductions in time and material can be made. The circular concludes as follows:

Each board of guardians will no doubt find other means of diminishing the work of their staff, and in particular Mr. Long would ask them carefully to consider to what extent it would be practicable, without detriment to the efficiency of their control, to reduce the number of meetings both of the board of guardians and of the various committees. The substitution of monthly for fortnightly meetings would, in Mr. Long's opinion, be quite justifiable during the period of the war.

Medico-Legal.

PASSPORT APPLICATIONS: A WARNING.

A CHANGE has been heard at Bow Street police court against Dr. A. H. Vassie, a well-known practitioner in Hampstead, in respect of a declaration signed by him on the strength of which a passport to travel in Europe was issued on August 3rd, 1914, to a woman who was convicted in September for an offence under the Defence of the Realm Act and sentenced to ten years' penal servitude. The defendant in his evidence said, according to the report in the *Times*, that Mr. Hildesheimer, formerly head of a large publishing business, with whom and several members of his family he had had an intimate professional acquaintance for thirteen years, had introduced his niece to him, saying that she wished to go to Germany to nurse her mother. He put a number of questions to her as to her mother's illness, and after being assured by Mr. Hildesheimer as to her position, he had felt justified in recommending her for a passport. The evidence was corroborated by Mr. Hildesheimer but the magistrate committed the defendant for trial, allowing bail in his own recognizances of £50.

DR. R. MURRAY LESLIE v. DR. CASSELL'S MEDICINE COMPANY, LIMITED.

IN THE Chancery Division, on December 21st, Mr. Justice Sargant had before him a motion at the instance of Dr. R. Murray Leslie for an injunction restraining the Dr. Cassell's Medicine Company, Limited, from publishing or making any advertisements representing or calculated to induce the belief that Dr. Leslie recommended or approved of or had any connexion with any medicines or remedies sold by the company or associated with the name of "Dr. Cassell." The circumstances under which the injunction was sought were these: On October 20th last Dr. Leslie delivered a public lecture at the Institute of Hygiene in London on the subject of war strain and its prevention, and a summarized report appeared in the public press. The Dr. Cassell's Medicine Company, Limited, who were the vendors of "Dr. Cassell's tablets," thereupon inserted in the advertisements which they published in the press a reference to Dr. Leslie and to the lecture he had given in terms which gave the impression that Dr. Leslie recommended or approved of the "tablets" which the company purveyed. The company did not resist the proceedings, and Mr. Justice Sargant granted Dr. Leslie an injunction in the terms asked for.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT the next examination for entrance scholarships and exhibitions at Downing College, Cambridge, commencing on February 29th, 1916, preference will be given to prospective students of law or medicine. This preference is in accordance with the terms of the original charter of the college. Further information can be obtained from Mr. J. H. Widdicombe, tutor of the College.

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved at the examinations indicated:

SECOND M.B., CH.B.—Part A: R. A. Cooke, S. G. Evans, S. D. S. Greval, Phoebe A. Ince, W. A. Jackson, V. E. Jones, G. A. Mitchell, S. G. Mohamed, W. L. de Silva, G. S. Swan, H. G. Young. Part B: A. L. Davies, W. H. Evans, S. M. A. Faruqi, H. P. Williams.

FINAL M.B., CH.B.—Part I: E. H. T. Cummings, R. I. Dugale, Eastwood, Constant E. Edwards, R. B. Evans, A. J. P. Griffin, W. Griffiths, J. J. Griffiths, J. J. Griffiths, C. V. Pearson, B. P. Pinkerton, E. S. Stubbs, R. C. Watt. Part II: M. Azer, H. H. Eastwood, W. Griffiths.

Diploma in Tropical Medicine.—G. H. Pearson, J. Wood.

Diploma in Operative Surgery.—B. P. Ramskar.

† Distinction in pathology.

† Distinction in therapeutics, forensic medicine, and toxicology.

VICTORIA UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examinations indicated:

FIRST M.B., Part III, Organic Chemistry and Bio-Chemistry.—H. P. Fay, F. L. Pickett.

SECOND M.B.—Abdoh Nooman, T. H. Almond, Sybil Bailey, Mary G. Cartwell, P. Colley, A. M. Cotes, S. E. Cuthley, F. E. Healy, P. S. Horrocks, A. W. Kirkham, J. Mills, Kathleen O'Donnell, L. J. Schwartz, V. T. Smith, G. E. Wadsworth (Anatomy).

F. L. Whincup. † Distinction in physiology.

THIRD M.B., CH.B.—(General Pathology and Morbid Anatomy) G. E. Archer, Mercy D. Barber, W. F. G. Boul, Hilda E. Brade, Frances G. Bullock, C. P. J. Carruthers, Kathleen L. Cass, Ruth E. Conway, W. C. C. Easton, J. Holley, N. Klete, E. N. P. Marland, J. A. M. Panton, B. S. Paterson, Elizabeth C. Powell, J. Schlosberg, D. M. Sutherland H. Taylor. (Pharmacology and Therapeutics) Mercy D. Barber, J. Charnley, J. C. T.

FINAL M.B., CH.B.—H. W. Bennett, W. J. Halliwell, J. D. Kenyon, J. F. C. O'Mera, C. G. Todd, L. Walton.

Obstetrics and Surgery: R. Chevasant, Obstetrics and Medicine: G. Labrecq, Forensic Medicine and Toxicology: H. Chadwick, J. B. Leigh.

UNIVERSITY OF EDINBURGH.
Graduation Ceremonial.

THE number of degrees conferred at the graduation ceremonial of December 17th was smaller than usual, owing to the fact that a special graduation ceremony was held last October. There were eight graduates for the M.D., and nineteen for the M.B., Ch.B.

The Vice-Chancellor, Sir William Turner, K.C.B., who conferred the degrees, said in his address that the past year had been one of anxiety, and had witnessed a great fall in the number of students. The university had sought to show to the country and to the whole world that it was alive to its responsibilities. It had furnished a great accession to the army and to the navy, not only in connection with its great specialty—education in medicine—but also in the other faculties, more especially in those of law, science, and arts. The degrees granted that day were mainly in medicine, and between December, 1914, and December, 1915, the university had conferred degrees of M.B., B.Ch. on 194 candidates; had promoted 24 graduates of previous years to the M.D.; and two medical graduates to the degree of B.Sc. in public health. The number of medical students in the present winter was 676, as compared with 1,111 at the corresponding period in 1913. The diminution in the number of students of medicine in the first year, 147 as compared with 188 in 1913, was not so great as might have been anticipated, but it must be remembered that the students in medicine, and, indeed, in the other faculties, entering for their first year, were becoming students under conditions much more serious than any students in the past had experienced, because the needs of the nation would undoubtedly call on some of them to do their duty as young men competent to share in the responsibilities of the nation, and to help to fight for the country through this formidable and long-enduring war.

The following is a list of those with whom degrees were conferred:

M.D.—E. C. Girdling, G. D. Logan, S. S. MacNaughtan, Adelaide A. Renshaw, W. Russell, C. P. Stewart, Vatsirampalli Sankara Vallathan, G. J. Williams.

M.B., Ch.B.—W. Brownie, T. F. Corhill, H. F. Ferguson, G. W. M. Findlay, Padal Kumar Ghosh, E. L. Innes, H. W. Kirk, A. J. M'Ilroy, Fremral Frambrakrai Majumdar, Kunad Sankar Ray, A. D. Rowan, C. I. Stockley, G. M. Torrance, B. A. Warters, J. A. C. Williams, W. Williams, Tin Po Woo, Margaret Kirk Jolly Wright, P. H. Young.

B.Sc. (Public Health)—J. A. Henderson.

* Highly commended for thesis. † Commended for thesis.
‡ Passed with first-class honours.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

At a meeting of the College on December 15th the following gentlemen, having passed the requisite examinations between October 4th and 6th, were admitted Fellows:

James Buchanan, M.B., Ch.B. Univ. Glasg., Shettleston, Glasgow; Shyama Pado Chattopadhyay, L.R.C.S.E., etc., Halliabar, Bengal; Jacobus Stephanus du Toit, M.D. Univ. Edin., Royal Westminster Ophthalmic Hospital, London, W.C.; Arthur Owen Evans, M.B., Ch.B. Univ. New Zeal., Belmont, Surrey, England; James Norman Jackson Hartley, M.B., Ch.B. Univ. Edin., Edinburgh; Alfred William Macbeth, M.D., C.M. Queen's Univ., Kingston, Ontario, Canada, L.C.P. and S. Saskatchewan, Edinburgh.

Obituary.

GEORGE ALLAN HERON, M.D., F.R.C.P.,

CONSULTING PHYSICIAN, CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST.

DR. GEORGE ALLAN HERON, whose death in London on December 10th was briefly announced in our last issue, was born in Glasgow in 1845. He received his early education in Ottawa and in Glasgow. He studied medicine in the University of Glasgow and at University College, London, and graduated M.B. and C.M. Glasg. in 1867 and M.D. in 1869. He took the diploma of D.P.H. in 1877 and that of M.R.C.P. Lond. in 1880. He was elected F.R.C.P. in 1887. As a young man he studied also in Berlin and Paris, but he always insisted that though he learnt much in foreign schools his real teacher in the true principles of the science and art of medicine was Sir William Gairdner of Glasgow, where, at the Royal Infirmary, Heron held resident appointments. After holding the appointment of assistant medical officer for the Glamorgan County Asylum, Dr. Heron practised in the south of England for a few years, but ultimately settled as a consulting physician in London. He became a member of the staff of the City of London Hospital for Diseases of the Chest, Victoria Park, and henceforth took a great interest in pulmonary phthisis and other forms of tuberculosis. He worked with Professor Koch before the researches of that pathologist became public property, and received Koch as his guest when he visited England.

Heron was one of the first physicians in this country to whom Koch communicated the result of his researches as to cholera and the hopes he entertained as to the first tuberculin treatment. He submitted the treatment to a prolonged and careful test in the Victoria Park Hospital, and in this work, as Dr. Vincent Harris informs us, he was intimately associated with his colleagues, of whom Dr. Harris was one. Notwithstanding many failures some striking results were occasionally observed, and Heron to the last appeared to believe in its efficacy. He was a shrewd and trained observer, but his opinions in this matter may have been biased by his friendship for Koch and admiration for his powers as a leader in experimental medicine. Dr. Heron published a book on the *Evidences of the Communicability of Consumption* in 1890, and contributed much to the dissemination of Koch's views as to tuberculosis both by papers contributed to the transactions of societies and by the speeches with which he frequently intervened in debates. He was a member and for some time president of the Assurance Medical Society, and in 1899 contributed to its *Proceedings* a paper on the extra ratings of healthy lives.

Dr. Heron was for many years a member of the British Medical Association. He served on the council of the Metropolitan Counties Branch for four or five years, and was chairman of its Finance Committee. He became a member of the Central Council in 1903, and took an active part in drafting a scheme of individual medical defence for members of the British Medical Association. This was a subject to which he had long given attention. He was one of the chief founders of the London and Counties Medical Protection Society in 1892 and its treasurer from that time until he was elected president in 1913 on the death of Sir Jonathan Hutchinson. During practically the whole period Dr. Heron acted as chairman of the council of the society, which at its meeting on December 16th adopted a resolution putting on record its deep sense of the great loss sustained by the society by the death of one who devoted so much valuable time and energy during twenty three years to its interests.

Dr. Heron was a man of striking presence, and in his day a good cricketer. He was a Liberal in politics and a member of the Reform Club. He was a widower, but leaves three sons who survive him, one now serving in the army.

THE death is announced of DR. THOMAS RICE, of Burgh by Sands, Cumberland, aged 73 years. He was a native of Cumberland, graduated M.D. Edin. in 1864, and in the same year took the diploma of M.R.C.S. Eng. After two years spent as a ship surgeon, during which he made several voyages to Australia and China, he settled in 1866 at Burgh and remained in practice for 45 years, when failing health compelled him to retire from active work. He had a large country practice, and was held in high esteem by the community in which he worked for so long. He died on December 2nd, and was interred on December 6th in the village churchyard in the presence of a large number of friends from over a wide area.

WE regret to announce the death of Dr. JOHN ALEXANDER RAYNER, which occurred at his residence, Stamford Hill, N. on December 7th. He had been in failing health for several months past, and the end was not unexpected. Dr. Rayner was born on August 9th, 1845, at Queen's Road Dalston, and was the only son of the late Dr. John Rayner one of the most successful of local family practitioners. He was educated at Homer House, Dalston, and King's College. He graduated B.A. Lond. in 1871 and received the diploma of M.R.C.S. in 1868. After several years experience in the Midlands he returned to London and took over the practice of his father, and soon endeared himself to a large circle of patients. In 1898 he was joined in practice by Dr. David Ross and retired in 1908 on account of failing eyesight. Dr. Rayner's whole interest was centred in his work, and by his sterling honesty and integrity he won the confidence and esteem of his patients. In private life he was genial, cultured, and most hospitable and had a wide circle of friends. Dr. Rayner was an unmarried, but had the lifelong devoted companionship of his eldest sister, for whom much sympathy is felt. He was a member of the City Division of the British Medical Association and of the Aesculapian Society.

DR. MARCEL OUI, whose death was recently announced in the *BRITISH MEDICAL JOURNAL*, was born at Saumur in 1868. He studied first at the Medical School of Rochefort, afterwards at Bordeaux. In 1895 he became *agrégé* in obstetrics at Lille. At the end of his term of office he was appointed assistant professor. In 1907 a chair of obstetrics and infantile hygiene was created for him; in 1910 this was transformed into a chair of clinical midwifery. In 1911 OUI was elected a corresponding member of the *Académie de Médecine*, and in 1912 he received the distinction of Chevalier of the Legion of Honour. On the outbreak of the war he offered himself for service with the army. Forced to leave Lille when it was occupied by the Germans, he worked successively as surgeon in several military hospitals; finally he was appointed inspector of the first sector of the eighteenth region. The arduous work of that post, which involved constant travelling, undermined his health, and his life of usefulness was brought to a premature end after an urgency operation. The University of Bordeaux was officially represented at the funeral, and the dean, Professor Sigalas, delivered an appreciative address at the graveside.

DR. JOHN ALLAN died on December 4th at Ardrossan in his 57th year. He studied medicine in the University of Glasgow, and graduated as M.B. and C.M. in 1885, and M.D. in 1891. He practised in Ardrossan with one of his five brothers, all of whom entered the medical profession. He spent a good many years in South Africa, and held a commission during the Boer war as major in a battalion raised for the protection of the mines in the Johannesburg district. On the outbreak of the European war he organized the Ardrossan Red Cross Hospital, of which he was honorary commandant to the time of his death. He leaves a widow and three children, the elder son being at present in France with the Commercial Battalion, I.L.L.

DR. EDWARD LIVINGSTON TRUDEAU, the well-known pioneer of the open-air treatment of tuberculosis in America, died at Saranac Lake, the name of which he had made famous, on November 15th. He was born at New York in 1848, and took his degree at the College of Physicians and Surgeons of that city in 1871. In 1872 he began to practise in New York, but two years later he was pronounced to be dying of consumption, and retired to Saranac to spend what remained to him of life in the pure air of the Adirondack Mountains. His health was so much benefited, however, that he was able to strike out a new path of work in the treatment of tuberculosis. In 1885 he founded the Adirondack Cottage Sanatorium for the treatment of incipient tuberculosis in working men and women. From small beginnings it has grown into an institution with accommodation for more than a hundred patients. It is conducted on a semi-charitable basis, and was managed by Trudeau without salary. Among many distinguished persons who sought health at Saranac was Robert Louis Stevenson, who, always fond of doctors, became a fast friend of Trudeau. In 1894 Trudeau built the Saranac Lake Laboratory for the Study of Tuberculosis; it was the first institution of the kind established in the United States. Much valuable work, largely dealing with the question of immunity, has come from this scientific workshop. Trudeau contributed largely to medical literature on subjects relating to tuberculosis. The honorary degree of M.Sc. was conferred upon him by Columbia University in 1899, that of LL.D. by McGill University, Montreal, in 1904, and the University of Pennsylvania in 1913. He was president of the Eighth Congress of American Physicians and Surgeons held at Washington in 1910. He was a man of great intellectual gifts and of fine character. So fruitful has been Trudeau's work that in the thirty-one years that have elapsed since the Cottage Sanatorium at Saranac Lake was opened, the number of similar institutions has increased till now there are in the United States (according to the *Journal of the American Medical Association*) 575 sanatoriums and dispensaries, and more than 1,000 doctors and over 4,000 nurses who give themselves wholly to the study and treatment of the disease.

DR. ABRAHAM CROSS GODFREY died very suddenly on October 21st at his residence, Broom Hill, Dripsey, co. Cork. He received his professional education at McGill College, Montreal, qualifying as M.D. and C.M. in 1865. In the same year he took the diplomas of L.R.C.P., L.R.C.S. Edin., and wrote an essay on diphtheria. He was for some time physician to the Southampton Dispensary.

DR. WILLIAM OMAND SCLATER, whose death was announced in the *JOURNAL* of November 27th, p. 797, was born in Orkney thirty-one years ago. He commenced practice at Ipoh, Perak, with his friend and contemporary, Dr. W. P. Chrystall, four years ago. After the death of Dr. Chrystall in February Dr. Sclater was continuously overworked, but once a week he never failed to be on parade with the Malay States Volunteers.

FLEET SURGEON JOHN FREDERICK MITCHELL, R.N. (retired), died recently in London, aged 84. He took the diploma of M.R.C.S. in 1856, joined the navy in the same year, became staff surgeon in 1875, and fleet surgeon in 1876.

A RELATIVE of the late Deputy Surgeon-General WILLIAM FARQUHAR, Madras Medical Service (retired), who died in London on October 15th, and an obituary notice of whom was published in the *BRITISH MEDICAL JOURNAL* of November 15th, has sent us some further interesting particulars of his early life before he entered the Indian Medical Service. While a medical student, in 1852, he made a voyage to the Arctic regions in medical charge of the whaler *Spitbergen*, of Peterhead, on her maiden voyage. After a very successful season the ship was caught in the ice, and by a fortnight's alternate crushing and release became a total loss. The crew were fortunately saved by another ship. After qualifying, in 1853, he sailed from London to New Zealand as medical officer of the *Northfleet*, a passenger ship, which after landing her passengers at Auckland went on to Hong Kong. There he joined the P. and O. service, in which he served in eight different vessels between Suez and Shanghai, incidentally seeing a good deal of the Taiping rebellion while serving on the China coast. He returned home in 1856, and entered the Indian Medical Service on May 28th, 1858, passing third on the list. While in the service, in addition to the posts previously mentioned, he held the Sanitary Commissionership of Madras for some time in 1886, and in 1890, before his retirement, acted for a brief period as surgeon-general with the Government of Madras.

THE HON. JAMES EDWIN ROBERTSON, M.D., died at Montague, Prince Edward Island, on October 19th, aged 76. He was born at Peith, P.E.I., in 1840, was educated at the Charlottetown Academy, and took the degree of M.D. from McGill University in 1865. He was a member of the provincial parliament from 1870 to 1882, when he became a member of the Canadian House of Commons. In 1902 he was made Liberal Senator.

Medical News.

CORNELL UNIVERSITY has received a bequest of £10,000 from Mrs. Sarah Manning Sage to be applied to the promotion of medical science by research.

THE Government of Saskatchewan will in future pay 25 dollars to a mother on the birth of a child, and 15 dollars to the doctor who attends her.

ON December 20th the Queen visited Upper Lodge, Bushey Park, which has been lent by the King to the Canadian Red Cross Society for a convalescent hospital for the Canadian contingents. Her Majesty was received by Surgeon-General G. Carlton Jones, Director of Canadian Medical Services, and Colonel C. A. Hodgetts, Canadian Red Cross Society.

UNDER the auspices of the American Red Cross, an organization has been formed to raise funds for the establishment of a hospital in Paris for the treatment of wounds of the face. The new hospital will be devoted to skin grafting and plastic surgery for the treatment of disfigurements.

THE first number of a new medical periodical, entitled, *The Journal of Laboratory and Clinical Medicine*, appeared at St. Louis in October. The editor is Professor Victor G. Vaughan. It is intended "to bring discovery and its application closer together, to supply the research man with

a strictly scientific organ through which he can report the results of his labours, and to suggest to the practitioner how he may use the latest discoveries." The publishers are the C. V. Mosby Company, St. Louis.

The Ligue Française de l'Enseignement has presented its large medal of honour to Dr. Langlet, the Mayor of Rheims. M. Poincaré, President of the Republic, M. Painlevé, Minister of Public Instruction, and M. Léon Bourgeois, Minister of State, who were present at the ceremony, each delivered a short speech expressing their warm appreciation of the services rendered by Dr. Langlet to Rheims and to the cause of education.

The proposal for the creation of a new cabinet office in the United States Government to be known as the Department of Health is to be revived in the next Congress. It has the support of medical societies and of the political parties which recognize the movement a step towards the better safeguarding of the public health. The only opposition, it is said, comes from Christian Scientists and osteopaths, who declare that the proposal is made in the interests of the "medical trust."

Asclepius is the title of a new monthly medical review published at Havana under the direction of Drs. Otto Bluhme and Solano Ramos. The October number contains a very interesting account, with an excellent portrait, of the late Dr. Carlos Finlay. Our new contemporary makes a feature of illustrations, most of which are well produced. Among these are portraits of leading Cuban doctors whose professional achievements and personal characteristics are displayed with a touch of not unkindly caricature. The scientific contents are of the usual kind. *Asclepius* is a "live" journal, and we wish it success.

We have received a packet of booklets from that energetic body, the Women's Co-operative Guild, which did so much to help on the passing of the Notification of Births (Extension) Act. The booklets deal with: (1) *The Work of Maternity Committees of Public Health Authorities*, the work being the securing of a full service of health visitors, the setting up of maternity centres, the arrangement for the confinement of necessitous women, and hospital treatment for abnormal cases; (2) *Home Helps* (during the lying-in time); (3) *A Municipal Maternity Centre* (its establishment, cost, etc.), and (4) *What Health Authorities Can Do, and What We Can Do*.

MEETINGS of the Central Midwives Board were held on December 16th and 17th for hearing penal charges; Sir Francis Champneys presided. The reports on three adjourned cases were all satisfactory. Fifteen fresh cases were heard, and in eight instances the women were struck off. Judgement was postponed in six others, and in one no action was taken. In addition to the usual faults of want of cleanliness and ignorance as to the taking of pulse and temperature, there were several cases in which either puerperal fever had occurred, or ophthalmia a comoritant had been neglected. At the monthly meeting on December 16th the Standing Committee reported letters from two districts asking the opinion of the Board on the signing of maternity benefit forms by registered medical practitioners where the patient has been delivered by an uncertified woman. The Board's reply was to the effect that the matter should be brought to the notice of the General Medical Council. In reply to another letter, a resolution was passed asking the London County Council not to delegate its powers and duties to various borough councils under the Registration of Lying-in Homes Act, 1915.

AMONG the cards of a desk calendar issued by the company is one giving a very modest account of the fifty years' doings of the Booth Line. The various types of boats are shown in coloured sketches; the earliest boat was "a kind of a glidy boat on frodite"—steamer and sailer too. The owners of a boat of that day would announce that she "carried a surgeon and a cow;" the advertisement, though it gave offence to some, was really an appeal to the anxious mother. To-day the last new boat of the Booth Line "carries (normally) doctor, doctor's orderly (ex-R.A.M.C.), nurse," and so on. We are glad to note this utilization of a very deserving class of men who often have rather a poor time after leaving the corps where they learn, or can learn, a great deal about handling and carrying a hurt man, and tending the sick, and may become very useful surgery attendants. The Booth Line is best known to the medical profession for its cruises to Portugal and Madeira, very beneficial to overworked or convalescent patients, but its chief trade is to South America, and it can boast that a mosquito-proof ship belonging to it made voyages up the Madeira river, a tributary of the Amazon, without sickness of any kind, whereas unprotected steamers only made the voyage with a terrible total of death and sickness amongst the crew.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL, are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Strand, W.C.* (Telephone, 2541, Gerrard). (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 7659, Gerrard. (3) MEDICAL SECRETARY, *Meiseers, Westrand, London*; telephone, 463, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

QUESTIONS, answers, and communications relating to subjects in which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

S. would be glad to hear of a remedy to prevent loud snoring in the case of a fat man aged 45. Uvula and soft palate normal; no organic disease apparent anywhere.

N. S. C. asks for particulars of experience of the use of subcutaneous injections of adrenalin in asthma. He is treating a woman, aged 46, who has had asthma ever since her first child was born, eleven years ago. She has tried most of the usual drugs given for this complaint, but the attacks get more numerous and severe.

DR. DE REZENDE (Guratingeta, S. Paulo, Brazil) asks for advice in the treatment of an obstinate case of aphthous stomatitis in a woman aged 26. He has painted the ulcerated surfaces with 5 per cent. solution of silver nitrate and with tincture of iodine. Arsenic and iron have been given internally, and mouth-washes of camphor, carbolic acid, and salicylic acid in glycerine and hydrogen peroxide have been prescribed. The patient also suffers from anaemia and hypertrophy of the tonsils with hyperplastic rhinitis. The teeth are in good condition.

A CORRESPONDENT asks advice about an infant 18 months old. Three days after birth, right flat-foot was detected, and was cured by massage, etc. The child now throws its whole weight on the right foot and brings down the heel only of the left foot when walking. The left tibia is slightly bowed forwards. Our correspondent asks if a piece of steel, vertical to the leg, with a horizontal heel piece so as to keep the heel high, would be productive of good.

LETTERS, NOTES, ETC.

"GERMAN MEASLES."

DR. CLEMENT DICKS (Consulting Physician to Rugby School) writes: For more than ten years I care to think I have not got rid of the above obnoxious name for a very common disease. Has not the time now arrived to bury this name in oblivion, and substitute the more suitable title of epidemic roseola or rose-rash?

THE TONSILS.

DR. ARTHUR MECHAN (Downhull, Glasgow) writes: I have not yet read Dr. Henry A. Barnes's monograph on the tonsils, but judging from a recent review of it in the BRITISH MEDICAL JOURNAL of October 16th (p. 569) it should be worthy of perusal and study. I quite agree with Dr. Barnes regarding his views of tonsillectomy and tonsillotomy. I would even go further, and eliminate the so-called operation of tonsillotomy altogether. In my opinion it is never a radical operation, and does not fulfil the object for which the removal of tonsils is carried out. The late Professor George Buchanan of Glasgow strongly advocated and practised tonsillectomy over thirty years ago, and I frequently assisted him at the operation. He would have none of Morell Mackenzie's guillotine, and expressed his opinion of it and other instruments in his usual characteristic brusque and pithy manner. A pair of dressing forceps, a Syme's or a right forefinger nail were his armaments. Later, at the old Golden Square Throat Hospital, where Morell Mackenzie's instrument was daily manipulated (he being one of the surgeons at the time), I was conversant with its alleged utility. I still adhere to the teaching of my old chief, and a quarter of a century's experience only strengthens my belief in it.

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NOTE.—It is against the rules of the Post Office to receive *post restante* letters addressed either in initials or numbers.

THE
British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

SUPPLEMENT

CONTAINING

PROCEEDINGS OF COUNCIL

REPORTS OF STANDING COMMITTEES

MEETINGS OF BRANCHES AND DIVISIONS

PROGRAMME OF ANNUAL MEETING

MEDICAL BILLS IN PARLIAMENT

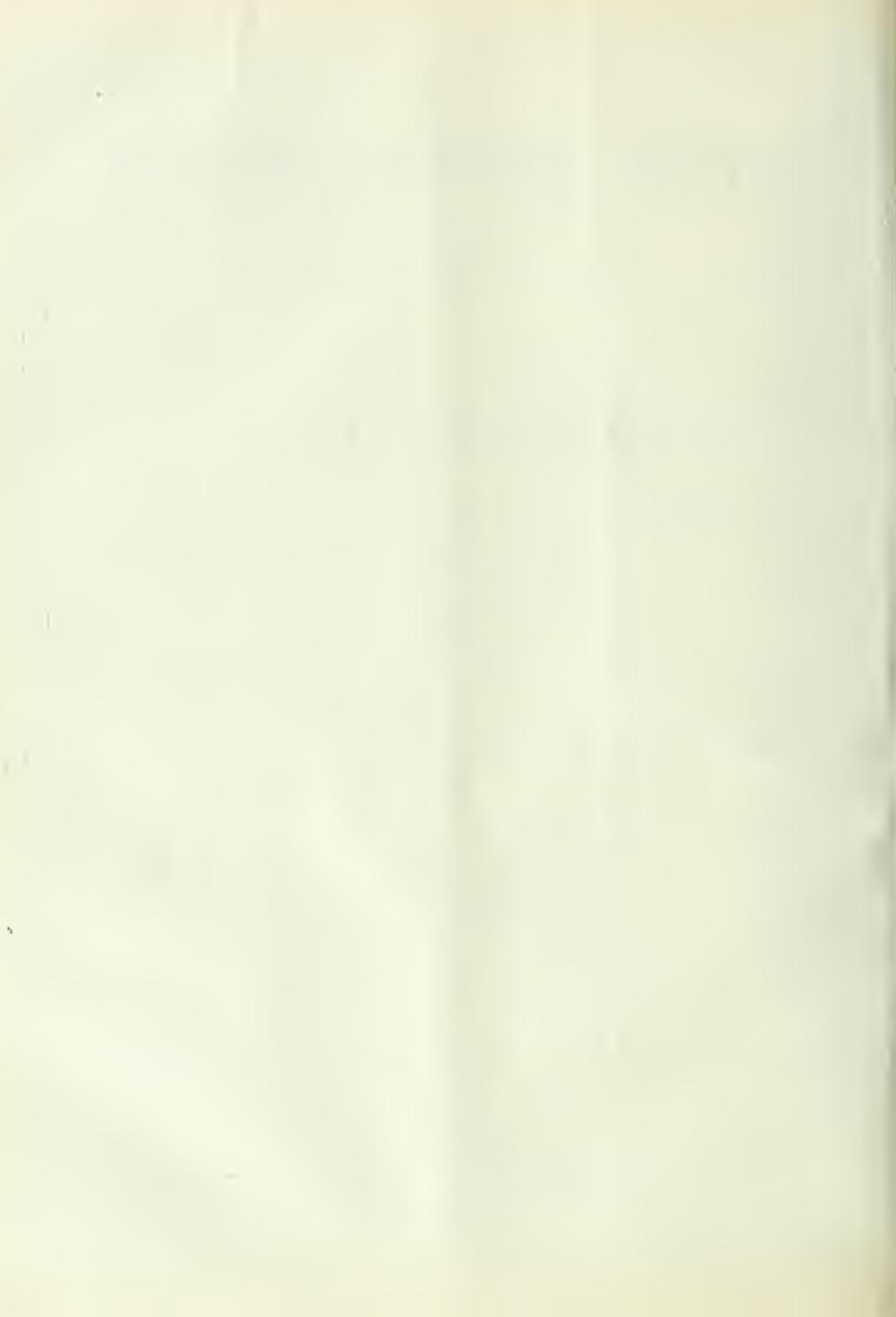
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Etc.

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SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JULY 3RD, 1915.

MATTERS REFERRED TO DIVISIONS.

SUPPLEMENTARY REPORT OF COUNCIL, 1914-15.

The Sections numbered (A), (B), etc., of the Supplementary Report of Council are the continuations, respectively, of the similarly lettered sections of the Annual Report, published in the Supplement of May 8th, 1915. The paragraphs of the Supplementary Report are numbered consecutively to those of the Annual Report.

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(A) Preliminary.

187. The Council appends (*see* Appendix XVIII. p. 7) a list of the matters referred to the Council by the A.R.M., 1914.

**PRESENTATION OF GOLD MEDAL OF ASSOCIATION TO CAPT.
ARTHUR MARTIN-LEAKE, V.C., R.A.M.C.**

188. The Council has resolved to present the Gold Medal of the Association to Captain Arthur Martin-Leake, V.C., F.R.C.S., R.A.M.C., for his most conspicuous bravery and devotion to duty throughout the war, especially during the period October 29th to November 8th, 1914, near Zonnebeke, in re-seeing, whilst exposed to constant fire, a large number of wounded who were lying close to the enemy's trenches. For this gallant conduct Captain Martin-Leake was given the distinction, unique so far as the medical profession is concerned, of a bar added to the Victoria Cross which he had already won in South Africa. The Council has informed Captain Martin-Leake of its intention to offer him the highest honour at its disposal and will await a suitable opportunity for presenting the medal publicly.

(B) Finance.**SALARIES OF CLERICAL STAFF.**

189. At Aberdeen the Representative Body passed the following Resolution:—

Minute 40.—That the question of the Salaries of the Clerical Staff be referred to the Council for favourable consideration.

In accordance with the foregoing instruction the Council has carefully considered the whole question of the salaries of the Clerical Staff, and has put into operation a scheme of classification with definite prospects of advancement. It is hoped that this will make for better conditions of service and thus secure for the Association greater efficiency.

(C) The Association and the War.

190. Through the Special Committee consisting of the Chairmen of the Standing Committees of the Association, referred to in para. 29 of its Annual Report, the Council has continued to assist the Military Authorities in every way within its power to make adequate provision for the medical care of the Forces, while at the same time safeguarding the efficiency of the medical service of the civil population. In this important work, the Council is glad to report, it has had the cordial help of the profession generally, and the Council has specially to acknowledge the assistance rendered by the Honorary Secretaries of Branches and Divisions, the Scottish Medical Service Emergency Committee and the War Emergency Committee of the Metropolitan Counties Branch.

THE MEDICAL CARE OF THE FORCES.**(a) Question of Whole-time Military Service.**

191. In connection with the question of securing adequate provision for the medical requirements of the Forces, the Council has had to consider, as vitally affecting the recruiting of medical men for work with the Army, certain grievances of medical practitioners already serving with the Army, and certain other difficulties which have to a greater or less extent operated to prevent medical practitioners from accepting commissions. These matters were summarised in a letter which the Special Committee addressed on May 26th, 1915, to the Government through the Director-General of the Army Medical Service (*see* Appendix XIX, page 7). No detailed reply to that letter has yet been received, delay having occurred owing to the changes in the Government, but the Association has been informed that the subject has been under the consideration of the Army Council and that an early decision may be expected.

(b) Question of Recognition of Practitioners performing Part-time Military Service.

192. The Council has had many representations in favour of some visible form of recognition being given to those practitioners who are engaged in part-time military work, and has informed the Director-General of the Army Medical Service that in its opinion some such recognition should be given.

(c) Analysis of Medical Profession as regards War Work.

193. Having been applied to by the War Emergency Committee of the Metropolitan Counties Branch, which is engaged in the work of classifying the practitioners in its area to show

the War work which they are doing or are prepared to undertake, the Council placed at the disposal of that Committee information as to the names and addresses of practitioners whose addresses are in the Metropolitan area and who have qualified during the last five years, obtained through the Card Register of the Association.

Subsequently the Council was informed on behalf of the Metropolitan Counties Branch Committee that both the Director-General and the Assistant Director-General of the Army Medical Service had shown great interest in the interim report on the information collected by the Committee, had stated that such information was not available from any other source, and had enquired whether a similar analysis could not be made as regards the whole of Great Britain and Ireland. The Council has therefore decided itself to tabulate, as regards the practitioners in each Division area, information as to the War Service they are doing or are prepared to undertake, and to this end has addressed a communication to the Honorary Secretaries of Divisions in England (except the Metropolitan Counties Branch), Scotland, Ireland and Wales, asking them to supply as regards each practitioner in their area information already in their hands, under the desired heads. After eliminating those areas as to which complete information can be furnished by the Secretaries, a direct application will be addressed by the Council to the practitioners in all remaining areas.

It is hoped that within a few weeks the Association will thus have in its possession a complete War register of the medical profession, showing (a) those who are in whole-time naval or military service, (b) those who are doing part-time service, (c) those who are prepared to offer themselves if necessary for (i.) whole-time, (ii.) part-time service, and what kind of part-time service, (d) the ages of all medical men not in whole-time military service, and whether they are married or unmarried, and (e) what kind of practice every member of the profession was engaged in at the time War broke out. The Council confidently appeals to the Honorary local Officers of the Association and to members generally to help it in making this register as complete and as correct as possible, as it is anticipated that it will prove to be of great service in organising the medical profession of the country to meet any calls the nation may have to make on it.

(D) Organisation.**REPRESENTATION OF HOME DIVISIONS IN REPRESENTATIVE BODY, 1915-16.**

(Continuation of para. 40 of Annual Report, p. 180).

194. Pursuant to the instruction of the Representative Body the Council has settled and submits (*see* Appendix XX., p. 9) the list of Constituencies in the United Kingdom for representation in the Representative Body, 1915-16. The only case in which the Council has deviated from the provisional list has been that of the North Carnarvon and Anglesea and South Carnarvon and Merioneth Divisions, each of which has been made independent for 1915-16, as for 1914-15.

GROUPING OF HOME CONSTITUENCIES FOR ELECTION OF 12 MEMBERS OF COUNCIL, 1915-16.

195. The A.R.M., 1914, left it to the Council to settle the grouping of the Constituencies in the United Kingdom for election of 12 members of Council, 1915-16, the 1914-15 scheme of grouping to be adhered to in the absence of any changes of Divisions or Constituencies such as would make modification necessary or desirable. The Council accordingly considered the matter in the light of the 1915 Annual List figures, and has continued the grouping of last year, with the exception that the Constituency formed by the Divisions of the new Wiltshire Branch has been placed in the South-Western group of Branches (Supplement, May 8th, 1915, p. 201).

GROUPING OF HOME CONSTITUENCIES FOR ELECTION OF 12 MEMBERS OF COUNCIL, 1916-17: GENERAL QUESTION OF GROUPING OF HOME CONSTITUENCIES AND BRANCHES FOR ELECTION OF COUNCIL.

196. In connection with the question of the grouping of Home Constituencies for election of 12 members of Council, 1916-17, the Council considers it to be its duty to draw attention to the great disparity that exists in the number of members of the Association that different members of Council represent.

In the case of the 12-grouping (By-law 46 (c)) the average number of members per member of Council is on present figures:—

England and Wales	...	...	1,540
Scotland	...	...	895
Ireland	...	...	310,

while in the 24-grouping (By-law 46 (a)) the groups of voters in these respective areas returning a member of Council average as follows:—

England and Wales	770
Scotland	447
Ireland	155

The 230 Irish members are represented on the Council by 6 members.

The Council is aware that it was deliberately decided by the Representative Body, at the time when the present system of election of members of Council was adopted, to give over-representation to Scotland, and more especially to Ireland, as compared with England and Wales, because of the difficulty which members of Council from Scotland and Ireland experience in attending meetings, owing to the great distance from London. It appears to the Council however, in the light of the above figures, that the time has come for re-consideration of the whole question of the grouping of the Home members for representation on the Council. The Council has accordingly instructed the Organisation Committee to report to the Council early next session on the question, with a view to a report of the Council on the subject to the Divisions and Representative Body.

The Council recommends:

Recommendation I.—That the grouping of Constituencies for election of 12 members of Council, 1916-17, be left to the Council.

REPORTS OF DIVISIONS AND BRANCHES FOR 1914.

(Continuation of paras. 43-6 of Annual Report, p. 181.)

197. The reports of Divisions were due in January, and of Branches by at latest March 15th. The Council is glad to report that, notwithstanding the unfavourable conditions due to the war the large majority of these bodies have now reported.

(a) *Reports of Home Divisions.*

(Continuation of para. 44 of Annual Report, p. 181.)

198. In addition to 21 unorganised Divisions, which are being otherwise dealt with by the Council, the following 39 Divisions have still failed to report:—

Argyllshire, Ballymoney, Banff, Elgin and Nairn, Barnsley, Birkenhead, Blyth, Bradford, Crewe, Croydon, Dartford, Denbigh and Flint, Derry, Dover, Dublin, Dudley, Durham, East Herts, Fimbley and Hendon, Folkestone, Hampstead, Hastings, Hexham, Kilkenny, Luton, Maidstone, Monaghan and Cavan, North Northumberland, North-West Essex, Orkney, Rotherham, South Connaught, South Shields, South-West Essex, Torquay, Tower Hamlets, Waterford, Westminster, Wigan, York.

(b) *Reports of Home Branches.*

(Continuation of para. 45 of Annual Report, p. 181.)

199. Reports for 1914 have been received from all of these, except Connaught and Leitner.

(c) *Reports of Oversea Divisions and Branches.*

(Continuation of para. 46 of Annual Report, p. 181.)

200. Reports for 1914 have been received from 6 of the 16 Oversea Divisions—not themselves Branches, and from 17 of the 42 Oversea Branches.

QUESTION OF SAVING OF CENTRAL FUNDS EFFECTED BY PRESENT SYSTEM OF VARIABLE GRANTS TO BRANCHES AS COMPARED WITH THAT OF A FIXED GRANT OF 4s. PER HEAD.

201. The question having at various times been raised as to whether any material saving of the central funds of the Association is effected by employing a system of variable grants to Branches, as compared with the method of giving a fixed grant of 4s. per member, the Council has had prepared a statement of the sums actually paid or awarded by way of variable grants to the Home Branches since the year 1912 inclusive, and of the amounts which would have been paid by the Association to these Branches under a system of fixed 4s. grant per head. The Council finds that the saving to the central funds effected for these years by the present system has been as follows:—

1912	£924 10 0
1913	359 9 0
1914	355 1 0
1915 (Jan. to June)	1,428 7 0

Total saving, 1912-15 **£3,067 7 0**

The Council, however, does not consider that the chief gain has been in mere financial saving. The prevention of the accumulation of reserve funds in the hands of Divisions and Branches has given rise to much better financial control, and, through that, to great improvements in Division and Branch organization.

For practical purposes the question of the Oversea Branches does not arise, as it has been the invariable practice to make grants to these Branches at the rate of 4s. for each member's subscription paid.

It must be remembered that this saving to the central funds of the Association has been effected without any disadvantages to the Branches receiving the grants, as grants within the limit of 4s. per member per annum are always made on receipt of a satisfactory report showing the amount which is necessary for the work the Branch is doing.

QUESTION RAISED BY THE NEW ZEALAND BRANCH, OF AMENDMENT OF BY-LAW 11, AS TO AMOUNT OF SUBSCRIPTIONS.

202. The Council has considered a motion placed by the New Zealand Branch on the Agenda of the A.R.M., 1915, proposing that steps be taken for amendment of By-law 11, so as to make it more clear that members of the Association resident outside the United Kingdom may be called upon to pay, in addition to the 25s. subscription payable by them to the Association under that By-law, a special subscription to their Branch under By-law 15. While of opinion that the present By-laws as to subscriptions are quite correct, the Council is of opinion that By-law 11 might perhaps be rendered clearer if for the words "except as hereinafter provided," in the second line, there were substituted the words "except as otherwise provided in these By-laws," and has asked the Branch if such an emendation would meet its views.

DIVISION AND BRANCH AREAS.

(Continuation of para. 51 of Annual Report, p. 181.)

203. Essex, Norfolk and Suffolk Branches were formed by the Council in December, 1914, to take the place of the East Anglian Branch, but it having been found that owing to various circumstances in connection with the War the organisation of the area would be best provided for meantime by the continuance of the East Anglian Branch, the latter has been temporarily re-established. Other less important changes have also been effected, in response to local wishes.

MEMBERSHIP.

204. The Council has received a report as to the membership of the Association in the period March to May, 1915. During that period 139 new members joined, and the Association lost by death, resignation and expulsion, 92, a net increase of 47 members, as compared with a net increase of 111 members in the same period in 1914. On May 31st, 1915, the total membership of the Association was 21,654, as compared with 23,049 on the same date last year.

ABANDONMENT OF CONFERENCE OF SECRETARIES, 1915.

(Continuation of para. 53 of Annual Report, p. 181.)

205. In view of the exceptional circumstances resulting from the War, referred to in paragraph 53 of the Annual Report, the Council has decided not to hold a Conference of Secretaries this year.

(F) Science.

MIDDLEMORE PRIZE.

(Continuation of para. 70 of Annual Report, p. 183.)

206. The Middlemore Prize for 1915 has been awarded to R. Foster Moore, M.A., B.C., F.R.C.S., for his essay on "The Pathology of the Affections of the Retina met with in connection with Diseases of the Kidneys."

The adjudicators in their report on the essay make the following statement:—

It is of the greatest help in elucidating many obscure points in connection with affections of the retina depending on kidney disease. It is particularly valuable, in that its author has been able to determine by the test of pathological examination the interpretation of ophthalmoscopic appearances observed by himself during life.

The ophthalmoscopic changes associated with kidney disease have been long known; the present essay is a distinct advance in more clearly establishing the histological basis on which they depend.

To reach the object in view not only has the author conducted a large amount of very careful research of a pathological nature, but the prolonged and careful pathological observations which were also made have thrown much light on the development and progress of the retinal appearances as they present themselves to the clinician.

(G) Medical Ethics.

PROFESSIONAL SECRECY.

(Continuation of para. 80 of Annual Report, p. 184).

207. Pursuant to paragraph 80 of its Annual Report the Council appointed the Chairman of Representative Meetings, the Chairman of Council, the Treasurer, and the Chairman and Deputy-Chairman of the Central Ethical Committee as a Deputation to confer with the Lord Chief Justice on the subject of Professional Secrecy.

The Council reports that the Lord Chief Justice together with the Attorney-General, the Public Prosecutor, and other legal authorities received the deputation on May 3rd, 1915. The Lord Chief Justice stated at the outset of the Conference that no observation made by him during the discussion should be treated as a judicial pronouncement of the law. As a result of this Conference the Council has ascertained:—

(a) That it is desired by the Authorities that information should be given to them by medical men in attendance upon a woman suffering from the effects of abortion brought about by artificial intervention.

(b) That the circumstances under which it was desired that this communication should be made were the subject of the following three limitations:—

(1) That the medical man was of opinion either from his examination of the patient and/or from some communication that she may have made to him that abortion had been attempted or had been procured by artificial intervention.

(2) That he was of opinion either from his observations of and/or from a communication made to him by his patient that such artificial intervention had been attempted by some third party other than the patient herself, and

(3) That the medical man was of opinion that his patient, due to such artificial intervention, was likely to die and that there was no hope of her ultimate recovery.

(These limitations are stated in the records approved by the Lord Chief Justice.)

The Council understands that whereas Solicitors and Barristers have an absolute privilege of protection in regard to statements made to them in their professional capacity involving matters of criminal import or otherwise, no other class of persons is accorded such legal protection by State authority or Act of Parliament, although in the case of ministers of religion such protection is universally observed and recognised by custom in the Courts.

There is, however, no such universally recognised protection attaching to medical men in respect of statements made to them by a patient; in fact there is a considerable conflict of authority upon the subject.

The Council is advised that no obligation rests upon a medical practitioner to disclose the confidences of his patient without the patient's consent, and suggests that if the State desires to set up such an obligation it should at the very least preface such an endeavour by affording to the practitioner protection from any legal consequences that may result from his action. Without any desire to claim the right to refuse to make such disclosures in obedience to the order of a Court of Justice, the Council, after hearing the report of the Deputation received by the Lord Chief Justice on May 3rd, 1915, has decided to adhere to the following Resolutions which it passed on January 27th, 1915:—

Motion 542.—Resolved: That the Council is of opinion that a medical practitioner should not under any circumstances disclose voluntarily, without the patient's consent, information which he has obtained from that patient in the exercise of his professional duties.

Motion 550.—Resolved: That the Council is advised that the State has no right to claim that an obligation rests upon a medical practitioner to disclose voluntarily information which he has obtained in the exercise of his professional duties.

A communication has been received from the Registrar of the General Medical Council which shows that the subject is under the consideration of that body and the Council has for-

warded to the Royal College of Physicians, London, and the Royal College of Surgeons, England, a statement of what has transpired in this matter and has invited the Colleges to appoint representatives to meet representatives of the Association in conference on the subject.

EXCLUSIONS.

208. The Council regrets to report that since the issue of the Annual Report for 1914-15, it has been necessary to remove from membership of the Association two members who continued to hold appointments as Medical Certifiers under the National Insurance Act, in Ireland, contrary to the expressed wish of the Branch to which they belonged.

(H) Medico-Political.

ALLOCATION OF VARIOUS DUTIES BETWEEN SCHOOL MEDICAL STAFF, TEACHERS, AND NURSES.

(Continuation of para. 107 of Annual Report, p. 187).

209. The Council submits a Memorandum (see Appendix XXI, p. 11), on the allocation of various duties in connection with the medical inspection and treatment of school children between School Medical Officers, Teachers and Nurses. It is the outcome of conferences between representatives of the Association and of the National Union of Teachers, held at the instance of the latter body, and it is the opinion of all those concerned in the preparation of the Memorandum that it will prove to be useful as a pronouncement jointly made by bodies representing teachers and the medical profession on a subject which is capable of giving rise to differences of opinion on the part of the officers referred to. It is intended to circulate copies of the Memorandum to School Medical Officers, and to any member of the Association making application for advice on any of the points mentioned, with an intimation that the Memorandum is the considered opinion of the Association and the National Union of Teachers.

The Council recommends:

Recommendation P.—That the Representative Body approve the Memorandum (see Appendix XXI, p. 11) on the allocation of various duties between the School Medical Staff, Teachers and Nurses respectively, in connection with medical inspection and treatment of school children.

PUBLICATION OF NOTICES IN LOCAL PRESS AS REGARDS APPOINTMENTS.

210. The Council has had its attention called by the South Wales and Monmouthshire Branch to the question of the publication in the local press of notices asking practitioners before applying for certain appointments to make enquiries from the Association. The cost of such notices has in the past been defrayed partly out of Division or Branch funds, and partly out of special funds raised locally, and a considerable sum of money has been so spent in South Wales. The practice has proved of considerable value and the Council is of opinion that it should be continued and financed, partly at any rate, from central funds, subject to the provision of some central control. The Council has therefore decided that on the application of a Branch or Division in suitable cases, where Notices of a similar kind are appearing in the JOURNAL, part of the cost of local Notices may be defrayed from central funds. The publication will be subject to the control of the Central Ethical Committee and the proportion of the cost to be defrayed centrally will be determined by the Medico-Political Committee subject to the approval of the Finance Committee.

FEES FOR MEDICAL EXAMINATIONS FOR LIFE INSURANCE.

(Continuation of para. 99 of Annual Report, p. 185.)

211. Only 18 Divisions have up to the present forwarded to the Council their opinions on the proposals contained in the special report on this subject issued by the Council to the Divisions in the Supplement of March 20th, 1915 (see Appendix XXII, page 12). Of the 15 Divisions, 10 approve, and 7 disapprove, the fees suggested by the Council, while the remaining Division professes to keep an open mind on the subject. Of the 7 Divisions disapproving, 3 are of opinion that there should be no lower fee than 10s. 6d.

Notwithstanding this unsatisfactory response of the Divisions to the Council's request for their opinions on this subject, due obviously to circumstances in connection with the War, the Council recognises that in all probability many more Divisions will have considered the matter and instructed their Representatives thereon between now and the A.R.M., especially as a reminder on the subject has been sent to every Division Secretary. In these circumstances, and as the

question of the fees for medical examinations for life insurance examinations has been under the consideration of the Association more or less continuously since 1904, the Council is of opinion that the A.R.M. should come to a decision on the subject.

The Council recommends:—

Recommendation Q.—That the Representative Body adopt the following fees for medical examinations for life assurance:—

1. 1s. for a formal full report, such as that contained in Sub-Appendix A to the Special Report of Council (p. 13).*
- 10s. 6d. for a formal short report, such as that contained in Sub-Appendix B to the Special Report of Council (p. 14).*
- 5s. for a simple form of certificate, such as that contained in Sub-Appendix C to the Special Report of Council (p. 14).*

ELECTION OF DIRECT REPRESENTATIVES ON GENERAL MEDICAL COUNCIL.

212. There will be in 1916 two elections of direct representatives of the medical profession on the General Medical Council, viz., a by-election in May, 1916, to fill the vacancy consequent upon the termination of the period of office of Dr. J. A. Macdonald, and a general election in November of that year to fill the vacancies created by the termination of the period of office of Drs. Langley Brown, H. A. Lintner, and T. Jenner Vennell. These four representatives were, it will be remembered, nominated by the Association, and they have all intimated their willingness, if invited, to stand again as the candidates of the Association.

In accordance with precedent the Council is consulting the Divisions in order that they may make nominations from which the Representative Meeting will select the candidates to be supported by the Association.

IMMATURE SPIRITS BILL (NOW ACT) OF THE GOVERNMENT.

213. It having been found by the Pharmaceutical Society of Great Britain and the Association, which had jointly under observation the proposals of the Government regarding the sale and taxation of spirits, that the Immature Spirits Bill of the Government, as amended in Committee of the House of Commons in May, would prevent any practising pharmacist or doctor from obtaining rectified spirits for shop or surgery use, while the Bill proposed to give an undue preference to manufacturing pharmacists, remonstrances were, on May 18th, addressed by both bodies to the Chancellor of the Exchequer, it being pointed out that an impossible situation would be created if doctors and chemists requiring rectified spirits for use in connection with prescriptions had to send an order to a manufacturing chemist. As a result, the Council is glad to report, the Chancellor of the Exchequer accepted the following amendment, moved by the Parliamentary Agent of the Pharmaceutical Society, Mr. Glyn Jones, M.P.:—

"(2) Nothing contained in this section shall interfere with the supply of rectified spirits of wine for the purpose of making medicines to registered medical practitioners, to hospitals, and to persons, firms and bodies corporate entitled to carry on the business of a chemist and druggist."

and the new Clause was duly included in the Bill. The Pharmaceutical Society has expressed its appreciation of the help of the Association, in that it enabled Mr. Glyn Jones, to make special mention in Parliament of the fact that the representative organisation of the doctors was in favour of the amendment, and that doctors, at any rate, had no financial interest in the matter. The Council is pleased to report this incident, as, apart from the advantage gained by members of the profession, it is an instructive example of what can be done by two organisations acting in co-operation in matters in which both are interested.

(I) National Insurance

MEDICAL REFEREES UNDER THE INSURANCE ACTS.

214. The Council has had under consideration the following Minute of the A.R.M., 1914:—

Minute 250.—Resolved: That half-a-guinea be the minimum fee for examination and report as referee under

* The Council takes no responsibility for the details of the sample forms submitted, which were taken from the reports of certain Life Insurance Companies for purposes of illustration.

the National Insurance Act, and that mileage be charged extra at the rate of not less than one shilling a mile or part of a mile beyond one mile.

During the year there has been a great deal of correspondence received in connection with this subject from Divisions and from individual members of the Association and it is evident that very considerable difficulty has been experienced in many areas in enforcing the above decision of the Representative Body, while many Divisions have apparently not attempted to enforce it. On the important general question thus raised the Council would refer Divisions and the Representative Body to paragraph 54 of the Annual Report of Council and the Special Report of Council on the question (Appendix VII. to the Annual Report, Supplement of May 8th, 1915, page 207).

The Council is of opinion that the only effective remedy for the present very unsatisfactory state of things is that the Commissioners should proceed with the appointment of official referees. The Council has reason to know that if it had not been for the War these appointments would already have been made, and that the Commissioners are anxious to proceed with them at the earliest possible opportunity; but in view of the present claims by the nation on the services of the profession the Council felt bound to inform the Commissioners of its opinion that at the present time it would be inadvisable to proceed with the appointments.

Opportunities have been taken to interview representatives of the Prudential Approved Societies and certain proposals have been made by them for modification of the present policy of the Association as regards the fees to be paid to part-time referees. Information as to these proposals will be laid before the Representative Body.

The Council recommends:

Recommendation B.—That the Representative Body reconsider the whole subject of fees for examination and report on cases submitted to part-time referees under the National Insurance Act.

CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL AND PANEL COMMITTEES.

(Continuation of paragraph 121 of Annual Report, p. 189.)

215. The Council is pleased to report that a very successful Conference of representatives of Local Medical and Panel Committees was held in London on June 16th. The Local Medical and Panel Committees of each Insurance area were asked jointly to appoint one representative, but in those areas in which the *personnel* of the two Committees differs materially each Committee was allowed to appoint a representative. The members of the Insurance Act Committee, and of its Local Medical and Panel Sub-Committee who are not members of the full Committee, were present for the purpose of joining in the discussion, but with no power to vote except in the case of those who were also appointed representatives. At the invitation of the Insurance Act Committee the Chairman of Council accepted the Chairmanship of the Conference.

There were 119 practitioners present from England, Scotland and Wales (in addition to 15 members of the Committee and its Local Medical and Panel Sub-Committee), representing 122 out of the 199 Insurance areas of Great Britain. In addition a large number of Committees expressed their regret that they could not be represented owing to the difficulty at the present time of securing a representative. Only one representative from Ireland was appointed to attend, and he at the last moment found himself unable to be present owing to military duties.

The Council has not yet had an opportunity of considering in detail the resolutions passed by the Conference, but a full report of the Conference appeared in the Supplement of June 26th, from which it will be seen that the resolutions were referred to the Insurance Act Committee, with a request that it should take suitable action in reference to them, approaching the Commissioners by deputation on such of them as require to be dealt with in that way. The Chairman of the Joint Committee, National Health Insurance Commission, Mr. C. H. Roberts, M.P., has consented to receive a deputation from the Association on July 9th. The Insurance Act Committee will report the result of that deputation and generally on the resolutions of the Conference direct to the Representative Body.

The Council is pleased to report that the efforts of the Association to promote the best interests of Insurance practi-

tioners were appreciated by the Conference, as shown by the passing of the following resolution:—

Minute 79.—Resolved: That this Conference of representatives of Local Medical and Panel Committees cordially welcomes the assistance given to these Committees in their work by the British Medical Association, and urges all Committees to make use of such assistance and to look to the Association to voice the opinion of Local Medical and Panel Committees as a whole in central negotiations.

The Council thus has good reason for believing that the Conference will have served the very useful purpose of convincing Local Medical and Panel Committees and Insurance practitioners generally of the desire and of the ability of the Association to help them in their work, and also of eliciting in a very direct manner the opinions of the Local Medical and Panel Committees on the main subjects of controversy in connection with the working of the National Insurance Acts.

PROPOSED STANDING INSURANCE ACTS COMMITTEE.

(Continuation of paragraph 117 of Annual Report, p. 188.)

216. Opportunity was taken at the Conference of representatives of Local Medical and Panel Committees to secure nomination of the six members to be nominated by these Committees and selected on a territorial basis who are to be appointed on the proposed Standing Insurance Acts Committee of the Association if the constitution of that body is approved by the Representative Meeting.

The representatives present grouped themselves into six areas, and selected Dr. H. B. Brackenbury (Middlesex), Dr. T. Ridley Bailey (Staffordshire), Dr. T. Campbell (Lancashire), Dr. J. R. Drever (Glasgow), Dr. F. V. Fry (West Riding, Yorkshire), and Mr. P. Napier Jones (Berkshire).

NON-PANEL DOCTORS AND NEW CERTIFICATION FORMS.

(Continuation of paragraph 131 of Annual Report, p. 190.)

217. In accordance with the announcement made in paragraph 131 of the Annual Report, the Council after consulting the English Insurance Commission has put on sale, at cost price, a form of certificate for use by non-panel doctors, and by panel doctors who are attending insured persons in a private capacity. The Council believes that these forms will be of great use to the classes of practitioners specified, as they should reduce very materially the difficulties raised by some Approved Societies with those of their members who are not able to produce the official form of certificate in support of their claims for sickness benefit.

EFFECTS OF THE WAR ON THE MEDICAL SIDE OF THE INSURANCE ACTS.

218. The Council has drawn the attention of the Chairman of the Joint Committee, National Health Insurance Commission, to the question of the large reductions recently made in the amounts of the periodical advances made to doctors under agreement with Insurance Committees, and has informed him that while it is realised that the lists, and therefore the remuneration, of panel doctors must be diminished by reason of the removal of the large number of insured persons now serving with the Colours, the Association has reason to believe that the reduction in the work expected from panel doctors is by no means commensurate with the reduction in their incomes.

The Chairman of the Joint Committee was asked if he could see his way to receive a deputation, after the Conference of representatives of Local Medical and Panel Committees, and after the Association had collected some more definite information on the subject. In reply Mr. Montague agreed to receive a deputation and left the suggestion of a suitable time to the Association. The matter is now under consideration and in view of the concessions which have been made to the Approved Societies in respect of the upsetting of their calculations by the large reduction in the number of contributors to their funds, the Council is of opinion that the profession has a strong case for consideration. The fact that large numbers of insured persons, most of them the best lives from a sickness insurance point of view, have been removed from insurance, and that those who return will, many of them, do so in a disabled condition or greatly deteriorated in health, seems to the Council to have entirely upset the actuarial calculations on which the medical benefit of the Insurance Act was based.

DOMICILIARY TREATMENT OF TUBERCULOSIS.

219. The Council submits a Memorandum on this question which it hopes will receive the most careful consideration of the Divisions and Representative Body (see Appendix XXIII., p. 14). There is evidently being prepared a strong campaign in favour of taking the treatment of tuberculosis as much as possible out of the hands of insurance and general practitioners and placing it more and more under the control of specialists, with the corollary that the sixpence per annum at present paid to insurance practitioners for each insured person in respect of domiciliary attendance will be taken no more.

The Council has always held that no method of dealing with the treatment of tuberculosis can possibly be successful which does not enlist the active co-operation of the general practitioner, and these views were stated in a memorandum presented to the Astor Committee which laid down the lines on which sanatorium benefit was to be administered. The Astor Committee very largely endorsed these views, but it seems clear that there are many members of Public Health Authorities and Insurance Committees who fail to grasp the fact that if the early cases of tuberculosis are to be detected at a stage where further treatment is likely to be effective, they must, in the large majority of cases, be detected by the general practitioner or go undetected.

The Council believes that this movement in favour of aggrandising the position of the specialist to the virtual exclusion of the general practitioner is, from a public point of view, a grave error, as the services of both are essential to any effective scheme of treatment.

The Council draws the special attention of the Divisions and Representative Body to the Memorandum mentioned above, and urges that the matter should receive serious consideration at the forthcoming Representative Meeting.

EMPLOYMENT OF NURSES AS SICK VISITORS.

220. The Council has had brought to its attention the tendency on the part of some Approved Societies to employ trained nurses in uniform as sick visitors, and has made representations to the Queen Victoria Jubilee Nursing Association to the effect that in the opinion of the Association such employment of nurses in uniform is detrimental to the best interests of the public and the nursing profession for the following reasons:—

(a) because the system of employing nurses in uniform for such a purpose will tend to cause confusion in the minds of the public; and

(b) because the functions of a nurse and sick visitor are essentially different, the former being actuated only by a desire for the welfare of the patient, while the latter is employed primarily in the interests of the Approved Society.

REDUCTION IN THE AMOUNTS OF QUARTERLY ADVANCES TO PANEL PRACTITIONERS.

221. A great deal of attention has been given to this subject, as owing to the intricacies of the Insurance Act system of accountancy and the inefficient methods of keeping the lists of insured persons, there have been continual complaints that insurance practitioners had no means of ascertaining whether they were or were not obtaining the payments due to them. The opinion of the Solicitor was obtained on the question, was published in the Supplement of May 15th, 1915, and is appended (see Appendix XXIV., p. 15), and the matter was placed before the Conference of representatives of Local Medical and Panel Committees for discussion.

(L) Naval and Military.

REPRESENTATIVE ON COUNCIL OF ROYAL NAVY MEDICAL SERVICE.

222. Sir James Porter, K.C.B., R.N., who was appointed at the last Representative Meeting a member of the Council to represent the Royal Navy Medical Service for the ensuing 3 years, has found it necessary owing to Service duties to resign his appointment. Under By-law 55 (Casual Vacancies) the vacancy so created must be filled by the Representative Body, and the person elected thereto retains office on the Council for

the unexpired portion of his predecessor's term of office, in this case to the end of the A.R.M., 1917.

The Council recommends:

Recommendation.—That Fleet Surgeon Frederick Davidson Lunley, R.N. (ret'd.), be appointed Representative of the Royal Navy Medical Service on the Council in place of Sir James Porter, K.C.B., R.N., retired, to hold office until the termination of the A.R.M., 1917.

(M) Scotland.

THE WAR.

Military Medical Needs of the Nation.

(Continuation of paras. 165-7 of Annual Report, p. 194.)

223. The Scottish Committee conferred on May 15th with the Deputy Director of Medical Services for Scotland, the Presidents of the Edinburgh Colleges of Physicians and Surgeons, and of the Glasgow Faculty of Physicians and Surgeons, the Dean of the Faculty of Medicine, Edinburgh, Dr. Leslie McKenzie of the Local Government Board, Dr. McVail of the Scottish Insurance Commission, and Dr. Norman Walker, Convener of the Scottish Medical Service Emergency Committee, as to the question of the immediate need of the Royal Army Medical Corps for additional medical men. It was decided to endeavour to provide from Scotland, by July 7th, at least 400 additional medical men for the Army, and each Branch and Division Secretary has been informed of the proportion which the Branch and Division is expected to contribute, on the basis of the local medical population. The Branches and Divisions have been urged to look upon the work of providing the additional men required as a national duty of the most important kind.

Position of Government Medical Officers in Relation to the War.

224. The Scottish Committee has expressed the opinion that Tuberculosis Officers, School Medical Officers, Medical Officers of Health, Poor Law Medical Officers, Prison Medical Officers, and all other Government Medical Officers willing to offer their services for the War, should be released during the War from the duties of their appointments, and that their interests in respect of these appointments should be safeguarded.

NATIONAL INSURANCE ACT.

(Continuation of paras. 169-74 of Annual Report, pp. 194-5).

Keeping of Records of Practitioners on Active Service.

225. The Scottish Committee has provisionally decided to urge upon the Treasury the necessity of abandoning the keeping of records of those doctors who have offered their services with the Forces, and whose work is being carried on by neighbouring practitioners.

Certificates in Chronic Cases.

226. The Scottish Committee has represented to the Scottish Commissioners that in the present crisis, in order to enable practitioners to give adequate attention to the medical needs of the army and the public, it is of great importance that they should be relieved from much of the clerical work required under the National Insurance Act, including in particular the writing of weekly sickness certificates in chronic and long-continued cases.

J. A. MACDONALD,

Chairman of Council.

APPENDIX XVIII.

LIST OF MATTERS REFERRED TO THE COUNCIL BY THE ANNUAL REPRESENTATIVE MEETING, ABERDEEN, 1914.

(See para. 187 of Supplementary Report.)

Min. of A.R.M., 1914.	Subject.	Para. of Ann. or Supp. Report.*
40	Salaries of clerical staff	189
68 78	Alterations of Articles, as to eligibility for membership, etc.	35
81	Question of Association becoming also a federation for other medical bodies	37
89	Assistance to non-members in medico-political matters	101
104	Salaries of staff of Association	57
113	Possible libel actions	78
124	State registration of nurses	115A
125	Insufficiently trained nurses	89
134	Practice of dentistry by unqualified persons	90-4
140	Proposed Special Fund	—
210	Form of report on tuberculous cases receiving domiciliary treatment	153
213	Voluntary hospitals to which medical schools are attached and teaching of tuberculosis work	157
216	Proposed federation of Local Medical and Panel Committees	144
63, 223-5	Question of making the Insurance Act Committee a Standing Committee	117
247	Central Insurance Defence Fund	—
248	Medical aid institutions	122
252	Chemists' accounts: prescribing... ..	133-9
253	Certification... ..	123-32
269-70	Proposed nursing service	148
275	Representations to Government as to possible developments of Insurance Acts	143
275-7	Future developments of Insurance Acts	148
289	Treatment of School Children	104-5
310-11	Fees for medical examinations for life insurance	99
312	Payment of ship surgeons for attendance on first and second class passengers	—
320	Medical aid institutions	159-60

APPENDIX XIX.

LETTER ADDRESSED BY THE ASSOCIATION ON MAY 20TH, 1915, TO THE DIRECTOR-GENERAL OF THE ARMY MEDICAL SERVICE IN CONNECTION WITH THE RECRUITING OF MEDICAL OFFICERS FOR THE ARMY.

(See para. 191 of Supplementary Report of Council.)

Offices of the British Medical Association,
Medical Department,
429, Strand, London, W.C.
May 26th, 1915.

Sir,

1. The Association has felt it to be of great pleasure as well as a privilege to be allowed to place its organisation at your disposal for the purpose of recruiting medical officers for the Army, and for helping to provide locally for medical attendance required or likely to be required by the Army, when the commissioned officers have been removed in accordance with the requirements of the Service. During the course of the Association's recruiting campaign certain points have been brought to

* Paragraphs up to 197, inclusive, are in Annual Report of Council, and the others in the Supplementary.

the attention of the Special Committee which has been dealing with the subject, and as these are said to be having a detrimental effect upon the recruiting of medical men, I am instructed to bring some of them to your notice in the hope that something may be done to remove the difficulties indicated.

2. For the sake of convenience the points are divided into (a) grievances of medical men already serving in the Army, and (b) difficulties which are preventing medical practitioners from applying for commissions, but the division is an artificial one, because any grievances which come under the former head are not only felt by the men who are actually serving, but they have a deterrent effect upon men who might otherwise be expected to offer themselves for service.

(a) GRIEVANCES OF MEDICAL MEN ALREADY SERVING IN THE ARMY.

(1) Junior Officers R.A.M.C. (T.F.)

3. There is an undoubted feeling of soreness amongst junior officers in the R.A.M.C. (T.F.) as to the inferiority of their pay as compared with that of Temporary Lieutenants in the R.A.M.C. The former point out that they were patriotic enough to take the trouble to make themselves efficient in times of peace, and that it seems invidious that men who did not join until after the war broke out, most of whom had no military training whatever, should be paid at a much higher rate than they. The reply that is generally given is that Territorial Officers are being paid according to their contract and therefore cannot complain. In the opinion of the Association this is not a correct representation of the position. The contract of the Territorial Medical Officers is to serve at home, but large numbers of them have expressed their willingness to serve abroad, and many of them are already doing so. The dissatisfaction of the R.A.M.C. (T.F.) Officers has been caused by the action of the Government in offering temporary commissions in the Regular R.A.M.C. at superior rates of pay, and the Association would press upon your attention and through you on the Government that in some way the pecuniary position of the junior Officers in the R.A.M.C. (T.F.), at any rate those who have volunteered for service abroad, should be made as good as that of Temporary Lieutenants.

4. The dissatisfaction of the junior R.A.M.C. (T.F.) Officers has been increased by the fact that all Regular R.A.M.C. Lieutenants, whatever their length of service, have been promoted to Captains. The Committee quite understands the military reasons for this, but would submit that this general promotion affords another reason for sympathetic consideration of the position of the junior Medical Officers in the Territorial Force, who are doing much the same work as the regular R.A.M.C. Officers of the same rank, or will shortly be doing it, and who in addition have in many cases the advantage of longer service.

(2) Lieutenants Special Reserve R.A.M.C.

5. The Association would particularly press upon your attention the position of Lieutenants in the Special Reserve R.A.M.C. According to the information at the disposal of the Association the claim of these gentlemen to be dealt with on the same lines as the Lieutenants in the R.A.M.C., namely, to be promoted to Captains, would seem to be a very strong one.

(3) Pay of Majors in the R.A.M.C. (T.F.)

6. The Association has already asked that Majors in the R.A.M.C. (T.F.) should be relieved from the grievance which they feel in regard to the interpretation which is being put upon the term "after three years service as such" appearing in Article 358 of the Royal Warrant for Pay 1914. It may have been due to a misreading of the regulations but it is undoubtedly the case that many Majors were under the impression that "three years service as such" meant three years service as a Major, and the Association would respectfully submit that this is the natural interpretation of Article 358 as it stands. The official interpretation of this phrase namely that it means three years of mobilised service has come as a great disappointment to many officers, and in view of the favourable nature of your reply of February 20th, 1915, in which you intimated that it was hoped to have the present interpretation amended the Association trusts that such action will soon be taken.

(4) Pensions and Compensation.

7. There has apparently been some misunderstanding on this question, on the part of many Medical Officers who have

recently joined the Army, but the letter of Colonel Blenkinsop of May 16th, 1915, makes the exact position quite plain, namely, that Territorial and Temporary Medical Officers are in this respect on exactly the same footing as permanent officers in the R.A.M.C. With regard to the late Major Burnett's case the Committee regrets to find that the War Office has already come to a decision unfavourable to the claims of the widow of the late officer.

(b) DIFFICULTIES WHICH ARE PREVENTING MEDICAL PRACTITIONERS ACCEPTING COMMISSIONS.

(1) Young Practitioners holding Public Appointments.

8. The Association has evidence which leads it to believe that some local authorities are not as willing as they should be to set free young medical men in their employ. The Government Departments concerned, namely the Local Government Board and the Board of Education, have signified to the local authorities their desire that no undue difficulties should be placed in the way of doctors who are willing to apply for commissions, but these Departments have no power of compulsion. The Association would suggest that power should be taken by the Government to compel local authorities which are proved to be unnecessarily retaining young practitioners in their employment to let them go, and to protect their interests during their absence.

(2) Financial Considerations.

9. Very many representations have been made to the Committee to the effect that practitioners who would have been glad to offer themselves for commissions are unable to do so on account of their financial commitments as regards their practices or their families. In the case of the younger practitioners who are not established in practice the remuneration offered by the War Office is probably sufficient to protect them from any financial loss, but the case is quite otherwise as regards the men who have been for some years established in practice. Many suggestions have been made to the Committee on this point which have resolved themselves into proposals either to raise the remuneration or to increase the gratuity at the end of service. On this subject Colonel Blenkinsop placed before the Committee certain considerations which have led it to the conclusion that it cannot at the present moment press either of the above mentioned suggestions. But the Committee feels that it must place on record its conviction that financial considerations of very varied kinds are preventing many experienced practitioners from offering their services to the War Office, and that an increase in the remuneration offered to such practitioners would be justifiable and will be necessary if it is really desired to secure their services. The Committee believes that if the Government could see its way to grant extra pay or gratuity to cover what to many practitioners would be a considerable loss of income or capital, such action would to a considerable extent solve the present difficulty of securing medical officers.

(3) Question of Compulsion.

10. Suggestions have been received by the Committee from various quarters that the difficulties of obtaining Medical Officers can only be overcome by some system of compulsion, but the Committee is of opinion that it would be impracticable to apply compulsion to members of the medical profession alone, and that compulsory medical service for the Army could only be considered as part of a National compulsory service system.

11. In placing these considerations before you the Committee desires to state that as a result of its recent experience it is convinced that a very large section of the Medical profession is extremely anxious to place its services at the disposal of the War Office and is only restrained from so doing by the above mentioned difficulties coupled with the natural desire not to leave the civilian population without medical attendance. The Committee would very respectfully urge on the Government, through you, its opinion that if prompt and sympathetic consideration were given to the points mentioned in this letter, the effects on the recruiting of medical officers would be immediate and satisfactory.

I am,

Yours faithfully,

ALFRED COX,

Medical Secretary.

The Director-General,

Army Medical Service,

War Office,

Whitehall, S.W.

APPENDIX XX.

HOME CONSTITUENCIES FOR ELECTION OF REPRESENTATIVE BODY, 1915-16.

(See para. 194 of Supplementary Report of Council.)

(Divisions bracketed together form one Constituency.)

	MEMBER-SHIP. Annual List, 1915.		MEMBER-SHIP. Annual List, 1915.
ABERDEEN—		FIFE	86
{ Aberdeen	174		
{ Orkney	6		
{ Shetland	5	GLASGOW AND WEST OF SCOTLAND—	
		{ Argyllshire	29
		{ Dumbartonshire	56
BATH AND BRISTOL—		{ Ayrshire	62
{ Bath	94	{ Glasgow Central	123
{ Bristol	225	{ Glasgow Eastern	85
		{ Glasgow North-Western	162
		{ Glasgow Southern	83
		{ Lanarkshire	108
		{ Renfrewshire and Bnteshire	92
BIRMINGHAM—		GLoucestershire	127
{ Bromsgrove	21		
{ Dudley	41		
{ Central	321	KENT—	
{ Coventry	48	{ Ashford	17
{ Nuneaton and Tamworth	23	{ Dover	17
{ Walsall	21	{ Folkestone	10
{ West Bromwich	39	{ Bromley	56
{ Warwick and Leamington	60	{ Canterbury and Faversham	44
		{ Isle of Thanet	28
		{ Dartford	29
		{ Rochester, Chatham and Gillingham	45
		{ Maidstone	45
		{ Sevenoaks	23
		{ Tunbridge Wells	46
BORDER COUNTIES—		LANCASHIRE AND OPESHIRE—	
{ English	56	{ Ashton-under-Lyne	26
{ Dumfries and Galloway	68	{ Glossop	8
		{ Birkenhead	74
		{ Blackburn	89
		{ Blackpool	64
		{ Isle of Man	7
		{ Bolton	70
		{ Burnley	79
		{ Bury	54
		{ Chester	35
		{ Crewe	24
		{ Hyde	24
		{ Stockport, Macclesfield & East Cheshire	75
		{ Leigh	27
		{ Wigan	31
		{ Liverpool	299
		{ Manchester	280
		{ Mid-Cheshire	72
		{ Oldham	74
		{ Rochdale	51
		{ Preston	68
		{ St. Helens	37
		{ Warrington	33
		{ Salford	62
		{ Southport	64
CAMBRIDGE AND HUNTINGDON—			
{ Cambridge and Huntingdon	99		
{ Isle of Ely	20		
CONNAUGHT—			
{ Mid Connaught	7		
{ North Connaught	4		
{ South Connaught	20		
DORSET AND WEST HANTS—			
{ Bournemouth	121		
{ West Dorset	74		
DUNDEE	101		
EAST YORK AND NORTH LINCOLN—			
{ East York	136		
{ North Lincoln	60		
EDINBURGH—			
{ Edinburgh and Leith	229		
{ South-Eastern Counties	67		
{ The Lothians	82		
(1) ESSEX—			
{ Mid Essex	32		
{ North-West Essex	12		
{ North-East Essex	48		
{ South Essex	61		

(1) The East Anglian Branch, re-established since the publication of the 1915 annual list of members, now takes the place of the Essex, Norfolk and Suffolk Branches.

	MEMBER-SHIP. Annual List, 1915.		MEMBER-SHIP. Annual List, 1915.
LEINSTER—		NORTH WALES—	
Dublin	93	Denbigh and Flint	61
East Leinster	49	North Carnarvon and Anglesea	75
Mid Leinster	6	South Carnarvon and Merioneth	39
North Leinster	4	OXFORD AND READING—	
North-West Leinster	5	Oxford	108
South-East Leinster	7	Reading	101
METROPOLITAN COUNTIES—		PERTH	55
Camberwell	76	SHROPSHIRE AND MID WALES	120
Chelsea	75	SOUTH-EASTERN OF IRELAND—	
City	153	Carlow	4
Ealing	67	Kilkenny	16
East Hertfordshire	47	Waterford	25
Finchley and Hendon	55	SOUTHERN—	
Greenwich and Deptford	49	Channel Islands	35
Hampstead	73	Isle of Wight	46
Harrow	47	Portsmouth	111
Kensington	216	Southampton	55
Lambeth	106	Winchester	80
Lewisham	31	SOUTH MIDLAND—	
Woolwich	34	Bedford	64
Marylebone	521	Buckinghamshire	64
North Middlesex	126	Northamptonshire	99
South Middlesex	48	SOUTH WALES AND MONMOUTHSHIRE—	
South-West Essex	70	Cardiff	184
St. Pancras and Islington	119	Monmouthshire	133
Stratford	116	North Glamorgan and Brecknock	103
Tower Hamlets	66	South-West Wales	89
Wandsworth	132	Swansea	95
West Hertfordshire	70	SOUTH-WESTERN—	
Westminster	184	Barnstaple	48
Willesden	56	East Cornwall	41
MIDLAND—		Exeter	119
Holland	23	Plymouth	92
Kesteven	33	Torquay	57
Chesterfield	57	West Cornwall	62
Derby	121	STAFFORDSHIRE—	
Leicester and Rutland	161	Mid-Staffordshire	68
Lincoln	57	North Staffordshire	114
Nottingham	143	South Staffordshire	69
MUNSTER—		STIRLING	72
North Munster	13	(1) SUFFOLK—	
South Munster	49	North Suffolk	27
West Munster	4	South Suffolk	61
(1) NORFOLK—		West Suffolk	41
East Norfolk	64	SURREY—	
Gt. Yarmouth	17	Croydon	129
Norwich	47	Guildford	77
West Norfolk	34	Kingston-on-Thames	52
NORTHERN COUNTIES OF SCOTLAND—		Reigate	83
Banff, Elgin and Nairn	51	Richmond	24
Caithness and Sutherland	21	Wimbledon	26
Inverness	28	SUSSEX—	
Islands	20	Brighton	128
Ross and Cromarty	14	Chichester and Worthing	60
NORTH LANCASHIRE AND SOUTH WESTMORLAND—		Horsham	20
Furness	45	Eastbourne	54
Kendal	27	Hastings	45
Lancaster	46	Lewes and East Grinstead	48
NORTH OF ENGLAND—		ULSTER—	
Bishop Auckland	35	Ballymoney, North Antrim, and South	15
Durham	22	Derry	30
Blyth	18	Belfast	191
Morpeth	19	Enniskillen	5
North Northumberland	22	Omagh	9
Cleveland	61	Monaghan and Cavan	14
Consett	13	Portadown and West Down	55
Gateshead	53		
Darlington	51		
Hartlepool	32		
Stockton	31		
Hocham	23		
Newcastle-on-Tyne	178		
South Shields	31		
Tyneside	42		
Sunderland	193		

	MEMBERSHIP. Annual List, 1915.		MEMBERSHIP. Annual List, 1915.
WEST SOMERSET	72	YORKSHIRE—	
WILTSHIRE—		Barnsley	45
{ Salisbury	36	Bradford	159
{ Swindon	16	Halifax	62
{ Trowbridge	38	Harrogate	60
WORCESTERSHIRE AND HEREFORDSHIRE—		Huddersfield	52
Hereford	56	Leeds	163
Worcester... ..	77	{ Rotherham	21
		{ Sheffield	205
		Scarborough	40
		Wakefield, Pontefract, and Castleford... ..	60
		York	59

APPENDIX XXI.

MEMORANDUM APPROVED BY THE BRITISH MEDICAL ASSOCIATION AND THE NATIONAL UNION OF TEACHERS CONCERNING THE ALLOCATION, TO SCHOOL MEDICAL OFFICERS, TEACHERS AND SCHOOL NURSES, OF VARIOUS DUTIES IN CONNECTION WITH THE MEDICAL INSPECTION AND TREATMENT OF SCHOOL CHILDREN.

(See para. 2.2 of Supplementary Report of Council.)

Section 13 (1) (b) of the Education (Administrative Provisions) Act, 1907, provides that the powers and duties of a Local Education Authority under Part III. of the Education Act, 1902, shall include:—

“The duty to provide for the medical inspection of children immediately before, or at the time of, or as soon as possible after, their admission to a public elementary school, and on such other occasions as the Board of Education direct, and the power to make such arrangements as may be sanctioned by the Board of Education for attending to the health and physical condition of the children educated in public elementary schools.”

In the discharge of the duties connected with medical inspection regard should be had to the qualifications and special training of the various persons concerned, to the desirability of securing the co-operation and of avoiding the opposition of the parents. It is also necessary to avoid as far as possible any interference with the ordinary educational work of the school.

In the allocation of various duties between medical practitioners, teachers and nurses, considerable diversity of practice exists, and in a few cases friction has arisen. To secure the willing co-operation of all concerned, the subject has been considered by representatives of the medical and teaching professions, who have agreed as follows:—

(I.) DUTIES WHICH SHOULD BE UNDERTAKEN BY THE SCHOOL MEDICAL STAFF.

(a) *Notices to Parents.*—Undertake the duty of preparing and of arranging for the distribution by means of the school children of any notices to parents which they may desire to issue as the outcome of inspection.

(Such notices should be headed with the name of the Education Authority and the name of the Director of Education and be signed at the foot by the doctor.)

(b) *Health Records.*—Obtain information as to the child's previous illnesses and family medical history, any information in the possession of the head teacher or Education Authority to be placed at the disposal of the School Medical Officer.

(Usually it would be impossible in a large school at the commencement of the school year, with perhaps 100 children waiting to be admitted, for head teachers to ascertain from the parents (when present) the detailed information required under these headings. Further the character of some of the queries, e.g., insanity in the family, is of such a nature as to make it desirable that they should be addressed by the Medical Officer to the parents.)

(c) *Measure and Weigh.*—Accept responsibility for measuring and weighing children.

(These duties usually involve the removal of some of the children's clothing, a task which should be undertaken by the school nurses under the direction of the Medical Officer.)

(d) *Eyesight, Teeth, &c.*—Test children's eyesight, examine their teeth, examine them for vaccination marks, and also examine their heads.

(Though the above duties should be discharged by the school doctor, with the assistance of nurses, it is desirable that the teacher should be present as children are sometimes nervous with the Medical Officer, and in connection with the examination of eyesight this nervousness on their part might lead the doctor to think that they are suffering from defective eyesight and the presence of the teacher might avoid any such erroneous conclusion.)

(e) *Record of Inspection.*—Accept responsibility for entering on the school cards details respecting state of clothing, footwear, cleanliness, nutrition, speech, mental condition, and such other information as shall be obtained, e.g., other classes or work outside school hours, parents occupation, number of rooms and of persons in house occupied by child.

(Some of these entries are of a character calculated to cause friction between parents and teachers, should it transpire, on action being taken, that entries have been made by the teacher. Many of the questions cannot be satisfactorily answered without the skilled assistance of a Medical Officer, though nurses might with advantage make use of the teacher's knowledge of each child by securing information before the doctor begins the work of inspection.)

(f) *Details of Inspection.*—The nurse should dress and undress the children whenever necessary as the inspection proceeds. Wherever the School Medical Officer requires assistance in the discharge of his duties such assistance should be rendered by school nurses who might visit the children's homes to assist in giving effect to the doctor's recommendations.

(II.) DUTIES WHICH SHOULD BE UNDERTAKEN BY THE TEACHING STAFF.

(a) *Date and Hour of Inspection.*—Confer with the School Medical Officer as to the date on which school medical inspection should take place, and as to the number to be inspected.

(It is unreasonable that this date should be fixed by the Medical Officer without first ascertaining the probable school conditions on the date required.)

(b) *Selection of Children.*—Select the children for the doctor to examine.

(c) *Particulars respecting children to be examined.*—Supply such particulars respecting each child to be examined as are contained in the ordinary school records, that is, name, address, age, standard and regularity of attendance.

(d) *Attend Inspection.*—It is very desirable that the head teacher or a deputy should attend the inspection for the purpose of assisting the doctor with their special knowledge of the children examined, and in order to be made acquainted with any special facts disclosed by the Medical Inspection. In Mixed Schools under a Head Master a

qualified assistant mistress would replace the Head Master during the inspection of girls, but where there is no adequately qualified assistant mistress, the Medical Officer should consult with the Head Master on any special points which may arise.

(c) *School Time-table.*—The Head Teacher must remain responsible for such alterations (if any) in the time-table as may be necessary to facilitate the work of Medical inspection.

(III.) JOINT DUTIES.

A Medical Officer is justified in considering the whole work and conditions of the school in their medical aspect and in recommending alterations. There are subjects on which his advice is useful, as for example, in determining the size and character of the type to be employed in printing books and papers for the use of school children. His advice should be sought on certain forms of needle-work from the point of view of its effect on eyesight. Where, however, the Medical Officer is of opinion that in the interests of the children alterations should be made, he should confer with the Head Teacher before making any representations to the Education Authority, and should inform the Head Teacher of the exact nature of the report which he proposes to make.

(IV.) DUTIES WHICH SHOULD NOT BE UNDERTAKEN.

(a) *Collection of Fees for Medical Treatment.*—It is not part of the duty of either teacher or doctor to collect fees for medical treatment.

GENERAL NOTE.

It is possible that in connection with the medical inspection and treatment of school children circumstances may arise to which no specific reference is made in this memorandum. In determining whether the responsibility should rest with the Medical Officer or with the teachers, it should be noted that the duties which require for their satisfactory discharge medical knowledge and skill, should in no case be imposed upon the teachers but should be undertaken by the medical staff. Without careful observance of this general rule serious injury may be inflicted upon the children. On the other hand teachers who have been trained for their special work must be prepared to accept full responsibility for the manner in which their duties may be discharged, taking constant care to avoid in the methods and practice of education anything which would be prejudicial to the physical well-being of their scholars.

APPENDIX XXII

SPECIAL REPORT TO DIVISIONS AND REPRESENTATIVE BODY ON QUESTION OF FEES FOR MEDICAL EXAMINATIONS FOR LIFE INSURANCE.

(See para. 211 of *Supplementary Report of Council.*)

(i.) HISTORY OF PREVIOUS ACTION BY ASSOCIATION.

1. The following is a brief report of the action which has been taken in the matter since it first received consideration by the Representative Body.

2. In 1904, the Norwich Division made a preliminary inquiry, locally and generally, the results of which were communicated to the Representative Body that year. At the Annual Representative Meeting, 1905, the Medico-Political Committee submitted a further report from the Norwich Division upon the matter and recommended that the whole matter be remitted to the Divisions for consideration. The Representative Body accordingly passed the following Minutes 115 and 116:—

A.R.M., 1905: *Minute 115.*—Resolved: That, with a view to giving effect to the principles adopted in the report of the Norwich Division, it is desirable that the Association, through the Medico-Political Committee, should ascertain from the Life and Sickness Insurance Societies throughout the country the proportion between the amount of work expected from the Medical Referee and the fee offered to him by the Insurance Company.

Minute 116.—Resolved: That the report on Insurance Fees be approved, and that it be suggested to the Divisions that each Division should take the question into consideration.

These instructions were renewed by the Annual Representative Meeting, 1906, consequent upon no action being taken during the Session 1905-6.

3. Early in 1907 the Medico-Political Committee communicated with the various Insurance Companies in the Kingdom

and the information thus collected was forwarded in February, 1908, to the Divisions for their information, certain questions of fact and opinion being put to the Divisions by the Committee. (See Report to Divisions, Supplement to JOURNAL, February 22nd, 1908.)

4. After consideration of the replies of the Divisions the Committee, through one of its members, interviewed the General Managers, or their representatives, of eight of the leading Life Insurance Companies representing different types of Insurance work, when the proposition was put to them that in the opinion of the Association the time had arrived when the application of the principle that the fees paid to each medical examiner should bear a proportionate relationship to the sum assured (which principle was even then carried out to a certain extent), should be extended, in contradistinction to the present general practice of paying fees varying from 2s. 6d. up to £2. 2s. and not beyond.

5. The gist of such interviews may be summed up as follows:—

(i.) that the majority of the companies were apparently sympathetic to the views put forward, agreeing that in many instances the fees paid for medical examinations were totally inadequate, and appeared disposed to admit that there was much to be said for the adoption of a scale of fees to medical men for life insurance examinations, bearing a direct relationship to the degree of responsibility measured in terms of the sum assured;

(ii.) that one company had dispensed altogether with medical examinations, the results of which practice, however, were considered as unsatisfactory by other companies;

(iii.) that two of the largest and most important industrial companies were entirely unsympathetic to the proposition put before them, and one went so far as to state that for some time they had been preparing in anticipation of such a demand by the medical examiners and would if pressed in the matter either (a) adopt a system of whole-time medical officers, or (b) dispense with medical examination altogether.

6. The Council in considering the question in 1914 found that difficulties arose owing to the lapse of time since the approval by the Representative Body of the principle that the amount of payment of practitioners for this class of examination should be based on the amount of evidence required by the insurance company, which principle it first approved in 1905. The Annual Representative Meeting, 1914, decided that fees for life insurance examinations should be based upon the amount of evidence required in confirmation of the examiner's professional opinion of the life.

(ii.) RECOMMENDATIONS.

7. To give effect to this principle, it is necessary that some indication of the kind of report or opinion which could fairly be given for a stated fee should be given, and the Council therefore submits a recommendation hereon with specimen forms of Report. The Council does not wish it to be understood that it considers that the fee of £1 1s. will be adequate remuneration for each and every case upon which a practitioner may be called upon to give a full report. But, taking an average of such cases, and especially having regard to the facts quoted above as to the views of the leading insurance companies, the Council is of opinion that the time has come when the profession should state definitely for what fee it is prepared to give a certain kind of report. In view of what has happened in connection with the fixing of minimum fees for similar work, e.g., examinations by referees under the Insurance Acts, the Council trusts that every effort will be made to impress on the Divisions the necessity for placing this matter fully before their members and securing a discussion on it so that Representatives may be fully informed as to the opinion of their constituents on the proposed fees and the practicability of their being obtained from the Insurance Companies.

Recommendation.

The Council submits the following recommendation to the Divisions and Representative Body:—

That the following fees for medical examinations for life assurance be adopted:

£1 1s. for a formal full report, such as that contained in Sub-Appendix A.*

10s. 6d. for a formal short report, such as that contained in Sub-Appendix B.

5s. for a simple form of certificate, such as that contained in Sub-Appendix C.*

* The Council takes no responsibility for the details of the sample forms submitted, which were taken from the reports of certain Life Insurance Companies for purposes of illustration.

SUB-APPENDIX A.
FORM OF "FULL" REPORT.

Confidential Medical Report to the Directors of the.....
.....Life Insurance Company.

I.—CONFORMATION AND APPEARANCE.

1. (a) Is the Proposer well formed? (b) Does he appear to be healthy?	(a) (b)
2. (a) Is there anything injurious to health in the Proposer's occupation, or ordinary manner of life? (b) Or any reason to suspect past or present intemperance?	(a) (b)
3. What is the height and weight?	Height..... Weight.....

II.—RESPIRATION.

1. Is the chest well developed?	
2. After examination of the chest by percussion and auscultation, (a) state if the resonance on percussion and the movements of the walls of the chest are normal (b) Are the breath sounds healthy, particularly in the subclavian region? and (c) state if there are any, and, if so, what abnormal pulmonary sounds?	(a) (b) (c)
3. What is the actual number of respirations per minute?	
4. Is there a tendency to cough, spitting of blood, or bronchitis?	
5. Does anything lead you to suspect any disposition to disease in the lungs? (NOTE.—As phthisis is the chief cause of loss in Life Assurance, this is important.)	

III.—CIRCULATION.

1. (a) What is the number of beats of the pulse per minute? and (b) what is its character?	(a) (b)
2. Are the impulse and sounds of the heart distinct and normal? If not, describe the abnormal signs	
3. Is there, or has there been, palpitation or syncope?	
4. Are the large blood vessels in a healthy condition?	
5. Do you suspect any disposition to cardiac disease?	

IV.—DIGESTIVE SYSTEM.

1. Are the stomach, liver and bowels sound, and their functions normally performed?	
2. Is there, or has there been, tumour or swelling of any kind? If hernia (a) of what kind? and (b) is a truss worn?	(a) (b)

V.—URINO-GENITAL SYSTEM.

1. (a) What is the specific gravity of the urine? (b) Is it healthy in quantity and quality?	(a) (b)
2. Does it contain albumen or sugar?	
3. Is there any difficulty or pain in passing it?	

VI.—NERVOUS SYSTEM.

1. Are the brain, spinal cord, and organs of sense normal?	
2. Is there any tendency to apoplexy, paralysis, insanity, or other nervous disease?	

VII.—APPLICABLE TO FEMALES.

1. Whether married?	
2. (a) Whether had any children or miscarriages? (b) If now pregnant?	(a) (b)
3. Is there any indication of uterine or ovarian disease, and if so, what?	

GENERAL SUMMARY.

1. As the result of your personal examination, do you consider the Proposer eligible as a first-class life?	
2. Do any of the facts connected with the Proposer's habits of life, occupation, or family history mentioned in the "Personal Statement" or otherwise known to you, render any, and what increased assessment advisable?	

Signature of Medical Examiner
Address.....
QualificationsDate.....

SUB-APPENDIX B.

FORM OF "SHORT" REPORT.

Medical Examiner's Certificate.

Questions to be answered by the Medical Examiner.

1. Have you personally made a medical examination of the Proposer?	
2. What is the height and weight?	Height..... Weight.....
3. Is there hernia, and if so, of what kind, and is a truss worn?	
4. Is there any disposition to phthisis?	
5. As the result of your personal examination, and taking into consideration the general state of health, the condition of the several organs, the constitution and habits, do you consider the Proposer eligible as a first-class life? (If a female, state whether married or single, and any circumstances as to pregnancy, or otherwise, which you consider the officers of the Company ought to know.)	
6. Are there any facts connected with Proposer's habits of life, occupation, antecedents, or family history, on account of which you consider any extra premium should be charged?	

Signature of Medical Examiner.....

Address..... Qualifications.....

SUB-APPENDIX C.

FORM OF CERTIFICATE.

I,..... hereby certify that I have this day examined A.B., and believe him to be in good health and fit to be accepted for life assurance upon ordinary terms.

APPENDIX XXIII.

MEMORANDUM ON METHOD OF PAYMENT FOR DOMICILIARY TREATMENT OF TUBERCULOUS INSURED PERSONS.

(See *para. 219 of Supplementary Report of Council.*)

1. The Association notes that attacks are being made in various insurance areas on the present method of payment for attendance on tuberculous insured persons, and is of opinion that it may be useful to Panel Committees and insurance practitioners generally to have a general review of the situation.

2. It will be remembered that Sanatorium Benefit came into operation before Medical Benefit, and at first payment was made on a scale of fees to medical practitioners for domiciliary attendance on persons certified to be suffering from tuberculosis. When the Chancellor of the Exchequer on October 23rd, 1912, explained the proposals of the Government to a Medical Benefit, he stated that the Government thought it would be much better that there should be an inclusive fee for all the work which the general practitioner

does for tuberculous persons, and that it was proposed that 6d. should be set aside from the 1s. 3d. payable for Sanatorium Benefit in respect of each insured person for the remuneration of the general practitioner for all such work. The Chancellor went on to say "It is true that at first this figure may be very much too high, because after all the Act only applies to employed persons, of whom the numbers suffering from tuberculosis will at first be small. I am sorry to say that gradually these numbers will increase, but for the first few years I have no doubt that 6d. is more than adequate. At the same time I hope that this is an arrangement that will last at any rate some time."

3. In reply to a request for further details as to the proposed grant and especially as to the amount and kind of work which would be expected in return for it, the Chancellor of the Exchequer stated in a letter to the Association dated November 6th, 1912: "The amount and kind of attendance will be such as, in the best interests of the patient, can be given by the practitioner himself. The 6d. from the Sanatorium Fund will be added to the fund available for the provision of medical attendance and treatment by practitioners on the panel. The 6d. is solely for the remuneration of the doctor and no deduction will be made from it for the provision of drugs or any other purpose."

4. The deduction of the 6d. from the Sanatorium Benefit Fund was strongly resented by Insurance Committees who foresaw that with the 9d. remaining they would not be able to carry out the amount of institutional treatment which the public had been led to expect, and from the very inception of the Insurance Committees there has been a steady stream of complaints on this ground. Recently, however, the complaints have taken a more definite form, and at a meeting of the Executive of the National Association of Insurance Committees the following motion was carried on the initiative of the Bristol Committee:

"That strong representations be made to the Commissioners that Committees should control the whole of the money provided for Sanatorium Benefit under Section 16 (2) (a) of the Act of 1911, and that the arrangement whereby medical practitioners are credited with 6d. per insured person on their lists for defraying the costs of domiciliary treatment be discontinued."

5. In the Bristol Insurance Committee on March 1st, 1915, as reported in the *National Insurance Gazette* of March 27th, 1915, a member said that doctors for their 6d. per head of insured persons had treated 183 tuberculous patients while the Sanatorium Benefit Sub-Committee for their 9d. per head had treated 349 patients, which latter treatment included institutional treatment of various kinds. He said that the Committee were giving a great deal for their 9d. and doctors were getting far too much for the little they did. Out of 130 doctors it was reported that only 69 had administered domiciliary treatment and 53 doctors had not a case between them. At a meeting of the Lancashire Insurance Committee on February 28th, 1915, a member stated that he doubted very much whether they were getting anything like a proportionate return for the large sum of money per head for all persons suffering from tuberculosis which the Committee was paying to medical men under their agreement. He went on to say "A doctor who had to attend to 30 or 40 patients in a single evening was not in a position to give the care and attention which cases of tuberculosis required."

They would find that for each person suffering from tuberculosis the Committee were paying something like £10 per head per annum to the doctors." This latter statement is ambiguous. If it means that, including the salaries of Tuberculosis Officers and doctors at Sanatoriums, £10 per head was being spent on medical attendance for tuberculous persons, that may well be so, but it is to be noted that in a report published on March 5th, 1915, by the Tuberculosis Officer of Lancashire, it is shown that the amount per head received by the doctors for domiciliary treatment would average between £3 and £4. This calculation is based on his statement that there are "about 6,000 cases of all forms of tuberculosis in the County. Of these it is estimated that 3,500 to 4,000 insured persons will annually come under treatment by the medical practitioner." The report states that of 1,159 persons reported upon by the Tuberculosis Officers as suffering from phthisis and recommended for treatment, 25.7 per cent. were in the early stages of the disease, 27 per cent. in the intermediate, and 47.1 in the advanced stage.

6. It appears therefore that the attack on the present method of payment of panel doctors for domiciliary treatment of tuberculosis is being made on three lines. First on the ground that the deduction of the doctor's sixpence from the 1s. 3d. definitely set aside for Sanatorium Benefit is crippling the work which the Insurance Committees might do in

the way of institutional treatment. Secondly, that the cases reported by doctors are so few that the aggregate of the sixpences received by many individual doctors proves that the fee per case treated is extravagant—ranging as high as £20 to £30 it is alleged in some areas. Thirdly, that the capitation system has been a failure because the proportion of late cases to early ones reported shows that the doctor is not sufficiently interested in the matter to examine his cases carefully. This is to say, he gets his money whether he examines them or not and consequently all but the very conscientious practitioners do their work in a slovenly fashion.

7. As regards the first objection it need only be said that if the funds of Insurance Committees are proved to be insufficient they ought to be increased either from central funds or from the rates.

8. The second objection is based on a too limited interpretation of what domiciliary attendance is. According to the Chancellor of the Exchequer, it is "all the work which the general practitioner does for tuberculosis persons." Apparently many members of Insurance Committees believe that it is possible to have accurate particulars of every person who has received domiciliary attendance, but every practitioner will at once see that this is impossible. What the Insurance Committees get, or ought to get, is the number of persons who are definitely notified as suffering from tuberculosis. But a great deal of the panel doctor's work in the way of domiciliary treatment of tuberculosis is, and must be, unrecorded so far as the Insurance Committee is concerned. There is for example a large number of young persons who are taken to the doctor because they are "run down," or suffering from anaemia, or indigestion, or a slight cough and receive domiciliary treatment. Most of these persons will not afford evidence of the presence of the bacillus, but to the experienced eye of the doctor the possibility of what is known as the "pre-tubercular" stage is always present. By judicious treatment many cases of this kind are restored to health and never come under the notice of the Medical Officer of Health or the Tuberculosis Officer. Moreover many of those who are definitely tuberculous decline to apply for Sanatorium Benefit or to see the Tuberculosis Officer. They are afraid of imperilling their work and they continue to be treated by the panel doctor until they recover or, more often, until they get so much worse that they no longer care about their work and are now eager for institutional treatment which may however then be too late. No doubt doctors in these cases should consider the desirability of the Tuberculosis Officer being called into consultation but the difficulty of securing the patient's consent should not be underestimated. An Insurance Committee which bases the statement that the panel doctor is being over-paid for domiciliary attendance on the number of cases which are reported to the Medical Officer or the Tuberculosis Officer, is labouring under the same fallacy as the old Friendly Societies were when they contended that the doctors were well paid on the rates formerly given for club work because only a small proportion of their members applied for sickness benefit, entirely overlooking the much larger number of persons who consulted the doctor but did not claim sickness benefit.

9. The third objection, namely, that payment by capitation leads to carelessness may have more substance in it. But the payment per fee was tried and abandoned, first because it was more expensive than the capitation fee, and secondly because it necessitated more administrative and clerical work. As a matter of fact enlightened self-interest should lead every doctor to keep his eyes very wide open for the earliest stages of tuberculosis, for a little work then may obviate much trouble to himself later, besides saving the patient from almost inevitable death. There may be no logical case for giving the panel doctor a separate payment for tuberculosis work, for as has been shown the line of partition between this disease and others is at times very thin. But there is every reason for keeping up the total remuneration to the panel doctor, for if the total remuneration is lowered, the temptation to the doctor to take more patients than he can properly attend to would be greater, and his capacity for giving careful attention to his early tuberculosis cases would be lowered.

10. The answer to the profession to the attempt to take away from it the Sanatorium 6d. should, therefore, be on three lines, first, that the 6d. was definitely promised by the responsible authorities of the Government; secondly, that a great deal of work is being done for the money which is and must be incapable of being shown by figures; thirdly, that the Insurance Committees are best secure that they and the insured persons will get the best return for their money by furthering the co-operation between the panel doctor, the tuberculosis officer, the tuberculosis dispensary and the Sanatorium. The

co-operation of these various agencies is by no means as close as it ought to be, and every effort should be made to improve it, in which steps Insurance Committees could count on the support of the Association. It should be suggested that not only should the panel practitioner make full use of the services of the Tuberculosis Officer, but the latter should make reports on the cases dealt with by him to the panel doctor. The form of reports as drafted by the Local Government Board should be simplified and every effort should be made to make the panel doctor, the Tuberculosis Officer and the Sanatorium Medical Officer realise that they are parts of a co-operative scheme working for the benefit of the tuberculous patient.

11. But it cannot be too forcibly pointed out that even if the Insurance Committees had the whole 1s. 3d. per head, or double that amount, and spent it all on sanatorium and other institutional treatment it would still be necessary to provide somehow for domiciliary treatment. The Tuberculosis Officer could not give it because he has not that free access to the homes of insured persons which the family doctor has. The family doctor is the only one who can give it, and unless he is enlisted in the campaign against tuberculosis, the most promising cases—the earliest ones—will never be discovered, and the Insurance Committee, instead of getting only 74 per cent. of cases in the intermediate and advanced stages, will get all its cases in those stages. It would be worth the while of the Insurance Committee to pay the Sanatorium 6d. for discovering even 25 per cent. of the cases, but it is certain that with more co-operation between the various agencies at work this percentage should rapidly increase.

APPENDIX XXIV.

REDUCTIONS IN ADVANCES TO INSURANCE PRACTITIONERS.

(See para. 221 of Supplementary Report of Council.)

SOLICITOR'S OPINION.

The steps recently taken by Insurance Committees, acting on the advice of the Commissioners, to reduce the monthly or quarterly advances made to insurance practitioners have naturally caused great concern on the part of these practitioners and of the Panel Committees, the result being that the Insurance Act Committee has had many applications for advice as to the legality and necessity of such a step. That Committee instructed its Local Medical and Panel Sub-Committee to take legal advice, and this was done by conference between Mr. Hempsion and several members of the Sub-Committee.

Mr. Hempsion's opinion is set out below and should be read very carefully, in conjunction with the report of the interview between representatives of the Sub-Committee and the Commissioners on December 22nd, 1914, which is reprinted on page 234 et seq. of the Supplement to the BRITISH MEDICAL JOURNAL of May 8th, 1915. Mr. Hempsion's opinion as to the legality and justifiability of reasonable reductions is clear and definite. In consideration of this matter, however, many important points emerged, such as whether the reductions made were not in some cases more than are warranted by the circumstances; whether the reduction in the amount of work demanded from the doctors on the panel is proportionate to the reduction in the remuneration; and as to what will be the position when many of the insured persons now on military service return to the panel lists in a deteriorated state of health. These points were felt to be of such importance that the Sub-Committee decided to collect what information it could from the Panel Committees of the country, and to put the matter down for discussion at the Conference of Representatives of Local Medical and Panel Committees which is to be held in London on June 16th and possibly 17th.

Opinion.

1. As requested, I have carefully perused the printed correspondence between the Commissioners, the Bristol Insurance Committee, and the Chairman of the Bristol Panel Committee (printed in the Supplement to the BRITISH MEDICAL JOURNAL of April 3rd, 1915), and also the report in the Supplement to the BRITISH MEDICAL JOURNAL of January 13th, 1915, of an interview between a deputation from a Sub-Committee of the Insurance Act Committee and the Insurance Commissioners on December 22nd, 1914, and at the same time I have had before

me the Regulations and the Form of Agreement usually entered into between an Insurance Committee and a panel practitioner.

2. In the above mentioned report there is set out (more or less fully) a speech made by Sir Robert Morant at this interview. The first clause of such speech, headed "The total debt to Societies," refers to the administration of the Insurance Fund as between Insurance Committees and approved societies, and therefore presumably I am not called upon to deal with this aspect.

3. The next clause, "The distribution of the pool among Insurance Committees," deals with the ordinary procedure in the distribution of the pool (that is the entire Insurance fund) among the several Insurance Committees. This has to do with the administration of the Insurance Fund as between the Insurance Commissioners and Insurance Committees. Various statements are made in this, as well as in the earlier clause, with the object of showing why the particular procedure is followed by the Insurance Commissioners. Of course I cannot verify such statements, as I have no knowledge of these facts, though the procedure adopted in the distribution, as detailed by Sir Robert Morant, seems to be in accordance with the Regulations.

4. With respect to the third head, namely, "Distribution of the Committee's fund among individual doctors on their panel," I think it best, in expressing my opinion, to follow the language of the Regulations rather than to sum it up in the terse way in which Sir Robert Morant is reported to have done in his speech, which may be liable to misconstruction.

5. By Regulation 35 the Insurance Committees have to credit to each practitioner in respect of each of the persons on his list at the commencement of each quarter an amount calculated in accordance with the rate contained in his agreement with the Committee; that is to say, if the practitioner has 500 persons on his panel and the rate contained in his agreement is 1s. 7½d., he would be entitled to be credited with 1s. 7½d. × 500 = say £40. 12s. 6d. In addition, he is also to be credited with further capitation fees in respect of insured persons which have not been accepted by or assigned to any doctor. It will be recognised that the doctor is to be credited with this £40. 12s. 6d., which means that the whole of such sum is not necessarily to be paid to him at that time, or, in fact, at any later time. In fact, Regulation 37 provides that, "as soon as may be" (whatever that expression may mean) after the expiration of each quarter, the Committee shall pay to each practitioner in advance of the amount due to him such sum as may be agreed between the Insurance Committee and the Panel Committee, and gives power to the Insurance Committee to pay to a practitioner, if they think fit, additional sums "on account."

6. These payments are to be "in advance of the amount due to him." The clause therefore appears to contemplate that the amount does not become payable to him until some later period, which is not definitely stated, but the Regulation in question says that the balance due to the practitioner is to be paid to him "as soon as may be" after the expiration of the year.

7. The deduction from this seems to be that it is only after the expiration of the year and when the final account has been taken that the money is actually due and payable to the practitioner, but that power is given to make payments on account in advance.

8. It must be understood that while a practitioner may be credited with a certain amount he is not necessarily entitled to be paid that sum in full, but only his proportionate share (based upon the number of persons upon his list) of the whole Practitioners' Fund. For instance, for the sake of argument, if there are five practitioners on the panel of a certain Committee — A having 1,000 patients on his list, B having 900, C having 800, D having 700, and E 600—there would therefore be on these five lists 4,000 persons in all. A would accordingly receive 25% of the total Practitioners' Fund X, B 18%, C 16%, D 14%, and so on. If the fund eventually worked out so as to permit of payment in full to each practitioner upon the panel in respect of each person for whom he was wholly responsible, there would, of course, be no need to trouble with this proportionate method of division, but there are bound to be more names on the total of the lists of practitioners than have been allowed for in the Practitioners' Fund due to duplication, failure to notify change of address or death, travellers and the like, so this method was provided for by Regulation 35 (3).

9. With regard to the questions raised by the Chairman of the Bristol Panel Committee to the Insurance Commissioners, dated March 1st, 1915, and set out in the printed correspondence before referred to.

10. There seems to me to be a certain misconception underlying these questions, and on which they all depend, and which I should wish to deal with before answering these questions *seriatim*.

11. The Chairman of the Panel Committee, as voicing the opinion of his Committee, seems to be under the impression that there is due to each medical man upon the panel a fixed sum quarterly for each of the insured persons named on his list, and that he is entitled to receive this intact. Such, however, is not the case, as it is only at the end of the year, or rather "as soon as may be after the expiration of the year" when the Committee have declared a final account, that there is any opportunity for estimating the probable number of insured persons entitled to be considered as being on his list, and for deciding the sum actually due to him; as these quarterly payments are merely "payments on account" regulated by what the Committees deem expedient (see Regulation 37).

12. I now deal with the questions *seriatim* :

(a) "Was the Insurance Committee justified in making a deduction of 6d. per insured person for the third quarter followed by one of 8d. for the last quarter?"

The word "deduction" is, in my opinion, incorrectly used. I have stated above, under paragraph 8, the principles upon which a practitioner upon the panel is entitled to be paid, and that, practically, he cannot claim that any definite sum is due to him until after the end of the year. The Committee, however, credit him with a certain sum every quarter, of which sum they are at liberty by Regulation 37 to pay him the whole or such portion of the whole as they may deem expedient having regard to the condition of the fund and the contingencies that may arise.

13. It must, of course, always be borne in mind that the Commissioners, and under them the various Committees, are dealing with public funds, and are accordingly accountable for every penny they expend, and it is incumbent upon them to keep in hand a certain sum to meet eventualities, and to guard against paying more to one source than a total final account will permit of.

14. If, for instance, every practitioner on the panel were to receive the full amount mentioned in the agreement each quarter for every name upon his list, it might be found when the final annual account came to be taken that a considerably greater sum had been expended in this way, due to duplication, travellers (temporary residents), or other causes, such as insured persons having died, changed their address, or joined the forces, and their names being allowed inadvertently to remain on the doctor's list, than should properly have been allotted to the Practitioners' Fund, and consequently it would be necessary for the Committee to obtain back from each practitioner such sums as have been paid to him in excess of his true share. The objections to this course are, I think, so obvious that it is unnecessary for me to enlarge upon them.

(b) "Was the Insurance Committee justified in making deductions pro rata to the panel lists on account of persons serving with His Majesty's forces?"

Under Section 46 of the Insurance Act, 1911, a soldier is not entitled to medical benefit, and provision therefore has to be made in respect of those insured persons who have joined the forces. As I have said before, the Committee has a discretion as to these quarterly payments on account, and this discretion cannot in my opinion be disputed. I consider, however, that if a doctor can prove that on his list there is no person who has joined the Army or Navy or likely to do so, he would be entitled to protest formally against any temporary withholding on this account from payment, made in advance. But as the question of "deduction" for insured persons who have joined the forces cannot finally be adjusted until the final account has been taken after the end of the year, only then could a legal claim be made based on evidence that a deduction made was not justified.

(c) "Has the Insurance Committee the power of making any deductions from the quarterly cheques that may seem advisable? and, if the answer to this question be in the negative,"

(d) "In what way can the Insurance Committee be restrained from following this procedure?"

The foregoing questions have already been answered by me earlier in this opinion, so there is no need for me to deal with them specifically.

(Signed) W. E. HEMFSON.

Annual Representative Meeting, London, 1915.

NOTICES OF MOTION FORWARDED BY DIVISIONS

SINCE PUBLICATION OF NOTICES OF MOTION IN SUPPLEMENT OF MAY 22ND, 1915 (P. 265).*

(C) The Association and the War.

Question of Medical Attendance upon Dependants of Men Serving with the Colours.

1. **Amendment**, by WAKEFIELD, PONTEFRAC, and CASTLEFORD, to Item 9 of Provisional Agenda, as to approval of Annual Report of Council under heading "(C) The Association and the War":

That the free medical attendance upon the dependants of men serving with His Majesty's Forces should be discontinued after July 31st next; and that such action be taken as may be necessary to secure this step being taken generally throughout the country, and to find out whether the War Office is prepared to provide medical attendance for such dependants or not.

(D) Organization.

Expenses of Representatives.

2. **Rider**, by SALFORD, to Item 24 of Provisional Agenda, as to approval of remainder of Annual Report of Council under heading "(D) Organization":

That the expenses of Representatives of Divisions at Representative Meetings should be paid out of the funds of the Association, and that 2 guineas per diem be allowed towards such expenses.

(H) Medico-Political.

Contract Fees for Medical Attendance and Treatment of Juvenile Members of Friendly Societies.

3. **Amendment**, by WORCESTER, to Motion contained in Item 34 of Provisional Agenda, as to choice of doctor:

That there be inserted in Recommendation C of Council after the word "patient" the words "or representative."

Fees for Medical Examinations for Life Insurance.

4. **Amendment**, by CAMBERWELL, to Recommendation Q of Council (Paragraph 211 of Supplementary Report, p. 5 of this SUPPLEMENT):

That Recommendation Q be referred back to the Council on the ground that the proposed terms are not satisfactory.

5. **Rider**, by WORCESTER, to Recommendation Q of Council (Paragraph 211 of Supplementary Report, p. 5 of this SUPPLEMENT):

That a medical report is solely for the Insurance Company on whose behalf the medical examination is made, and must not be communicated to any other office.

Duties of School Medical Officers.

6. **Amendment**, by CENTRAL BIRMINGHAM, to Motion by North-East Essex (SUPPLEMENT, May 22nd, p. 265):

That the words "without special payment" in the Motion by North-East Essex be omitted.

(I) National Insurance.

Effects of the War on the Medical Side of the Insurance Acts.

7. **Amendment**, by SALFORD, to Motion for approval of paragraph 218 of Supplementary Report of Council (p. 6 of this SUPPLEMENT):

That the profession notes with alarm the disturbance of the probable sickness incidence of insured persons owing to the withdrawal of healthy lives by enlistment in the Army, with the probable return of many unhealthy lives into the insured classes at a later day; and also the reduction of advances of grants by the Insurance Commissioners to the different Insurance Committees.

* The Provisional Agenda of the A.R.M., 1915, and Annual Report of Council, 1914-15, were published in the SUPPLEMENT of May 8th. For Supplementary Reports of Council see page 1 of this SUPPLEMENT. The items contained in Sections (C), (D), etc., above are in connexion with the similarly lettered sections of the Reports of Council.

Importance of Membership of Association.

8. **Rider**, by WAKEFIELD, PONTEFRAC, and CASTLEFORD, in connexion with the same paragraph.

That the members of the profession be circularized as to the importance of joining or remaining members of the Association, in view of the time of severe stress which is undoubtedly coming in the near future in connexion with the Insurance Act.

June 30th, 1915.

ALFRED COX,
Medical Secretary.

Meetings of Branches and Divisions.

EDINBURGH BRANCH:

SOUTH-EASTERN COUNTIES DIVISION.

The annual meeting of the Division was held at Newtown St. Boswells on June 22nd, when Dr. P. C. MACROBERT presided, owing to the absence of Dr. J. Young, chairman-elect, who succeeded to the office of chairman.

Election of Officers.—The following were elected:

Chairman-elect: Dr. W. T. Barrie (Hawick).
Representative on Branch Council: Dr. J. Carlyle Johnston (Melrose).

Representative at Representative Meetings: Dr. W. Blair (Jedburgh).

Honorary Secretary and Treasurer: Dr. M. J. Oliver, re-elected.

Deputy Representative at Representative Meetings: The chairman and secretary were empowered to select a deputy in the event of the Representative being unable or unwilling to attend.

Executive Committee: Drs. McMillan, P. Henderson, Bannerman, Fairfax, S. Davidson and Muir.

Annual Report.—The annual report of the Executive Committee, which was approved, stated that three meetings of the Division and one of the Executive Committee had been held, when among the subjects considered were the administrative work of the Association, medico-political matters, the war emergency, and subjects connected with national insurance. No scientific meetings or annual dinner had been held.

Direct Representatives on the General Medical Council.—It was decided to recommend members to support Dr. J. A. Macdonald, LL.D. (Chairman of Council) as one of the direct representatives on the General Medical Council.

FIFE BRANCH.

The thirteenth annual meeting of the Branch was held in the Station Hotel, Kirkcaldy, on June 4th, when Dr. R. BALFOUR GRAHAM, President, was in the chair.

Election of Officers.—It was unanimously agreed to adopt a recommendation of the Branch Council that, in view of so many members being absent on service and otherwise at this time, and that, as other Medical Committees were being re-elected, the office-bearers and members of Branch Council be re-elected for the current year. The President agreed to act as interim Secretary in room of Dr. Anderson, who expects to be called up shortly as a medical officer to the Forces. The CHAIRMAN, in the name of the meeting, congratulated Dr. Anderson, and trusted that his special knowledge and experience would be utilized.

Annual Representative Meeting.—Dr. Sneddon was re-elected the Representative of the Branch at Representative Meetings, and Dr. Macdonald (Cupar), Deputy Representative, falling whom Dr. Dow (Dunfermline). With regard to the business of the Annual Representative Meeting, it was agreed that the Representative should use his discretion thereon.

KENT BRANCH:

BROMLEY DIVISION.

The annual meeting of the Bromley Division was held on June 29th, when Dr. UMSEY took the chair, and was followed by the new chairman, Dr. BAILEY.

Election of Officers.—The following were elected:

Chairman: Dr. Bailey.
Vice Chairman: Dr. Crombie.
Joint Honorary Secretaries: Dr. A. Tennyson Smith and Dr. W. H. Chesters.

Representative for Representative Meetings: Dr. A. Tennyson Smith.

Deputy Representative: Dr. G. R. Stilwell.
Representative on Branch Council: Dr. Lewis.

Executive Committee: Drs. A. F. G. Codd, J. F. Douse, C. E. M. Lewis, E. C. Michael, T. D. Miller, E. G. Pringle, G. R. Stillwell, W. F. Umney, J. H. Yolland.
The Executive Committee to be also the Ethical Committee.

Annual Representative Meeting.—The Representative was instructed to support the Council's recommendations on (1) assistant asylum medical officers; (2) fees for life insurance examination; (3) to oppose contract fees for juveniles and the maternity and child welfare report, on the ground that the time was inopportune for questions of such magnitude. A levy of 2s. 6d. towards the expenses of the Representative for the Annual Representative Meeting was passed, and was paid by those present.

Direct Representatives on the General Medical Council.—Dr. Macdonald was recommended a Direct Representative on the General Medical Council.

Vote of Sympathy.—A cordial vote of sympathy was passed to the Branch Secretary, Dr. Starling, on his illness.

METROPOLITAN COUNTIES BRANCH:

HAMPESTEAD DIVISION.

A MEETING of the Hampstead Division was held on May 23rd, when Dr. COODE ADAMS was in the chair.

Election of Officers.—The following officers were elected to fill vacancies caused by enlistment:

Honorary Treasurer and Honorary Secretary: L. Barnett, M.D.
Members of Executive Committee: Dr. E. Barker, Dr. Delia Macdonald.

Representative at Representative Meeting: Dr. Cunningham.
Representatives at Branch Council: Drs. Tidcock and Shettleworth.

Belgian Relief Fund.—It was resolved to contribute £5 5s. out of the funds of the Division towards the Belgian Relief Fund for Medical Men and Pharmacists.

Matters Referred to Divisions.—With reference to the question of the medical attendance upon juvenile members of friendly societies, the Representative was instructed to move that if the fee be fixed at 4s. 4d. per member per annum, including drugs, it must be distinctly stated that for this sum no records are to be kept.

Vote of Thanks.—It was resolved to send a letter of thanks to Mr. Sidney Boyd for his past services.

Vote of Condolence.—A vote of condolence was directed to be sent to Dr. Collingwood Andrews.

KENSINGTON DIVISION.

The annual meeting of the Division was held at Kensington Town Hall on June 11th, when Dr. S. D. CLIPPINGDALE was in the chair.

Election of Officers.—The following officers were elected for 1915-16:

Chairman: Dr. Herbert Chambers.
Honorary Secretary and Treasurer: Dr. Walter E. Fry.
Representatives at Branch Council: Drs. Christine Murrell, Wilfred Kingdon, and W. H. Burnhill.

Executive Committee: Drs. Gunton Alderton, G. A. H. Barton, Benjamin Jones, H. T. N. Merrick, Vernon Sinclair, Thoresby Jones.

Representatives at Representative Meetings: Mr. E. B. Turner, Dr. Charles Buttar, and Dr. S. D. Clippingdale.

Vote of Thanks.—On the motion of Mr. TURNER, seconded by Dr. RICE-OLKLEY, a hearty vote of thanks was accorded to the retiring Chairman, Dr. S. D. Clippingdale, who returned thanks.

Annual Report.—The annual report for 1914-15, showing a membership of over 200, and the annual financial statement, showing a balance in hand, was accepted.

Medical Attendance on Dependents.—The Executive Committee reported that a new arrangement had been made with the various Committees of the Soldiers' and Sailors' Families Association, and that in future no free medical attendance books would be issued except on the written request of the doctor in attendance.

Annual Representatives Meeting.—The Representatives were duly instructed for the forthcoming Representative Meeting.

ST. PANCRAS AND ISLINGTON DIVISION.

At the annual meeting of the Division held on June 10th there were elected, in addition to the officers named in the SUPPLEMENT of June 19th, the following:

Representative, 1915-16: Dr. R. M. Beaton.
Deputy: Dr. Alexander Town.

STRATFORD DIVISION.

The annual meeting of the Division was held at the West Ham Hospital on June 15th. Dr. BEADLES was in the chair.

Election of Officers.—The following officers were elected for the ensuing year:

Chairman: Dr. J. Ross Steen.
Treasurer: Dr. P. J. Nicoll.
Representative: Dr. H. S. Beadles.
Honorary Secretary: Dr. Percy Rose.
Executive Committee: Drs. Couzens, Dayus, Fraser, Frederic, Grigono, Hay, Kennedy, McDonald, McMurtry, Nelson, Randal, and Taylor, together with the above *ex officio* members.

Association Notices.

ANNUAL REPRESENTATIVE MEETING, 1915.

DATE OF MEETING.

The Annual Representative Meeting of the Association, 1915, will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Friday, July 23rd, 1915, and following days as may be required.

By order,
ALFRED COX, *Medical Secretary.*

May 19th, 1915.

ANNUAL GENERAL MEETING.

NOTICE is hereby given by the Council that the Annual General Meeting of the British Medical Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Saturday, the 24th day of July, 1915, at 2 o'clock in the afternoon.

Dated this 22nd day of June, 1915.

By order,
GUY ELLISTON,
Financial Secretary and Business Manager.
429, Strand, London, W.C.

ALTERATION OF ARTICLES OF ASSOCIATION: EXTRAORDINARY GENERAL MEETING.

NOTICE is hereby given by the Council that an Extraordinary General Meeting of the British Medical Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Saturday, the 24th day of July, 1915, immediately after the conclusion of the Annual General Meeting of the same Association, called for 2 o'clock in the afternoon of that day, when the subjoined Resolutions will be proposed as Extraordinary Resolutions:

1. That Articles 3, 43 and 44, and the words "whether an existing Member or a future Member" in Article 9, be cancelled.
2. That in Article 4 there be inserted immediately after the word "Acts" the words following—"and any Medical Practitioner who does not reside within the area of any Branch of the Association and who though not so registered is possessed of any of the qualifications described in Schedule (A) of the Medical Act, 1858."
3. That in Heading III immediately after Article II the word "and" be substituted for the word "or."
4. That in Article 28 the last six words be altered so as to read "provisions as to Referendum herein-after contained."

Should the above Resolutions or any of them be passed by the requisite majority the same will be submitted for confirmation as Special Resolutions or a Special Resolution to a further Extraordinary General Meeting, and such Meeting will be held at the Head Office of the Association, No. 429, Strand, London, W.C., on Wednesday, the 11th day of August, 1915, at 2 o'clock in the afternoon, for the purpose of considering and, if thought fit, confirming as Special Resolutions or a Special Resolution any of the above Resolutions set forth which shall have been so passed.

Dated this 22nd day of June, 1915.

By order,
GUY ELLISTON,
Financial Secretary and Business Manager.
429, Strand, London, W.C.

ELECTION OF MEMBERS OF COUNCIL BY GROUPED REPRESENTATIVES.

NOTICE is hereby given that Nominations for Candidates for election of Members of Council by grouped Representatives for the year 1915-16 will be received by the Medical Secretary up to the end of the first hour of the proceedings of the Annual Representative Meeting on Friday, July 23rd, 1915. Each Nomination must be on the prescribed form, copies of which will be forwarded by the Medical Secretary on application.

Separate forms have been prepared: (1) For Nomination by a Division (through its Representative), and (11) for Nomination by a Representative of a Constituency included in the Group, and those applying are requested to state for which purpose the form is desired.

The voting papers will be issued at the Representative Meeting to each Representative or Deputy Representative of a Constituency in the United Kingdom in attendance at the Meeting.

By order of the Council,

ALFRED COX,
Medical Secretary.

June 30th, 1915.

BRANCH AND DIVISION MEETINGS TO BE HELD.

DORSET AND WEST HANTS BRANCH.—Dr. F. Fowler and Mr. P. A. Ross, Honorary Secretaries, give notice that the summer meeting of the Branch will be held on Wednesday, July 7th, at Church Hall, Sherborne, at 3 p.m. The meeting of the Branch Council will take place at 2.30 p.m. The Sherborne practitioners kindly invite members to luncheon at the Digby Hotel at 1.30 to 2.30 p.m.

CAMBRIDGE AND HUNTINGDON BRANCH.—Dr. G. S. Haynes, Honorary Secretary 63, Trumpington Street, Cambridge, gives notice that the annual general meeting will be held on Friday, July 9th, at 3 o'clock, at the 1st Eastern General Hospital, Cambridge, by kind permission of the Officer Commanding, Colonel J. Griffiths. After the meeting Colonel Griffiths will be pleased to show members and their wives over the hospital and to give them tea. Will those members who intend to be present kindly notify the Secretary?

EAST YORKSHIRE AND NORTH LINCOLNSHIRE BRANCH.—Dr. H. L. Evans, Honorary Secretary, 101, Princes Avenue, Hull, gives notice that the annual meeting will be held in the Grimsby and District Hospital on Friday, July 9th, at 4.15 p.m. Business: To elect officers, to receive the annual report and balance sheet, and to discuss any other business which is proper to annual meetings.

SOUTHERN BRANCH.—Mr. James Green, Honorary Secretary (Brandon House, Mile End, Portsmouth), gives notice that the forty-second annual meeting of the Branch will be held at the Speedwell Hotel (opposite to the Portsmouth Town Station) on Thursday, July 8th, at 3.30 p.m., when Mr. George H. Cowen, F.R.C.S., will take the chair. Agenda: Correspondence. Return of election of officers of Branch for 1915-16. Annual report of Council. Balance sheet. Election of associate members. General business. At the conclusion of the business Mr. Cowen will vacate the chair in favour of Dr. C. F. South, the President for the ensuing year, who will deliver the Presidential address. Dr. South kindly invites the members to tea, which will be served during or after the proceedings. On account of the war there will be no luncheon, golf competition, or other social function, except the above. Gentlemen who intend to attend the meeting will oblige by sending word to that effect to the Honorary Secretary.

IRISH COMMITTEE.

The quarterly meeting of the Irish Committee of the British Medical Association was held on June 15th, at the Irish Offices, 16, South Frederick Street, Dublin, when Mr. R. J. JOHNSTONE, F.R.C.S., was in the chair.

Medical Assessorship under the Employers' Liability Act.—Dr. THOMPSON (Omagh) wrote stating that he had been removed from the position of medical assessor, under the Employers' Liability Act, for the co. Tyrone without notice to him or cause shown. It was resolved unanimously:

That this Committee has heard with great regret of the removal of Dr. Thompson from the position of medical assessor, under the Employers' Liability Act, for the co. Tyrone, and protest very strongly against the arbitrary removal, without any cause stated, of a most respected member of the profession.

Illegal Conditions of Appointment of Dispensary Medical Officer.—A letter was received from the Local Government Board (Ireland) stating that at the request of the Irish

Committee of the British Medical Association it had forwarded a letter to the Clerk of the Castlebar Board of Guardians, calling attention to the terms of the advertisement issued by the guardians inviting applications for appointment to the office of medical officer of the Balla dispensary district, and stating that the proposed condition of appointment—that the medical officer should attend private patients at fees prescribed by the guardians—would not be binding on the gentleman appointed medical officer.

Medical Secretary for the Irish Medical Committee.—The meeting thanked Dr. HENNESSY, Irish Medical Secretary, for his offer to act again for the ensuing year as Medical Secretary to the Irish Medical Committee, and decided to place his services at the disposal of that body.

IRISH MEDICAL COMMITTEE.

The annual meeting of delegates, representing Borough and Local Medical Committees and the other professional bodies in Ireland, was held on June 15th at the Royal College of Surgeons, Dublin, when Mr. R. J. JOHNSTONE, F.R.C.S. Eng., was in the chair.

Irish Medical Committee.—It was resolved that a committee be formed possessing the same constitution, duties, and power as the Irish Medical Committee elected on July 17th, 1913.

Medical Certificates for Sickness and Sanatorium Benefits.—It was resolved:

- That this meeting reiterates the opinion expressed by three previous annual meetings of delegates that all medical certificates be issued by the medical attendant.
- That any system whereby the primary certification of patients for sanatorium benefit is relegated to medical officials, to the exclusion of the medical attendant, would prevent the discovery of early cases and their efficient treatment.

Circulation of Matter by the Irish Insurance Commissioners Detrimental to the Honour of the Profession.—It was resolved to appoint a small committee to confer with the governing bodies of the Irish and other licensing bodies relative to the action of the Irish Insurance Commissioners circulating privately matter detrimental to the honour and interests of the Irish medical profession without giving the representatives of that body an opportunity of investigating openly the charges made against its members.

Relations of the Profession with Medical Certifiers.—The meeting decided that the Secretaries should communicate with each Borough and Local Medical Committee requesting that a document should be drawn up and signed by each medical practitioner and consultant similar to that in force in Cork regulating professional relations with medical certifiers under the Insurance Act.

Dispensary Doctors as Medical Certifiers for their own Districts.—For the purpose of obtaining the views of the delegates a motion was formally proposed that in the case of a small number of dispensary doctors who were appointed by the Commissioners as medical certifiers for their dispensary districts, professional relations be continued as heretofore. It was pointed out that these doctors certified for insured patients attended by other doctors, and after some further discussion the proposal was unanimously rejected.

Medical Referees under the Insurance Act in Ireland.—It was resolved:

That this delegates' meeting is of opinion that medical referees under the Insurance Act in Ireland and appointed on terms approved by the Irish Medical Committee, should in all cases notify the medical attendant the day and hour of the proposed visit, and in the event of their not doing so we consider their conduct unprofessional.

Medical Deputations to Parish Committees.—It was decided to instruct Borough and Local Medical Committees to send deputations to Parish Committees to endeavour to enlist their active support on behalf of the profession in their efforts to have the present system of certification for sickness benefits altered.

THE WAR EMERGENCY.

CORNWALL.

The first meeting of the War Emergencies Medical Committee for Cornwall was held at St. Austell on June 8th, when Dr. R. B. ANDERSON was elected Chairman and

Dr. Houghton Honorary Secretary. Drs. A. E. Shaw and Trinder were co-opted. Acting on the instructions of the committee the Honorary Secretary has issued the following circular letter to all medical men practising in Cornwall. If, owing to change of address or other reasons, any practitioner does not receive a copy, it is hoped he will avail himself of this publication:

Tannachie, Falmouth.

War Emergencies Medical Committee.

Dear Sir,—At a meeting held at St. Austell on June 8th it was decided to form a committee to safeguard the interests of those practitioners who volunteer for the army.

In many cases, no doubt, men have been able to make the necessary arrangements with their neighbours to have their patients efficiently looked after during their absence. But it was felt that there might be cases where a man might be diffident about approaching his neighbours on such a matter. Therefore the services of a committee would be welcome as intermediaries to arrange the terms under which such services could be rendered.

In this time of serious national danger all must make some sacrifices for the common good. Those who do take commissions in the R.A.M.C. will undoubtedly suffer serious financial loss, so it is not asking too much of those who cannot get away to help loyally to safeguard the interest of the colleagues of theirs who have gone away to serve their country in her time of need.

It was felt by the meeting, when this committee was elected, that no one scheme would suit all cases, and therefore each case would have to be arranged for on its own merits. For instance, a scattered country district would probably involve more labour than would be the case in a town practice.

If you have already joined or intend joining the R.A.M.C., and have not been able to make the necessary arrangements, the services of the committee are at your disposal. When writing, please give the names of those who live nearest to you, or who you think could most easily do your work.

If, on the other hand, you cannot get away, will you be willing to take some of the burden on your shoulders, and loyally help those who are making the sacrifice of leaving their practices to help to relieve some of the awful horrors of this war?

Kindly let me have an answer, and let me know if you are in any way serving at present?—Yours truly,

J. W. HAUGHTON,
Honorary Secretary.

EDINBURGH.

At the annual meeting of the Edinburgh and Leith Division of the Edinburgh Branch, on June 22nd, the Chairman, Dr. R. A. Lundie, stated that 800 circulars had been sent out by the Division, and the secretaries had prepared lists of all medical men engaged in service under the colours. At the present time, out of 123 engaged in war work, 112 were in the army or naval service, 7 were doing Red Cross work, 7 female practitioners had gone to women's hospitals in France and Serbia, and 2 doctors were called up as combatants, while 85 medical men in the area had offered themselves for part-time service.

At the annual meeting of the South-Eastern Counties Division of the Edinburgh Branch, on June 22nd, the Secretary stated that out of 64 circulars sent to practitioners, he had received replies from 26 giving the desired information, 4 had written giving partial information, 11 were absent on service, while 23 had not replied. The Secretary was directed to send another communication to those who had not replied, asking for the information sought. In accordance with the request of the Scottish Medical Emergency Committee, Dr. J. Young (chairman of the Division) and the Drs. W. Blair and J. S. Muir (ex-chairman) were appointed a War Committee, and to it was remitted the duty of (1) suggesting schemes and proposals by which medical men could be freed for service; (2) approaching individual practitioners with suggestions for that object; (3) advising practitioners as to the terms and conditions under which the practices of absentees might be carried on; and (4) advising and directing the secretary in the work of organization.

The Secretary was instructed to call the attention of the Medical Emergency Committee to the fact that fifth-year medical students were acting as combatants and were not allowed to transfer to medical work, and to the fact that the Government, through the National Insurance Commissioners, had not as yet taken steps to relieve practitioners of the duty of signing weekly medical certificates required by approved societies or in any other way to diminish their clerical work.

With reference to the advertisement by relief committees of free medical attendance on the dependants of those serving with the military and naval forces, the Secretary

was instructed to write to the relief committees pointing out that such attendance was in the nature of a charity and not a right, and should only be given in necessitous cases.

PROPOSED DUTY-FREE ALCOHOL IN PUBLIC HOSPITALS.

THE following letter has been addressed to the Chancellor of the Exchequer on behalf of the British Medical Association:

June 24th, 1915.

Sir,—A Committee of the Association has had under consideration the new clause proposed to be inserted by the Government in the Finance (No. 2) Bill headed "Power to authorize use of duty-free spirits in hospitals in preparation of tinctures," etc., and I am instructed to bring to your notice the following considerations in reference to it.

The Association naturally welcomes any proposition which has for its object the assistance of the hospitals which deal with the sick poor, but my Committee, after careful consideration of the proposed clause, has come to the conclusion that in its present form it is dangerous and likely to do more harm than good, and my Committee would respectfully urge that the proposal should not be persisted in at the present time.

In the first place, the new Finance Act does not in any way worsen the position of the hospitals in regard to their use of alcohol as compared with former years, and there is no evidence that the present tax limits the use of alcohol to the detriment of medical treatment.

There are many disadvantages to the practice of medicine in general which might follow if alcohol were permitted to be used in hospitals under conditions which differed from those obtaining outside. There is no doubt that if alcohol in hospitals were duty-free the present economic restrictions on its use would entirely disappear, and preparations largely consisting of alcohol would be used much more frequently than they are now. This would be unfortunate, because the tendency of recent years has been to limit the use of alcohol in medical preparations as far as is consistent with efficiency, and many new forms of drugs have been brought into general use because they have been found to be quite efficient although they contain little or no alcohol, and are therefore cheaper than the older preparations. It would be unfortunate, too, if students who, after they had qualified, would have to prescribe or use preparations containing duty-paid alcohol were trained under conditions in which the cost of alcohol need not be considered. This would lead either to an extravagant use of alcohol in their prescriptions, for which the public would have to pay, or to their having largely to unlearn the habits of prescribing they have been taught in the hospitals; and in particular the possible effect of such free prescribing of preparations containing alcohol on the Drug Fund of the National Health Insurance Acts should not be overlooked.

My Committee would point to the difficulty, of which you are no doubt already aware, of controlling the use of alcohol in a large institution. It is difficult even now when the cost of alcohol makes its economical use a matter of great care, but it would be a much more difficult problem to safeguard it if the cost of alcohol were negligible. There is also the possibility of abuse in connexion with the out-patient departments of hospitals, inasmuch as out-patients are sometimes given comparatively large quantities of liniments which consist largely of alcohol. There would be a distinct incentive to unscrupulous persons to buy these alcoholic preparations for which they could afford to give a price, which though small in comparison with the duty-paid alcohol, would be quite sufficient to tempt the class of persons which frequents the out-patient departments of hospitals.

My Committee anticipates great difficulty in connexion with the definition of the institutions which can be authorized to use duty-free spirits. For purposes of its own this Association at various times has spent a considerable amount of time in trying to define a hospital, but has never succeeded, and my Committee does not think the definition in the clause will be able to prevent abuse. There are many pseudo-hospitals, some of which are really commercial ventures.

My Committee suggests that these would come within the definition in the clause. It is to be feared that the possibility of securing a supply of cheap medicines may lead to the multiplication of institutions which are only "hospitals" in name, but which could easily prove that they were, at any rate partly, supported by voluntary subscriptions. My Committee could say much on this

question and would be prepared if necessary to send a deputation to discuss the question, but his opinion is that at the present time it is not possible to define adequately a "public hospital." It would submit that if the clause cannot be withdrawn it should at any rate be modified so that instead of trying to define a "public hospital" the privilege of duty-free spirit should be given only to institutions which can satisfy some Standing Committee appointed to consider the claims sent in.

My Committee is very sorry to take up a position which superficially may appear like cavilling at a generous offer on the part of the Government, but it feels that the matter is too important and too serious to be allowed to go through in its present form without at any rate strong representations being made on behalf of the medical profession in favour of a postponement of the whole matter and full consideration before the next Finance Bill.

In view of the fact that the Finance proposals of the Government do not in any way prejudice the position of hospitals, and that the concession now offered to them would in the opinion of my Committee be dearly bought if it led to the abuses outlined in this letter, I am instructed to express the hope that the clause may be dropped and the whole question of the use of duty-free alcohol in medicine be referred to a Special Committee for consideration and report.—I am, Sir, your obedient servant,

(Signed) ALFRED COX,
Medical Secretary.

The Right Hon. Reginald McKenna,
Chancellor of the Exchequer,
Treasury, S.W.

LOCAL MEDICAL AND PANEL COMMITTEES.

CROYDON. PANEL COMMITTEE.

A MEETING of the Croydon panel practitioners was held at the Croydon General Hospital on June 17th.

Election of Committee.—The following were elected to form the Panel Committee holding office after July 15th next: T. A. Dulkes, G. G. Genge, G. B. Jameson, W. A. Montgomery, F. Nicholls, G. Wale, J. B. Ridley, C. H. Phillips, A. P. Allan, P. Beard, S. D. Turner, S. H. C. Air, F. J. Davids, N. A. Rose, S. S. Simmons, C. O. Fowler, F. G. Grapel, J. A. Howard, C. G. C. Scudamore, E. H. Willock.

Doctors' Lists.—It was decided to read the following resolution to the Insurance Committee:

That no person be removed from a doctor's list (except in the event of such person being dead or having ceased to be an insured person) until a new doctor has been chosen by him.

Supply of Drugs and Appliances.—It was resolved: That where an insured person visits a consultant, who prescribes proprietary or extraordinary treatment, the panel practitioner of such patient is not bound to, and as a general rule should not, order such treatment at the expense of the drug fund.

LOCAL MEDICAL COMMITTEE.

At a meeting of resident practitioners held at the Croydon General Hospital on June 17th last the following ten practitioners were duly elected to constitute, together with the elected members of the Panel Committee, the Local Medical Committee, to hold office after July 15th next: G. Lewin, R. L. Pinkerton, J. Wraye, C. Wray, P. T. O'Hagan, W. Ledlie, H. A. Easton, H. C. Male, F. W. Davidson, and J. J. Foran.

BERKSHIRE.

LOCAL MEDICAL AND PANEL COMMITTEE.

The thirtieth meeting of the Berkshire Local Medical and Panel Committee was held in the Library, Royal Berks Hospital, on June 3rd, when Dr. NAPIER JONES was in the chair.

Election of Committee.—The SECRETARY reported that he had informed the British Medical Association that the Committee would wish the Association to approach the Commissioners with regard to the abolition of election of Panel Committees during the war, and his action was approved.

Application for Money due from 1913.—The SECRETARY reported that £468 Os. 6d. had been paid by the Commissioners to the Insurance Committee for 1913, and he was instructed to inform the Insurance Committee that this sum should be paid to the doctor as soon as possible. He was also instructed to call the attention of the

Insurance Committee to Article 37 of the Statutory Rules and Order, 1914, and to suggest that the Insurance Committee should agree to the payment of Is. 9d. per insured person per quarter for the first three quarters.

SOUTHAMPTON.

PANEL COMMITTEE.

A MEETING of the Southampton Panel Committee was held on June 3rd at the Insurance Committee's new offices, 17, Hanover Buildings, when Dr. MAY was in the chair.

Persons Suspended from Medical Benefit.—The Committee expressed the opinion that it is desirable that when an insured person is suspended from medical benefit, the medical ticket should be immediately recalled by the society to which he belonged, to prevent him from obtaining medical attendance to which he was not entitled.

Stock Mixtures.—Letters from the Pharmaceutical Committee were read objecting to the list of stock mixtures submitted on the ground that they did not possess the necessary keeping qualities. The Committee resolved to inform the Insurance Commissioners that it adhered to its desire that they be incorporated in the contract.

Dressings.—It was agreed to recommend the Insurance Committee that in order to obviate waste, dressings should be put up in penny packets. It was also decided to ask doctors to satisfy themselves that the quantities of surgical dressings and drugs ordered were supplied, and to report any specific instance of wrong quantities having been supplied by the chemists.

Payments to Doctors.—It was decided to recommend acceptance on account of 75 per cent. of the accounts, the reduced amount being due to insured persons having enlisted.

Agua Destillata.—It was reported that the recommendation of the Joint Checking Committee to allow the charge made for distilled water by the chemists when ordinary water had been ordered had been withdrawn by the Southampton Insurance Committee, but it was still necessary to write "Aq. font." when distilled water was not required.

COUNTY OF SOMERSET.

LOCAL MEDICAL AND PANEL COMMITTEE.

A MEETING of the County of Somerset Local Medical and Panel Committee was held at Taunton on June 10th, when Dr. WALLACE was in the chair.

Payments for 1914.—The CHAIRMAN presented a statement from the Commissioners showing the final financial settlement in respect of the year ending January 11th, 1914. The number of insured persons on the doctors' lists was 95,667, while the amount available for treatment in respect of the same was £39,209 3s. 1d. This worked out at 8s. 2,364d. a head, including the unallocated. The amount available from Drug and Drug Suspense Fund worked out at 1s. 7d. a head for insured persons.

Payments for 1915.—The CHAIRMAN explained that with the Commissioners' approval, only £72 per quarter for a thousand insured persons on the register should be paid. This was really equivalent to a deduction of 36 per cent. The Chairman of the Insurance Committee had decided that this deduction was too large, and that 20 per cent. only should be deducted, but it was anticipated that the proportion of deduction would have to be increased.

Increased Cost of Drugs.—Inasmuch as chemists were to have special allowances in respect of the increased price of certain drugs, the Honorary Secretary was instructed to communicate with the Commissioners and ask that a special allowance should also be made to dispensing doctors.

Expenses of Pharmaceutical Committee.—The Pharmaceutical Committee's estimate for expenses for the ensuing year was approved.

Election of Panel Committee.—It was proposed that the Honorary Secretary should inform the Commissioners that the Committee approved of the suggestion that the present Committee should stay in office for the coming year, and it was decided to approve the suggestion of the Local Medical and Panel Committee of Gloucestershire that this election of committees be triennial instead of annual.

RENFREW COUNTY.

PANEL COMMITTEE.

A MEETING of the Renfrew County Panel Committee was held in the Y.M.C.A. Rooms, High Street, Paisley, on May 26th, when Dr. CORBETT presided.

Complaint against a Practitioner.—A letter was read from the Pharmaceutical Committee, complaining that a practitioner had been consistently committing a breach of his agreement with the Insurance Committee in that, instead of furnishing prescription forms to certain of his insured patients, he had been supplying them gratuitously with whatever drugs and appliances they required. This complaint had been reported to the practitioner concerned, whose reply indicated that he intended to continue the practice complained of. The Panel Committee decided to inform the Pharmaceutical Committee that in its view, on the facts as stated, a breach of the practitioner's agreement had been committed, and that the Pharmaceutical Committee would now be justified in putting the matter before the Insurance Committee.

Conference of Local Medical and Panel Committees.—With reference to the Conference of Local Medical and Panel Committees arranged by the British Medical Association, it was observed from the agenda that the British Medical Association had decided to recommend for general adoption the scheme devised by this Committee for the automatic restoration of discharged soldiers to the lists of their former panel practitioners.

Continuance of Present Panel Committees during War.—It was decided to inform the British Medical Association that as Panel Committees in Scotland hold office until March 31st, 1916, this Committee did not meantime favour suspension of elections during the war.

INSURANCE COMMITTEES.

LONDON.

Reorganization of the Office Staff.

The London Insurance Committee on June 24th received a report from the subcommittee which has been considering the reorganization of the office staff. The report indicated that in the registers department the plan of having a staff mainly temporary in character had proved unsatisfactory, and the number—150—wholly inadequate. The Committee decided to increase the permanent established staff from 84 to 169.

Alleged Undue Economy after Surcharge.

Amongst a number of cases in which complaints had been made against practitioners was one in which an insured person stated that the practitioner informed her that he was only able to order a limited supply of bandages. The practitioner's explanation to the Medical Services Subcommittee was that until recently he supplied the number of bandages he considered adequate for the treatment of an ulcerated leg, but as he had been somewhat heavily surcharged for alleged excessive prescribing, he had felt bound to curtail the supply, this being one of the cases in which he was alleged to have been extravagant. Unless the bandages could be washed and used again as he had instructed, he agreed that the number ordered was insufficient. The Subcommittee expressed the opinion that the surcharge was unjustified, and that in the practitioner's efforts not to prescribe extravagantly the interests of the insured person suffered.

CORRESPONDENCE.

METHOD OF PAYMENT FOR DOMICILIARY TREATMENT OF TUBERCULOUS INSURED PERSONS.

DR. A. CHRISTIE REID (Nottingham) writes: On reading through Appendix D in the SUPPLEMENT of June 26th, and the short note on the resolution re domiciliary treatment of tuberculosis, I was struck with the absence of any recognition of the fact that the 6d. taken out of the sanatorium fund, for our benefit, was really of the nature of a raid on that fund in order to make up our capitation fee to what was considered to be the irreducible minimum of 6s. 6d. (though this was less than our demand). To cast it up against us as a payment for the domiciliary treatment of tuberculosis, and nothing more, as was done by the Bristol Insurance Committee, and then to calculate the rate at £10 for each case so attended is so grossly unfair that I find it difficult to believe that the point was not noticed at the conference, though no record of it was made.

A similar suggestion was sent round to us in Nottingham some months ago, in which it was calculated that we got

£5 for each case of tuberculosis attended at home. We did not take the calculation seriously, as it was so obviously based on a complete misunderstanding of the compromise, or adjustment of the capitation fee as a whole. But as the same ingenious fallacy seems to have occurred to other Insurance Committees it must be at once dispensed whenever it shows itself.

INSURANCE ACT IN PARLIAMENT.

DRUG SUPPLIES.

MR. WATT asked the Secretary to the Treasury, on June 24th, whether medical Insurance Committees would be sued for supplies of drugs which they had purchased, received, and passed, or whether these Committees had the privilege of Government Departments of not being amenable to the courts of the land; and, if the latter, would he introduce legislation altering the principle of a purchasing body being able to pay or not pay, as seemed to them convenient, for goods purchased. Mr. Charles Roberts (Chairman of the Joint Committee of Insurance Commissioners) said that the circumstances under which Insurance Committees contracted for the supply of drugs were not as stated in the question. Section 30 of the National Insurance Act, 1911, provided that every Insurance Committee should be a body corporate and might sue and be sued. Mr. O'Grady asked how many cases of inaccurate dispensing of prescriptions had occurred within the last six months; whether the Commissioners were satisfied that any inaccuracies which had occurred arose from the fact that dispensing had been carried on by unqualified men and boys who had not been apprenticed to a registered chemist and druggist; whether in all such cases of inaccurate dispensing the registered chemist who was responsible in law would be struck off the panel of insurance dispensers; and whether, in view of the danger arising from the fact of inaccurate dispensing, a Committee of Inquiry would be set up to go into the whole matter and report with recommendations to remove the danger. Mr. C. Roberts said that the particulars asked for in the first part of the question were not available, but he had no reason to suspect the existence of any circumstances which called for such an inquiry as was suggested. He would, however, be happy to make inquiries in any specific case brought to his notice.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following notifications are announced by the Admiralty: Fleet Surgeons P. L. Williams, G. Ley to the *Victoria*, additional; J. F. Hall, M.B., to R.M. Division, Portsmouth, vice Strickland; P. G. Williams to the *Field*, additional. Surgeons W. F. Beattie, M.B., and R. F. Quinlan, to the *Victoria*, additional; G. W. Foot to the *President*, additional; D. G. Arthur to the *Field*, additional. Temporary Surgeons R. St. L. Brockman, W. Lowell, to the *Victoria*, additional; A. Vincy to the *Field*, additional, for Plymouth Temporary Hospital; T. Wyndham to the *Field*, additional; R. B. Smith, M.B., F.R.C.S.F., to the Hospital Ship *Reva*; B. Lewitt to the *Ganges*, additional, for Shotley Sick Quarters, vice Walker.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeons W. J. Gettard, M.B., to the *Impervise*, vice Carr; A. G. V. Elder to the Hospital Yacht *Liberty*. To be Surgeon Probationers for temporary service: B. S. Collins, F. Hessey-Anderson, W. H. Jones, N. Braithwaite, G. E. Bickett.

ARMY MEDICAL SERVICE.

Temporary Colonel Charles J. Synnott, M.D., F.R.C.S., from R.A.M.C. to be temporary Colonel.

The following officers of the Royal Army Medical Corps (T.F.) to be temporary Colonels: Major A. H. Tabbly, M.B., F.R.C.S., Captain V. W. Low, M.D., F.R.C.S., Captain J. P. Stewart, M.D., F.R.C.P., Lieutenant-Colonel (local Colonel) R. B. Sleeman, M.D., R.A.M.C. (T.F.) to be temporary Colonel whilst employed as Deputy Director of Medical Services at Malta.

ROYAL ARMY MEDICAL CORPS.

Captain Sir Victor A. H. Hornley, R.A.M.C. (T.F.), to be Major. Captain T. C. English, M.B., F.R.C.S., R.A.M.C. (T.F.), to be temporary Lieutenant-Colonel. E. F. Elliot, F.R.C.S.E., is granted temporarily the honorary rank of Major. Captain C. S. Myers, M.D., to be temporary Major. B. T. Edye, M.B., to be temporary Captain whilst serving with the Australian Hospital. B. Z. Myers, M.B., to be temporary Major whilst serving with the New Zealand Auxiliary Hospital. To be temporary Captains: J. W. Beattie, M.D., temporary Lieutenant Harold Wilton, M.D., temporary Lieutenant T. Kay, M.B., Major, R.A.M.C. (T.F.), to be temporary Major. Temporary Lieutenant V. P. Foote relinquishes his commission on account of ill health. Lieutenant R. R. Scott, M.B., Canadian A.M.C., to be temporary Lieutenant.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

ASHTON UNDER-LYNE UNION.—Resident Assistant Medical Officer for the Workhouse. Salary, £150 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Junior House-Surgeon. Salary, £100 per annum, and £5 laundry allowance.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £250 per annum.

Bristol: COSSHAM HOSPITAL, Kingswood.—Surgeon. Salary, £150 per annum.

Bristol GENERAL HOSPITAL.—House-Physician. Salary, £150 per annum.

Bristol, ROYAL INFIRMARY.—Assistant to the Ear, Throat, and Nose Department.

BURY INFIRMARY.—Senior and Junior House-Surgeons. Salary, £175 and £150 per annum respectively.

CHELTENHAM EDUCATION COMMITTEE.—Assistant Medical Officer of Health and School Medical Officer. Salary, £300 per annum, rising to £350.

CHESTER: COUNTY ASYLUM.—Third Assistant Medical Officer. Salary, £200 per annum.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park.—Tubercle Officer. Salary, £500 per annum.

CRODON MENTAL HOSPITAL, Upper Warrington.—Second Assistant Medical Officer. Salary, £250 per annum, rising to £300.

DUNDEE COMBINATION POORHOUSE AND HOSPITAL.—Resident Medical Officer. Salary, £200 per annum, rising to £350.

DURHAM COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

FOLKESTONE: ROYAL VICTORIA HOSPITAL.—House-Surgeon.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brighton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) House-Surgeon; (2) Assistant Clinical Medical Officer. Salary, £30 for six months and £2 10s. weekly afterwards.

LEAMINGTON SPA: WARNEFORD, LEAMINGTON, AND SOUTH WARWICKSHIRE GENERAL HOSPITAL.—Second Resident Medical Officer. Salary, £250 per annum.

LONDON SCHOOL OF MEDICINE FOR WOMEN, Hunter Street, W.C.—Part-time Demonstrator in Anatomy.

MACEFELD GENERAL INFIRMARY.—House-Surgeon. Salary, £150 per annum.

MANCHESTER: COUNTY ASYLUM, Prestwich.—Assistant Medical Officer. Salary, £250 per annum, rising to £300, and upon promotion to £350.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Resident Medical Officer for In-patient Department, Lowgate. Salary, £250 per annum.

MANCHESTER: NORTH LANCASHIRE HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £120 per annum.

MARGATE: ROYAL SEA-BATHING HOSPITAL.—(1) Resident Surgeon; (2) Non-resident Surgeon (female). Salary at the rate of £150 and £250 per annum for first six months, rising to £200 and £300 respectively.

MIDDLESEX HOSPITAL MEDICAL SCHOOL.—(1) Senior Demonstrator of Anatomy. Salary, £103 1s. annum; (2) Additional Demonstrator for the Physiological Department.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmead Street, W.—(1) Resident Medical Officer; (2) Laboratory Assistant. Salary, £85 and £100 per annum respectively.

NOTTINGHAM GENERAL HOSPITAL.—Senior House-Physician. Salary, £300 per annum.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—(1) House-Surgeon; (2) House-Physician. Salary, £250 and £240 per annum respectively.

PUTNEY HOSPITAL, Putney Common, S.W.—Resident Medical Officer. Salary, £150 per annum.

QUEEN CHARLOTTE'S LINGEN HOSPITAL, Marylebone Road, N.W.—District Resident Medical Officer. Salary at the rate of £50 p.a. annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—Resident Assistant House-Surgeon. Salary, £140 per annum.

ROTHAMPTON HOSPITAL AND DISPENSARY.—Junior House-Surgeon. Salary, £125 per annum.

ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES, Red Lion Square, W.C.—(1) Honorary Assistant Surgeon; (2) Clinical Assistant.

SALISBURY GENERAL INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £100 per annum respectively.

ECARBOROUGH HOSPITAL AND DISPENSARY.—Senior and Junior House-Surgeons. Salary, £100 and £80 per annum respectively.

SHEFFIELD ROYAL INFIRMARY.—(1) House Surgeon; (2) Assistant House-Physician. Salary, £100 per annum.

SHEFFIELD: WHARNCLEIFE WAR HOSPITAL.—Resident Medical Officers.

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—House-Surgeon. Salary, £250 per annum.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—(1) Two House-Surgeons; (2) House-Physician. Salary, £200 per annum each.

SUNDERLAND ROYAL INFIRMARY.—Resident Medical Officer. Salary, £150 per annum.

SWANSEA GENERAL AND EYE HOSPITAL.—House-Physician. Salary, £200 per annum.

VENTNOR: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

WALSALL AND DISTRICT HOSPITAL.—Assistant House-Surgeon and Anaesthetist. Salary, £150 per annum.

WARRINGTON COUNTY BOROUGH.—Assistant Medical Officer of Health (temporary). Salary, £300 per annum.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior House-Surgeon. Salary, £200 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £120 per annum respectively.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—(1) Resident Medical Officer; (2) House-Physician and House-Surgeons. Salary for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.

WEST RIDING ASYLUM, Menston.—Temporary Assistant Medical Officer.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Hanley, Yorkshire (West Riding); Normanston, Yorkshire (West Riding); Rufford, Essex.

To enquire into this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BALLANTYNE, Arthur J., M.D. Honorary Consulting Ophthalmic Surgeon, Glasgow Royal Maternity and Women's Hospital.

BARRIS, W. M., M.D., D.Ph. Medical Officer of Health to the Houghton-le-Spire Urban District Council, vice D. B. Park, F.R.C.S.E., resigned.

BARRY, W. J. M., M.D., D.Ph., F.R.C.P.E. Consulting Physician to the Royal Hamadryad Seaman's Hospital, Cardiff, vice Dr. W. T. Edwards, deceased.

BOREHAM, H. W., M.B., Ch.B., Edin. School Oculist to the County of Somerset.

CRICHTON, J. S., M.B., Ch.B., Edin. Assistant Medical Officer of the Swansea Union.

DAVISON, Miss G. E., M.B., Ch.B. Non-resident House Surgeon to the City of Edinburgh, Edinburgh Royal Infirmary.

DECKETT, A. H., M.B., Ch.B., Aberd. Medical Officer of the Workhouse and Children's Homes of the Bath Union.

HAYNES, V. F., L.R.C.P. Lond. Medical Officer of the Cottage Homes of the Woburn Stafford Union.

IGOROV, E. C. B., M.D., Lond. Certifying Factory Surgeon for the Corby District Co. Merioneth.

JONES, W. B., M.D. Medical Officer of Health to the Bulth Wells Urban District Council.

LANGENECRO, F. Van, M.B., C.M., Edin. District Medical Officer of Houghton-le-Spire Union.

MACKENZIE, E., M.D., Glasg. Medical Officer of the Children's Homes of the Cheddle Union.

ONLITE, W. M., M.B., C.M. Medical Superintendent of the Ipswich Borough Mental Hospital.

OMSBY, G. H., L.M.S.S.A., Medical Officer of Health to the Stanbridge Urban District Council.

TUCKER, F. J. G., M.B., Ch.B., Edin. District Medical Officer of the Wakefield Union.

DIARY FOR THE WEEK.

POST-GRADUATE COURSES AND LECTURES.
The following Post-graduate Course will be given next week:
LONDON SCHOOL OF TROPICAL MEDICINE, Royal Albert Dock, E.

MEETINGS OF THE ASSOCIATION.

Date.	Meetings to be Held.
	JULY.
2 Fri.	London: Ethical Subcommittee, 2.30 p.m.
5 Mon.	Parliamentary Subcommittee, 2 p.m.
7 Wed.	Dorset and West Hans Branch, Sherborne, 3 p.m.; Council, 2.30 p.m.; Lunch, 1.30 p.m.
8 Thur.	Southern Branch, Portsmouth, 3.30 p.m.
9 Fri.	London: Therapeutic Subcommittee, 3 p.m. Cambridge and Huntingdon Branch, Annual Meeting, Cambridge, 3 p.m. East Yorkshire and North Lincolnshire Branch, Grimsby and District Hospital, 4.15 p.m.
10 Sat.	London: Science Committee, 11 a.m.
23 Fri.	ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., and following days, if necessary.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JULY 10TH, 1915.

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Association Intelligence.

PROCEEDINGS OF COUNCIL.

A MEETING of the Council was held at 429, Strand, W.C., on Wednesday, June 30th, 1915.

Present:

Dr. J. A. MACDONALD, LL.D., Taunton, Chairman of Council, in the Chair.

Dr. W. AINSLIE HOLLIS, Hove, Past President.

Mr. T. JENNER VERRALL, LL.D., Bath, Chairman of Representative Meetings,

Dr. EDWIN RAYNER, Stockport, Treasurer.

Dr. JOHN ADAMS, Glasgow
Lieutenant-Colonel Sir JAMES BARR, M.D., LL.D., Liverpool

Mr. JAMES GREEN, Portsmouth
Dr. MAJOR GREENWOOD, London

Surgeon-General P. H. BENSON, I.M.S., Walmer, Kent (Indian Medical Service)

Mr. RICHARD HARDING, New Radnor
Captain F. CHARLES LARKIN, Liverpool

Dr. M. G. BIGGS, London
Dr. H. B. BRACKENBURY, London

Major ALBERT LUCAS, Birmingham
Dr. H. C. MACTIER, Wolverhampton

Dr. CHARLES BUTTAR, London
Dr. J. SINGLETON DAELING, Lurgan

Colonel C. H. MILBURN, D.L., Hull
Captain J. E. MOORHOUSE, Stirling

Dr. DAVID EWART, Chichester
Lieutenant E. ROWLAND FOTHERGILL, Hove

Major GEORGE PARKER, Bristol
Dr. A. TENNYSON SMITH, Orpington

Dr. ADAM FULTON, Basford
Major JAMES GALLOWAY, London

Captain F. J. SMITH, London
Dr. W. JOHNSON SMYTH, Bournemouth

Mr. T. W. H. GARSTANG, Altrincham
Dr. THOMAS A. GOODFELLOW, Manchester

Mr. E. B. TURNER, London
Dr. DENIS WALSH, Grangou
Dr. O. R. M. WOOD, Woolpit

APOLOGIES.

Letters of apology for non-attendance, owing to military and other duties, were received from Dr. H. J. Campbell, Major T. Duncan Greenlees, Lieutenant-Colonel R. I. D. Hackett, Dr. J. R. Hamilton, Major R. Wallace Henry, Colonel W. T. Johnston, Mr. R. J. Johnstone, Lieutenant-Colonel J. Munro Moir, Dr. H. F. Oldham, and Major David F. Todd.

RESIGNATION.

Sir James Porter, K.C.B., the Representative of the Royal Navy Medical Service on the Council, has been compelled to resign on account of war duties in connexion with the Admiralty. The resignation was accepted with much regret.

ROLL OF HONOUR.

The Council considered and approved a recommendation from the Metropolitan Counties Branch to institute a "Roll of Honour of the British Medical Association" to include the names of those members who have died on active service, the names to be placed in a suitable position set apart in the head quarters of the Association.

FINANCE.

QUARTERLY ACCOUNTS.

The accounts for the period April 1st to June 4th, 1915, amounting to £9,429 7s. 3d., were received and approved.

ORGANIZATION COMMITTEE.

GROUPING OF HOME CONSTITUENCIES FOR ELECTION OF TWELVE MEMBERS OF COUNCIL, 1915-16.

In pursuance of the authority conferred by Minute 91 of the Annual Representative Meeting, 1914, the Council has grouped the Home Constituencies for election of twelve members of Council, 1915-16, in the same manner as for 1914-15, the Constituency formed of the Divisions of the new Wiltshire Branch being included in the group of Constituencies comprised in the South-Western group of Branches (SUPPLEMENT, May 8th, 1915, p. 201).

GRANTS TO BRANCHES FOR 1915.

Grants for 1915 were made as follows, provided that in each case a report for 1914 satisfactory to the Grants Subcommittee had first been received:

	Per Head on Annual List.	Total.
	£ s. d.	£ s. d.
East York and North Lincoln	2s. ...	13 12 0
Midland	1s. ...	29 15 0
Sussex	1s. ...	17 15 0
Stirling	4s. ...	14 3 0
Wiltshire (further grant)...	2s. ...	9 0 0

No grant for 1915 was made to the West Somerset Branch, that Branch having had in its possession, as at December, 31st, 1914, a balance equivalent to nearly 5s. per head of its membership.

JOURNAL COMMITTEE.

ANNUAL MEETING SECTIONAL ARRANGEMENTS.

The Memorandum of Duties of Officers of Sections is to be revised so as to include the following amendments:

1. That in order to secure continuity one of the Secretaries of each Section be continued in office for a second year.
2. That the Programme of the Sections be settled by the officers of the respective Sections at the earliest date convenient and published in the JOURNAL.
3. That the circulars at present issued from this office to Honorary Secretaries, for the purpose of asking individuals to take part in the discussions and to contribute papers to be read in the Sections, be discontinued.
4. That the speech opening the discussion be limited to thirty minutes.
5. That officers of Sections be informed that the regulations must be strictly adhered to.

SCIENCE COMMITTEE.

MIDDLEMORE PRIZE.

The Middlemore Prize, founded by the late Richard Middlemore of Birmingham, was awarded for 1915 to R. Foster Moore, M.A., B.C., F.R.C.S., for his essay on

"The Pathology of the Affections of the Retina met with in connexion with Disease of the Kidneys."

CENTRAL ETHICAL COMMITTEE.

CASES UNDER ARTICLES 10 AND 11.

Having received a special report from the Central Ethical Committee with regard to representations of a Division with reference to two members of the Association, the Council resolved that the two members in question should be expelled from membership of the Association.

MEDICO-POLITICAL COMMITTEE.

ALLOCATION OF VARIOUS DUTIES BETWEEN THE SCHOOL MEDICAL STAFF, TEACHERS, AND NURSES.

The Memorandum (*see* Appendix XXI to Supplementary Report of Council, SUPPLEMENT, July 3rd) on the allocation of various duties of the school medical staff, teachers, and nurses in connexion with medical inspection and treatment of school children respectively was approved for presentation to the Representative Body.

It was decided to circulate copies of the Memorandum to school medical officers, and to any member of the Association making application for advice on any of the points mentioned, with an intimation that the Memorandum is the considered opinion of both bodies, but to defer such circulation until after the Annual Representative Meeting, 1915.

MEDICAL AID INSTITUTES.

The CHAIRMAN of the Committee reported that a conference with representatives of the Friendly Societies' Medical Alliance and the South Wales and Monmouthshire Alliance of Medical Societies had been arranged for Friday, July 9th.

CENTRAL NURSING COUNCIL FOR LONDON.

Mr. E. B. TURNER, representative of the Council on the Central Nursing Council for London, stated that the report of the latter body would shortly be published, when he would bring it before the Council.

CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL AND PANEL COMMITTEES.

The Insurance Act Committee was authorized to consider the resolutions of the Conference of Local Medical and Panel Committees, to take what action thereon it considers necessary, and to report, with recommendations, on behalf of the Council to the Representative Body.

AWARD OF GOLD MEDAL FOR DISTINGUISHED MERIT.

The Council by a unanimous vote decided to present the Gold Medal of the Association to Captain Arthur Martin-Leake, V.C., F.R.C.S., R.A.M.C., for his most conspicuous bravery and devotion to duty throughout the war, especially during the period October 29th to November 8th, 1914, near Zonnebeke, in rescuing, whilst exposed to constant fire, a large number of wounded who were lying close to the enemy's trenches.

NEW MEMBERS OF ASSOCIATION.

Four candidates whose names had been circulated on the notice convening the meeting were elected members of the British Medical Association.

ELECTION OF COUNCIL, SESSION 1915-16.

The CHAIRMAN reported the election of the 1915-16 Council as follows:

Professor R. A. BOLAM, M.D., North of England, and North Lancashire and South Westmorland Branches.

Dr. H. J. CAMPBELL, Yorkshire Branch.

Dr. T. A. GODFELLOW, Mr. F. C. LARKIN, Lancashire and Cheshire Branch.

Dr. ADAM FULTON, East York and North Lincoln, and Midland Branches.

Dr. O. R. M. WOOD, Cambridge and Huntingdon, East Anglian, and South Midland Branches.

Mr. ALBERT LUCAS, Birmingham and Staffordshire Branches.

Mr. W. F. BROOK, North Wales, Shropshire and Mid-Wales and South Wales and Monmouthshire Branches.

Dr. F. J. SMITH, Dr. JAMES GALLOWAY, Dr. MAJOR GREENWOOD, Mr. H. B. BRACKENBURY, Metropolitan Counties Branch.

Dr. GEORGE PARKER, Bath and Bristol, Gloucestershire, West Somerset, and Worcestershire and Herefordshire Branches.

Dr. W. JOHNSON SMYTH, Dorset and West Hants, and South-Western Branches.

Mr. JAMES GREENE, Oxford and Reading, and Southern Branches.

Dr. A. TENNYSON SMITH, Kent, Surrey, and Sussex Branches.

Scotland.

Dr. JOHN GORDON, Aberdeen, Northern Counties, Dundee, and Perth Branches.

Dr. J. R. HAMILTON, Edinburgh and Fife Branches.

Dr. JOHN ADAMS, Glasgow and West of Scotland Branch (four City Divisions).

Dr. J. LIVINGSTONE LOUDON, Glasgow and West of Scotland, five County Divisions, Border Counties, and Stirling Branches.

Ireland.

Dr. DENIS WALSH, Connaught, and South-Eastern of Ireland Branches.

Professor ARTHUR HAMILTON WHITE, Leinster Branch.

Dr. J. J. GIBSON, Munster Branch.

Mr. R. J. JOHNSTONE, Ulster Branch.

Dominions Returns.

Dr. C. J. MARTIN, F.R.S., New South Wales and Queensland Branches.

Dr. DAVID EWART, New Zealand Branch.

Dr. G. S. SYME, South Australian, Tasmanian, Victorian, and Western Australian Branches.

Dr. T. DUNCAN GREENLEES, South African, etc., Group of Branches.

A considerable part of the business of the Council is embodied in the Supplementary Report of Council to the Representative Body, published in the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL of July 3rd.

Meetings of Branches and Divisions.

METROPOLITAN COUNTIES BRANCH.

The sixty-third annual meeting of the Branch was held on June 25th at the offices of the Association, 429, Strand, when Dr. F. J. SMITH, President, was in the chair.

Election of Officers.—Dr. PERCIVAL BARNES, the Chairman of the Organization Committee—the Committee which carried out the scrutiny of the vote—reported that a contest had taken place for the election of four vice-presidents and an honorary treasurer. Dr. R. E. CROSSE, Honorary Secretary, reported that there had been no contests for the other offices, and declared the following to be the officers of the Branch for the year 1915-16:

President: Dr. Major Greenwood.

President-elect: Atwood Thorne, Esq.

Past-President: Dr. F. J. Smith.

Vice-Presidents: Dr. Francis John Allan, William McAdam Eccles, Esq., M.S., F.R.C.S., Dr. James Galloway, Dr. Joseph William Hunt.

Honorary Treasurer: H. Betham Robinson, Esq., M.S., F.R.C.S.

Honorary Secretaries: Dr. R. E. Crosse, 68, Nightingale Lane, Wandsworth Common, S.W.; N. Bishop Harman, Esq., F.R.C.S., 108, Harley Street, W.

Representatives on the Central Council: H. B. Brackenbury, Esq., 21, Overmore Road, Strand, Green, N.; Dr. James Galloway, 54, Harley Street, W.; Dr. F. J. Smith, 158, Harley Street, W.

On the motion of Dr. LANGDON-DOWN, seconded by Mr. H. BETHAM ROBINSON, it was resolved:

That it be referred to the Organization Committee to consider the question of the desirability of drafting a rule of the Branch requiring that the candidate's sanction to be nominated be first obtained.

Annual Report.—The annual report for the year 1914-15 and the balance sheet for the year ended December 31st, 1914, were adopted. Dr. BRACKENBURY criticized the report of the representatives on the Central Council, and pointed out certain shortcomings. The PRESIDENT admitted the force of the criticism, and it was agreed that attention should be given to the matter in future reports.

Alteration of Rule.—The following alteration of Rule 196 by the insertion of the words "and adopt (with or without amendment)" after the words "to receive" was agreed to, so that the rule now reads as follows:

19. In addition to the ordinary business of any ordinary general meeting, the business of the annual meeting shall be: (a) to receive the report of the election of new officers; (b) to receive and adopt (with or without amendment) the annual report of the Council on the affairs of the Branch, and the annual financial statement; (c) to receive the annual report of the Representatives of the Branch on the Central Council of the Association; (d) to make new rules or alter or repeal existing rules.

Induction of President.—Dr. F. J. SMITH, in introducing his successor, Dr. Major Greenwood, expressed his thanks for the kindly manner in which they had accepted his somewhat despotic rulings during the past year. He had not had any of them, so far as he knew, seriously disputed, and he was obliged for the forbearance shown him. The war had taken their attention to such an extent that it was impossible to throw the mind as thoroughly into the work of the Branch as was desirable, although he was pleased to say that the routine work had not been neglected, but had been satisfactorily carried out. On account of the events which overshadowed everything else—the war—he had not been able to devote that interest to the work of his office which he otherwise would have done. In conclusion, he trusted that the members would extend the same kindness and generosity to his successor in the chair, Dr. Major Greenwood, as they had shown him. Dr. MAJOR GREENWOOD thereupon took the chair, and, on the motion of Mr. BETHAM ROBINSON, a vote of thanks was accorded to Dr. F. J. Smith for the manner in which he had discharged the duties of his office during the past year. Dr. SMITH briefly returned thanks. Dr. MAJOR GREENWOOD thereupon read his presidential address, entitled "Side Lights on the Practice of Medicine in the Past from Early English Literature." Dr. F. J. SMITH proposed a hearty vote of thanks to the President for his able and interesting address, and Dr. CLIPPINGDALE, in seconding, said that there could be no mystery as to the origin of medicine, as the whole subject was easily divided into two stages—one, the period at which universities were founded and gave medical degrees; the other, the period during which the monks paid special attention to physic. It was well known that William the Conqueror died of dropsy and was attended by two abbots. The physicians who attended our early sovereigns were always rewarded with livings, an instance of which was Linacre, who was presented with seven livings. The PRESIDENT returned thanks.

CITY DIVISION.

A MEETING of the City Division was held on June 28th, when Dr. DUENO was in the chair.

Fees for Life Insurance.—The Council's report of fees for life insurance was fully discussed and the following resolutions adopted:

That the fee of £1 ls. recommended in Appendix A be accepted, with a rider that when an amount insured exceeded £1,000 fee should be £2 2s.

That the minimum fee for reports in Appendix B should be 10s. 6d.

That in Appendix C the minimum fee should be fixed at 2s. 6d.

Direct Representative on the General Medical Council.—On the motion of Dr. GREENWOOD, seconded by Dr. J. W. HUNT, the Division decided to support Dr. J. A. Macdonald as Direct Representative on the General Medical Council.

Corporation of London Tuberculosis Scheme.—The papers relating to the Corporation of London Tuberculosis Scheme were directed to be forwarded to the Medical Secretary, with the request that the Central Body would take action.

NORTH OF ENGLAND BRANCH:

NEWCASTLE-UPON-TYNE DIVISION.

THE twelfth annual meeting of the Newcastle-upon-Tyne Division was held at the Royal Victoria Infirmary, Newcastle-upon-Tyne, on June 23rd. For the purpose of electing Representatives and Deputy Representatives for the Annual Representative Meeting, this meeting was held in conjunction with the Hexham Division.

Annual Report.—The annual report and balance-sheet for 1914 were read and confirmed. The report stated that no winter scientific meetings, for the organization of which the Division has been largely responsible in the past, had been held during the session 1914-15. Dr. J. L. Wilson had resigned his position as Honorary Secretary in October, 1914, and had been succeeded by Mr. David Ranken. During the year 1914 the Executive Committee of the Division had very largely increased responsibilities owing to the entirely new circumstances brought about by the war. A scheme for the attendance on dependants of soldiers and sailors with the colours was submitted to the Lord Mayor's Relief Fund Committee, and has been in full swing

for many months. At the suggestion of the Executive Committee a scheme for a motor ambulance for military service was promoted among the doctors in the Division. The sum of £500 was raised, and the motor ambulance is being temporarily lent to the 1st Northern General Hospital. A War Emergency Committee has been formed and through its exertions a list has been supplied to the War Office of those willing to do whole-time and part-time service or to carry on the practices of those called to the colours. This list has already been exceedingly useful, as by its means the Northumberland War Hospital has been largely staffed. In July of 1914 the Division, in conjunction with the Panel Committee, agreed to rent and furnish the premises at 25, Ridley Place, at which all meetings were now regularly held and which has been of inestimable service for many and varied purposes from the very beginning.

Election of Officers.—In view of the special circumstances of this year, all officials for last year were re-elected. Dr. Ruddock was appointed to the Executive Committee in place of Dr. Farquharson, deceased.

Annual Representative Meeting.—The Representatives and Deputy Representatives were then instructed as regards the business of the Annual Representative Meeting.

PERTH BRANCH.

THE summer meeting of the Branch was held on June 29th, and the following were the appointments of officers for the ensuing year:

President: John Hume, M.D., D.P.H., Perth.

Vice-President: James Gairdner, M.D., D.P.H., Crieff.

Honorary Secretary: John H. Lyell, M.D., Perth.

Honorary Treasurer: Dr. John Hume, Perth.

Representative to Annual Meeting: Dr. Trotter (Perth).

Deputy Representative: Dr. Lyell.

Branch Council: Drs. Bisset, Menzies, Dods Brown (Perth); Dr. Edwards (Bridge of Earn), Dr. Burgess (Stanley), Dr. Trotter (co-opted as Secretary of Panel Committee).

Annual Representative Meeting.—The matters referred to Divisions were discussed by the members, and the Representative instructed in regard to voting thereon at the Representative Meeting.

SOUTH MIDLAND BRANCH:

BEDFORDSHIRE DIVISION.

THE annual meeting of the Bedfordshire Division was held at Bedford on June 8th, when Dr. KILHAM ROBERTS was in the chair.

Election of Officers.—The following officers were elected for the ensuing year:

Chairman: Dr. G. H. Goldsmith.

Vice-Chairman: Dr. Waugh.

Honorary Secretary and Treasurer: Dr. Birks.

Representative: Dr. J. W. Bone.

Representatives on Branch Council: Drs. Milburn, Dixon, Pollard, and L. G. Nash.

Executive Committee: Drs. Butters, W. A. Sharpin, S. J. Ross, and F. S. Lloyd, and *ex officio* members.

Annual Report.—The annual report was adopted.

Bullet Wounds of Bones.—Sir JOHN BLAND-SUTTON read a paper entitled "Bullet Wounds of Bones."

Annual Representative Meeting.—The Representative was duly instructed for the Representative Meeting.

Insurance Act Resignations.—It was resolved that members who had resigned membership in connexion with the Insurance Act should be invited to rejoin.

Roll of Honour.—It was resolved that the names of the members of the Division who had joined His Majesty's Forces should be inscribed on a roll of honour.

Votes of Thanks.—Votes of thanks were passed to Dr. Kilham Roberts for his services as chairman for the past year and for his entertainment of the Division to luncheon before the meeting, and to Sir John Bland-Sutton for his most interesting paper.

SOUTH WALES AND MONMOUTHSHIRE DIVISION:

SOUTH-WEST WALES DIVISION.

THE annual meeting of the Division was held at Carmarthen on July 1st, when Dr. D. PHILLIPS was in the chair.

Annual Report.—The annual report of the Executive Committee was read and approved.

Election of Officers.—The following were elected:*Chairman:* Dr. Samuel Williams (Llanelli).*Chairman-elect:* Dr. Joshua Powell (Newcastle Emlyn).*Honorary Secretary and Treasurer:* Dr. D. R. Price (Ammanford), re-elected.*Representative:* Dr. Richard Hopkin (Llangadoc).
Executive Committee: Drs. T. Morgan, Owen Williams, Captain C. D. Mathias, R. Hopkin, Colonel Evan Evans (Llanelli), Lieutenant Evan Evans (Lampeter), J. Edgar, P. Davies, E. R. Williams, C. A. Brigstocke, T. J. Jenkins, D. G. Lloyd, D. Lewis Williams, and D. M. Davies.*Members of Branch Council:* Drs. Evan Jones, Y. H. Mills, and H. H. Roberts.*Members of Contract Practice Committee:* Drs. J. E. P. Davies, T. Morgan, and Owen Williams.*Direct Representative on the General Medical Council.*—It was recommended to support Dr. J. A. Macdonald as a Direct Representative on the General Medical Council.*Annual Representative Meeting.*—It was agreed that the Representative should use his discretion with regard to the business of the Annual Representative Meeting.*Conference of Local Medical and Panel Committees.*—Dr. C. A. BRIGSTOCKE gave a report of the Conference of the Local Medical and Panel Committees held in London on June 16th.**SOUTH-WESTERN BRANCH.**

THE seventy-sixth annual meeting of the South-Western Branch was held at the Athenaeum, Plymouth, on June 29th, when Major WOOLCOMBE was in the chair.

Annual Report.—The Acting Secretary, Mr. S. M. ACKLAND, read the report of the Branch Council for 1914-15, which was adopted. It stated that the Council decided to recommend the postponement of the annual meeting at Exeter until 1916, and invited Major Woolcombe to continue to act as President for a second year. The Council also recommended that Mr. Ackland be asked to allow himself to be reappointed as President-elect. The strength of the Branch on April 30th was 419, against 479 in the previous year—a drop of 60; and there was no doubt that quite a large proportion of resignations were from medical men who had gone to serve with the army. The Council had to deplore the death of Mr. E. L. DONOVAN, Secretary of the Plymouth Division. Renewed efforts had been made to obtain elective medical representation on the Committee of the County Nursing Association. Shortly after the outbreak of the war the Association was asked by the War Office to give its aid in preparing lists of medical men prepared to offer service either at home or abroad; and more recently the Director-General again approached the Association for assistance, and a strong County Committee was appointed, consisting of the Lord Lieutenant and other members of the County Council and the Branch officers of the Devonshire Divisions of the Association, to assist the Branch in carrying out the organization asked for by the Director-General. At the request of the Devon County Director V.A.D. it was decided to request members to forego during the war the ordinary fees for ambulance, Red Cross, and voluntary aid lectures, when the courses were authorized from the office of the County Director. Grants amounted to £95 16s., and expenses to £56 11s. 6d., but there were some sums due to Divisions still to be paid.*Votes of Thanks.*—The President was thanked for his services and for consenting to act for another year. A similar compliment was paid to the President-elect for continuing as such. Major Russell Coombe was re-elected Secretary and Treasurer with the best thanks of the Branch for his past services.*Organization Rules.*—The new organization rules were adopted.*Tea.*—At the conclusion of the meeting the members were entertained to tea by the President at 16, The Crescent.**ULSTER BRANCH:**

PORTADOWN AND WEST DOWN DIVISION.

THE annual meeting of the Portadown and West Down Division was held at Portadown on June 11th, when Dr. DEANE was in the chair.

Election of Officers.—The following office-bearers were elected:*Chairman:* Dr. T. B. Pedlow (Lurgan).*Vice-Chairmen:* Dr. Graves (Cookstown), and Dr. Dawson (Newton Hamilton).*Representatives on Branch Council:* Drs. Agnew, Taylor, and Marshall.*Honorary Secretary:* Dr. J. Singleton Darling.*Representative for Representative Meetings:* Dr. J. Singleton Darling.*Deputy Representative:* Dr. W. J. Dawson.*Executive and Ethical Committee:* The above, and Drs. Deane, Fergus, Flood, Hadden, Johnson, Lavery, Kerr, and Stuart.*The War Emergency.*—A discussion as to the need of medical men in the army elicited the fact that at least twenty-one gentlemen, almost all members or sons of members, from the Division area had joined since the outbreak of war, including the chairman and an ex-chairman.*Pituitary Extract.*—An interesting discussion on the use of pituitary extract was introduced by Drs. JOHNSON and BRISTOW, and taken part in by most of those present.*Specimens.*—Dr. DARLING showed a number of pathological specimens, and gave short notes of some cases.**YORKSHIRE BRANCH:**

WAKEFIELD, PONTEFRAC, AND CASTLEFORD DIVISION.

THE annual meeting of the Division was held at the Clayton Hospital, Wakefield, on June 25th, when Dr. A. THOMSON (Wakefield) presided.

Election of Officers.—A letter was read from the Chairman (Dr. Hillman), who had taken up a temporary commission in the R.A.M.C., resigning his position of chairman, but, in the circumstances, the resignation was not accepted; and, upon the motion of Dr. MAY, seconded by Dr. LISTER, the officers of last year were re-elected in a body for the ensuing year, with Mr. Wm. Stanger, F.R.C.S., as an extra Vice-Chairman.*The War Emergency.*—THE HONORARY SECRETARY presented a report of the meeting of the profession held at the County Hall, Wakefield, on April 23rd, which was addressed by Lieutenant-Colonel J. F. Dobson, F.R.C.S., Administrator of the Second Northern General Hospital, Leeds.*Insurance Act.*—On the motion of Dr. MAY, seconded by Dr. HERMON, it was resolved:

That the Honorary Secretary be directed to request the British Medical Association to secure from the Insurance Commissioners an advance copy of the Draft Regulations and Form of Practitioners' Agreement for next year in sufficient time to allow them to be discussed by the profession.

The following motion, by Dr. TWIST, seconded by Dr. LISTER, was carried:

That the British Medical Association be asked to circularize the profession as to the importance of joining, or remaining members of the Association, in view of the time of severe stress which is undoubtedly coming in the near future in connexion with the Insurance Act.

Free Medical Attendance of Dependents of Soldiers and Sailors.—The opinion was expressed that this privilege was being greatly abused in many cases, and upon the motion of Dr. HERMON, seconded by Dr. THOMSON, it was resolved:

That this Division is of opinion that the free medical attendance upon the dependants of men serving with His Majesty's Forces should be discontinued after July 31st next; and the British Medical Association should be requested to take such action as may be necessary to secure this step being taken generally throughout the country, and to find out whether the War Office is prepared to provide medical attendance for dependants or not.

Association Notices.**ANNUAL REPRESENTATIVE MEETING, 1915.****DATE OF MEETING.**

THE Annual Representative Meeting of the Association, 1915, will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Friday, July 23rd, 1915, and following days as may be required.

By order,
ALFRED COX, Medical Secretary.

May 19th, 1915.

ANNUAL GENERAL MEETING.

NOTICE is hereby given by the Council that the Annual General Meeting of the British Medical Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Saturday, the 24th day of July, 1915, at 2 o'clock in the afternoon.

Dated this 22nd day of June, 1915.

By order,

GUY ELLISTON,

Financial Secretary and Business Manager.

429, Strand, London, W.C.

ALTERATION OF ARTICLES OF ASSOCIATION: EXTRAORDINARY GENERAL MEETING.

NOTICE is hereby given by the Council that an Extraordinary General Meeting of the British Medical Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Saturday, the 24th day of July, 1915, immediately after the conclusion of the Annual General Meeting of the same Association, called for 2 o'clock in the afternoon of that day, when the subjoined Resolutions will be proposed as Extraordinary Resolutions:

1. That Articles 3, 43 and 44, and the words "whether an existing Member or a future Member" in Article 9, be cancelled.
2. That in Article 4 there be inserted immediately after the word "Acts" the words following—"and any Medical Practitioner who does not reside within the area of any Branch of the Association and who though not so registered is possessed of any of the qualifications described in Schedule (A) of the Medical Act, 1858."
3. That in Heading III immediately after Article 11 the word "and" be substituted for the word "or."
4. That in Article 28 the last six words be altered so as to read "provisions as to Referendum herein after contained."

Should the above Resolutions or any of them be passed by the requisite majority the same will be submitted for confirmation as Special Resolutions or a Special Resolution to a further Extraordinary General Meeting, and such Meeting will be held at the Head Office of the Association, No. 429, Strand, London, W.C., on Wednesday, the 11th day of August, 1915, at 2 o'clock in the afternoon, for the purpose of considering and, if thought fit, confirming as Special Resolutions or a Special Resolution any of the above Resolutions set forth which shall have been so passed.

Dated this 22nd day of June, 1915.

By order,

GUY ELLISTON,

Financial Secretary and Business Manager.

429, Strand, London, W.C.

ELECTION OF MEMBERS OF COUNCIL BY GROUPED REPRESENTATIVES.

NOTICE is hereby given that Nominations for Candidates for election of Members of Council by grouped Representatives for the year 1915-16 will be received by the Medical Secretary up to the end of the first hour of the proceedings of the Annual Representative Meeting on Friday, July 23rd, 1915. Each Nomination must be on the prescribed form, copies of which will be forwarded by the Medical Secretary on application.

Separate forms have been prepared: (I) For Nomination by a Division (through its Representative), and (II) for Nomination by a Representative of a Constituency included in the Group, and those applying are requested to state by which purpose the form is desired.

The voting papers will be issued at the Representative Meeting to each Representative or Deputy Representative of a Constituency in the United Kingdom in attendance at the Meeting.

By order of the Council,

ALFRED COX,

Medical Secretary.

June 30th, 1915.

FREE MEDICAL ATTENDANCE FOR THE DEPENDANTS OF SOLDIERS AND SAILORS.

At several recent meetings of Divisions of the Association dissatisfaction has been expressed at the loose way in which some of those to whom recommendations for free medical attendance upon the dependants of soldiers and sailors have been submitted have dealt with the cases. A committee appointed at the recent annual meeting of the Sheffield Division to discuss the matter had a conference with members of the local relief committee who admitted that there had been abuses, and expressed their willingness to assist the profession in remedying them. As the result of the deliberations the following are the terms agreed upon, and books are now issued in conformity with the terms set forth:

The conditions governing the provision of free medical treatment for dependants of soldiers and sailors have been revised, and an applicant must satisfy the Committee that the case comes within the following rules:

1. Wife without children or other dependants, and able to work. Medical book not to be issued.
2. Wife with one or two children. Medical book issued, provided total income from all sources does not exceed 24s. per week.
3. Wife with more than two children. Medical book issued, provided total income from all sources does not exceed 28s. per week.

Any case in which the foregoing rules debar the issue of a medical book but which appears to be of an exceptional nature, will be considered by a Special Committee.

Two doctors elected by the medical profession to be members of the Special Committee.

The Nuneaton branch of the Soldiers' and Sailors' Families Association has agreed to act upon the following rules decided upon by the medical practitioners in the town:

1. That the dependants of soldiers and sailors serving with His Majesty's Forces be divided into two classes—namely:
 - (a) Those unable to pay for medical treatment.
 - (b) Those able to pay.

That those in class (a) be treated under the scheme arranged by the British Medical Association with the Soldiers' and Sailors' Families Association, and that those in class (b) be treated as private patients.

(It was also decided that cards should only be issued on the request of the doctor and old cards renewed if the doctor shows he considers it is a case falling under class (a) by signing the request at the back.)

2. That the dependants of soldiers and sailors killed on active service falling under class (a) be attended until, and only until, the Government arranges the pension; when the dependant is in receipt of the pension all responsibility for gratuitous service ceases.

LOCAL MEDICAL AND PANEL COMMITTEES.

WEST RIDING OF YORKSHIRE.

LOCAL MEDICAL AND PANEL COMMITTEE.

A MEETING of the West Riding Local Medical and Panel Committee was held at the County Hall, Wakefield, on June 11th, when Dr. MAY was in the chair.

Vacancy on Medical Service Subcommittee.—Dr. Steven was appointed on the Medical Service Subcommittee in place of Dr. Russell, resigned owing to military duties.

Conference of Local Medical and Panel Committees.—Dr. Fry was appointed to attend the Conference, to be held under the auspices of the British Medical Association at the Connaught Rooms, Great Queen Street, London, W.C., on Wednesday, June 16th.

New Edition of West Riding Formulary.—A further report of the Pharmacy Subcommittee containing its revised draft of the new edition of the Formulary was approved.

"Extravagant Prescribing."—It was decided to issue a circular letter to panel doctors on the alleged excessive prescribing, and a draft of the proposed circular, submitted by Dr. Fry on behalf of the Pharmacy Subcommittee, was approved.

Election of New Panel Committee.—The Committee was unanimous that the practitioners on the panel desired no election at the present time, but preferred the present Committee to continue in office during the period of the war, and it was decided to request the Commissioners to suspend the election to be held in June.

EAST SUSSEX.

LOCAL MEDICAL AND PANEL COMMITTEES.

A MEETING OF THE EAST SUSSEX LOCAL MEDICAL AND PANEL COMMITTEES WAS HELD ON JUNE 23RD.

Extension of Sanatorium Benefit.—It was reported that the Insurance Committee had adopted a recommendation that, as from July 1st, 1915, in exercise of the power conferred by Section 17 (1) of the National Insurance Act, 1911, tuberculosis (sanatorium) benefit should be extended to the undermentioned class of dependants of insured persons resident in the county, namely:

Such persons as the Insurance Committee shall ascertain to be wholly or in part dependent upon the earnings of any insured person, and as in the opinion of the Committee are at the date of application for benefit either disqualified for entry into insurance because they are under 16, or in a position to prove that since attaining that age they have spent their time in a school or college, in indentured apprenticeship or otherwise under instruction without wages, or otherwise in the completion of their education. And with a view to the provision of domiciliary treatment for dependants the scale of fees suggested by the British Medical Association in their model scheme for the treatment of tuberculosis was considered, and it was decided to submit the following scale to the Medical and Panel Committees for their consideration:

	s.	d.
(a) For full medical report (including consultation at the surgery or visit)	5	0
(b) Extra for first visit with consulting tuberculosis officer	2	6
(c) Continuous record (per quarter)	5	0
(d) Quarterly reports	5	0
(e) Attendance on patient at doctor's residence or surgery	2	0
(f) Visit at patient's home	2	6
(g) Night visit—that is, visit paid between 8 p.m. and 8 a.m. in response to call within these hours	5	0
(h) Special visit—that is, visit paid in response to call sent after 10 a.m. and before 8 p.m.	3	6
(i) Injection of vaccines (vaccines to be provided by Local Authority)	2	6
(j) Mileage—The fees in a, f, g and h to be increased by 20 per cent. for each visit paid to the residence of the patient—		

(1) Situate more than a quarter of a mile from a metalled road or in an exceptionally sparsely populated locality as defined by the Committee's mileage scheme; and

(2) In respect of each complete half-mile of the distance between the residence of insured person and the metalled road the general conditions contained in the Committee's mileage scheme to apply.

The scale of fees was referred to the Executive Committee for consideration.

IRELAND.

MEDICAL CERTIFIERS.

THE LOCAL GOVERNMENT BOARD (IRELAND) HAS REFUSED TO sanction doctors who hold appointments for large areas as medical certifiers under the Insurance Act in Ireland to act either in a temporary or permanent capacity as Poor Law medical officers, stating that they were not satisfied that doctors could discharge efficiently the double duties of medical certifier under the Insurance Act and Poor Law medical officer for a dispensary district—the latter in Ireland having a very extensive area. Considering that the Local Government Board had, both before and since the Insurance Act came into force in Ireland, refused to allow one dispensary doctor to do duty for another in an adjoining district for a few weeks' holiday in the summer, when sickness is at its lowest, much surprise and comment have been caused by the fact that they (the Local Government Board) did not take action in this matter earlier, as they must have recognized, from their experience, the physical impossibility of one doctor discharging at the same time the duties of Poor Law medical officer and medical certifier of a large area under the Insurance Act. It has been discovered that a considerable number of attested cases have been certified without the patients having been seen by the medical certifiers appointed by the Irish Insurance Commissioners, and arrangements are being made to have the medical certifiers who issue such certificates brought before the General Medical Council. The necessity for adopting this course is regrettable, as it is believed that the Insurance Commissioners should not have, by their system of certification, tempted doctors to undertake duties which were physically impossible to discharge.

INSURANCE ACT IN PARLIAMENT.

SUPPLY OF DRUGS.

ON June 30th Mr. Snowden asked whether the Panel Committee at Newcastle-on-Tyne had decided to surcharge those practitioners whose drug cost had exceeded that allocated to them under the Act a portion of the cost, with a view to making them more careful in the future; if this had been done without any consideration as to whether the excess was accounted for by the special character of cases; whether the two women practitioners on the panel had been surcharged, the excess expenditure on drugs in these cases being due to the special character of their panels, and could not be avoided if justice was done to the patients; and whether the Insurance Commissioners would take the steps necessary to stop this practice of surcharging medical practitioners in cases where it had clearly been necessary to exceed the allocated expenditure upon drugs in the interests of the patients. Mr. C. Roberts (Chairman of the Joint Committee of Insurance Commissioners) said he was not in possession of the details of the specific cases referred to, but a practitioner had a right to be heard by the Panel Committee of the area before that body reported to the Insurance Committee; and, further, to appeal to the Insurance Commissioners against any decision of the Insurance Committee to impose a surcharge.

CORRESPONDENCE.

JUVENILE CONTRACT RATES.

DR. T. CUMING ASKIN (Woodbridge, Suffolk) writes: We are now on the eve of another Representative Meeting, at which many matters of great importance are to be discussed. I should like to allude to one—that of contract fees for medical attendance and treatment of juvenile members of friendly societies.

Unless Recommendations B and D of the Council are rejected, my loyalty—and I believe, that of many others—will be strained almost to the breaking point.

A rate of 4s. 4d. per annum ought not to be entertained for a moment except as part of a set of Regulations such as those adopted by the Woodbridge and Felixstowe area of the South Suffolk Division. I enclose a copy of these Regulations as drawn up in 1913 and agreed to by the various friendly societies in the district, and would suggest that they be adopted by the Representative Meeting with a few necessary alterations.

I have carefully read the Special Report of Council (Appendix IX), but can there find no justification whatever for its recommendations.

Well may Dr. Bateaman write in the same SUPPLEMENT, p. 239: "The approved societies are asserting their control, and a condition of *corde* is rapidly being developed."

It is stated that between the ages of 5 and 16 juveniles require less attention than adults, and certainly less than women. This may be so, though personally I do not admit it. What about epidemics, etc.? The reference to women is out of place, because I think all agree that 9s. is inadequate payment for them. A very important point, however, is that although the experience of "some members of the Council" is said to refer to juveniles between 5 and 16, the recommendations of the Council apply to children from the age of 3 years.

It may be improbable that any Government would think of offering 9s. for each child, but there is a very great difference between 9s. and 4s. 4d. The Government will no doubt offer as little as they possibly can, but are we bound to accept their offer?

Allusion is made to a meeting between the Medico-Political Committee and a deputation from the Manchester Unity of Oddfellows, and a brief report follows. What sad reading! Truly a veritable triumph for the friendly societies. It practically amounts to this: We have received our orders and the Council recommends us to obey them, lest worse things befall us—a very humiliating position for any profession to be placed in. It looks very like our betrayal.

What are these orders?

1. You must ignore the question of income limit.
2. You must help us in our fight for existence with the collecting societies.

3. You must agree to accept children from the age of 3, if not from birth.
4. You must provide drugs for these children.
5. You must accept 4s. 4d. per annum because that is all that can be afforded.

Note it is not suggested that 4s. 4d. is adequate payment for the service rendered; that is immaterial. It is simply a question of what the societies are good enough to say they can afford. I unhesitatingly say that in most cases the parents can easily afford more. Where there is a will there is a way. What about the money spent on amusements, dress, and drink?

I believe great stress is laid upon the fact that 4s. 4d. is a minimum rate, and that some doctors are accepting smaller sums. We all know the minimum is practically bound to become the maximum, and that some doctors will get their own way whatever happens.

I implore the Council to withdraw these recommendations, and give a strong lead in this matter of supreme importance not only to the general practitioner, but to the whole profession.

Regulations for Non-insured Patients of Subarea 9 (South of Suffolk Division of British Medical Association).

1. Free choice of doctor.
2. Income limit: 30s. for country, 40s. for town.
3. State insured between 65 and 70, and who are friendly society members, to be treated at old rates for three months; and strong representations should be made to the Government to pay the doctor at the ordinary rates for insured people.
4. State insured between 65 and 70, and who did not belong to a friendly society, 8s. 6d. per annum.
5. Friendly society members over 70, at the present rates, except where it is evident to the medical man that the patient is able to pay more.
6. Disabled and chronics at the old rates, except where it is evident to the medical man that the patient is able to pay more.
7. Members of friendly societies who are not insured under the State, 8s. 6d. without tuberculosis, 9s. with tuberculosis.
8. Juveniles only, from 4 to 16, at 4s. each (male and female).
9. Women at same rates as men.
10. Charges for examinations, 1s. each (new members). If the Government in the future make any allowance for any of the above-mentioned classes of patients, the above scales to be revised.

These terms are subject to alterations at three months' notice by either side. Mileage over three miles to be charged at the option of the doctor, and paid to him by the patient. Extras for fractures, anaesthetics, consultations, confinements, and miscarriages, etc., as usual.

P. L. GUSEPPI, F.R.C.S., Secretary.

Temporary Lieutenancy of A. Fleming, M.B., F.R.C.S., and J. C. Venicker, M.D., F.R.C.S. E., relinquish their commission. The notification regarding the appointment of D. Boylan, M.B., to a temporary Lieutenancy published in the *London Gazette* of November 5th, 1914, is cancelled.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.
Lieutenant R. O. C. THOMSON, M.B., is confirmed in his rank.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.
1st London (City of London) Field Ambulance.—Captain D. G. Rice Oley, from Attached to Units other than Medical Units, to be Captain; W. K. H. Herdy, to be Lieutenant.
1st London (City of London) Sanitary Company.—To be Lieutenants: C. C. Frye, A. Romanes, M.B., H. G. A. Pearson.
2nd London General Hospital.—E. Bingley, late Surgeon Captain Bengal Nagpur Railway Volunteer Rifles, to be Captain, temporary.
3rd London General Hospital.—L. I. Preston to be Lieutenant.
4th London General Hospital.—F. R. Bridge to be Captain, whose services will be available on mobilization.
6th London Field Ambulance.—Captain S. R. Matthews, from Attached to Units other than Medical Units, to be Captain.
7th London General Hospital.—J. B. Marshall to be Captain, to be Lieutenant.
2nd East Anglian Field Ambulance.—Lieutenant J. Arthur, M.D., to be temporary Captain.
2nd London General Hospital.—C. H. Bryant, M.D., F.R.C.S., to be Captain, whose services will be available on mobilization.
1st Southern General Hospital.—J. W. Stretton to be Captain, whose services will be available on mobilization.
3rd Southern General Hospital.—J. B. Marshall to be Captain, whose services will be available on mobilization.
4th Southern General Hospital.—Captain G. C. Sandford, M.D., to be temporary Major.
2nd South Western Mounted Brigade Field Ambulance.—C. D. Reiton, M.B., to be Lieutenant.
North Midland Mounted Brigade Field Ambulance.—Lieutenant L. A. Dyer, M.D., to be temporary Captain.
2nd South Midland Mounted Brigade Field Ambulance.—V. V. Wood to be Lieutenant.
3rd South Midland Field Ambulance.—Captain C. Corfield to be temporary Major.
2nd Western General Hospital.—Major J. J. Cox, M.D., F.R.C.S., is seconded while acting as Chief Recruiting Medical Officer for Manchester.
2nd Northern General Hospital.—W. Longley to be Lieutenant.
4th Northern General Hospital.—Lieutenant-Colonel C. Harrison, M.D., resigns his commission on account of ill health.
Yorkshire Mounted Brigade Field Ambulance.—Surgeon-Captain R. G. Dyer, from East Yorkshire Yeomanry, to be Major, (his substitution of notice published in the *London Gazette* of March 17th.)
3rd East Lancashire Field Ambulance.—Lieutenant W. P. Ferguson, M.D., to be temporary Captain.
Scottish Services.—Lieutenant E. Lyster, M.D., to be Captain, whose services will be available on mobilization.
3rd Lovatish Field Ambulance.—Captain A. C. McMaster, M.B., is seconded on his appointment as Resident Surgeon to the Military Hospital at Banquoy.
Attached to Units other than Medical Units.—To be Lieutenant: B. V. C. Aab, M.B.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following announcements are notified by the Admiralty: To be temporary Surgeon-Generals: G. L. Chettle, C.B., C.V.O., F.R.C.S.; Sir W. Watson Cheyne, Bt., F.R.C.S., F.R.S.; Raymond Johnson, M.B., F.R.C.S.; Sir William Macnave, M.D., H. D. Rolleston, M.D., F.R.C.P. Fleet Surgeons: C. B. Bettings, C.B., M.D., to the *Dido*, vice Penfold; T. W. Philip, M.B., to the Hospital Ship *Soudan*; F. F. Lohb to the *Queen Mary*, vice Philip; W. H. Pope to the *Boudicca*, vice Penfold; N. H. Roche to the *Blake*, vice Lyster; W. Hassard, M.D., to the *Cete*, vice Davidson; C. M. Burrell, E. J. Tongue, J. Drummond, M.B., and J. L. Pringle to the *Victory*, additional, for Haslar Hospital; S. Rivers to the *Pembroke*, additional, for disposal; C. H. E. Ayrton to the *Zeus*, additional, to be temporary Surgeon; W. S. O'Loughlin, S. L. Baker, E. D. D. Davies.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon A. G. V. Elder granted acting rank of Staff Surgeon; W. F. R. Castle to the *Leopard*, vice Watson. Surgeon Probationers: P. Barlow to the *Paragon*, vice Evans; J. E. MacIntyre to the *Ardent*, vice Clegg; G. E. Birckett to the *Loyal*, vice Waddington; F. H. Anderson to the *London*; H. Tomlinson to the *Zeus*, vice Castle. To be Surgeon Probationers for temporary service: D. J. Adams-Lewis, E. Hall.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Granted temporary rank whilst employed with the Wharfedale War Hospital: Lieutenant-Colonel W. J. N. Vincent, M.D., as Majors: D. Gillespie, M.D., J. M. Mathison, M.B., Captain G. S. Simpson, F.R.C.S., 3rd Northern General Hospital, R.A.M.C.(T.F.). To be temporary Majors whilst serving with the Beaufort War Hospital: R. G. Duncanson, M.B., F.R.C.S., R.C.S. P. A. Pesh, M.B., to be temporary Major whilst employed with the County of London War Hospital. C. F. McDowell, M.D., is granted temporarily the honorary rank of Captain whilst serving at the Hosiery Military Hospital. Temporary Captain R. A. R. Wallace, having ceased duty with the Australian Hospital, relinquishes his commission. Temporary Lieutenants to be temporary Captains: D. K. McDowell, C.H., J. G. Duncanson, M.B., A. B. Bradford, M.B., H. F. Woolfenden, M.D., F.R.C.S., W. G. Mumford, M.B., F.R.C.S., M. Fitzmaurice-Kelly, M.B., F.R.C.S., M. W. B. Oliver, M.B.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

IN ninety-six of the largest English towns, 7,759 births and 4,295 deaths were registered during the week ended Saturday, June 26th. The annual rate of mortality in these towns, which had been 15.9, 13.5, and 12.4 per 1,000 in the three preceding weeks, further fell to 12.3 per 1,000 in the week under notice. In London the death-rate was equal to 11.8, while among the ninety-five other large towns it ranged from 5.9 in Tottenham, 6.0 in Enfield, 6.1 in Wimbledon and in Lincoln, 6.2 in Newport (Mon.), 7.0 in Lewton, and 8.1 in East Ham and in Southend, to 19.4 in Sunderland, 19.9 in Cambridge, 20.1 in South Shields, 20.3 in Halifax, 22.7 in Middlesbrough, and 23.7 in Carlisle. Measles caused a death-rate of 2.0 in Sheffield and in Aberdare. The principal infectious diseases averaged 3.0 per 1,000, as in the ninety-six large English towns. The death-rate in the several towns ranged from 2.8 in Kilmarnock, 7.6 in Falkirk, and 8.8 in Perth, to 17.9 in Kirkcaldy, 19.9 in Aberdeen, and 21.7 in Ayr. The mortality from the principal infectious diseases averaged 3.0 per 1,000, as in the ninety-six large English towns. The death-rate in the several towns ranged from 2.8 in Kilmarnock, 7.6 in Falkirk, and 8.8 in Perth, to 17.9 in Kirkcaldy, 19.9 in Aberdeen, and 21.7 in Ayr. The mortality from the principal infectious diseases averaged 3.0 per 1,000, as in the ninety-six large English towns. The death-rate in the several towns ranged from 2.8 in Kilmarnock, 7.6 in Falkirk, and 8.8 in Perth, to 17.9 in Kirkcaldy, 19.9 in Aberdeen, and 21.7 in Ayr. The mortality from the principal infectious diseases averaged 3.0 per 1,000, as in the ninety-six large English towns. The death-rate in the several towns ranged from 2.8 in Kilmarnock, 7.6 in Falkirk, and 8.8 in Perth, to 17.9 in Kirkcaldy, 19.9 in Aberdeen, and 21.7 in Ayr. 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HEALTH OF IRISH TOWNS.

During the week ending Saturday, June 26th, 579 births and 365 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 571 births and 331 deaths in the preceding period. These deaths represent a mortality of 14.8 per 1,000 of the aggregate population in the districts in question, as against 14.2 per 1,000 in the preceding period. The mortality in these Irish areas was, therefore, 2.5 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate in the other hand, was equal to 24.9 per 1,000 of population. As for mortality of individual localities, that in the Dublin registration area was 15.7 as against an average of 17.3 for the previous four weeks; in Dublin city 15.2 (as against 17.8), in Belfast 12.9 (as against 15.1), in Cork 14.5 (as against 15.1), in Londonderry 11.4 (as against 17.4), in Limerick 10.8 (as against 15.9), and in Waterford 20.9 (as against 11.9). The zymotic death-rate was 1.0, as against 1.1 in the previous period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £250 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Junior House-Surgeon. Salary, £150 per annum, and 45 laundry allowance.

BIRMINGHAM UNIVERSITY.—Female Demonstrator in Anatomy for Women Students.

BOLTON INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £200 per annum.

BRISTOL: COSHAM HOSPITAL, Kingswood.—Surgeon. Salary, £150 per annum.

BRISTOL GENERAL HOSPITAL.—House-Physician. Salary, £150 per annum.

BURY INFIRMARY.—Senior and Junior House-Surgeons. Salary, £250 and £150 per annum respectively.

CARLISLE: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £140 per annum.

CHELTENHAM EDUCATION COMMITTEE.—Assistant Medical Officer of Health and School Medical Officer. Salary, £300 per annum, rising to £350.

CHELTENHAM GENERAL HOSPITAL.—(1) House-Physician. (2) House-Surgeon.

CHESTER: COUNTY ASYLUM.—Third Assistant Medical Officer. Salary, £200 per annum.

CROYDON MENTAL HOSPITAL, Upper Warrington.—Second Assistant Medical Officer. Salary, £250 per annum, rising to £300.

DUNDEE COMBINATION POORHOUSE AND HOSPITAL.—Resident Medical Officer. Salary, £225 per annum, rising to £300.

DURHAM COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

FOLKESTONE: ROYAL VICTORIA HOSPITAL.—House-Surgeon.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—House-Surgeon. Salary, £60 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—(1) House-Surgeon; (2) Assistant Clinical Medical Officer. Salary, £200 for six months and £2 10s. washing allowance each.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130 per annum.

LONDON SCHOOL OF MEDICINE FOR WOMEN, Hunter Street, W.C.—Female Demonstrator in Anatomy.

MACLESFIELD GENERAL INFIRMARY.—House-Surgeon. Salary, £180 per annum.

MANCHESTER CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary, £100 per annum, and 45 monthly bonus during the war.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £120 per annum.

MARGATE: ROYAL SEA-BATHING HOSPITAL.—(1) Resident Surgeon; (2) Non-resident Surgeon (female). Salary at the rate of £100 and £250 per annum for first six months, rising to £200 and £300 respectively.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westminster Palace Street, W.—Laboratory Assistant. Salary, £100 per annum.

NEWCASTLE-UPON-TYNE: UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.—Demonstrator of Anatomy. Salary, £250 per annum.

OLDHAM UNION.—Resident Assistant Medical Officer for Poor Law Institution. Salary, £250 per annum.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—(1) House-Surgeon; (2) House-Physician. Salary, £250 and £240 per annum respectively.

PORTSMOUTH: ROYAL PORTSMOUTH HOSPITAL.—House-Surgeon. Salary, £150 per annum.

ST. MARK'S HOSPITAL FOR CANCER, FISTULA, Etc., City Road, E.C.—House-Surgeon. Salary, £100 per annum.

SALISBURY GENERAL INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £100 per annum respectively.

SHEFFIELD ROYAL INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Physician. Salary, £100 per annum.

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—House-Surgeon. Salary, £250 per annum.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—(1) Tivo House-Surgeons; (2) House-Physician. Salary, £200 per annum each.

SUNDERLAND ROYAL INFIRMARY. Resident Medical Officer. Salary, £150 per annum.

SWANSEA GENERAL AND EYE HOSPITAL.—House-Physician. Salary, £200 per annum.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House-Surgeon. Salary, £250 per annum.

VENOTON: ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer.

WALSALL AND DISTRICT HOSPITAL.—Assistant House-Surgeon and Anaesthetist. Salary, £150 per annum.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior House-Surgeon. Salary, £200 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £120 per annum respectively.

WEST DERBY UNION.—(1) Assistant Resident Medical Officer at the Walton Institution; (2) Temporary Assistant Resident Medical Officer at the Mill Road Infirmary. Salary, £300 per annum each.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Etc., Welbeck Street, W.—Clinical Assistants.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—(1) Resident Medical Officer; (2) House-Physician and House-Surgeons. Salary for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £150 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer always to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

HIDDLE, R. P., M.B., C.M. Edin., D.P.H., Certifying Factory Surgeon for the Kirkwall District, co. Orkney.

JAMESON, T. M., L.R.C.P. and S. Edin., L.F.P.S. Glasg., District Medical Officer, the Plymouth Incorporation.

KEELING, H. M., M.R.C.S., L.R.C.P., District Medical Officer of the Market Bosworth Union.

PHILLIPS, N., L.R.C.P. and S. Edin., District Medical Officer of the Chester-le-Street Union.

ROBERTS, C. Hubert, M.D., F.R.C.S., F.R.C.P., Member of the Visiting Staff, War Hospital, Finsom.

ROWAN, M. L., M.D., R.U.I., Medical Superintendent, Derby County Asylum.

SEPTON, R. B., L.R.C.P. and S. Eng., L.R.F.P. and S. Glasg., Medical Officer for the Salford Cottage Homes; Poor Law Medical Officer for the Culcheth District of the Leigh Union; Public Vaccinator for the Culcheth and Lowton Districts of the Leigh Union.

THOMPSON, C. M.B., Medical Officer of Coldhurst Cottage Homes of the Oldham Union.

WILLIAMS, R. T., M.R.C.S., L.R.C.P., District Medical Officer of the Gushborough Union.

WINDSOR, C. W., M.D. Cantab., District Medical Officer of the Royston Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charges for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

IRWIN.—On July 1st, 1915, at 23, University Square, Belfast, to Mr. and Mrs. S. T. Irwin, a son.

TRATLEN.—On Saturday, July 3rd, at 291, Willesden Lane, N.W., the wife of C. Leonard Traylen, Mr. C.S. Eng., L.R.C.P. Lond., of a daughter.

WATT.—On July 4th, at 59, East Dulwich Road, London, S.E., to Dr. and Mrs. Mitchell Watt, a daughter.

DEATH.

SMALLER.—On June 24th, at Honley, Huddersfield, in his 67th year, Thomas Smaller, M.D.

DIARY FOR THE WEEK.

THURSDAY.

ROYAL SOCIETY OF MEDICINE.
SECTION OF DERMATOLOGY, 5 p.m.—Exhibition of cases at 4.30 p.m.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be held.
	JULY.
9 Fri.	London: Therapeutic Subcommittee, 3 p.m.
10 Sat.	London: Science Committee, 11 a.m.
13 Tues.	London: A.R.M. Agenda Committee, 2 p.m.
23 Fri.	ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., and following days, if necessary.

LONDON: SATURDAY, JULY 17TH, 1915.

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Meetings of Branches and Divisions.

[The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the JOURNAL.]

EDINBURGH BRANCH.

The summer annual meeting of the Branch was held in the hall of the Royal College of Physicians on June 23rd, when Dr. PLAYFAIR, President, was in the chair.

Annual Report.—The report of the Branch Council and the Treasurer's statement for the year to December 31st, 1914, were read and approved.

Queen Mary Nursing Home.—Mr. W. J. Stuart was elected to fill the vacancy on the board of management of the Queen Mary Nursing Home.

Investments.—The question of investing the money to the credit of the old Branch fund was referred to the Branch Council.

War Emergency.—It was resolved that any further steps to meet the claims of the war emergency on the profession within the Branch area should be left in the hands of the Scottish Medical Service Emergency Committee.

Election of Officers.—The Branch Council for 1915-16 was elected as follows:

President: Professor F. M. Caird, F.R.C.S.E., Edinburgh.
President-elect: James Ritchie, M.D., Edinburgh.
Vice-Presidents: W. Blair, M.D., Jedburgh (also Representative to Representative Meeting); R. McKenzie Johnston, M.D., Edinburgh.

Honorary Secretaries: John Stevens, M.D., Edinburgh (also Representative to Representative Meeting); John Eason, M.D., Edinburgh.

Honorary Treasurer: R. A. Lundie, M.B., F.R.C.S.E., Edinburgh (also Representative to Representative Meeting).

Representatives on Council of Association: J. R. Hamilton, M.D., Hawick; J. Munro Moir, M.D., Inverness.

Honorary Secretaries of Divisions: A. M. Easterbrook, M.B., Gorebridge; M. J. Oliver, M.B., St. Boswells; G. Keppie Paterson, M.B., F.R.C.P.E., Edinburgh.

Representatives of Divisions—Edinburgh and Leith: E. F. Armour, M.B., Edinburgh; J. D. Comrie, M.D., Edinburgh; J. Lamond Lackie, M.D., Edinburgh; John Playfair, M.D., Edinburgh; R. Thin, M.B., F.R.C.P.E., Edinburgh. (Lothians): W. B. Martine, M.B., Weston, Hamilton. (South-Eastern Counties): J. Cardyle Johnstone, M.D., Roxburgh District Asylum, Melrose.

Dr. Munro Moir holds office until the Representative Meeting, when election to his office takes place.

EDINBURGH AND LEITH DIVISION.

The annual meeting of the Division was held on June 22nd, when the Chairman, Dr. R. A. LUNDIE, presided.

Annual Report.—The annual report of the Division, as presented by the SENIOR SECRETARY, stated the action taken with regard to the appointment of an assistant tuberculosis officer to the Corporation of Edinburgh, with the result that the salary offered at first of £250 was

raised to £350, the sum fixed by the Association for this work.

Matters Referred to Divisions.—The Division unanimously decided to oppose contract practice for children under any conditions, and the Division strongly opposed the proposed fees for examination for insurance, and advised the retention of 10s. 6d. for sums under £300. The Division decided to oppose the motions by the Rochdale and Westminster Divisions. The motion by the Plymouth Division was agreed to after deleting the last clause.

Election of Officers.—The following were elected office-bearers and Committee for 1915-16:

Chairman: Dr. W. Stewart.
Vice-Chairman: Drs. R. A. Lundie and R. McKenzie Johnston.
Senior Secretary and Treasurer: Dr. G. Keppie Paterson.
Junior Secretary: Dr. J. D. Comrie.
Representatives to Representative Meeting: Drs. J. Stevens and R. A. Lundie.
Representatives to Branch Council: Drs. E. F. Armour, J. D. Comrie, J. Lamond Lackie, J. Playfair, R. Thin.
Executive Committee: Mr. L. Beesly, Drs. L. F. Bianchi, R. H. Blair, J. M. Bowie, G. S. Carmichael, A. Goodall, A. Morrison McIntosh, J. McLaren, C. M. Pearson, James Ritchie, I. Venters, and A. Murray Wood.

KENT BRANCH:
MAIDSTONE DIVISION.

Election of Officers.—The following officers have been elected for the coming year:

Chairman: Dr. W. Shaw (Maidstone).
Vice-Chairman: Dr. E. J. Wood (Yalding).
Secretary: Dr. G. Southwell-Sander (Wateringbury).
Representative at Representative Meetings: Dr. W. Douglas (Goudhurst).
Representative on Branch Council: Dr. Parr-Dudley (East Malling).
Executive Committee: Dr. Travers, Dr. Harvey, Dr. Grey, Dr. R. Johnson, Dr. Parr-Dudley.

LANCASHIRE AND CHESHIRE BRANCH:
HYDE DIVISION.

The annual meeting of the Division was held at Hyde Town Hall on July 1st, when Dr. J. BENNETT took the chair, and was followed by the new chairman, Dr. F. CANT.

Election of Officers.—The following were elected:

Chairman: Dr. F. Cant.
Vice-Chairman: Dr. G. B. Hows.
Joint Honorary Secretaries: Dr. F. G. Ralphs and Dr. J. Kerr.
Representative on Branch Council: Dr. T. Watts.

Fees for Medical Examination for Life Insurance.—The Division unanimously resolved to support the recommendation of the Council relative to the reports and fees for life insurance.

MUNSTER BRANCH.

The annual general meeting of the Branch was held on June 26th, when Dr. Wm. DONOVAN, Vice-President, was in the chair.

Note of Condolence.—On the motion of Professor CORRY, seconded by Dr. Wm. DONOVAN, a unanimous vote of

condolence was accorded to Mrs. McCall on the death of Dr. McCall, President of the Branch.

Annual Report.—The annual report of the Branch Council was unanimously adopted.

Medical Certifiers.—The resolution passed by the Branch on January 23rd was reaffirmed, namely:

The Munster Branch of the British Medical Association expresses its strongest disapproval of the acceptance by Irish practitioners of the posts of part-time or whole-time certifiers under the Insurance Act, and considers such appointments inconsistent with the honour and interests of the medical profession.

On the recommendation of the Branch Council the following resolution was unanimously adopted:

That this meeting is of opinion that no member of the British Medical Association in Ireland should accept or continue to hold an appointment as medical certifier under the National Insurance Act.

The Honorary Secretary was directed to forward a letter to all the members of the Branch asking any of them who had accepted such posts to take steps immediately to terminate such appointments and to notify him thereto.

Election of Officers.—The following officers and Council for 1915-6 were appointed:

President: Dr. William Donovan, Queenstown.
Vice-President: Dr. D. J. O'Connor, F.R.C.P.I., Cork.
Honorary Secretary: Dr. Philip G. Lee, Cork.
Member of Central Council: Dr. J. Giussani, Cork.
Representative to Representative Meeting: Dr. W. MacFettridge, Cork.
Representative to Irish Committee: Professor H. Corby, Cork.
Council: Drs. H. R. Townsend, Lucy Smith, O. MacCarthy, P. T. O'Sullivan, J. T. O'Connor, E. Murphy, C. Yelverton Pearson, W. Ashley Cummins, A. S. Nance (Bantry), R. Foot (Monkstown), J. Devane (Limerick), Humphrey O'Sullivan (Corkstown).
Ethical Committee: Dr. D. J. O'Connor (Cork), Dr. W. Donovan (Queenstown), Dr. Philip G. Lee (Cork).

NORTH OF ENGLAND BRANCH

STOCKTON DIVISION.

The annual meeting of the Division was held on June 30th.

Election of Officers.—The following officers were elected for the ensuing year:

Chairman: Dr. A. H. Smith.
Vice-Chairman: Dr. G. M. Hogg.
Honorary Secretary: Dr. John Brydon.
Assistant Honorary Secretary: Dr. G. Hall.
Representative for Representative Meetings: Dr. A. N. Ross.
Representatives on Branch Council: Dr. H. B. Densham, and Dr. Ross and Dr. Brydon, *ex officio*.
Executive Committee: The above, together with Drs. S. D. Craig, Henry Fawcett, J. Fleming, T. J. Kirk, F. T. Talbot, T. Watson.

Treatment of Juveniles.—It was decided to adhere to the following resolutions adopted in March, 1913:

1. That a wage limit of £2 a week be fixed.
2. That a fee of 6s. 6d. be charged, to include medicines.
3. To insist upon a full list of names being furnished to medical men quarterly.
4. That the age limit be fixed at from 1 to 16 years.

Life Insurance.—The scale of fees recommended by the Council of the British Medical Association was approved.

OXFORD AND READING BRANCH:

READING DIVISION.

The annual meeting of the Division was held in the Library, Royal Berks Hospital, on July 1st, when Dr. Napier Jones was in the chair.

Election of Officers.—The following were elected officers for the ensuing year:

Chairman: Dr. Guilding.
Vice-Chairman: Dr. McCrae.
Executive Committee: Drs. Napier Jones, Abrams, Clowes, Rowland, Hope, Sidney Gilford, N. H. Joy, A. G. Paterson, T. B. Bokenham, W. J. Sussmann, A. Thompson, in addition to *ex officio* members.
Representative: Dr. G. H. R. Holden.
Deputy Representative: Dr. P. Napier Jones.
Treasurer: Dr. W. T. Freeman.
Honorary Secretary: Dr. G. O. Lambert.

Annual Report.—The Honorary Secretary read the annual report giving a summary of the business transacted at the Division and Executive meetings held during the past year.

Medical Attendance on Dependents of Soldiers and Sailors.—The Executive Committee reported that Dr. Rowland, medical representative on the Reading Committee of the Soldiers' and Sailors' Families Association, had drawn their attention to the fact that medical benefit was being granted to dependants who were not in necessitous circumstances. In some instances the dependants granted free medical attendance were actually in receipt of an income larger than they had enjoyed before the outbreak of the war. Several members took part in the discussion which followed. The opinion of several speakers was that the scheme for medical attendance on dependants of those serving with the colours was unnecessary in Reading; the terms of subscription to the Borough of Reading Medical Society were within the means of nearly all dependants, and Governors' tickets for free medical attendance under that institution were available to the very few who were in genuinely necessitous circumstance. The Executive Committee was empowered to consider the matter, and to alter or withdraw the agreement in force for free attendance on dependants of soldiers and sailors on service.

Fees for Life Insurance Examinations.—Dr. SIDNEY GILFORD opened a discussion regarding the suggested fees for life insurance examinations. He considered that the important point was to insist on a fee of one guinea for an examination which included testing of the urine, while for an examination not including that procedure a fee of half a guinea might be accepted. Many members thought that the form of examination for which a fee of half a guinea was offered should be abolished, on the ground that a medical man could not conscientiously recommend the acceptance of a candidate without careful examination. Dr. COLEMAN considered that it would be a pity to adopt measures opposed to the industrial policies, which tended to encourage thrift among the working classes. It was decided to instruct the Representative to support the following policy:

1. A full and complete examination at a fee of one guinea; a less elaborate examination at a fee of half a guinea.
2. Fees of half a guinea for cursory examinations be not accepted.

Vote of Thanks to Retiring Chairman.—A hearty vote of thanks was accorded to Dr. Napier Jones, the retiring chairman. Dr. NAPIER JONES, in acknowledging the vote, said that he regretted one thing only. He had hoped that the social side of the Division would have been more fully developed during the past year, that members would have met more often for purely social purposes apart from Division meetings. Unfortunately, the outbreak of the war had put an end to all prospects of holding social meetings.

STAFFORDSHIRE BRANCH:

MID STAFFORDSHIRE DIVISION.

The annual meeting of the Division was held at the Trent Valley Hotel, Lichfield, on June 29th, when Dr. F. M. ROWLAND, Chairman, presided.

Report of the Representative.—Dr. CLENDINNEN read his report on the Annual Representative Meeting, 1914, for which he was accorded the thanks of the meeting.

Election of Officers, 1915-16.—The following were elected:

Chairman: Dr. F. M. Rowland.
Vice-Chairman: Dr. A. E. Hodder.
Honorary Secretary: Dr. T. D. Stuart Shaw.
Representative at Representative Meeting: Dr. Wm. Clendinnen.
Representatives on the Branch Council: Drs. W. G. Lowe, G. Reid, E. C. Stack.
Members of the Executive Committee: Drs. C. J. Armson, H. D. Chapman, J. S. Gettings, R. S. Harvey, C. Thompson, and *ex officio* members.

War Emergency.—It was decided to compile a register of members of the Division willing to undertake whole-time or part-time service, with details as to the latter, and to forward the same to the D.D.M.S. at York, but this, in consequence of the action of the British Medical Association, will be suspended. The recruiting officer for Staffordshire (Major Wedgewood) attended the meeting for the purpose of obtaining the assistance of members' influence in recruiting, and the reasons of failure in the matter of recruiting in some areas were discussed.

Matters Referred to Divisions.—The matters referred to Divisions were fully discussed and the Representative instructed.

Association Notices.

ANNUAL REPRESENTATIVE MEETING, 1915.

DATE OF MEETING.

The Annual Representative Meeting of the Association, 1915, will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Friday, July 23rd, 1915, and following days as may be required.

By order,
ALFRED COX, *Medical Secretary.*

May 19th, 1915.

ANNUAL GENERAL MEETING.

NOTICE is hereby given by the Council that the Annual General Meeting of the British Medical Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Saturday, the 24th day of July, 1915, at 2 o'clock in the afternoon.

Dated this 22nd day of June, 1915.

By order,
GUY ELLISTON,
Financial Secretary and Business Manager.
429, Strand, London, W.C.

ALTERATION OF ARTICLES OF ASSOCIATION: EXTRAORDINARY GENERAL MEETING.

NOTICE is hereby given by the Council that an Extraordinary General Meeting of the British Medical Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Saturday, the 24th day of July, 1915, immediately after the conclusion of the Annual General Meeting of the same Association, called for 2 o'clock in the afternoon of that day, when the subjoined Resolutions will be proposed as Extraordinary Resolutions:

1. That Articles 3, 43 and 44, and the words "whether an existing Member or a future Member" in Article 9, be cancelled.
2. That in Article 4 there be inserted immediately after the word "acts" the words following—"and any Medical Practitioner who does not reside within the area of any Branch of the Association and who though not so registered is possessed of any of the qualifications described in Schedule (A) of the Medical Act, 1858."
3. That in Heading III immediately after Article 11 the word "and" be substituted for the word "or."
4. That in Article 28 the last six words be altered so as to read "provisions as to Referendum herein-after contained."

Should the above Resolutions or any of them be passed by the requisite majority the same will be submitted for confirmation as Special Resolutions or a Special Resolution to a further Extraordinary General Meeting, and such Meeting will be held at the Head Office of the Association, No. 429, Strand, London, W.C., on Wednesday, the 11th day of August, 1915, at 2 o'clock in the afternoon, for the purpose of considering and, if thought fit, confirming as Special Resolutions or a Special Resolution any of the above Resolutions set forth which shall have been so passed.

Dated this 22nd day of June, 1915.

By order,
GUY ELLISTON,
Financial Secretary and Business Manager.
429, Strand, London, W.C.

ELECTION OF MEMBERS OF COUNCIL BY GROUPED REPRESENTATIVES.

NOTICE is hereby given that Nominations for Candidates for election as Members of Council by grouped Representatives for the year 1915-16 will be received by the Medical Secretary up to the end of the first hour of the proceedings of the Annual Representative Meeting on Friday, July 23rd, 1915. Each Nomination must be on the prescribed form, copies of which will be forwarded by the Medical Secretary on application.

Separate forms have been prepared: (I) For Nomination by a Division (through its Representative), and (II) for Nomination by a Representative of a Constituency included in the Group, and those applying are requested to state for which purpose the form is desired.

The voting papers will be issued at the Representative Meeting to each Representative or Deputy Representative of a Constituency in the United Kingdom in attendance at the Meeting.

By order of the Council,

ALFRED COX,
Medical Secretary.

June 30th, 1915.

BRANCH AND DIVISION MEETINGS TO BE HELD*

NORTH OF ENGLAND BRANCH.—Dr. James Don, Honorary Secretary, 1, Grove Street, Newcastle-upon-Tyne, gives notice that the annual meeting of the Branch, which will be purely a business meeting, will be held at the Royal Victoria Infirmary, Newcastle-upon-Tyne, on Tuesday, August 10th, at 3.30 p.m.

THE WAR EMERGENCY.

OLDHAM.

THE scheme adopted in Oldham for the remuneration of practitioners carrying on the work of their colleagues absent on military service differs in some respects from any scheme for the same purpose yet published. The patients of the absent practitioners are seen by any doctor for whom they send. The attending practitioner sends a record of the work done to the representatives of the doctor on service, and in addition sends a quarterly statement of the work done to a small central committee. The collection of the fees from the patients is left to the representatives of the absent doctors, but by means of the quarterly statements the committee is able to ascertain the exact amount of work done for each absentee. Each doctor on his return is furnished by the committee with a statement of the amount of work done for him during his absence, and he is expected to contribute to the committee a certain proportion of the amount earned for the services rendered. This proportion will be fixed by the Committee, and will vary in different cases according to the nature of the practice, the length of time it has been in the owner's hands, and the general position of the holder. The contributions obtained in this way will form a central fund which the committee will proceed to distribute among the practitioners who have done the work, and as far as possible in accordance with the circumstances of the practitioner, and in proportion to the amount of work done. It is claimed that this system has many advantages over the more usual method of a deduction of a fixed proportion of the fees, or any sliding scale for such deductions. It is evident that the members of the committee will find their position no sinecure, and the practitioners in Oldham are to be congratulated on having found practitioners who are sufficiently public spirited to undertake the duties.

LOCAL MEDICAL AND PANEL COMMITTEES.

COUNTY BOROUGH OF BATH.

LOCAL PANEL COMMITTEE.

At a meeting of the Local Panel Committee held at the Royal United Hospital, Bath, Dr. TABOR presiding, the following resolution was proposed from the chair and carried unanimously:

This Committee records its deep sympathy with the acting chairman, Dr. C. J. Whitty, on the loss of his son from wounds received in action.

Prescriptions.—After discussing a letter from the Bath Insurance Committee the following resolution was adopted:

This Committee notes the statement that prescriptions for persons receiving sanatorium benefit are not always marked "Sanatorium," and the request of the clinicians relating thereto. This Committee agrees that occasionally a prescription may not be so marked through inadvertence, and agrees that a transference be made from the sanatorium fund to the drug fund. It is impossible to estimate the exact amount so affected, but this Committee is of opinion that during the first year this mistake may have arisen through lack of knowledge of the rules, but that now it rarely happens.

INSURANCE ACT IN PARLIAMENT.

INSURANCE ESTIMATES.

Statement by Chairman of National Insurance Joint Committee.

On the vote for the National Insurance Joint Committee, Mr. Charles Roberts, Chairman of the Committee, began his statement by saying that at the present time most of the old controversies in connexion with the Insurance Act were in abeyance, and he had no desire to renew them at the present moment. He dealt with two main matters: First, the effect of the war on the department, and secondly, the proposals for economy in administration. Clerks on the staff of military age had been released for military service to the number of 533, and six of them had already fallen. Other members of the staff had been lent to several departments, but as their salaries were being paid from the insurance vote no economy in that vote was effected. The extra burden thrown on the department had been borne with cheerful alacrity by those of the staff who remained. There had inevitably been some scaling down in promptitude, and possibly there had not been the same freedom from mistakes as had been guaranteed before. The war had raised a number of new problems with which the Joint Insurance Committee had had to grapple. Of the three emergency measures passed, perhaps the most important in its effect on the approved societies was the grant of 5s. relief from sickness and disablement benefit to those soldiers who had come back totally disabled, and had secured disablement pensions from the Pensions Fund in accordance with the recommendation of the Select Committee on pensions and grants. Assistance had been given to the approved societies in some other ways, and he believed that the funds of the approved societies had been safeguarded, as far as was possible at present, from the strain which the war was causing upon their resources; its ultimate effect would have to be considered when more information was available. The societies were undergoing a considerable strain owing to the depletion of members and by the additional work the war had thrown upon them. They had to record the number of members who had enlisted, and to pay maternity benefit in proper cases to the families of soldiers who enlisted. To meet this additional expense a grant had been made which would to some extent relieve the societies. In co-operation with the War Office the Insurance Commissioners had secured medical attendance for soldiers on furlough and soldiers living at home or in billets. They had also dealt with the case of workmen engaged in constructing camps. Arrangements had been made to secure medical attendance for those who were not insured, the account afterwards to be settled by the military authorities. He then mentioned the generous offer made by the medical profession and the chemists to treat the dependants of soldiers serving with the forces. The Commissioners had been able to help in the dissemination of the information and in the preparation of the scheme. "It is, I think," he said, "a very generous act on the part of these two professions which deserves all due recognition." It had been arranged with the War Office that soldiers suffering from tuberculosis when they were discharged from the military hospitals should without any interval undergo treatment in residential institutions. The Insurance Committees had helped this scheme with great alacrity, and grants of £10 a head had been made out of the grants sanctioned last year by Parliament; a considerable number of soldiers had already been benefited by these arrangements. Numbers of men engaged in civil employment with the consent of the War Office—such, for instance, as in the dock battalion at Liverpool, and those sent back from the army to assist in munition or engineering work had all been given the advantage of the Insurance Act and provided with medical attendance and treatment. Foreigners did not come within the provision of the Insurance Act, and the Belgian refugees had been allowed to claim exemption; the employer had paid his contribution though the employee had not, and the 5s. weekly which the employer paid went, in the case of the Belgians, to provide medical and sanatorium benefits for them. At one munition works where a large number of Belgians were being employed special arrangements were made that after a month they were to be

entitled to medical treatment, and special cards were being prepared for such cases which could be presented to any doctor on the panel; they would be renewed every three months. One of the first difficulties on the outbreak of the war was the rapid rise in the price of certain drugs; the Treasury had allowed a special grant, and the prices of those drugs were being fixed monthly by agreement between the British Medical Association and the Pharmaceutical Society, with the approval of the Insurance Commissioners. Dealing next with the Medical Research Committee, which received an income of about £56,500 a year out of the penny taken from the insurance fund voted by Parliament, he said that when the war broke out the whole staff was handed over to the War Office, their buildings had been turned into a hospital, and the staff was engaged in the investigation of means to prevent disease and in the preparation of the history of the war. He believed that no single penny had been better spent by any of the 14,000,000 insured persons during the year than this particular penny contributed for the purpose of medical research, for it would result in the prevention of disease. He was, he said, in great sympathy with the critics who desired to see economy practised, and the estimate presented showed some indication of economy. The vote of the Joint Committee was reduced by some £495,000; this involved the postponement of various schemes of development which would have been undertaken but for the war. For instance, the grant for the institution of medical referees and for extra provision for nursing had to be held up pending the return of peace. It had been stated in the press that the actual benefits provided by the Government amounted to only 60 per cent. of the expenditure. That rested upon the statement made by the critics that out of the total expenditure of £25,000,000 under the Insurance Act the benefits accounted for only £15,000,000; as a matter of fact, the value of the benefits—sickness, medical, sanatorium, and maternity, was about £17,000,000 in a normal year. The critics had alleged that about £3 was being spent in the cost of administration for every £5 given in benefits. But the critics made two mistakes: In the first place, they had underrated the value of the benefit; and, in the second, there was put to reserve to accumulate a sum amounting to just under £5,000,000 to meet claims for sickness in the future. That was, of course, an entirely proper action on the part of any insurance fund. The income of £25,000,000 was really accounted for in the following way: To reserve 19 per cent., benefit account 67.3 per cent., working expenses 13.7 per cent. He believed that for a private concern that ratio of expenditure would not be bad. In the figures he had given he included sums taken out for the post-office, stationery, customs and excise and other votes, and for the expenses of Insurance Committees and approved societies. So far as the expenses of approved societies went, any savings they made went to increase the benefits at their disposal. In the calculation the expenses of the societies had been put at their maximum, but if they reduced their working expenses below 13.7 per cent. they could correspondingly increase the percentage of the total which went for benefit; the 13.7 per cent. represented the maximum expenditure, and he was not able to say how many of the societies were making savings or how great those savings were. There was the greatest possible inducement to members of approved societies to save on their working expenses in order to get higher benefit. After discussing some details of expenditure, he said that any idea that the country could save a million and a half by economy in the administration of the Insurance Act was fanciful and would not bear examination; there was room only for minor economies, which he agreed ought to be made. It had been alleged, he said, that in the first three months of the Act the Commissioners ordered 2,800 tons of paper, but he found that this included 120,000,000 insurance books and cards, and by careful attention to the choice of paper the Stationery Office had been able to save £70,000 a year. An economy had been effected by not filling the office of legal adviser to the Joint Committee, with a salary of £1,500 a year, which had recently become vacant. He was satisfied that it was not possible to cut down expenditure to any considerable extent without diminishing efficiency of administration, and any real inefficiency might result in poor persons losing the help and comfort which were their due under the Act at a time of stress and trouble. He believed that the Act was

performing a vast beneficence, and that it would not be less indispensable after the war for the sake of men who came back in bad health. On this and all other grounds the efficiency of the administration must be maintained.

The discussion which followed turned principally upon the manner in which the estimates were presented, the enormous amount of circulars and leaflets issued by the Insurance Commissioners and the frequent changes of regulations. Mr. Booth said that experience was proving the justice of the opinion he expressed when the Act was passed to the effect that the amount then voted would be nothing like sufficient, and would have to be increased. He believed that at this time when those who were working on the committees set up under the Insurance Act had their minds centred upon the war, the Commissioners were contemplating important changes in the administration, but they had not called the Advisory Committee together. There was, he complained, a lack of sympathy on the part of the English Commissioners. It had been intended that the societies which represented the insured persons should have a large influence upon the work of the Commissioners, but the regulations issued by the Commissioners were so puzzling that he did not believe 5 per cent. of the members of the House of Commons were capable of given an intelligible explanation of them. The basis of the Act was that of service through the voluntary societies, and if that principle was lost sight of the Act must crumble; those who were giving voluntary service or service very inadequately paid were entitled to the fullest recognition from the Commissioners at Buckingham Gate. With regard to the actuarial basis of the Act he believed that experience had shown that so far as it concerned men it was sound and that the benefits were in accordance with the contributions, but he hoped that by this time the Commissioners realized that that was not the case with regard to women. Some special societies, such as domestic servants, might produce good results, but others, such as those for landladies, were producing very bad results. The House was entitled to know what were the views of the Commission upon that point. Mr. Booth also criticized the cost of the county committees and of the committees generally. He urged the Commissioners to take steps to simplify the work of the committees. He also drew attention to the case of men returning from the war crippled not by the loss of a limb but by rheumatism or other diseases contracted during the war, who when they attempted to work at their respective trades would soon come on the insurance fund.

Sir J. D. Rees, after referring to the question of out-workers, complained that tons of printed matter was issued perfectly useless for the purpose for which it was intended.

Mr. Tyson Wilson dealt with the same point. He said that he did not believe that 15 per cent. of the secretaries who administered the Act ever looked at the circulars because they felt quite satisfied that in a month or two new leaflets would be issued contradicting those previously issued. When the Act was passed the rules of the societies affected were altered with the object of making them comply with regulations issued by the Commissioners, but afterwards new regulations were issued which made the rules of some of the societies actually null and void. Before the regulations were issued the societies affected ought to be consulted so that sick members should not receive visits from officials who stated that the regulations issued by the Commissioners had been violated.

Mr. Wardle criticized the system of permitting the use of stock mixtures. The stocking of these medicines led, he believed, to deterioration and inclined the doctor to give a stock medicine rather than write out a prescription exactly to fit the case.

Mr. Roberts, in a general reply, said that the regulations were documents which had the force of law, and had to be couched in legal language; and legal language was complicated, and sometimes not easy to follow. Many of the leaflets had been issued in an effort to put into simple and popular language the effect of the regulations, so that there was on the one hand the legal document which had the force of law, and on the other the simple popular explanation. He promised to look into the matter of out-workers and into that of stock medicines, recognizing that the insured person was entitled to thorough efficient treatment. He regarded the approved societies as an

integral part of the scheme devised under the Insurance Act, and regretted that there had been any cause of complaint of want of sympathy on the part of the English Insurance Commissioners. As to the actual effect of the war upon women in approved societies, he did not feel at the present time competent to embark on large speculations. Only on the previous day he had received a deputation from the British Medical Association, which raised some of the points, and the Association had promised that it would place before the Commissioners such evidence as it could collect bearing on these difficult questions.

The English, Welsh, and Scottish Commissions.

The vote for the Joint Committee having been agreed to, that for the English Commission was considered. Sir F. Banbury asked for information as to the increase in the item dealing with sickness, disablement, and maternity benefit (grants in aid), and the decrease in the item dealing with medical benefit (grants in aid). Mr. Roberts said that it was an accounting point which was rather technical. The money for medical benefit was for only one quarter of a year, and as a matter of fact there had been no real increase in sickness, disablement, and maternity benefit, and no real extra charge upon the taxpayer, but the basis of the grants had been altered as compared with last year. After some further speeches, Mr. Tyson Wilson said it was quite clear that nobody in the Committee understood the way in which the accounts were put; they were a bad example of the methods adopted by the Commissioners. The Commissioners themselves might understand their system of accounts, but nobody else seemed to do so, and the same statement applied to many of their regulations; there should be somebody to tell people in simple language what ought to be done. The vote was agreed to, and also those for Wales and Scotland.

The Irish Commission.

On the vote for Ireland, Sir F. Banbury drew attention to the fact that while last year the amount voted for medical certification was £9,700, this year it was £100. Mr. Booth said that this did not mean that the large sum was spent in one year and only £100 in the next. The grants were made and the money had been voted to be available. Mr. Roberts said that the matter was explained in a footnote to the estimate, and protested that these documents did not profess to be a complete record of revenue and expenditure, but only authorized expenditure for the coming year. The vote was agreed to, and was also that for the audit department.

The alteration in the form in the estimates was explained at some length in the BRITISH MEDICAL JOURNAL of April 17th, 1915, p. 680.]

UNALLOCATED FUNDS.

Mr. Charles Roberts, as Chairman of the Joint Committee of Insurance Commissioners, stated, on July 13th, in reply to Sir Philip Magnus, that the final payments were now being made to doctors on the panel in London in respect of the balance, amounting to about £13,000, of the original sum of money representing the premium of those insured who had neglected to choose a doctor.

IRELAND.

MEDICAL CERTIFICATION UNDER THE INSURANCE ACT IN IRELAND.

A LARGE and representative meeting of the Cork medical profession was held on July 3rd, when Dr. J. Cotter was in the chair. The Cork panel doctors decided at their meeting, held in May, to give a month's notice of their intention to the Irish Insurance Commissioners to come off the panel owing to the failure of the Commissioners to distribute the increased grant for medical certification promised by Mr. Lloyd George in the House of Commons on August 14th, 1913. The notice to come off the panel was adopted with only one dissentient. When the month's notice given by the doctors was about to expire, it was found the Commissioners made no attempt to come to terms with the panel doctors, nor had they any alternative scheme for medical certification, with the result that 25,000 insured persons were threatened to be left unprotected with medical certificates for sickness benefits. At

this juncture the Cork Borough Insurance Committee held a meeting, and sharply criticized the Insurance Commissioners for their failure to make any attempt to arrive at a settlement with the panel doctors or to provide some alternative scheme in order that 25,000 insured persons would not be left without medical certificates. The Insurance Committee strongly appealed to the doctors to remain on the panel for another month, so that the insured would not suffer in the case of sickness from want of medical certificates; the Committee also passed a strong resolution, urging that the Insurance Commissioners should come to terms with the panel doctors. As a result of the Insurance Committee's appeal the panel doctors consented to remain on the panel for another month, so that the Insurance Commissioners may have an opportunity of settling the question of certification with the doctors.

The Medical Commissioner sent his proposals for certification to be considered by the Cork medical profession, and the meeting held on July 3rd was specially convened for the purpose. The conditions proposed by the Medical Commissioner, Dr. Maguire, increased the capitation grant from 9d. to 1s.; doctors to attend at special depôts to be used for the purposes of medical certification alone, and doctors were to certify promiscuously for all patients, whether they were their medical attendants or not. The Medical Commissioner's scheme was considered in all respects most unsatisfactory and objectionable, and it was believed that it was not meant as a serious attempt to settle the question. In connexion with the Medical Commissioner's proposals the following resolutions were passed unanimously:

1. That we reject the scheme submitted by Dr. Maguire, Irish Insurance Medical Commissioner, as it does not fulfil in any manner the just demands of the medical profession—that is, the scheme put forward by the Irish Medical Committee for certification; and we again wish to inform the Commissioners that the Irish Medical Committee is the only body to conduct negotiations on behalf of the profession in Ireland.
2. That we, the members of the medical profession of the city of Cork, call upon the Government to have the increased grant, promised by Mr. Lloyd George on August 14th, 1913, for medical certification under the Insurance Act, distributed amongst the medical profession in Ireland. We make this claim with confidence, as the medical profession in Ireland has given its services freely and without reward to the treatment of the wounded soldiers and the dependants of those fighting at the front.

IRISH MEDICAL MEN AND INSURANCE COMMISSIONERS.

At the recent delegates' meeting of the Irish medical profession, held at the Royal College of Surgeons, a small subcommittee of the Irish Medical Committee was appointed to meet and confer with the governing bodies of the Irish Universities, the Royal Colleges of Physicians and Surgeons, the Apothecaries' Hall, and to make representations to other licensing bodies with a view to determining what immediate action should be taken in regard to: (a) The position adopted by the Irish Insurance Commissioners in circulating privately to members of Parliament matter detrimental to the honour and interests of the Irish medical profession without given the representatives of that body an opportunity of investigating openly the charges made against its members. (b) Medical certificates under the Insurance Act.

CORRESPONDENCE.

PROPORTIONAL REPRESENTATION.

DR. GEORGE CRICHTON (London, S.W.) writes: "The only comment to be made on the recent election to the Central Council (SUPPLEMENT, June 19th) is that it further emphasizes the importance of the method of election, as well as its practicability. Four members are elected by the Metropolitan Branch, and every mode of thought or of opinion which has a sufficient amount of support finds representation. Each one elected feels that he stands on his own qualifications, and not as does sometimes happen in other methods of election, just because he subserviently attaches himself to some popular candidate. It is to be hoped that in quieter times the method will be rigidly applied to all the elections to the Central Council and throughout the Association.

An enlargement of the electoral areas and a slight increase in the number of members of Central Council would enable each area to elect two, at least, or three men competent to express varieties of experience and of outlook, and accordingly be more truly representative. I do not advocate this as simply meaning a change in the policy of the Association. Who looks for that will be somewhat disappointed. But I think that there exists some discontent, and our policy may be modified. The resolutions of the Central Council would then, however, have more weight with the profession and with civil bodies, such as the Exchequer and town councils. "You must help us in our fight for existence with the collecting societies" (p. 30).

It is through the voice of genuine controversy and discussion that facts relating to such matters as are dealt with, for instance, under the Insurance Act sink into the ears of the electors and the Government and bear their fruit in due season.

It is a matter of public concern to draw attention to the recent election of the London Panel Committee. Every doctor who treats insured persons was asked to elect in the borough where he resides two members of the committee. Personal attendance is necessary, and the hour fixed was 3 p.m. How many men can find this hour possible? Two members are to be elected—that is, if 25 practitioners out of 100 or 200 attend to vote, 13 may elect them both; the other 12 and their opinions may count for nothing. I have not seen the result of the recent elections, but am told that in several instances no one turned up. I think those elected would be more fully employed in meeting at Woolwich and making ammunition for next year or till the war is over.

THE SURCHARGING OF PANEL PRACTITIONERS.

"STOPPAGE IS NO PAYMENT" writes: "The Medical Defence Union is doing well to defend us from the injustice of surcharging, especially as carried out by the London Panel Committee. In my case the amount is trifling, but note the following points:

1. I am surcharged for ordering 6 oz. of gly. thymol, of which I am told 4 oz. is the normal quantity. On the back of the printed list giving me this information is another doctor's case. He is informed that 6 oz. is the normal quantity, and is only surcharged when he has ordered more. Why this difference between two practitioners under the same committee?

2. A case in which I wanted a further opinion was kindly seen by a physician at Guy's. I merely copied his prescription for my patient, and am now surcharged for it! What would have been given to a patient at the hospital is too good for a panel patient. Are we to receive this treatment when consultants are appointed under the Act?

These two cases practically account for the few shillings that I am now surcharged by the full Panel Committee, and is only about one-third of that originally intended by the Panel Subcommittee, before whom I did not receive the consideration that is shown a criminal in our courts. They seemed to start with the determination to surcharge, and to know what my patients required without seeing or examining them. No wonder the capitation fee is in danger of being reduced from the imaginary seven shillings.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Deputy Surgeon-General C. J. Mansfield, M.V.O., M.D., to the *Victory*, additional for Haslar Hospital, vice Dimsey; Fleet Surgeons A. J. Fickelton (retired) to the *Victory*, additional, for disposal; S. H. Eacey to the *Indra*, vice F. W. P. Diller to the *Staten*, additional; vice Thorpe; H. S. Burniston, M.B., to the *Penbrooke*, additional, for R.N. Barracks, vice Mansfield; H. E. Tomlinson to the *Victor*, additional; F. Roister to the *Wyvern*, vice Burniston; Staff Surgeon A. C. W. Newport to the *Hullbroke*, vice Hill; Surgeon P. L. Gibson, M.B., to the *Penbrooke*, additional, for disposal. Temporary Surgeons: G. A. Walker, M.B., to the *Victory*, additional, for Royal Naval Division; A. Craig to Stephen Furness for Sick Quarters, at Invergordon, vice Walker; W. H. S. Hedge to the *Penbrooke*, additional; N. C. Arver, M.B., to the *Indomitable*, vice Carter; A. D. E. Bayliss, M.D., to the *Victor*, J. A. Walker and S. G. Ansell to the *H.M.S. the President*, additional; Alexander Pollock, M.B., to the *Indra*, vice Sharratt; T. Owen to the *Spenser*, vice Carter; H. B. Padwick to the *Victory*, additional, for R.N. Division; W. Whitson to the *Victor*, vice Denton; E. Clark Hall; G. S. Aspinall to the *Diamond*, vice Whitson.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Promotable B. S. Collins to the *Harby*, vice Corth; H. Gordon to the *Leopold*, vice Corth; J. Brunwell to the *Archer*; N. Braithwaite to the *Ambrose*, vice Brunwell. To be Surgeon

HEALTH OF IRISH TOWNS.

During the week ending Saturday, July 3rd, 636 births and 387 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 579 births and 345 deaths in the preceding period. These deaths represent a mortality of 16.6 per 1,000 of the aggregate population in 19 districts in question, as against 14.8 per 1,000 in the previous period. The mortality in these Irish areas was therefore 4.7 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate on the other hand, was equal to 27.8 per 1,000 of population. As for mortality of individual localities, that in the Dublin registration area was 18.6 (as against an average of 17 for the previous four weeks), in Dublin City 19.5 (as against 17.3), in Belfast 14.1 (as against 14.1), in Cork 19.0 (as against 15.8), in Londonderry 26.6 (as against 16.1), in Limerick 25.7 (as against 15.2), and in Waterford 9.5 (as against 15.2). The zymotic death-rate was 1.0, or the same as in the previous period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice in the Advertisement Department Notice regarding Appointments appearing in our advertisement columns, giving particulars of vacancies as to which enquiries should be made before application.

VACANCIES.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Junior House-Surgeon. Salary, £100 per annum and 45 sanitary allowances.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £250 per annum.

BIRMINGHAM UNIVERSITY.—Female Demonstrator in Anatomy for Women Student.

BOLTON INFIRMARY AND DISPENSARY. Second House-Surgeon. Salary, £200 per annum.

BRIDGWATER HOSPITAL.—House-Surgeon. Salary, £125 per annum.

BRISTOL GENERAL HOSPITAL.—House-Physician. Salary, £150 per annum.

BROMLEY EDUCATION COMMITTEE. School Dental Surgeon. Salary, £150 per annum.

BURY INFIRMARY.—Senior and Junior House-Surgeons. Salary, £250 and £150 per annum respectively.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £40 per annum.

CHELtenham GENERAL HOSPITAL.—(1) House-Surgeon; (2) House-Physician. Salary, £125 per annum each.

CITY OF LONDON RED CROSS HOSPITAL.—Resident Medical Officer. Salary, £200.

CROYDON COUNTY BOROUGH.—Assistant Medical Officer of Health and Assistant School Medical Officer. Salary, £350 per annum.

CROYDON MENTAL HOSPITAL. Upper Warmingham.—Second Assistant Medical Officer. Salary, £250 per annum, rising to £300.

DERBY COUNTY ASYLUM. Mickleover.—Locum-tenent. Terms, 48s. per week.

EVELINA HOSPITAL FOR SICK CHILDREN. Southwark.—(1) House-Physician; (2) House-Surgeon (males). Salary, £75 per annum.

EXETER: ROYAL DEVON AND EXETER HOSPITAL.—Assistant House-Surgeon. Salary, £150 per annum.

FOLKESTONE: ROYAL VICTORIA HOSPITAL.—House-Surgeon.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

HOSPITAL FOR CONSUMPTIONS AND DISEASES OF THE CHEST. Brompton, W.—House-Physician. Honorarium, 30 guineas for six months.

HOSPITAL FOR SICK CHILDREN. Great Ormond Street, W.C.—(1) House-Surgeon; (2) Assistant Casualty Medical Officer. Salary, £30 for six months and 42 10s. washing allowance each.

LEAMINGTON SPA: WARNEFORD, LEAMINGTON, AND SOUTH WARWICKSHIRE GENERAL HOSPITAL.—Second Resident Medical Officer. Salary, £200 per annum.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £300 per annum.

MANCHESTER CHILDREN'S HOSPITAL. Pendlebury.—Resident Medical Officer. Salary, £100 per annum.

MANCHESTER COUNTY ASYLUM. Prestwich.—Assistant Medical Officer. Salary, £250 per annum, increasing to £300, and, upon promotion, to £350.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £120 per annum.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC. Queen Square, W.C.—Resident Medical Officer. Salary, £100 per annum.

NEWCASTLE-UPON-TYNE: UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.—Demonstrator of Anatomy. Salary, £250 per annum.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Surgeon. Salary, £250 per annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—Resident Assistant Surgeon. Salary, £10 per annum.

ROYAL COLLEGE OF SURGEONS IN IRELAND. Dublin. Professors of (1) Histology; (2) Chemistry; (3) Physics.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL. King William Street, W.C.—Assistant Surgeon.

SALISBURY GENERAL INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £100 per annum respectively.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN. Junior Lady House-Surgeon. Salary, £80 per annum.

SHEFFIELD ROYAL INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Physician. Salary, £100 per annum.

STAFFORDSHIRE EDUCATION COMMITTEE.—Temporary Visiting Assistant School Medical Inspectors. Salary, £300 per annum.

STAFFORDSHIRE GENERAL INFIRMARY. Stafford.—House-Surgeon. Salary, £250 per annum.

STOKES-TRENT: NORTH STAFFORDSHIRE INFIRMARY. Harehill.—(1) Two House-Surgeons; (2) House-Physician. Salary, £200 per annum each.

TREBUO: ROYAL CORNWALL INFIRMARY.—House-Surgeon. Salary, £150 per annum.

WALSALL AND DISTRICT HOSPITAL. Assistant House-Surgeon and Anaesthetist. Salary, £150 per annum.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior House-Surgeon. Salary, £200 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £120 per annum respectively.

WEST HAM AND EASTERN GENERAL HOSPITAL. Stratford.—(1) Resident Medical Officer; (2) House-Physicians and House-Surgeons. Salary for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £150 per annum.

WINSLEY SANATORIUM. near Bath.—Assistant Resident Medical Officer. Salary, £250 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Biiith (Breecon), Dronfield (Derby).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found, it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BOSSON, G. A., M.B. Lond., Certifying Factory Surgeon for the Alford District, Co. Lincoln.

BRADLEY, W. M.B., Ch.B. Viet., District Medical Officer of the Manchester Union.

CHEPLAPPA, S. F. M.R.C.S., L.R.C.P., Assistant Medical Officer to the Hackney Union Infirmary, etc.

CEMNING, J. H., M.B., District Medical Officer of the Hemsworth Union.

DAVIES, D. M., M.D. Lond., District Medical Officer of the Aberystwyth Union.

DUNN, J. Beattie, M.A., M.B., B.C. Cantab., Honorary Physician to the Bradford Royal Infirmary.

EADIE, A. W., M.B., Ch.B. Glas., Deputy Medical Officer of Health to the Colne Town Council.

HARPER, J. M., M.R.C.S., Medical Officer of Health to the 24th Rural District, near Harpur, T. B. Co. Edin., J. L. Co. Edin.

HOWAT, W. M.B., Ch.B. Glas., Assistant Medical Officer to the Bethnal Green Parish Infirmary, etc.

JONES, W. B., M.D., District Medical Officer of the Biiith Union.

M'WILLIAM, A. M.B., C.M. Aberd., District Medical Officer of the Basingstoke Union.

SEAL, P. H., M.B., B.S. Lond., Medical Officer of the Children's Home of the southofinion Union.

SMITH, E. B., M.B., D.P.H., Medical Officer of Health to the Witham Urban District.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

STEPH.—On June 24th, at Conabry, Castlebarry, Ireland, to Major R. F. Steel, I.M.S. (on active service), and Mrs. Stecl (née Allen), a son.

MARRIAGE.

KELLOCK-BROOKE.—On July 10th, at Christ Church, Lancaster Gate, by the Rev. Mr. Hill, assisted by the Rev. W. H. Harvey Hobbs and the Rev. H. N. Dale, vicar of the parish, Thomas Hubert Kellock, M.C., F.R.C.S., Captain R.A.M.C. (F.I.), of 2 Upper Wimpole Street, to Margaret, youngest daughter of Mr. and Mrs. Alexander Brooke, 39, Gravel Hill Gardens, W.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	JULY.
16 Fri.	London: Insurance Act Committee, Drug Tariff Subcommittee, 11.30 a.m.
23 Fri.	ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., and following days, if necessary.
24 Sat.	ANNUAL GENERAL MEETING, Connaught Rooms, Great Queen Street, London, W.C., 2 p.m.
	EXTRAORDINARY GENERAL MEETING, at the conclusion of the Annual General Meeting.
	AUGUST.
10 Tues.	North of England Branch, Annual Meeting, Newcastle-upon-Tyne, 3.30 p.m.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JULY 24TH, 1915.

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Meetings of Branches and Divisions.

The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the JOURNAL.

DORSET AND WEST HANTS BRANCH.

A GENERAL meeting of the Branch was held at Sherborne on July 7th, when the President, Dr. C. D. MUSPRAT, was in the chair.

New Members.—The PRESIDENT, on behalf of the Branch Council, reported the election of Robert Andrew George Elliott and Telford Telfordsmith as members of the Association.

Autumn Meeting.—On the motion of the PRESIDENT, it was unanimously agreed to hold the autumn meeting at Bournemouth in October.

New Hospital at Bridport.—The PRESIDENT, on behalf of Dr. Edwards of Bridport, gave an invitation to the members to visit and inspect the new hospital at Bridport, and a date early in September was suggested.

Vote of Thanks.—The PRESIDENT proposed a hearty vote of thanks to the Sherborne practitioners for their hospitality in entertaining the members to lunch at the Digby Hotel, where, after the meeting, the members were also entertained to tea.

LANCASHIRE AND CHESHIRE BRANCH: BURY DIVISION.

A MEETING of the Bury Division was held on June 30th, when Dr. GROMPTON was in the chair.

New Members.—The following were nominated for election to membership of the Division: Dr. Gladys Ramsden, Dr. Clarence Lees, Dr. James Williamson.

Medical Attendance on Dependants.—A letter was read from Mr. Larkin concerning attendance on necessitous dependants of soldiers, and work done for practitioners absent on war service.

Annual Report.—The Secretary's report and balance-sheet were accepted. The report stated that the Division contained 53 members, a decrease of 2 due to removals, while 3 new members were down for election. One general meeting and one executive meeting had been held during the year with an attendance of 20 and 9 respectively. Much of the medico-political work formerly done by the Division had now devolved on the Local Medical Committee. No social or scientific meetings had been held owing to the abnormal times, but it was hoped to arrange for such meetings to be held during the ensuing year. Out of 69 men in general practice in the area of the Division 54 were taking part in the work of free treatment of necessitous dependants of soldiers, and £16 10s. 6d. had been collected for the Belgian Doctors' and Pharmacists' Relief Fund. In connexion with the subject of earrying on the practices of men who had gone, or were desirous of going, on active service, the report stated that the Bury

Local Medical Committee had made the necessary arrangements for the county borough previous to the receipt of communications on the subject from head quarters. Inquiries had been received from all parts of the country with regard to the Bury holiday scheme (see BRITISH MEDICAL JOURNAL, April 24th, p. 730. June 12th, p. 1011), and full particulars and sample stationery had been supplied.

Election of Officers.—The following officers were elected for the coming year:

President: Dr. F. B. G. Holmes (Bury).
Vice-President: Dr. Young (Whitefield).
Representative to Representative Meetings and Branch Council: Dr. J. W. Johnson.

Deputy Representative: Dr. Smith (Radcliffe).
Honorary Secretary: Dr. P. F. Braithwaite, with permission to arrange for an assistant honorary secretary if required.
Executive: Drs. R. Crompton (Rausbotton), Stewart (Haslingden), Nuttall and Dewar (Bury).

Local Honorary Secretaries: R. Goldfinch, Dr. Smith; Rausbotton, Dr. Lawrie; Haslingden, Dr. J. G. Harrison; Rautenstall, to be arranged by the secretary.

Matters Referred to Divisions.—Regarding the suggestion that the fee of 10s. 6d. for acting as a referee under the Insurance Act was sometimes excessive, the Division agreed to rescind the resolution enforcing this, and to the recognition of a fee of 7s. 6d. The Division expressed its opposition to attending juveniles at contract rates at all, but instructed its representative to support all the other recommendations in the SUPPLEMENT for May 8th, including the suggested scales of fees for examination for life assurance.

Insurance Certificates.—Attention was drawn to the books of certificates issued by the British Medical Association to replace Form Med. 40, with a view to minimizing as much as possible the inconvenience caused to doctors who attend insured persons in their private capacity.

Lery.—All the members present paid the voluntary levy of 5s. for 1914; a number of members who were unable to be present had previously sent their levies on by post.

SOUTHERN BRANCH.

The annual general meeting of the Branch was held on July 8th at the Speedwell Hotel, Portsmouth, when the President, Mr. G. H. COWEN, F.R.C.S., was in the chair. Owing to the inclemency of the weather the attendance was small, only fifteen members being present.

Annual Report.—On the motion of Mr. C. P. CHILDE, seconded by Dr. J. T. LEON, the annual report and statement of accounts were adopted.

Associate Members.—Drs. James Watson of Dormans Park and Mr. W. A. S. Roys of Haslemere, formerly members of the Council, were elected as associate members of the Branch.

Vote of Sympathy.—A resolution of sympathy with the Honorary Secretary on the occasion of his illness was moved by Dr. W. H. HARMAN, seconded by the PRESIDENT, and carried unanimously.

Pay and Allowances of Territorial Medical Officers.—A letter from Captain G. F. Morley, R.A.M.C.(T.), re pay

and allowances, was read and referred to the Acting Secretary to answer.

Induction of Chairman.—Mr. COWEN then vacated the chair in favour of Dr. C. F. ROUTH, who, having expressed his thanks for the honour conferred upon him in electing him as President for the coming year, moved a vote of thanks to Mr. Cowen for his services during the year 1914-15. This was seconded by Dr. SHEAHAN, and Mr. COWEN suitably responded.

Presidential Address.—Dr. ROUTH delivered an address on *Bacillus coli* infection of the urinary tract. At its conclusion a vote of thanks was, on the motion of Dr. HACKMAN, seconded by Dr. LEON, accorded to him.

Tea.—The PRESIDENT invited the members to tea, during which a collection was made on behalf of Epsom College. On account of the war there was no luncheon, golf competition, or other social event.

PORTSMOUTH DIVISION.

The annual general meeting of the Portsmouth Division was held on June 25th, when Dr. COLE-BAKER was in the chair.

Annual Report.—The annual report and statement of accounts were received and adopted, the latter showing a deficit of £4 10s. 10d.

Election of Officers.—The following gentlemen were elected to serve for the ensuing year:

Chairman: Dr. J. T. Leon.
Vice-Chairman: Mr. C. A. Scott Ridout, F.R.C.S.
Secretary and Treasurer: Mr. L. K. H. Hackman.
Representative at Annual Representative Meeting: Dr. D. A. Sheahan.

Representatives on Branch Council: Dr. Cole-Baker, Mr. A. B. Wright, Mr. J. T. Leon.

Executive Committee: Dr. J. G. Blackman, Mr. T. A. Colt, Dr. A. V. Maybury, sen., Dr. W. A. Salmund, Mr. H. S. Thomas, Mr. G. McGregor, Mr. E. B. Bird, Dr. C. Lamplough, Mr. H. E. Crawley, Dr. F. C. H. Maggleton; together with, *ex officio*, Dr. W. Carling (Librarian), Mr. James Green (Central Council), and Mr. J. H. F. Way (Secretary, Local Medical Committee).

Election of Direct Representative.—It was unanimously resolved that the nomination of Dr. J. A. Macdonald as a Direct Representative on the General Medical Council be cordially supported.

Annual Representative Meeting.—The provisional agenda of the Annual Representative Meeting were considered, and the recommendations of the Council were agreed to except on the following points:

1. **Ethical Rules.**—(a) The Ethical Committee of a Division should only investigate facts and report; (b) *in re* Branches, the Secretary should not send the recommendation of the Ethical Committee to each party concerned, but only the resolution adopted by the Council.

2. **Attendance on Juveniles.**—It was resolved that in voting on this question our Representative be given a free hand, as also in the matter of fees for examination in life insurance.

SOUTH WALES AND MONMOUTHSHIRE BRANCH:

CARLIF DIVISION.

The annual meeting of the Carliff Division was held on June 2nd.

Vote of Condolence.—A vote of condolence with the family of the late Dr. W. T. Edwards was proposed from the chair and carried unanimously.

Election of Officers.—The following officers were elected for the ensuing year:

Chairman: Dr. P. J. O'Donnell, Barry.
Vice-Chairman: Dr. Fred. W. S. Davies.
Honorary Secretary: Dr. D. C. Evans.

Assistant Secretary: Dr. H. Walker.
Branch Councillors: Drs. O'Donnell, E. E. Brierley, Fitzgerald, W. B. Crawford Treasure, Fred. W. S. Davies, Leigh (Treharris), Shaw Lyttle, McCrea (Bargoed).

Ordinary Members of Executive: Drs. Herbert Cook, MacKenzie (Caerphilly), Thos. Wallace, and Thornley.

Branch Contract Practice Committee: Drs. John Powell (Barry), Leigh (Treharris), MacKenzie (Caerphilly).

Representatives: Drs. W. B. Crawford Treasure and Fitzgerald.

Annual Representative Meeting.—The Report of Council and Provisional Agenda were considered and the Representatives instructed.

War Emergency.—The question for facilitating the supply of medical men for military service was considered. Dr. E. E. BRIERLEY stated he had twice written to the D.D.M.S. and had received no reply.

Matters referred to Divisions.—It was unanimously resolved to support the recommendations of Council regarding fees for treatment of juvenile members of friendly societies and for medical examination for life insurance.

Vote of Thanks.—A hearty vote of thanks was accorded Dr. Brierley, the retiring chairman, for his past services.

SURREY BRANCH,

CROYDON DIVISION.

The annual meeting of the Division was held at the Croydon General Hospital on July 6th.

Annual Report.—The annual report of the committee was received and adopted.

Election of Officers.—The following officers were appointed:

Chairman: A. C. Z. Cressy.
Vice-Chairman: J. A. Howard, M.D.
Honorary Secretaries: E. H. Willock, J.P., C. G. C. Scudamore.

Representative for Representative Meeting: E. H. Willock, J.P.
Deputy Representatives for Representative Meeting: E. J. C. Daniel, M.B., G. G. George, M.D.

Representatives on Branch Council: C. G. C. Scudamore, J. A. Howard, M.D.

Annual Representative Meeting.—The annual report of the Council (SUPPLEMENT, May 8th), together with the supplementary report (SUPPLEMENT, July 3rd), were considered. The Representative was instructed to support the Council's proposals with the exception of Recommendation II (SUPPLEMENT, May 8th, p. 186), referring to local ambulance services. It was resolved to suggest that the hour of seven should be substituted in each case for eight. With regard to the proposed amendment by the Wakefield, Pontefract, and Castleford Division (SUPPLEMENT, July 3rd, p. 17), it was resolved:

That the Division instruct its Representative not to vote for the withdrawal of medical attendance on dependants of men on service, but to endeavour to obtain an arrangement whereby those attending necessitous cases in larger numbers may be relieved beyond a certain number, and that committees entrusted with the granting of cards have their attention drawn to the fact that it is only intended for necessitous cases.

YORKSHIRE BRANCH:

HARROGATE DIVISION.

A MEETING of the Harrogate Division was held at the Royal Baths on July 9th, when Dr. SHEPHERD BOYD was in the chair.

Members Serving.—On the motion of Dr. BAIN, seconded by Dr. MANTLE, it was resolved that the names of those other members who had since joined the R.A.M.C. be added to the former list—Drs. Bennett, May, Garrad, and Thomas.

Election of Officers.—The following officers were elected for the ensuing year:

Chairman: Dr. Mantle.
Vice-Chairman: Dr. Nimmo Watson.
Honorary Secretary: Dr. Gibson.
Representative for Representative Meetings: Dr. Hinsley Walker.

Representative for Branch Council: Dr. Gibson.
Committee: Drs. Daggett, Dimmock, Lever, Mackay, Solly, Bertram Watson, Crawford Watson, Greenwood, and Colonel Gibbon, P.M.O. (Ripon).

Honorary Members of Division.—It was resolved to elect as honorary members of the Division all medical officers attached in the Division and being members of the British Medical Association.

Votes of Sympathy.—Votes of sympathy were accorded to Mrs. Mouillot on the death of Dr. Mouillot and to the family of Dr. Collier (Ripon) on the double bereavement of both father and son.

BOMBAY BRANCH.

The annual meeting of the Bombay Branch was held in the University Library on April 8th, when Lieutenant-Colonel ASHTON STREET, I.M.S., presided.

Election of Officers.—The following officers were elected:

President: The Hon. Surgeon-General R. W. Lyons, I.M.S.
Vice-Presidents: Lieutenant-Colonel Ashton Street, I.M.S.; Dr. R. Row, D.Sc.

Honorary Secretary and Treasurer: Dr. D. R. Bardi, F.R.C.S.I., I.M.S.

Branch Council: Lieutenant-Colonel L. F. Childe, I.M.S.; Lieutenant-Colonel S. C. Evans, I.M.S.; Dr. Sorab K. Nariman.

Dr. Sarah K. Engineer; Miss A. M. Benson, M.D.; Assistant-Surgeon Erlich S. Bharucha.
Representative in Representative Meeting: Lieutenant-Colonel L. F. Child, I.M.S.

Annual Report.—The report of the Branch Council and the statement of accounts were received. The report gave particulars of the papers read and the cases shown at the clinical meetings, and the Council expressed its indebtedness to those members who had contributed to the success of the meetings.

Cases.—Lieutenant-Colonel ASHTON STREET, I.M.S., showed two cases of elephantiasis scroti; two kidney stones removed by him from a policeman—patient was shown; a peculiar tumour removed from the mesentery—calcified gland. Lieutenant-Colonel L. F. CHILDE, I.M.S., showed a case of primary lateral sclerosis with facial palsy.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

NORTH OF ENGLAND BRANCH.—Dr. James Don, Honorary Secretary, 1, Grove Street, Newcastle-on-Tyne, gives notice that the annual meeting of the Branch, which will be purely a business meeting, will be held at the Royal Victoria Infirmary, Newcastle-upon-Tyne, on Tuesday, August 10th, at 3.30 p.m.

CONDUCT OF PRACTICE OF PRACTITIONERS ON WAR SERVICE.

SUGGESTED RULES.

THE following rules for the conduct of practice as between practitioners at home and practitioners absent on whole or part time war service have been adopted by the Kingston-on-Thames Division of the Surrey Branch of the British Medical Association:

1. That any practitioner called away on duty in connexion with the war be invited in the first instance to make his own arrangements for the carrying on of his practice and to notify the Honorary Secretary of the Division of the same.

2. That if he be unable to make such private arrangements he shall also notify the Honorary Secretary of the Division.

3. That in the latter case the arrangements for carrying on the absent practitioner's practice shall be left in the hands of trustees appointed by practitioners in the district as represented at this meeting, the trustees to be empowered to add to their number and to employ necessary legal and clerical help, all expenses for the same being defrayed by the funds due to the practitioners for whom they are acting or have acted, in proportion to the work done for each, as far as possible.

4. That in any case the medical practitioners in the area covered by the Kingston-on-Thames Division of the British Medical Association will attend, so far as they are able, any patients belonging to the absent practitioner for him in his absence, and will decline to continue to attend them after his return until one year has elapsed, and then only if released by written word from the practitioner, the application for such release not coming from the acting practitioner or his representative.

5. (a) When a practitioner absent on whole or part time service has made private arrangements for the carrying on of his practice and a patient of his is seen by a practitioner outside these arrangements, such acting practitioner shall receive one-half of the fees paid by the patient for such attendance, the accounts being rendered to the accredited representative of the absent practitioner at least quarterly, and the obligation of collecting the same resting with him. As regards the supply of medicine, when the absent practitioner has a dispenser the prescriptions shall be sent to him, but if the acting practitioner supply medicines he shall receive five-eighths of the fees instead of one-half and the entire charges for repeated medicines.

(b) When the practitioner absent on whole or part time service has no representative except the aforesaid trustees, the acting practitioner shall collect the fees and pay three-eighths to the trustees, for them to hold on behalf of the absent practitioner, retaining five-eighths for the work done, as well as the entire charges for repeated medicines.

6. As regards panel patients, when a practitioner absent on service has made private arrangements for the carrying on of his practice, his panel patients shall conform to these arrangements, but if any of them apply to another practitioner outside these arrangements that practitioner may attend such patients on his own terms.

7. Where a practitioner, absent on service, has made no arrangements for attendance on his panel patients, any practitioner who attends such patients shall receive 1s. for such attendance, and shall keep a record card for each patient and make a return quarterly to the representative of the absent practitioner or to the trustees if there be no representative, and such record cards shall be an account of the amount due from the absent practitioner to the acting practitioner.

8. That no transfer of panel patients on the list of a practitioner absent on service shall be accepted by any other practitioner until a year has elapsed after his return.

9. That all questions of doubt or difficulty shall be referred to a committee consisting of the aforesaid trustees and the Executive Committee of the Kingston-on-Thames Division of the British Medical Association.

BOND.

I, the undersigned, having read the above rules, which have been approved by a meeting of the medical practitioners of the area of the Kingston-on-Thames Division of the British Medical Association, and fully understanding the purpose for which they have been drawn up, do hereby consent to them and pledge myself to abide by them faithfully and honourably.

Three trustees under the scheme, Dr. H. Cooper (Surrebiton), Dr. A. E. Evans (Kingston Hill), Dr. R. N. Goodman (Kingston-on-Thames), were elected at a meeting on May 11th. Up to the end of July 13th the bond had been signed by sixty-three practitioners.

LOCAL MEDICAL AND PANEL COMMITTEES.

LONDON.

PANEL COMMITTEE.

The Constitution of the Committee.

At the first meeting of the newly elected Panel Committee for the County of London on July 20th Dr. H. J. CARDALE was reappointed to the chair, Dr. J. A. ANGUS to the vice-chair, and, subject to his being co-opted a member, Dr. Lauriston Shaw to the treasurership. The motion to co-opt members, however, was subsequently referred back, so that the Chairman acts as treasurer for the time being. A motion was before the meeting, in the name of Dr. Cardale, providing that, in addition to the three subcommittees hitherto appointed, there should be a fourth, consisting of the chairmen and vice-chairmen of the Panel Committee and of the other three subcommittees. This new subcommittee would represent the full committee on deputations, and would also have power to act on its behalf in all matters which would not permit of delay. The motion was seconded by Dr. MAJOR GREENWOOD, but Dr. ALFRED SALTER objected that the proposal was a deliberate attempt to introduce a Cabinet system of government. There was no guarantee that the emergency powers would not be used without warrant or authorization. It was the policy of the Insurance bureaucracy to insist that important decisions should be made within a very limited space of time, and such a subcommittee would exactly serve the purpose of that bureaucracy. In any case it would be possible to summon the whole Panel Committee within twenty-four or forty-eight hours. Believing their democratic basis to be in peril, he moved an amendment negating the proposal; this was supported by Dr. C. H. FRING and others, and carried by a large majority.

To the proposal for the co-option of eleven non-panel members, Dr. SALTER also offered opposition. As illustrating one danger of such a procedure, he pointed out that very often the meetings were prolonged until late in the afternoon, and many panel doctors had to leave early, while those co-opted members, being more leisured, would remain, and it was possible, would exercise a controlling influence. Dr. MAJOR GREENWOOD, on the other hand, thought that the Panel Committee should be made as representative as possible, and Dr. ANGUS asked how they could complain of the action of the British Medical Association, or of any other outside body, if they proceeded to boycott other branches of the profession in the way suggested by Dr. Salter. On being put to the vote, however, it was agreed, by 21 to 15, that the question of co-option be referred back to the Finance and General Purposes Subcommittee.

The Remuneration of Practitioners.

A report was presented by the members of the deputation appointed at the last meeting to confer with the London Insurance Committee as to the defects in the registration of insured persons and their effect upon the remuneration of practitioners. A memorandum was also presented which had been placed before the Insurance Committee with regard to the defects in the London register and the means to be adopted by the Panel Committee, the approved societies, and the Insurance Committee respectively to remove the difficulties. Dr. ANCOX moved and Dr. A. REID seconded a motion concurring in the proposal of the Insurance Committee to make to each practitioner on the panel, during the third quarter of 1915, two payments, in advance of the amount due to him, at the rate of 6d. for each capitation fee credited to him in accordance with the Medical Benefit Registers, 1913.

Dr. SALTER moved as an amendment that the Panel Committee decline to agree with the reduction in the rate of payment, and that the matter be referred to the sub-committee for further consideration and report to a special meeting of the whole Panel Committee. No shred of evidence had been put forward that anything like such a proportion as one-third of the insured persons had enlisted. It was preposterous, especially when they remembered how many of the insured were women. Before the practitioners of London were compelled to submit to such a serious reduction in their incomes as this, they should approach the Government.

Several members spoke in support of Dr. Salter's opinion, one of them advocating a strike, but, on being put to the vote, the amendment was negatived by 28 to 10. Dr. SALTER insisted that the names of the members with their votes should be placed on record, and this was done.

Dispensing Fees at Half-Rates.

Dr. R. J. FARMAN moved, and it was agreed:

That, subject to the Pharmaceutical Committee agreeing that the mixtures are capable of being stocked in bulk without deterioration, the Panel Committee do select ten mixtures from the London Insurance Pharmacopoeia, in respect of which dispensing fees at half the rates set forth in the drug tariff shall be allowed; that the Insurance and Pharmaceutical Committees be so informed, and that the Insurance Committee be asked to give the requisite notice to persons supplying drugs and appliances of the intention to apply those rates as from September 1st, 1915.

ESSEX.

LOCAL MEDICAL AND PANEL COMMITTEES.

SINCE the last report (SUPPLEMENT, April 17th, p. 136) three regular meetings and several subcommittee meetings have been held, and the Secretary has, as member of deputations from British Medical Association, interviewed the Commissioners on one or two important matters.

Continuance in Office till 1916.—The same Committees will hold office till July, 1916, having, in consequence of almost insuperable difficulties in the way of holding elections in the twenty-one panel areas, requested the Commissioners to be allowed to remain in office, any vacancies being filled in the way usual to casual vacancies.

The matters dealt with during the three months are briefly:

Referees.—The Commissioners have been again requested to appoint referees.

Prescriptions.—Surcharging has been avoided for 1914, the Pharmaceutical Committee having agreed to all further inquiry being confined to 1915, and for prescriptions to be dealt with fortnightly, they being satisfied that the system of private letters to practitioners by the panel secretary has been satisfactory in the past, and is likely to reduce unnecessary expense in future.

Pharmacopoeia.—The National Health Insurance Pharmacopoeia was issued in June, and has met with much appreciation among practitioners and pharmacists. Suggestions for improvements in next edition will be appreciated by the Secretary.

Certification.—The Commissioners were asked if possible to remove the differences between 211, f.c. and A.S. 156, so as to avoid societies trying to obtain certificates upon certain dates. Any day between fourth and eighth day are available to the practitioner, who cannot be forced to sign the second certificate before the eighth day.

Medical Representatives upon Insurance Committee.—The suggestion that these should be named by the panel

practitioners of the various areas and a list compiled, from which the Panel and Local Medical Committees should nominate representatives to be appointed by Commissioners and county council, was approved. The next election will be in 1916, of which due notice will be given.

"Rep. Mist."—It was decided that "Rep. mist." should only hold good from the first to the last day of any month, after which the original prescription should be re-written. The Pharmacists and Insurance Committee having agreed to group "scripts" under doctors' names as from June 1st, it is hoped the great expense of analysis will be avoided and checking facilitated. The system now runs: (a) Priced prescriptions in Pharmacopoeia save pricing and checking each item; (b) prescriptions grouped under doctors' names facilitate reference and avoid analysis; and (c) enable secretary to trace expensive items fortnightly and write to the practitioner, which it is hoped will avoid, as in 1914, the unpleasant process of surcharging, which has caused considerable disturbance, with appeals (and consequent cost) in other areas.

Payments for 1913.—The absence of details of the payment for 1913 has been pointed out to the Insurance Committee, who has been asked to give the amounts for panel service, unallotted, dispensing, and temporary residents.

WEST HAM.

PANEL PRACTITIONERS' MEETING.

A MEETING of practitioners on the West Ham panel was held at the Stratford Town Hall on June 29th.

Annual Report.—The annual report of the Panel Committee was received and adopted.

Election of Panel Committee.—The new Panel Committee to come into office on July 15th, 1915, was elected as follows: Drs. Beadles, Cannan, Challans, Darlow, Dayus, Duffy, Fairfax, Frederick, Grogono, Hay, Kennedy, McCormack, Nelson, Panting, Reid, Rose, J. Russell, Lillian Simpson, Taylor, Watkin, and Welply.

Appeals against Surcharging.—It was resolved that when a practitioner is surcharged by the West Ham Insurance Committee and appeals to the Insurance Commissioners the Panel Committee should have a representative at that appeal. It was also resolved that the treasurer of the Panel Committee should pay such representative the sum of 3 guineas per day out of the Panel Committee's funds.

COUNTY OF SURREY.

PANEL COMMITTEE.

The monthly meeting of the County of Surrey Panel Committee was held at Surbiton Cottage Hospital on June 18th, when Dr. LANKESTER was in the chair.

Pharmacopoeia.—It was decided to inform the Pharmaceutical Committee that the prices in the Pharmacopoeia are placed there as a guide to practitioners in economical prescribing, and not as a guarantee to the chemist that the prices are correct.

Expenses of Pharmaceutical Committee.—It was decided not to support the application of the Pharmaceutical Committee that the expenses of that committee be paid out of the Drug Fund.

Range of Medical Services.—It was decided to inform the County Committee that the examination of the eyes was work that should be undertaken by a specialist, or one specially trained for such work.

Practitioners' Lists.—The Secretary was instructed to inform both the Insurance Commissioners and the County Committee that as six months had now elapsed since the end of 1914, practitioners' lists should now be corrected up to that period, and the proper credits made to the County Committee.

Prescribing for Insured Persons in Hospitals.—It was decided to ask all hospitals in the county what arrangements were made for prescribing for insured persons in those institutions.

Joint Committee for Checking Prescriptions.—Drs. Morton Mackenzie, Lyndon, and Cran were appointed to serve on the Joint Committee for the checking of prescriptions.

LIVERPOOL.

PANEL COMMITTEE.

A MEETING of the Liverpool Panel Committee was held at the Medical Institution on June 29th, when Mr. F. C. LARSEN was in the chair.

Allocation of Surplus Funds.—A letter was read from the Medical Secretary of the British Medical Association in reference to Clause VI of the agreement as to the allocation of surplus funds. It was resolved that action by the Panel Committee with regard to Clause VI be deferred for the present.

Conference of Local Medical and Panel Committees.—Dr. ALLEN, who had acted as representative at the conference of Local Medical and Panel Committees, gave a report of the proceedings.

Revised Formulary.—A revised formulary, which had been drawn up by the Subcommittee appointed to consider this subject, was considered and amended.

The Committee met again on July 6th, when Mr. F. C. LARKIN was in the chair.

"Rep. Mist."—Dr. PARKINSON reported the result of his appeal to the Commissioners in reference to "Rep. mist.," and it was resolved that no action be taken by the Committee until the conference suggested by the Commissioners between Dr. Parkinson and the administrative officer had taken place.

Election of the Committee.—The nominations for the forthcoming election of the Panel Committee were considered, and it was resolved that the nomination and re-election of the members of the present Committee should, if possible, be effected.

COUNTY OF LANARK.

LOCAL MEDICAL AND PANEL COMMITTEES.

A MEETING of the Local Medical and Panel Committees for the County of Lanark was held on June 30th at Glasgow, when Dr. W. G. MACPHERSON (Bothwell) was in the chair.

Domiciliary Treatment.—A communication was read from the County of Lanark Pharmaceutical Insurance Committee, and it was agreed at the first opportunity to issue a circular to doctors regarding domiciliary treatment.

Doctors' Prescriptions for April.—A communication was submitted from the County of Lanark Pharmaceutical Insurance Committee regarding the various prescriptions issued by doctors in April last. It was agreed to communicate with the doctors concerned.

Conference of Representatives of Local Medical and Panel Committees.—Dr. THOMSON (Uddingston) and Dr. GRANT (Blantyre) reported on the business transacted at the recent Conference, and were thanked for their services.

Secretary.—A vote of appreciation on the gallantry of the Secretary of the Committee, Major McKenzie, 16th Cameronians (Scottish Rifles), who had been wounded while with his battalion charging the German trenches, was unanimously passed, along with the expression of a hope for his speedy and complete recovery.

INSURANCE COMMITTEES.

EDINBURGH.

Administrative Work, 1914-15.

A REPORT on the administrative work of the Edinburgh Insurance Committee from April, 1914, to July, 1915, has been issued. It states that the machinery of medical benefit is working smoothly. In January, 1915, the Committee had on its register 103,634 insured persons; at the date of report the number was 119,767. A scheme was prepared and agreed upon for the assignment of insured persons requiring a doctor. It was rendered necessary by the fact that many insured persons did not take the precaution to select a panel doctor until they found themselves ill and requiring medical benefit. The parliamentary divisions of the city had been taken as a basis for fixing the areas under which the assignment scheme would operate, and doctors on the panel list had each been placed in one of these areas or divisions, having due regard to the place of residence of the doctor and to the need for having a distribution of doctors over the respective areas in proportion to the insured population of each such area. In the East Division there were 30 doctors, in the West Division 24, in the Central Division 29, and in the South Division 31. Since the outbreak of war twenty-one members of the medical panel had gone on army service, one of whom (Dr. J. M. Bowie) was wounded while tending wounded soldiers in a field hospital. He is

now happily recovering. The panel lists of doctors on army service amounted in the aggregate to 16,280 persons.

For the years 1913 and 1914 the "floating sixpence" had been saved for the doctors. The highest number of insured persons on the panel list of any one doctor in Edinburgh in 1913 was 2,989, and in 1914, 3,025, and the lowest number 53. The number of surgery attendances was 193,956 in 1914, against 157,079 in 1913; and the number of visits at patients' own homes was 80,938, as against 78,306. The highest number of attendances and visits made by any one doctor in Edinburgh was 10,999, as compared with 9,181; and the lowest number was 84, as against 74. The highest sum paid to any one doctor in Edinburgh was £1,104 8s. 5d., as against £1,062 14s. 1d.; and the lowest sum was £45 11s. 8d., as against £94 1s. 1d. The highest average paid to any one doctor for each attendance or visit was 5s. 6d. in 1914, and the lowest average was 1s. 8d. The general average paid for each attendance or visit was 2s. 8d., compared with 3s. 4d. in 1913. The payments made to panel practitioners for the year to December 31st, 1914, amounted to £30,802 3s. 2d., while the "floating sixpence," distributed in the ratio of one-fourteenth of each doctor's total remuneration for the year, amounted to £2,200 3s.; and the unallocated money for the half-year to July 12th, 1914, distributed among doctors according to the approved scheme, was £1,421 5s. 3d. In addition to the above payments, there remained to be distributed among the doctors a further sum of £2,046 0s. 7d., being the balance of unallocated money in the panel fund for the year 1914.

The total number of insurance prescriptions dispensed in the Committee's area for the year 1913 was 149,289; for the year 1914, 156,460. The total amounts of accounts paid in respect of these prescriptions were, for 1913, £6,398 13s. 10d., and for 1914, £6,898 2s. 6d. The bonuses paid to chemists and appliance dealers in respect of the year 1913 amounted to £1,278 13s. 6d., being 20 per cent. of the amounts of their accounts. A first bonus, amounting to £320, had been paid for the year 1914, and it was anticipated that a further bonus would be available out of additional credits yet to be advised by the Insurance Commissioners. The average cost per prescription for the year 1913 was 10.28d.; for 1914, 10.58d. The rate of cost per person for 1913, 1s. 4½d.; for 1914, 1s. 5d.

The report goes on to discuss the negotiations between the Town Council and the Insurance Committee in relation to sanatorium benefit to dependants of insured persons. The matter is still pending, but the report states that the work is carried on efficiently in the meantime, and it is expected that an understanding will be reached shortly.

CORRESPONDENCE.

DEDUCTIONS FOR SOLDIERS.

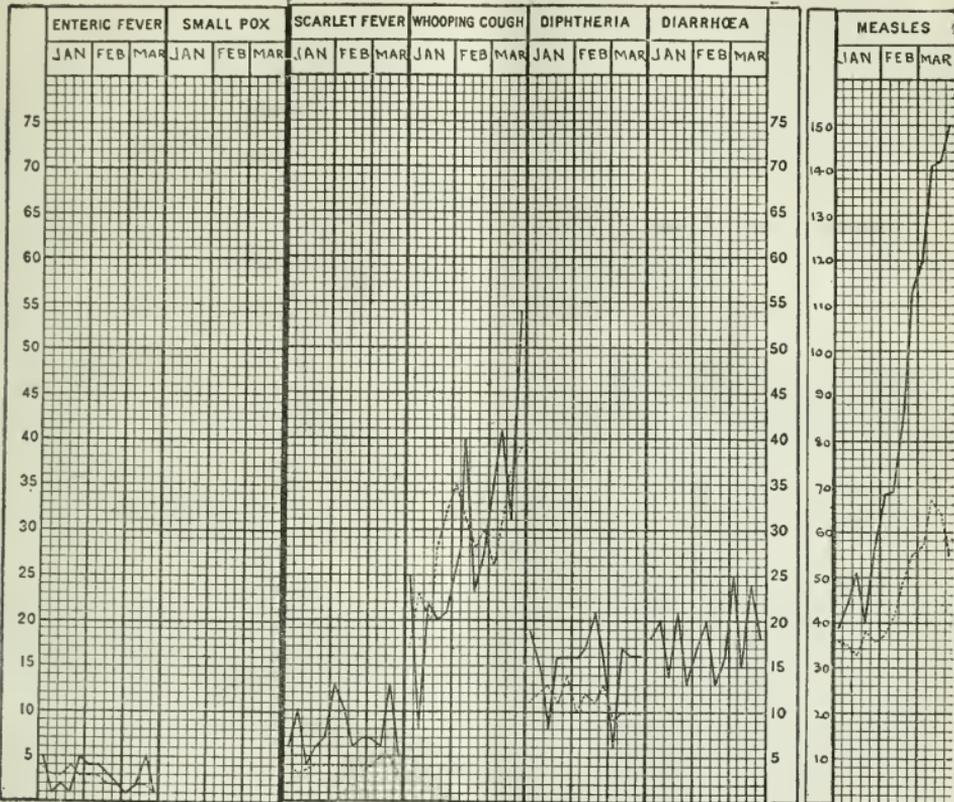
PANEL DOCTOR writes: In reference to the Conference of Representatives of Local Medical and Panel Committees—the discussions at which were detailed in the SUPPLEMENT of June 26th—on pages 330 to 331, under "Termination of Agreements," a statement was made by the representative from Gloucestershire that those serving with the colours had been practically deducted twice over, and the Chairman stated: "It was not certainly the common practice throughout the country to deduct soldiers twice."

I think this point ought to be inquired into and definitely fixed, because in the important county in which I reside and practise, since last autumn I have had 15 per cent. deducted for soldiers who have joined the army, and, taking only this last six months into consideration, I have had removed from this cause more than 50. I should consider that altogether, what between *en bloc* and detailed removals, I have had over 20 per cent. deduction made to me on this account. This is, of course, in addition to the other deductions of 10 per cent., etc.

If the Chairman is right that it is not the common practice, may I ask who is responsible for these most important deductions in the quarterly advances? Is it the clerks and their committees? Or is it the Commissioners?

In view of the delay in the settlement for 1913 and the rumours that there is to be no settlement because there is no money, it is a most important thing that each practitioner obtains payment every quarter on his full value and leaves as "little as possible" to the "as soon as possible,"

DEATHS FROM EPIDEMIC DISEASES IN LONDON DURING THE FIRST QUARTER OF 1915.



NOTE.—The black lines show the recorded number of deaths from each disease during each week of the quarter. The dotted lines show the average number of deaths in the corresponding weeks of the five preceding years, 1910-14. Under the heading "Diarrhoea" are given the deaths from diarrhoea and enteritis among children under 2 years of age; the corrected average number of these deaths is not available.

Scarlet Fever.—The fatal cases of scarlet fever, which had been 69, 75, and 108 in the three preceding quarters, declined again in the quarter under notice to 100, but were 48 above the corrected average number; this disease was proportionally most fatal in Hammersmith, Fulham, Stoke Newington, Bethnal Green, Stepney, and Deptford. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 3,095, 4,157, and 4,431 at the end of the three preceding quarters, had declined again to 2,514 at the end of the quarter under notice; 3,958 new cases were admitted during the quarter, against 4,731, 5,283, and 7,540 in the three preceding quarters.

Whooping-Cough.—The deaths from whooping-cough, which had been 510, 206, and 121 in the three preceding quarters, rose again in the quarter under notice to 378, but were slightly below the corrected average number. The greatest proportional mortality from this disease was recorded in Holborn, Finsbury, Bethnal Green, Bermondsey, Battersea, Deptford, and Greenwich.

Diphtheria.—The fatal cases of diphtheria, which had been 143, 138 and 214 in the three preceding quarters, declined again in the quarter under notice to 193, but were 53 in excess of the corrected average number. The highest death-rates from this disease occurred in St. Pancras, Islington, Holborn, Bethnal Green, Stepney, Battersea, and Woolwich. There were 1,322 diphtheria patients under treatment in the Metropolitan Asylums Hospitals at the end of the quarter, against 1,083, 1,236, and 1,665 at the end of the three preceding quarters; 2,033 new cases were admitted during the quarter, against 1,675, 1,975, and 2,728 in the three preceding quarters.

Diarrhoea.—The deaths under this heading are those attributed to diarrhoea and enteritis among children under 2 years of age; measured in proportion to the births registered during the quarter, the mortality from this cause was greatest in Hammersmith, the City of Westminster, Holborn, Shoreditch, Bethnal Green, Southwark, and Woolwich.

In conclusion, it may be stated that the aggregate mortality in the quarter under notice from these epidemic diseases, excluding diarrhoea, was 51.2 per cent. above the average.

HEALTH OF ENGLISH TOWNS.

In ninety-six of the largest English towns, 7,681 births and 4,072 deaths were registered during the week ended Saturday, July 10th. The annual rate of mortality in these towns, which had been 12.4,

12.3, and 11.9 per 1,000 in the three preceding weeks, further fell to 11.7 per 1,000 in the week under notice. In London the death-rate was equal to 11.5, while among the ninety-five other large towns it ranged from 5.1 in Enfield, 5.6 in Tottenham, 6.3 in Norwich, 6.6 in Ealing, 7.2 in Croydon, and 7.4 in Ilford, to 16.8 in Wakefield, 17.3 in Derby, 17.5 in Gateshead, 17.6 in Stockton-on-Tees, 18.8 in West Bromwich, and 21.4 in Barrow. Measles caused a death-rate of 1.6 in Halifax, 1.7 in Derby, 2.1 in Boodle, 3.0 in West Bromwich, and 3.3 in Middlesbrough, and diphtheria of 1.0 in Oldham and 1.7 in Northampton. The mortality from the remaining infective diseases showed no marked excess in any of the large towns, and no fatal case of smallpox was registered during the week. The causes of 37, or 0.9 per cent. of the total deaths were not certified either by a registered medical practitioner or by a coroner; of this number, 6 were recorded in Gillingham, 6 in Gateshead, 5 in Liverpool, 4 in Birmingham, 3 in Manchester, and 2 in South Shields. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,373, 2,422, and 2,446 at the end of the three preceding weeks, further rose to 2,471 on Saturday, July 10th; 322 new cases were admitted during the week, against 330, 332, and 248 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 1,022 births and 705 deaths were registered during the week ended Saturday, July 10th. The annual rate of mortality in these towns, which had been 15.7, 15.7, and 16.6 per 1,000 in the three preceding weeks, fell to 15.7 in the week under notice, but was 4.0 per 1,000 above the rate recorded in the ninety-six large English towns. Among the several towns the death-rate ranged from 8.5 in Kilmarnock, 8.8 in Perth, and 8.9 in Kirkcaldy, to 18.7 in Clydebank, 21.3 in Falkirk, and 23.3 in Ayr. The mortality from the principal infective diseases averaged 2.4 per 1,000, and was highest in Aberdeen and Falkirk. The 356 deaths from all causes in Glasgow included 57 from measles, 10 from whooping-cough, 5 from diphtheria, 5 from infantile diarrhoeal diseases, 3 from scarlet fever, and 1 from enteric fever. Six deaths from measles were recorded in Aberdeen and 3 in Clydebank; from scarlet fever, 3 deaths in Edinburgh; from whooping-cough, 6 deaths in Aberdeen; and from diphtheria, 2 deaths in Edinburgh.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, July 10th, 537 births and 309 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 646 births and 387 deaths in the preceding period. These deaths represent a mortality of 1.3 per 1,000 of the aggregate population in the twenty-seven principal urban districts of Ireland, as against 1.6 per 1,000 in the preceding period. The mortality in these Irish areas was, therefore, 1.6 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was only 2.1 per 1,000 of population. As regards mortality of individual localities, that in the Dublin registration area was 15.9 as against an average of 16.9 for the previous four weeks. In Dublin city 15.7 as against 17.0, in Belfast 10.0 as against 13.9, in Londonderry 16.5 as against 17.7, in Limerick 21.7 as against 15.9, and in Waterford 19.0 as against 13.8. The zymotic death-rate was 1.2, as against 1.0 in the previous period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements) *Important Notice re Appointments* appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BETHNAL GREEN INFIRMARY.—Assistant Medical Officer. Salary, £280 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Junior House-Surgeon. Salary, £100 per annum and £5 in laundry allowance.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £250 per annum.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—House-Surgeon. Salary, £100 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Second House-Surgeon. Salary, £200 per annum.

BOTHWELL KIRKLANDS ASYLUM.—Resident Medical Superintendent. Salary, £400 per annum.

BRISTOL GENERAL HOSPITAL.—House Physician. Salary, £150 per annum.

BRISTOL ROYAL INFIRMARY.—Honorary Surgeon, and, if necessary, an Honorary Assistant Surgeon.

BURY INFIRMARY.—Senior and Junior House-Surgeons. Salary, £250 and £150 per annum respectively.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £140 per annum.

CARDIFF: WELSH METROPOLITAN WAR HOSPITAL, Whitehall.—(1) Resident Medical Officer. (2) Resident Physician.

CHELTENHAM GENERAL HOSPITAL.—(1) House-Surgeon. (2) House-Physician. Salary, £125 per annum.

CROYDON COUNTY BOROUGH.—Assistant Medical Officer of Health and Assistant School Medical Officer. Salary, £350 per annum.

DEVONPORT: ROYAL ALBERT HOSPITAL.—House-Surgeon. Salary, £150 per annum; 21s. allowed weekly for working single-handed.

EXETER: ROYAL DEVON AND EXETER HOSPITAL.—Assistant House-Surgeon. Salary, £150 per annum.

FOLKSTONE: ROYAL VICTORIA HOSPITAL.—House-Surgeon. Salary, £150 per annum.

GREENOCK: SMITHSON FOURHOUSE AND ASYLUM.—Assistant Medical Officer. Salary, £200 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST,rompton, S.W.—House-Physician. Honorarium, 50 guineas for six months.

HUNTERSFIELD COUNTY BOROUGH.—Assistant School Medical Officer. Salary, £300 per annum.

KING EDWARD VII'S HOSPITAL FOR OFFICERS, Grosvenor Gardens, S.W.—Resident Medical Officer.

LEAMINGTON SPA: WARNEFORD, LEAMINGTON, AND SOUTH WARWICKSHIRE HOSPITALS.—(1) Resident Medical Officer. Salary, £270 per annum. (2) Locum-tenens Medical Officer.

LEEDS EDUCATION COMMITTEE. School Dental Officer. Salary, £250 to £300 per annum.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £120 per annum.

LONDON: LOCK HOSPITAL, Harrow Road, W.—House-Surgeon. Salary, £150 per annum.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Resident Medical Officer. Salary, £100 per annum, and £5 monthly for services.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST, Bowdon.—Resident Medical Officer. Salary, £250 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £120 per annum.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Resident Medical Officer. Salary, £100 per annum.

NEWCASTLE-UPON-TYNE: UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.—Demonstrator of Anatomy. Salary, £250 per annum.

PORTSMOUTH: ROYAL PORTSMOUTH HOSPITAL.—House-Surgeon. Salary, £150 per annum.

PUBLIC DISPENSARY, Drury Lane, W.C.—Resident Medical Officer. Salary, £105 per annum.

SALISBURY GENERAL INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £100 per annum respectively.

SHEFFIELD CITY HOSPITALS FOR INFECTIOUS DISEASES AND TUBERCULOSIS.—Assistant Medical Officer. Salary, £225 per annum.

SHEFFIELD ROYAL INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Physician. Salary, £100 per annum.

SHEREWSBURY: ROYAL SALOP INFIRMARY.—House-Surgeon. Salary, £250 per annum.

STAFFORDSHIRE EDUCATION COMMITTEE.—Temporary Women Assistant School Medical Inspectors. Salary, £300 per annum.

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—House-Surgeon. Salary, £250 per annum.

STOCKPORT INFIRMARY.—Junior House-Surgeon. Salary, £180 per annum.

THROAT HOSPITAL, Golden Square, W.—Resident House-Surgeon.

TRURO: ROYAL CORNWALL INFIRMARY.—House-Surgeon. Salary, £150 per annum.

UNIVERSITY COLLEGE HOSPITAL.—Junior Surgical Registrar.

WALSALL AND DISTRICT HOSPITAL.—Assistant House-Surgeon and Assistant. Salary, £150 per annum.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior House-Surgeon. Salary, £200 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £120 per annum respectively.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—(1) Resident Medical Officer; (2) House-Physicians and House-Surgeons. Salary for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.

WHITECHAPEL DISPENSARY FOR THE PREVENTION OF CONSUMPTION.—Temporary Medical Officer. Salary, £50 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY, Junior House-Surgeon. Salary, £50 per annum.

GEORGINA FACTORY SURGEONS. The Chief Inspector of Factories announces the following vacant appointment: Blyth (Northumberland).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

COERT, C. M.B., C.M.Glass. Certifying Factory Surgeon for the Kirkham District, co. Lancaster.

EAMES, E. V., L.R.C.P. and S. Edin., L.F.P.S. Glasg., Medical Officer and Public Vaccinator for the Honor and Codnor Medical Relief District of the Bedford Union.

FLITTOFF, T. E., L.R.C.P. and S. Edin., Certifying Factory Surgeon for the Leigh District, co. Lancaster.

GRIFFITHS, D. T., L.M.S.S.A., Certifying Factory Surgeon for the New Quay District, co. Cardigan.

GRIFFITHS, P. Russ., M.B., B.S. Lond., Consulting District Surgeon, Great Western Railway, vice J. Lynn Thomas, C.E., F.R.C.S., resigned.

KENT, P. W., M.R.C.S., L.R.C.P. Lond., D.P.H. Camb., Medical Officer of Health for the Barry (Ferry and Port Sanitary Authority, vice G. Neale, L.R.C.P. and S. Edin.

ROWAN, M. L., M.D.R.U.I., Medical Superintendent of the New Derbyshire Asylum.

SADLER, E. A., M.D., Medical Officer of the Children's Home of the Ashbourne Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

RENSHAW.—On July 18th, 1915, at "Newstead," Ashton-on-Mersey, to Dr. and Mrs. Knowles Renshaw—a son.

SHELDON.—On July 19th, 1915, the wife of J. H. Sheldon, M.B. Lond., of 16, Elrieh Road, Reading, of a son.

MARRIAGES.

BRAND-SEABY.—On July 21st, at the Parish Church, Spalding, Lincs, by the Rev. T. H. Tardrew, assisted by the Rev. Theodore Brand, M.D. C. M., J.P., V.D., of Inverly, Driffield, E. Yorks, to Kate, fourth daughter of Mr. and Mrs. H. Searly, of Norwood, Spalding.

NORMAN WATCH.—On July 17th, 1915, at St. Mary's, Chigwell, by the Rev. F. A. Murray, Vicar, assisted by the Rev. J. D. Dyke, M.A., Lieutenant Newman F. Norman, R.A.M.C., only son of Frederick Norman, J.P., F.R.C.S., of Wiltshire House, Brixton, S.W., to Ethel Ann, eldest daughter of Walter Wangh, of Chigwell Hall, Essex.

ORR-JOYCE.—At the Manchester Cathedral, on July 17th, David Orr, M.D., County Asylum, Prestwich, to Ethel Joyce, daughter of the late Thomas Henry Joyce, Esq., and Mrs. Joyce, Bolton.

DEATHS.

SHEEHAN.—About July 12th, of heart failure, James Curtin Sheehan, L.R.C.P., L.R.C.S., of 64, Waverdon Avenue, Chiswick, W., aged 55 years. Buried at Aden, R.I.P.

STEVENS.—On July 15th, at Tumbidgee Wells, George Jesse Darnabas Stevens, M.R.C.S. Eng., L.R.C.P. Lond., aged 70.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JULY 31ST, 1915.

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EIGHTY-THIRD ANNUAL MEETING

OF THE

British Medical Association.

LONDON, 1915.

ANNUAL REPRESENTATIVE MEETING.

Mr. T. JENNER FERRELL, LL.D. (Chairman of Representative Meetings), in the Chair.

The proceedings of the Annual Representative Meeting began on Friday, July 23rd, 1915, at the Connaught Rooms, Great Queen Street, London, at 10 a.m.

The return of the election of Representatives of Divisions for the year 1915-16 was received, approved, and entered on the minutes. Notices of appointment of substitutes for Representatives were also received. Intimation was made of numerous letters of apology for absence, and it was stated by the CHAIRMAN that in most cases the absentees were engaged on military duty or on work on behalf of practitioners serving with the forces. There were 141 present.

STANDING ORDERS.

The Standing Orders of the last Representative Meeting were adopted subject to certain formal amendments.

ORDER OF BUSINESS.

The report of the Agenda Committee, dealing with the order of business, was adopted.

ILLNESS OF MR. EDMUND OWEN.

The CHAIRMAN said he was sure those who remembered the progress of affairs in connexion with the establishment of the Representative Meeting would bear with concern that Mr. Edmund Owen, whose name was a household word in the profession, whose eloquence and devotion to duty in Association affairs and elsewhere were known to many, was grievously stricken with illness, to which he might very possibly succumb. His recovery could hardly be complete. Those who remembered how he laboured as Chairman of the Constitution Committee in the preliminary stages which led to the reorganization of the constitution of the Association, and who remembered the genial and tactful words in which Mr. Owen introduced the subject at the Annual Meeting at Cheltenham, thus smoothing away many difficulties—would take this opportunity of offering a word of sympathy to Mr. Owen in his illness. The meeting, he was sure, hoped that Mr. Owen would yet be spared to do useful work.

A resolution of sympathy was ordered to be sent to Mr. Owen. (Before the conclusion of the meeting the news of Mr. Owen's death was communicated by the Chairman to the members and by them received with poignant regret.)

ANNUAL AND SUPPLEMENTARY REPORTS
OF COUNCIL.

The Annual and Supplementary Reports of Council for 1914-15, published in the SUPPLEMENT to the JOURNAL, May 8th and July 3rd respectively, were received.

OFFICERS FOR 1915-16.

Standing Order No. 34 was suspended, so as to take, at an early period in the proceedings, the re-election of the President, together with the other proposals of the Council in connexion with the officers for the year. The CHAIRMAN remarked that it was usual for the President to be elected from the area in which the scientific meeting was held, but as there was to be no scientific meeting this year the position needed adjustment.

The CHAIRMAN of COUNCIL moved:

That Sir Alexander Ogston, K.C.V.O., M.D., be re-elected as President of the Association for 1915-16, Sir Thomas Clifford Albutt, K.C.B., LL.D., as President-elect, and Dr. W. Ainslie Hollis as East-President.

The motion was carried unanimously.

The point was raised that the Association was bound by its constitution to hold a scientific meeting each year, but the CHAIRMAN of COUNCIL remarked that the situation was so completely altered by the war that he did not think the Representatives would find fault with the Council on account of its action in this matter. (Hear, hear.)

VOTES OF CONDOLENCE.

The "preliminary" paragraphs of the Annual Report of Council (SUPPLEMENT, May 8th, pp. 166-8, paragraphs 1-9), giving a historical account of the events of the year, and mentioning the losses the Association had sustained by death, were approved.

The CHAIRMAN of Council said he was glad to be able to make a correction in the list of members reported as dead. Dr. Dearden, whose name was given, was not dead, and was present at the meeting.

The CHAIRMAN moved that an expression of sympathy and condolence be sent on behalf of the meeting to the relatives of the late Dr. B. G. Morison, the Representative of the St. Pancras and Islington Division, 1913-1914. No more honest, straightforward, or painstaking member had attended the Representative Meeting, and he was sure the Association would desire to express its sympathy with the relatives in their loss. The members signified their approval by rising.

The CHAIRMAN moved that the meeting express its sympathy with the relatives of Dr. Bruce Goff, of Bothwell, a very old member of the Association and a former Representative. A letter of condolence was ordered to be sent to the relatives.

CAPTAIN MARTIN-LEAKE, V.C.

The preliminary paragraphs of the Supplementary Report of Council (SUPPLEMENT, July 3rd, paragraphs 187-8), including the proposal that the Gold Medal of the Association be awarded to Captain Arthur Martin-Leake, V.C., R.A.M.C., were approved.

STANDING INSURANCE ACTS COMMITTEE.

The CHAIRMAN of the Insurance Acts Committee (Dr. J. A. Macdonald) moved, on behalf of the Council, that the Representative Meeting should add to the schedule to the by-laws as to Standing Committees a new paragraph appointing a standing Insurance Acts Committee and setting forth its constitution and duties. The addition to the by-laws was as follows:

Name of Committee.—Insurance Acts.

Members.—Members of the Association appointed as follows: 12 elected by the elected Representatives of the Constituencies comprised in the groups of Branches and Divisions formed for the purpose mentioned in By-law 46 (c), the Representatives of all the Constituencies in each such group being entitled together to elect one member of the Committee in the same manner as they elect one member of the Council in pursuance of that By-law; 12 elected by the four *ex officio* members and the above-mentioned 12 elected members of the Committee acting together, such 12 members to be nominated or qualified as under—namely, 6 selected so far as possible on a territorial basis from among members nominated by the Local Medical Committees and Panel Committees formed in Great Britain under the Insurance Acts; 2 non-panel practitioners; 1 Representative nominated by each of the following bodies—namely: (a) The Association of Registered Medical Women, together with the Northern Association of Registered Medical Women; (b) The Society of Medical Officers of Health; (c) The Poor Law Medical Officers' Association of England and Wales.

Duties.—To deal with all matters arising under the National Insurance Acts, 1911 to 1914, and any Act amending or consolidating the same, and to watch the interests of the profession in relation to those Acts.

Dr. MACKEITH (Southampton) said that in order to avoid criticism of the Committee in the future he would propose that all members, except the two non-panel practitioners and the four *ex officio* members, be panel practitioners. The Committee would deal entirely with panel matters and should be thoroughly representative of the interests of those engaged in insurance practice.

On a point of order raised by Captain F. CHARLES LAERIN (Council and Deputy Representative for Manchester), the CHAIRMAN ruled that the amendment was incompetent, as notice had not been given. The meeting must either accept or reject the motion.

Dr. C. E. ROBERTSON (Glasgow) pointed out that in some instances the Local Medical Committee was not identical with the Panel Committee.

The CHAIRMAN of COUNCIL intimated that the matter was capable of local adjustment.

The motion to adopt the proposed addition to the Schedule was agreed to.

THE FINANCIAL STATEMENT.

The Treasurer (Dr. RAYNER) submitted the financial portion of the Annual Report of Council (SUPPLEMENT, May 8th, paras. 10 to 25). He mentioned that the balance of

income over expenditure for 1914-15 was £15,296—(ap-
prise)—whilst in the previous year there was a deficit of
£4,000, which meant that in the year there had been a
swing of the pendulum in favour of the Association of
more than £20,000. Nobody rejoiced more than he did,
because it had now been possible to reduce the overdraft
at the bank from £45,000 to £31,000.

The financial statement was approved without discussion.

SALARIES OF CLERICAL STAFF.

Paragraph 189 of the Supplementary Report of Council
(SUPPLEMENT, July 3rd, p. 2), stating that a scheme for the
improvement of the conditions of service of the clerical
staff had been adopted by the Council, was approved.

THE ASSOCIATION AND THE WAR.

Dr. T. JENNER VERRALL being the Chairman of the
Committee of Chairmen of Standing Committees which
had dealt with matters arising out of the war, the Deputy
Chairman (Mr. E. B. TURNER) took the chair at this stage.

Dr. VERRALL, in moving the adoption of the paragraphs
(26-33) of the Annual Report of Council, headed "The
Association and the War" (SUPPLEMENT, May 8th, p. 178),
remarked that he did not suppose that there would be no
criticism in respect of what had been done or of what had
been omitted. The Association had worked in harmony
with the authorities at the War Office, and the officials
there had thoroughly appreciated the efforts of the Associa-
tion to supply the nation with the medical service
which was absolutely necessary for the army.

ATTENDANCE UPON DEPENDANTS.

The paragraphs (26-33) dealt with the subject under
three heads: (i) The organization of medical attend-
ance upon dependants of men serving with the colours;
(ii) the organization of the medical profession to meet
the medical needs of the forces in addition to those of
the civil population, and (iii) the assistance of the
Belgian medical profession.

Dr. WILLIAM EARDLEY (Wakefield, Pontefract, and Castle-
ford) moved the following amendment:

That the free medical attendance upon the dependants of men
serving with His Majesty's Forces be discontinued after
July 31st next; and that such action be taken as may be
necessary to secure this step being taken generally through-
out the country, and to find out whether the War Office is
prepared to provide medical attendance for such dependants
or not.

The motion expressed the opinion prevalent in many parts
of the kingdom that the privilege of free medical attend-
ance, given very gladly by the profession, had been abused.
There could hardly be any doubt that, in the majority of
cases, the dependants of soldiers were better off now than
they were in times of peace. As one who had taken some
part in organizing these services he could testify to the
enthusiasm and willingness displayed by his colleagues in
undertaking this work. But in many cases the doctors
knew that the dependants were able and were probably
willing to pay if they were asked. It had been stated in
Parliament that no less than 25 millions had been paid in
separation allowances, and it was reasonable to suppose
that most of the dependants could afford to pay a reason-
able amount for the necessities of life.

The CHAIRMAN OF COUNCIL reminded the meeting of the
history of the question. The attendance on dependants of
those on active service was given in order that no
dependant of a man fighting for his country should
need to apply to the Poor Law authorities. When the
scheme was started there was no such separation allow-
ance as was given now. There was no doubt the privilege
the profession had granted had been abused in certain
districts, but, to a certain extent, medical practitioners
themselves were to blame. If at the beginning practi-
tioners had explained the medical point of view to the
committees organizing the relief, as they were urged
by the Association to do, there would have been
no abuse. The privilege had sometimes come to be re-
garded as a right, and books had been scattered broadcast
by committees. He told the committee in his locality
that it would destroy the scheme altogether if it continued
such widespread distribution, and pointed out that the free
treatment was a pure act of grace on the part of the
doctors and chemists. The committee realized that it
had taken a wrong view altogether. According to

the most recent figures, the number of books dis-
tributed in England was 150,291; in Scotland, 25,808;
in Ireland, 72; and in Wales, 7,655—a total of 185,826.
It showed how much smaller the scheme had proved than
was anticipated. The Prince of Wales's Fund had under-
taken to provide a grant of £40,000 for drugs for the
working of the scheme during the first six months, but the
amount required for the past seven months had been only
£4,500. If the members of the profession throughout the
country interested themselves in the matter, they would
be able themselves to put anomalies right. He would be
very sorry if the meeting agreed to the motion by Wake-
field; it would be very ungracious if, having undertaken
the work, the profession stopped in the middle, especially
when, to some extent, the difficulties were due to the
sluggishness of some doctors.

Dr. LUNBIE (Edinburgh and Leith) said that in Edinburgh
the profession made arrangements with the local commit-
tees. These had, on the whole, worked well, though, as in
other parts of the country, there were benevolent ladies
who had large ideas. The chief complaint in Edinburgh
had been as to the excessive benevolence of the medical
men, on whose suggestion the lady visitors had issued
books to unsuitable cases, and then the chemists com-
plained. He specially objected to the last clause of the
amendment, which proposed to throw the attendance of
dependants on the Government, as it would be opening
the gates to State Socialism.

Dr. A. DREY (Halifax) said that he had been convinced
by the Chairman of the Council. All that the profession
was asked to do was to provide free attendance for neces-
sitous persons, and there was no member of the profession
who was not prepared to do so. Undoubtedly there had
been abuse; that was no reason for abandonment. The
abuse only should be stopped.

The amendment was lost.

COMMUNICATIONS WITH THE WAR OFFICE.

The paragraphs of the Supplementary Report of Council
dealing with this matter (SUPPLEMENT, July 3rd, p. 2) were
then considered.

With regard to the question of whole time military
medical service, the Council reported that it had to
consider as vitally affecting the recruiting of medical
men for work with the army certain grievances of
medical practitioners already serving, as well as
certain other difficulties which had to a greater or
less extent operated to prevent medical practitioners
from accepting commissions.

The Special Committee of Chairmen of Standing
Committees had addressed a letter to the Government,
through the Director-General of the Army Medical
Service, pointing out the grievances of junior officers
of the R.A.M.C.(T.F.), of lieutenants in the Special
Reserve R.A.M.C., of majors in the R.A.M.C.(T.F.),
and as to pensions and compensation. With regard to
the latter point, it was stated that a communication,
dated May 16th, received from the War Office made it
plain that Territorial and temporary medical officers
were, in respect of pensions and gratuities, on the
same footing as officers in the Regular R.A.M.C.

The difficulties which were found to be preventing
practitioners from accepting commissions were stated
to be:

1. That some local authorities were not as willing
as they should be to set free young medical men in
their employ.

(2) That practitioners who would have been glad to
offer themselves for commissions were unable to do so
on account of their financial commitments as regards
their practices or families. The Committee reported
that though it had been convinced that it could not at
the present moment press proposals either to raise the
remuneration or increase the gratuity at the end of
service, it had placed on record its conviction that if
the Government could see its way to grant extra pay
or gratuity to cover what to many practitioners would
be a considerable loss of income or capital such action
would to a considerable extent solve the present diffi-
culty of securing medical officers.

The Committee went on to express its opinion that
it would be impracticable to apply compulsion to
members of the medical profession alone, and that
compulsory medical service for the army could only
be considered as part of a national compulsory
system.

Dr. VERRALL, in moving the adoption of this part of the Supplementary Report, said that the Special Committee had had many communications and conferences with the War Office. The Committee had recognized that it was the duty of the War Office to get the men wanted for the army, but had pointed out that the Association had also to concern itself with the needs of the civil community. Representations had been made as to the grievances of those serving with the Territorial Force and the Special Reserve. Opinions had been expressed as to the financial considerations which perhaps were holding men back. The report, he said, showed that the Committee had done everything possible to ensure that the Government should know the medical point of view. The Committee, in its representations to the War Office, had laid stress on the fact that in many cases financial considerations prevented men from joining the forces. Practitioners were torn between a loyal desire to serve their country and the financial difficulty. The Committee had asked that some greater consideration should be given to these cases, and a higher gratuity on quitting service, so that practitioners should be enabled to make a fresh start more easily. Alternatively, or in addition, it was suggested that possibly some greater facilities for insurance might be given. At present the Committee had had no favourable answer to these representations. No doubt the Army Medical Department was faced with difficulties in regard to money. That was no excuse, however, for treating doctors unfairly. The nation was now beginning to see that the British purse was not absolutely bottomless, and that being so the profession could hardly blame the Department—when it still received fresh applications in fair numbers for commissions on the present terms—if it was slow to acquiesce in a request for better terms. While admitting that there was something to be said for the Department's side of the question, the Committee was putting it as strongly as it ought in asking that the Department should give better terms, and in saying plainly that financial causes were holding some men back. From statements made in Parliament it appeared that arrangements were being made for promoting lieutenants of the Territorial medical service to the rank of captain after six months' mobilized service. So far as it went, that was clearly a step in the right direction, and there was reason to hope that the position of officers of the Special Reserve (R.A.M.C.) would receive favourable consideration.

The paragraphs of the Supplementary Report of the Council dealing with this subject were then approved.

THE ASSOCIATION'S WAR REGISTER.

Dr. VERRALL, in reply to a request, said that he was now in possession of a somewhat lengthy interim report as to the progress of the Association's war register, but it was hardly necessary to enter into detail at this stage. He must say that the Divisional Secretaries had exhibited no sort of resentment at being asked to do more work, but, on the contrary, had shown their usual zeal and self-sacrifice. The returns from those districts where difficulties were known to exist had been, on the whole, extremely good. In a few weeks the Committee hoped to have a record covering about 75 per cent. of the practitioners, and when it was remembered that there was always a percentage who would never answer inquiries, it must be admitted that the prospect was satisfactory.

Lieutenant FOTHERGILL (Brighton) thought that the Association ought to do everything it could to see that the position of the dependants of any medical man who volunteered for medical service was safeguarded. He moved, as a rider, that the Council should take every possible step to obtain the favourable consideration by the Government of the question raised in the appendix to the supplementary report of the Council (SUPPLEMENT, July 3rd, p. 6), as to the grievances of medical men already serving and the difficulties preventing medical practitioners from accepting commissions.

Dr. TOMKINS seconded, and the motion was approved.

SALARIES OF INSTITUTIONAL MEDICAL OFFICERS.

Dr. MAJOR GREENWOOD moved a further rider:

That in all cases where military duties are discharged by institutional medical officers the salaries paid to full time officers should be on a scale not less than that paid by the

War Office to members of the R.A.M.C.; (2) that where the duties are part time only a condition should be made that the medical officer's salary should be in proportion to the extra labour involved.

As long, he said, as a voluntary system existed the Association should see that members of the profession helping in the war were fairly treated and doctors had reasons for asking that their new remuneration should be on a higher scale than that of the R.A.M.C. There were cases in which institutions were taken over by the army, and the superintendent was given charge simply as a military officer, so that he did not always get proper remuneration.

Dr. DENNING, in seconding the rider, said that the salaries paid to full time officers should be on a scale not less than those paid by the War Office to members of the R.A.M.C. Where the duties were only part time a condition should be made that the medical officers' salary should be in proportion to the extra labour involved.

Major GALLOWAY (Marylebone) said the Metropolitan Counties Branch had pressed this question forward, but it was complicated, and it would be waste of time to discuss it at the present stage. Pay or rank was not given to a medical officer on account of the actual work he had to do; he had to do what he was told. It had been the custom in peace time that the man in charge of a general hospital of 520 beds should be a lieutenant-colonel, but in many cases a major had to take charge. He suggested that the question should be referred to a committee.

With the permission of the meeting the rider was withdrawn, and an undertaking was given that it would be considered by the special committee.

DISTRIBUTION OF MILITARY MEDICAL OFFICERS.

Dr. G. E. HASLIP (Westminster) regretted that the Report of Council made no protest against what he regarded as the wasteful distribution of military medical officers. A flagrant case in London was that of a hospital with twenty-five resident medical officers and seven R.A.M.C. men.

Dr. EWART (Eastbourne) said that at Beachy Head during the last three months there had been from 100 to 250 R.A.M.C. men learning stretcher drill and forming fous. At the same time there was said to be a shortage of workers to attend the wounded at the Dardanelles. In the neighbourhood of a camp accommodating 3,000 convalescent soldiers, the older doctors united in offering to work the camp for the military authorities, but the officer, in charge, while expressing his thanks, said that there was nothing they could do. One medical officer spent his time in arranging sports and concerts and so on for the men. That was an absolute waste of a doctor.

Dr. VERRALL said the Chairman's Committee had been by no means oblivious of the question raised. At its very first interview with Sir Alfred Keogh the point was mentioned, and the answer was that the authorities had to keep medical men in places where they were available at a moment's notice to satisfy demands for fresh men for the front. Only the other day the call came for a large number of medical officers to go to the Dardanelles at very short notice.

Dr. W. JOHNSON SMYTH (Bournemouth) pointed out that doctors engaged in stretcher drill were probably teaching the rank and file of the R.A.M.C. He hoped the meeting would not indulge in unnecessary criticism of the Director-General.

WAR EMERGENCY COMMITTEE.

Dr. VERRALL having resigned the chair, Mr. E. B. TURNER (Kensington) moved:

1. That a war emergency committee be appointed for the session 1915-16.
2. That it consist of the four *ex officio* members, four members appointed by the Council, and four members elected by the Representatives present in the Representative Meeting.
3. That it shall have power to co-opt not more than six other members representative of universities, colleges, and other medical bodies.
4. That the reference to the Committee be: To organize the medical profession in such a way as will enable the Government to use every medical practitioner fit to serve the country in such a manner as to turn his qualifications to the best possible use; to deal with all matters affecting the medical profession arising in connexion with the war; and to report to the Council.

It would, he said, be necessary for the duration of the war and for some time afterwards that there should be a committee to deal with various questions that would arise.

The motion was not brought forward on the ground that the present Committee of Chairmen had not done its work exceedingly well. But the emergency, Mr. Turner said, was national, imperial, even European. The suggestion had been received enthusiastically by the War Office. The Committee should comprise practitioners who would carry weight with the public and the profession, and should work in harmony with the War Office. The four members he proposed to the meeting to elect were Sir Clifford Allbutt, the Regius Professor of Medicine in the University of Cambridge and President-elect of the Association; Sir William Osler, Regius Professor of Physic in the University of Oxford; the Master of Christ's College, Cambridge (Dr. A. E. Shipley), and Dr. Verrall.

Major GALLOWAY seconded.

Dr. C. O. HAWTHORNE (Marylebone) remarked that the difficulty had been, in the Metropolitan Counties Branch, to find anyone who would say to the practitioners eligible for military service that it was their duty to take service. What guarantee was there that the new committee would undertake the responsibility from which the committee in the metropolis had shrunk? He wanted the profession to say that it would see that every man who sacrificed his practice for his country should not suffer.

In reply to Dr. JOHN GORDON (Aberdeen), Mr. TURNER said that it was not proposed to interfere with the existing arrangements in Scotland. It was agreed that the Committee should be empowered to organize the medical profession "in England, Wales, and Ireland."

Discussion also took place regarding the number of members of the Committee who would be members of the Association, and, on the motion of Lieutenant FOTHERGILL, it was agreed that the four members to be elected by the Council should be from their own body; also, that the Committee should contain, in addition to the four members indicated by Mr. Turner, four Representatives elected by and from the Representative Meeting.

The motion as amended was then put to the meeting and carried.

Mr. E. B. TURNER moved that the Representative Meeting elect as members of the Committee Sir William Osler, Sir T. Clifford Allbutt, K.C.B. (President-elect of the Association), Dr. A. E. Shipley (the Master of Christ's College), and Dr. T. Jenner Verrall.

Attention was directed to the fact that Dr. Verrall was already, by virtue of his position as Chairman of the Representative Meeting, a member of the Committee *ex officio*.

The CHAIRMAN said that a question which he had foreseen had now arisen. He regarded the custom—it had not been a rule—whereby the Chairman of Representative Meetings should continue in office for a period of not more than three years as a good one. Personally he had been very proud to serve as Chairman during his three years of office, but he intended to ask the meeting to allow someone else to be nominated for the chairmanship. (Cries of "No.") It was because of his intention to vacate office in favour of a successor that Mr. Turner had included his name in the motion he had made.

The motion was carried unanimously.

PROPOSED SPECIAL FUND.

The CHAIRMAN said that a proposal had been made as to the establishment of a fund for dealing with cases of difficulty which might arise amongst members of the profession as the outcome of the war.

Mr. E. B. TURNER said that the matter had been discussed by the War Emergency Committee of the Metropolitan Branch Council. The gist of the proposal was that the profession should attempt to raise some sort of fund from which those who came back after the war and found their practices deteriorated or dissipated could be helped. There were difficulties no doubt. Some might say: "These men are doing the work of the country, and their profession is so particularly personal that it differs from any other profession. Therefore, if they sacrifice their capital and their means of livelihood to do their duty to the country, the country ought to see that they come back to a position which should be as nearly as possible to that they left." The point to be kept in view, however, was that there was still a very large number of doctors

required in addition to those who were serving. Because of that and the large sum of money which would be involved the Treasury was against a proposal for payment by the State. It came, therefore, to be a matter for the consideration of the Representative Meeting, whether there should not be some attempt made to raise such a fund as he had indicated, and whether there was not now available money which might be used or diverted to such purpose. If it was determined to establish such a fund, there ought to be a reasonable certainty that its amount would be worthy of the object aimed at. The profession had at the moment a sum of £10,000, which was the produce of the special organization and fighting fund raised by the profession during the negotiations connected with the Insurance Act. The question might arise whether it would be possible to divert that sum from its original purpose and use it as the nucleus of a fund for giving grants in aid of dependants of doctors who came back from the war impoverished in any way. Obviously, there were legal difficulties, and it might be necessary to get the assent of every subscriber—or, at any rate, to ensure that there would be no dissent. He was prepared to move that the Representative Meeting should consider the raising of a fund for the purpose of helping those men who had been serving the country as medical officers in the army, both in re-establishing them in practice and in aiding their dependants if necessary.

Dr. C. O. HAWTHORNE (Marylebone), in seconding, expressed the opinion that the profession generally would not stand well with the country in these days if it was not able to show something like equality of sacrifice. Men who gave up their practice in order to go to the army made a serious sacrifice. Any young man lately started in practice who enlisted would be fortunate, on his return, if he found any considerable practice left; indeed, if he might venture upon an apothem, it would be that the smaller the practice the greater the necessity for the practitioner to remain at home. Mr. Turner had mentioned the Special Fund of £10,000, raised for another purpose, but in this hour of crisis money ought not to be doing nothing.

Dr. I. W. JOHNSON (Bury) said that there had already been so many appeals to the profession that another call might not have the success which was desired. If by any chance the scheme should prove a failure it would reflect badly on the Association.

Dr. LANKESTER (Guildford) believed that unless and until the demand for assistance was very much greater than at present it would be useless to apply to the medical profession throughout the country for money on behalf of objects which at present were somewhat indefinite.

Dr. POCHIN (Oldham) asked if it was proposed to use the fighting fund of £10,000 as part of the scheme? There was no doubt a fight was coming, sooner or later, and if it was proposed to utilize the £10,000 now he would vote against it, but he thought it would be a good thing to raise an entirely new fund.

The CHAIRMAN OF COUNCIL said the meeting might disabuse its mind of the idea that the £10,000 could be made the nucleus of the fund, because he was certain the subscribers of that money would refuse to allow it to be used in that way. It must also disabuse its mind of the idea that they would get help from the Government, because the Government could not distinguish between members of the medical profession and other professions which had been affected by the war.

Dr. H. M. BEAON (St. Pancras and Islington) reminded the meeting that it had not been easy to raise money from medical practitioners. Why was it that the men who went away on war service suffered? It was because some other men took their work. That should not be possible in an honourable profession which should endeavour to see that, when the men who were at the front returned, they received back all their patients. Another point was that a great many men who had gone were really better off for the time being than they were before. His feeling was that the meeting should ask the Council to consider this question.

It was suggested that the Representative Meeting should request the Council to consider the advisability of establishing a medical fund for the purpose of helping those practitioners who had been serving in the army and navy, and this was agreed to.

ORGANIZATION.
ELIGIBILITY FOR MEMBERSHIP,
Overseas Branches.

On the motion of the CHAIRMAN of the Organization Committee (Captain F. Charles Larkin) the following recommendation was adopted:

That on the information in its possession, including the replies on the subject received from the overseas bodies, the Representative Body is of opinion that no change such as was contemplated by the motion of the late Natal Branch contained in Minute 366 of the Annual Representative Meeting, 1915, should be made in the Articles and By-laws of the Association as to the eligibility of membership, other than the alteration of Article 4 already decided upon by Minute 68 of the Annual Representative Meeting, 1914.

It was also agreed:

That the Overseas Branches be grouped for election of seven members of Council for 1916-17, under By-law 46 (b), in the same way as for 1915-16, except that the new Hyderabad and Central Provinces Branch be included in the Indian group of Branches.

In the absence of the New Zealand Representative the following motion by that Branch was formally moved by the CHAIRMAN:

That steps be taken for amendment (by footnote or otherwise of By-law 11) so as to make it clear that members of the Association resident outside the United Kingdom may be called upon to pay, in addition to the 2s. subscription payable by them to the Association under that By-law, a special subscription to their Branch under By-law 15. (SUPPLEMENT, May 22nd, 1915.)

The CHAIRMAN of the Organization Committee contended that the alteration was unnecessary, and said that the Committee had written to New Zealand asking if it would accept a slight formal alteration in the by-law, if it were necessary to alter it at all.

The SOLICITOR said that to his mind the by-laws were perfectly clear in what they were intended to permit, and it would be redundant to put into them what was suggested by the motion. There had been too much tampering with the regulations in the past, and he trusted there would be less in the future. He did not advise the meeting to accept the resolution.

The motion was lost.

THE ASSOCIATION AS A FEDERATION FOR OTHER
MEDICAL BODIES.

On the Special Report of Council as to the question of the Association becoming also a Federation for other Medical Bodies (Appendix II to Annual Report of Council SUPPLEMENT, May 8th, p. 196), the CHAIRMAN of the Organization Committee moved, and the meeting adopted the following:

That the Representative Body is of opinion, on the legal advice the Association has formally received, that it is impossible for the Association so to extend its objects as to become in any legal manner a federation of medical societies.

That the Representative Body would welcome any constitutional method whereby the Association, without interference with its own self-government, could come into closer relationship with other societies formed to safeguard the interests of any sections of the medical profession.

That the Representative Body approve the principle of the Council adding to any Standing Committee of the Association a member of the Association nominated by any society, formed to safeguard the interests of any section of the profession, which desires to become more closely associated with the Association, and to work in co-operation with it, and instructs the Council to prepare drafts of the necessary alterations in the by-laws to carry this into effect.

Captain LARKIN also moved as follows:

That the Council be instructed to call into conference with itself certain other societies referred to in Recommendation C of Council, with a view to determining how it might be possible to come into closer relationship with such other societies, and to report to the next Annual Representative Meeting, with drafts of the necessary alterations in the Articles and By-laws, if any.

Lieutenant FOTHERGILL moved an amendment that the following words be added to the motion:

and that in the meanwhile further consideration of the Special Report of Council as to the question of the Association becoming also a Federation for other Medical Bodies be adjourned.

The report seemed to slam the door in the face of other persons.

Captain LARKIN having said that the report did not close the door, Lieutenant FOTHERGILL withdrew his amendment.

GROUPING OF HOME BRANCHES.

Captain LARKIN moved the following motion, which was adopted:

That the Home Branches be grouped for election of twenty-four members of Council for 1916-17, under By-law 46 (a), in the same way as for 1915-16, except that the new Wiltshire Branch be grouped with the Dorset and West Hants and South-Western Branches.

BOUND VOLUMES OF SUPPLEMENTS.

The meeting agreed to rescind the resolution passed at the Representative Meeting in 1913, under which the practice of sending bound volumes of the SUPPLEMENT to the JOURNAL to local secretaries was stopped. It was stated that many of the secretaries had asked that the supply of bound volumes might be continued.

"DECISIONS" OF THE ASSOCIATION.

The Special Report of Council on the Status and Authority of Decisions of the Association (Appendix VII to Annual Report of Council, SUPPLEMENT, May 8th, p. 207), was proposed for approval.

Mr. GAETANG (Mid Cheshire) said that it appeared as if decisions which were come to at the Representative Meeting were not legally binding upon any Branch or Division that was not prepared to carry them out. The Association was a voluntary body, which had no powers of punishing its members for disobedience of its commands, except by expulsion from membership, and that would be impossible to carry out on any large scale. It could only exercise moral influence over its members exactly as all other voluntary associations.

The CHAIRMAN intervened the remark that, although the legal force of statements and resolutions which the Association might promulgate was not so great as might be hoped and wished, still they should not despair on that account. While the weight of the resolution might be largely moral, the aim was to raise the whole profession to such a pitch of *camaraderie* as that the decisions of the Association would become the common practice, and that the profession generally would accept what was the strong opinion of a central body like the British Medical Association, even although the legal weight was a little less or a great deal less than might be desired.

The SOLICITOR explained the penalties which attached to any member who offended against the Association. The maximum punishment which could be meted out for any offence was simply the passing of a resolution by the Association that the offender had no longer a right to remain a member.

The motion was carried unanimously.

The CHAIRMAN ruled that a motion by the Rochdale Division was incompetent in the form in which it appeared on the agenda. He suggested, for the purpose of ensuring a debate which might prove helpful, that the motion should be in the following form:

That the Council be requested to take into its consideration what articles and by-laws would be necessary to give effect to the following resolution, and to report accordingly:

That any resolution of a Division relating to matters of medical politics within the area of that Division shall, subject to veto by the Council of the Association to be exercised only on the advice of the Council of the Branch to which the said Division belongs, be deemed the policy of the Association within the area of such Division.

Dr. S. T. LORD (Rochdale) said his Division felt that there should be more local autonomy. Many resolutions were carried at the Representative Meeting which were often very impracticable. The motion which his Division proposed would not deprive the central authority of any of its present power and prestige. By ensuring that there would be greater local autonomy the influence of the Association, as well as its popularity, would be increased.

The CHAIRMAN of COUNCIL said he disapproved of the proposal. It might easily happen that as a result of the policy suggested the Association might be involved in various difficulties, including libel actions, and it would certainly happen that there would be all kinds of variations of practice, each of them dignified by the name of the "policy of the Association."

Lieutenant FOTHERGILL moved to omit all words after "shall" in line 2, down to and including word "belongs" in line 5, and to insert after the word "shall" in line 2 the words "if approved of by the Branch Council and Representative Meeting."

The SOLICITOR said that as under present circumstances it was within the power of a Division to bring any matter before the Representative Meeting, the words "if approved by the Branch Council" would put a clog on the wheels by making it necessary to obtain such approval before any matter could be brought before the Representative Meeting, and if approved by such meeting it would become the policy of the Association. It was now proposed to introduce a greater difficulty in obtaining approval of policy for a limited area of the Association than obtained at present under their regulations for the policy of the Association to prevail throughout the whole country. The matter seemed to him to be somewhat of an anomaly. Of course, this could be provided for if they adapted their regulations accordingly, but they ought to consider whether they wanted to put greater impediments as to approval being obtained for a limited area than would be necessary for the whole area to which the Association extended.

Mr. GARSTANG contended that the adoption of the resolution would result in different policies being in existence in different areas geographically close to one another.

Dr. POCHIN said he had been informed by Dr. Walker (Rochdale) that the resolution was intended to deal with financial matters only, and contended that it would be valuable, for example, in fixing the local minimum fees for referees, a subject on which the Division would be better informed than the Association generally. The resolution as proposed covered too much ground; it should be confined to financial matters.

The CHAIRMAN warned members that the acceptance or rejection of the proposal involved a somewhat serious decision.

Dr. E. E. BRIERLEY (Cardiff), after amendments had been put and lost, said his Division instructed him strongly to oppose the motion, believing that the present was not the time to tinker with the rules of the Association. Important matters such as that before the meeting ought to come before full meetings of the Divisions which could not be obtained at the present time, in order that they might be settled on a proper basis.

Captain LARKIN asked who it was proposed should formulate the policy of the Association. At the present time it was the Representative Body. The motion, if carried, would bring about a chaotic condition of affairs.

On a division the motion was lost by a large majority.

GROUPING OF CONSTITUENCIES.

On the motion of the CHAIRMAN of the Organization Committee, it was resolved that the grouping of constituencies for election of twelve members of Council, 1916-17, be left to the Council, and the remainder of the Supplementary Report of the Council dealing with organization was approved.

PAYMENT OF REPRESENTATIVES' EXPENSES.

Mr. CANTLEY moved, on behalf of the Salford Division:

That the expenses of Representatives of Divisions at Representative Meetings should be paid out of the funds of the Association, and that two guineas per diem be allowed towards such expenses.

The matter had been raised at the meeting in Aberdeen last year, but was withdrawn for reasons which he did not think were really expressed, but had reference, he thought, to the proposal to increase the subscription to 2 guineas. He would be glad to know how many Divisions had been in the habit of paying their Representatives by means of a voluntary fund. It was rather an invidious task for the secretary or treasurer of the Division to go round and ask a contribution from members for this purpose.

The CHAIRMAN pointed out that the amendment could not be put in its present form because By-law 75 defined the term "expenses." He would ask the Solicitor to say whether there was anything to prevent the meeting altering it.

The SOLICITOR said that if the members turned to paragraph 4 of the Memorandum they would find that such paragraph had a very pertinent bearing on the question

now raised. The Association had gone as far in its regulations as it could. The Association had provided that there should be payment of expenses of attending meetings of Council and meetings of the Representative Body. He did not understand from the terms of the motion whether the 2 guineas was intended to cover the whole of the expenses. It appeared to be intended that the member was to have his 2 guineas per day in addition to his expenses.

Mr. CANTLEY: Two guineas only.

The SOLICITOR said there must be some members who would make a profit out of 2 guineas. Expenses, as defined by By-law 75, were limited to the items that fell within such by-law. It might be possible under the regulations and by-laws to provide for payment of expenses upon some such footing as that contemplated by the amendment, but the present By-law 75 would in such circumstances have to be expanded in order to give effect thereto. The Association, as a company licensed by the Board of Trade, must not run the risk of infringing its licence. It could not give a sum to cover expenses from which an appreciable margin of profit arose.

Mr. CANTLEY pointed out that members coming to the meeting had to leave someone in charge. Therefore they could not possibly make a profit.

The SOLICITOR remarked that the highest legal advice which could be obtained on the subject coincided with his views.

Dr. LAWSON (Aberdeen) asked why hotel expenses should not be allowed. The expenses of a Representative attending the meeting were not confined to his railway fare, and he did not see the reason for discriminating.

The SOLICITOR said that until the Association repealed By-law 75 and made a fresh one, the members could not go outside it. Paragraph 4 of the memorandum would not debar the Association from paying hotel expenses. Expenses were expenses, and could not be anything else. It must be shown how and when they were incurred, and, if properly incurred, they might be refunded.

The CHAIRMAN asked whether, supposing the Association got rid of the by-law and of the definition of what expenses were, it would be possible to pay a man a guinea or two guineas *per diem*, in addition to his first-class fare as compensation for his loss of business while attending to the Association's business.

The SOLICITOR said that the question raised a very debatable point. He did not think the Board of Trade would regard such payment as a contravention of paragraph 4, and even if the Board did so contend, he did not think such contention would succeed.

Captain WALLACE HENRY (Leicester) asked if it was for the good of the Association that those who attended the Representative Meeting should receive remuneration. It had generally been found on public bodies that work done voluntarily and, to some extent, at a sacrifice, was better done than that paid for.

Captain LARKIN appealed to Representatives to remember that the change proposed necessitated an alteration of the by-laws, and therefore could not be finally disposed of at this meeting.

The amendment was lost.

PROPOSED COMMITTEE FOR LONDON.

Dr. G. E. HASLIP (Westminster) moved:

That in view of the large number of members and potential members within the area of the Metropolitan Counties Branch, and in view of the varying local conditions prevailing for the purposes of effectively organizing the Branch the time has arrived for the appointment of a special committee, to be called the "London Committee," on the same lines as the Irish and Scottish Committees.

The Westminster Division felt that there was real justification for the establishment of a London Committee, particularly when the membership in London was compared with that in Ireland or Scotland, where similar committees existed. His own feeling, and that of the Division which he represented, was that the Council of the Metropolitan Counties Branch was far too large, and that a smaller local committee would be able to do better work, and that the Association membership would be increased through its efforts.

Captain LARKIN moved an amendment that the proposal be referred to the Metropolitan Counties Branch in order that it might be able to give its own view and that of its

constituent Divisions on this matter to the Council of the Association.

Mr. BISHOP HARMAN (Marylebone) said that the proposal made by Dr. Haslip was brought forward so late as to preclude the feeling of the various Divisions in London being obtained. The proposal ought to have been brought before the Divisions and the Branch Council first.

Captain LARKIN's amendment was carried and adopted as a substantive proposition.

MEMBERSHIP OF ASSOCIATION.

Mr. S. NOY SCOTT (Plymouth) moved that arrangements should be made for the Medical Secretary, or his deputy, to visit the Divisions with a view to increasing the membership of the Association.

The resolution was suggested by the leakage of members which had been going on. The Association had lost over 2,000 members in 1913-14, and this would be a serious handicap when it was necessary to fight the Insurance Commissioners or any other Government department.

Captain LARKIN pointed out that the Council had made regulations whereby it agreed to send representatives from the central office to every Division at least once in two years. A member of the staff was always sent when such services were specially asked for.

After a short discussion the motion was adopted in the following form:

That the Council be asked to make arrangements whereby the Medical Secretary, or his deputy, shall visit the Divisions, to take such action as may be considered advisable to increase the membership of the Association, and especially by holding meetings or by such other means as may be thought desirable.

THE JOURNAL COMMITTEE.

Mr. LUCAS, Chairman of the Journal Committee, moved the recommendation of Council:

That the existing arrangements concerning the remuneration of the editorial staff be continued for the present.

He said that certain arrangements were in contemplation with reference to the staff, but owing to the war it had been thought desirable to continue the present arrangements. If at any time changes were made in the department they would probably be in the nature of providing for the payment of an inclusive salary.

Dr. MAJOR GREENWOOD stated that he had been instructed to oppose the recommendation, but after the Chairman's explanation he would not proceed further, and the motion was agreed to.

On the motion to approve the remaining portion of this section of the Annual Report of Council, Dr. RATCLIFF-GAYLARD proposed an amendment that the SUPPLEMENT to the JOURNAL be issued loose and declared to be a confidential document. It contained information of extreme use to the profession, but also to its enemies. If the SUPPLEMENT were issued separately and declared to be confidential, it could not then be purchased at any bookstall.

Dr. JOHNSON (Bury) seconded.

THE SOLICITOR, in reply to a question by the CHAIRMAN, said that the JOURNAL being the JOURNAL priced at so much, and the SUPPLEMENT being an addition thereto, it appeared to him there was no impediment to selling the JOURNAL on the bookstalls without the SUPPLEMENT.

THE FINANCIAL SECRETARY, in reply to a question, explained that by stitching in the SUPPLEMENT as at present the Association saved from £300 to £400 a year. The present system had been adopted because of its mechanical advantages.

The amendment was withdrawn, and the remainder of the report on this subject was then adopted.

SCIENCE.

The section of the Report of Council dealing with the work of the Science Committee (SUPPLEMENT, May 8th, p. 183, paras. 69-76) was approved.

MEDICAL ETHICS.

PROCEDURE IN ETHICAL MATTERS.

THE CHAIRMAN of the Central Ethical Committee (Dr. M. G. Biggs) moved the Recommendation of Council dealing with the duties and powers of the Committee (SUPPLEMENT, May 8th, p. 183, para. 77). The Association, he said, had been advised by its Solicitor and also by

counsel that it would be wise to put the reference to the duties of the Central Ethical Committee on a firmer and simpler basis. Last year at the Representative Meeting the Council was empowered to approve Regulations relative to Notices respecting appointments, and the Committee on the present occasion came before the meeting with a new schedule and revised ethical rules. If the meeting decided to pass these, the Association would have what it never had before, namely, machinery for the conduct of ethical business which had been elaborated after consultation with the Solicitor with, where necessary, additional legal assistance. The special schedule in the form in which it came before the meeting was that suggested by Mr. Colquhoun Dill.

The motion was adopted.

Dr. BIGGS also moved:

That the revised rules governing procedure in ethical matters of (1) a Division not itself a Branch, (2) a Branch composed of one Division, and (3) a Branch composed of several Divisions (Appendix VIII to Annual Report of Council, SUPPLEMENT, May 8th, pp. 208-218), be approved.

A revision of the rules had become necessary in order to render them more workable. The Solicitor of the Association had seen and endorsed every amendment. That insured that so far as possible the revised rules carried with them the utmost liberty with the minimum of risk.

Dr. D. A. SHEAHAN (Portsmouth) moved an amendment:

That the revised rules be amended so as to provide that the Ethical Committee of a Division shall only investigate facts, and report.

The adoption of the amendment would diminish the likelihood of friction in the Divisions.

Dr. BIGGS said that the Ethical Committee of a Division first investigated the case and heard witnesses. In that way it was in a far better position to form a clear and fresh inference from the evidence. The Central Ethical Committee came to the conclusion that it was absolutely essential that the matter should be put in the way proposed. The work would be far better done by a small committee than by a large one, whereas Dr. Sheahan's amendment would involve the discussion of facts and findings by a meeting of the whole Division. In the opinion of the Council that was objectionable, and might be dangerous. The Division was not bound to accept the report, but might vary it.

The amendment was ruled out of order.

On No. 18 of the proposed revised rules governing procedure in ethical matters of a Branch composed of several Divisions, namely—

The report and the recommendation of the Ethical Committee of the Branch shall be circulated to all members of the Branch Council, and to each party concerned, not less than seven days before the meeting of the Branch Council at which it is to be considered, and shall be issued in sealed envelopes, marked "Private and confidential."

—Dr. SHEAHAN (Portsmouth) moved to omit the words "and to each party concerned." It was, he said, undesirable to give each of the parties notice of the recommendation of the Ethical Committee before the Branch had given its decision.

Dr. BIGGS suggested that it was a question of fair play. When a practitioner had been charged with a definite offence he could not be refused information as to the nature of the charge until after the decision was reached.

Dr. SHEAHAN said that when the question was brought before the Ethical Committee both parties would be present and would hear the evidence. The recommendation which was then made to the Branch Council should not be made known to those two individuals until the Branch Council, which was the determining body, had given its decision.

Dr. BIGGS said that the amendment would upset the whole of the system and do a serious injustice to the practitioners against whom complaints were made.

The amendment was lost by a large majority, and the revised rules were then approved.

On the motion of Dr. BIGGS, it was agreed:

That all Divisions and Branches in the British Islands be asked to adopt the Revised Rules governing procedure in ethical matters as approved by the Representative Body, 1915, without modification and in substitution for any ethical rules now in use by the Divisions and Branches respectively, which will not be recognized after December 31st, 1915.

PROFESSIONAL SECRECY.

The meeting then passed to the consideration of the paragraphs in the Annual Report and Supplementary Report of the Council dealing with the subject of professional secrecy (SUPPLEMENT, May 8th, p. 183, and July 3rd, p. 4).

In its annual report the Council stated that it had considered the observations made by Mr. Justice Avory at the Birmingham Assizes on December 1st, 1914, concerning the case of a woman who had been committed on the coroner's warrant to stand her trial on a charge of manslaughter in consequence of the death of a woman upon whom she was alleged to have performed an illegal operation. Three medical men at least had attended the deceased, and to one at least she had confided the name of the person who performed the act, but no information was given to the police, and the patient died without any deposition being taken or without any statement being made by her on her deathbed which could be used in a court of law.

The Council forwarded to the Home Secretary and the Lord Chief Justice its opinion as to the position of a medical practitioner respecting information which he has obtained from a patient in the exercise of his professional duties, and as the result the Association was invited to send a deputation to the Lord Chief Justice. Accordingly on May 3rd the Chairman of Representative Meetings, the Chairman of Council, the Treasurer, and the Chairman and Deputy Chairman of the Central Ethical Committee had an interview with the Lord Chief Justice, who was accompanied by the Attorney-General, the Public Prosecutor, and other legal officials. The Lord Chief Justice stated at the outset of the conference that no observation made by him during the discussion should be treated as a judicial pronouncement of the law. As a result of this conference the Council has ascertained:

(a) That it is desired by the authorities that information should be given to them by medical men in attendance upon a woman suffering from the effects of abortion brought about by artificial intervention.

(b) That the circumstances under which it was desired that this communication should be made were the subject of the following three limitations:

(1) That the medical man was of opinion, either from his examination of the patient and/or from some communication that she may have made to him, that abortion had been attempted or had been procured by artificial intervention.

(2) That he was of opinion, either from his observations of and/or from a communication made to him by his patient, that such artificial intervention had been attempted by some third party other than the patient herself; and

(3) That the medical man was of opinion that his patient, due to such artificial intervention, was likely to die, and that there was no hope of her ultimate recovery.

The Council went on to report that it was advised as follows:

(a) That whereas solicitors and barristers have an absolute privilege of protection in regard to statements made to them in their professional capacity involving matters of criminal import or otherwise, no other class of persons is accorded such legal protection by State authority or Act of Parliament, although in the case of ministers of religion such protection is universally observed and recognized by custom in the courts.

(b) There is, however, no such universally recognized protection attaching to medical men in respect of statements made to them by a patient; in fact, there is a considerable conflict of authority upon the subject. The Council, however, reported that it was advised that no obligation rests upon a medical practitioner to disclose the confidences of his patient without the patient's consent, and suggests that if the State desires to set up such an obligation it should at the very least preface such an endeavour by affording to the practitioner protection from any legal consequences that may result from his action. Without any desire to claim the right to refuse to make such disclosures in obedience to the order of a Court of Justice, the Council, after hearing the report of the deputation received by the Lord Chief Justice on May 3rd, 1915, has decided to adhere to the following resolutions which it passed on January 27th, 1915:

Minute 542.—Resolved: That the Council is of opinion that a medical practitioner should not under any circumstances disclose voluntarily, without the patient's

consent, information which he has obtained from that patient in the exercise of his professional duties.

Minute 550.—Resolved: That the Council is advised that the State has no right to claim that an obligation rests upon a medical practitioner to disclose voluntarily information which he has obtained in the exercise of his professional duties.

The Council reported further, first, that it had learnt that the subject was under the consideration of the General Medical Council, and, secondly, that it had forwarded a statement of what had transpired in this matter to the Royal College of Physicians of London and the Royal College of Surgeons of England, and had invited the colleges to appoint representatives to meet representatives of the Association in conference on the subject.

The CHAIRMAN of the Ethical Committee (Dr. Biggs) said that the position as to professional secrecy had been indeterminate, and had given trouble for many years. It had been raised recently in a marked way by Mr. Justice Avory at the Warwick County Assizes at Birmingham in December last. Sir Horace Avory then referred to the opinion given by Sir Edward Clarke and himself as counsel in 1905, in reply to certain questions submitted to them by the Royal College of Physicians. The remarks of Mr. Justice Avory were brought before the Council of the Association, and Mr. Hempson explained the law affecting professional secrecy in regard to barristers and solicitors and ministers of religion. Members of these professions were privileged, but no such privilege existed with regard to the medical profession. The matter was taken up by the Central Ethical Committee, which made certain proposals to the Council, which that body adopted, and these were substantially the same as those now submitted to the meeting for approval. The decisions of the Council were sent to the Lord Chief Justice and to the Home Secretary. As a result there had been an interview between the Lord Chief Justice, the former Attorney-General, the Public Prosecutor, and representatives of the Council. After a statement of the matter and a general discussion, the Lord Chief Justice formulated certain suggestions. The Council felt strongly that the profession should not go into this question without being united, because in the past it had so often been beaten as a result of differences of opinion. Accordingly, the Central Ethical Committee had entered into communication with the Royal College of Physicians and the Royal College of Surgeons. The answer of the Royal College of Surgeons was to the effect that it did not contemplate taking any active steps in the matter. The Royal College of Physicians had forwarded a reply received on July 20th, which, though expressed in somewhat different language, showed that, in effect, it was really of the same mind as the British Medical Association. The Lord Chief Justice was anxious that nothing be had indicated should be taken as a pronouncement of his on the law. In other words, the Lord Chief Justice had expressed his own views as an individual and not by virtue of his office. The suggestion had been made to the Lord Chief Justice that if any fresh rule was contemplated it would be better to have this done by Act of Parliament. His answer, however, had made it quite clear that in anything he had said he was merely suggesting a partial suspension of professional secrecy, and if Parliament dealt with the subject at all it might possibly proceed on much wider lines. The resolutions adopted by the Royal College of Physicians of London were as follows:

1. That a moral obligation rests upon every medical practitioner to respect the confidence of his patient; and that without her consent he is not justified in disclosing information obtained in the course of his professional attendance on her.
2. That every medical practitioner who is convinced that criminal abortion has been practised on his patient, should urge her, especially when she is likely to die, to make a statement which may be taken as evidence against the person who has performed the operation, provided always that her chances of recovery are not thereby prejudiced.
3. That in the event of her refusal to make such a statement, he is under no legal obligation (unless the Council is advised) to take further action, but he should continue to attend the patient to the best of his ability.
4. That before taking any action which may lead to legal proceedings, a medical practitioner will be wise to obtain the best medical and legal advice available, both to ensure that the patient's statement may have value as legal evidence, and to safeguard his own interests, since, in the

present state of the law, there is no certainty that he will be protected against subsequent litigation.

5. That if the patient should die, he should refuse to give a certificate of the cause of death, and should communicate with the coroner.

In reply to a question as to the position of the legal profession in regard to professional secrecy, the SOLICITOR said the legal profession had complete protection and privilege in regard to this matter both so far as concerned solicitors and members of the bar. That protection, however, only came to them *quod* the profession they followed. If a man came to him at his offices, and confessed that he had committed a crime, whether or not he as a solicitor undertook to defend him, he was bound to respect entirely as inviolable that which he had been told. In point of fact, no one could make him divulge it. The same applied to counsel at the bar. The same conditions did not apply if the information were given to him as a private citizen and not as a solicitor. If he were given the information as a citizen, then his duty was imperative, and he was bound to convey that which he had been told to the proper quarter. The legal profession had a protection and privilege which was absolute to itself. He had known members of the medical profession who had absolutely refused to divulge statements made to them. Personally he had advised them to refuse to divulge the information, even to the point of being threatened with committal for contempt of court. He had known cases adjourned for the purpose of allowing the medical witness to "come to his senses," as it was termed. In the end the medical witness had not "come to his senses," and no committal had taken place. (Applause.)

Captain WALLACE HENRY asked what the standing of the medical profession was in other countries.

Mr. HEMFORD replied that he was given to understand that in the United States of America the medical profession could plead privilege in regard to the disclosure of these matters. In France it was practically an indictable offence to disclose such matters at all. It seemed to him that the medical profession in this country stood on a quite different footing, although that ought not to be so. Personally he thought the profession was entitled to protection; it was a matter on which he felt very strongly.

Mr. TURNER said that the Association was on the brink of a most momentous time. Those responsible for prosecutions and for obtaining convictions in criminal cases seemed to be making a big attempt to bring in the medical profession as an amateur unpaid branch of the detective service. The Council had asked the other medical bodies to join the Association in presenting a united front to the attack. The position of the College of Physicians was satisfactory, but that of the College of Surgeons was less so. There was no protection for members of the medical profession if they gave away to legal authorities secrets supposed to be inviolate. If doctors allowed themselves to be so used by the legal authorities, women would not go to a doctor, as they would know that he would be in the service of the police. They would rather seek to be treated by the herbalist or the midwife. Doctors were to be called upon to do their duties as citizens, and were to sacrifice that which had been most sacred to them. He was prepared as a citizen to do all he could to get the conviction of any one who was carrying out those practices, but he did not intend to comply, whatever the law might do or say, with any attempt to force or persuade him to betray professional confidences, and felt certain he would have the support of the enormous majority of the public. He hoped the profession would stand solid against that aggression on its rights and privileges, and that the decision of the meeting would be communicated to the proper authorities.

Dr. SHEAHAN (Portsmouth) asked whether medical practitioners should also refuse to give evidence in cases of divorce as well as in cases of abortion.

The CHAIRMAN said that that question was interesting, but the ramifications of the subject were too great to be dealt with. Every one knew that in a court of law a man must answer questions or stand the consequences. The Association said that when a doctor had obtained information through his professional relations with a patient he was not to go to the police authorities and voluntarily offer that information in order that a conviction might be obtained.

Dr. C. E. ROBERTSON (Glasgow Southern) considered that doctors were under the Hippocratic oath, and could not break that oath even under the direction of a judge.

Dr. JOHNSON SMYTH (Bournemouth) said that doctors should claim a protection not less complete than ministers of religion, who were completely protected.

The report was adopted unanimously, and included the approval of the following resolutions adopted by the Council on January 27th, 1915:

That the Council is of opinion that a medical practitioner should not under any circumstances disclose voluntarily, without the patient's consent, information which he has obtained from that patient in the exercise of his professional duties.

The Council is advised that the State has no right to claim that an obligation rests upon a medical practitioner to disclose voluntarily information which he has obtained in the exercise of his professional duties.

MEDICO-POLITICAL.

FEES OF PRACTITIONERS CALLED IN BY MIDWIVES.

The CHAIRMAN of the Medico-Political Committee (Mr. T. W. H. Garstang) moved as follows, in accordance with the recommendations in the Annual Report of the Council (para. 84, SUPPLEMENT, May 8th, p. 184):

- (c) That the following should be the minimum scale of fees for the payment of medical practitioners called in on the advice of midwives, but power should be obtained to pay special fees in special cases:

(i) Attendance at cases requiring or necessitating operative assistance, and subsequent necessary visits during the first ten days ...	2	2	0
(ii) Attendance at cases without operative assistance, and subsequent necessary visits during first ten days ...	1	1	0
(iii) Assistance for administration of an anaesthetic ...	1	1	0
(iv) Any visit not covered by (i), (ii), or (iii), including any necessary prescription—			
Day (8 a.m. to 8 p.m.) ...	0	3	6
Night (8 p.m. to 8 a.m.) ...	0	7	6

The motion was adopted.

FEES FOR ATTENDANCE UPON JUVENILES.

On the Special Report of Council on the question of fees for treatment of juvenile members of friendly societies (Appendix IX to Annual Report of Council, SUPPLEMENT, May 8th, p. 219), the CHAIRMAN of the Medico-Political Committee moved:

That juvenile contract rates apply only to the children of persons eligible for the benefits of the Insurance Acts.

Dr. STEVENS (Edinburgh and Leith) said that the Edinburgh and Leith Division had instructed him to oppose contract practice for children under any conditions. It objected to the imprimatur of the Association being given to contract practice in the case of children or to any extension of contract practice. It specially objected to lower rates for children than for adults.

Dr. GOODFELLOW (Manchester) said that the members of his Division were strongly opposed to any increase in contract practice. Their experience had always been that juveniles needed as much attention as adults, if not more, and the Committee had not produced any evidence to controvert that.

Dr. MAJOR GREENWOOD (City) stated that he, too, had been instructed to oppose the recommendation on the ground that the Division objected to the lower rate being fixed. In addition, it was no business of the Association to take the part of either one party or the other in a difference between the friendly societies and the collecting societies.

Dr. H. J. CAMPBELL (Bradford), who also opposed the extension of contract practice, said that the policy of the Association in the past had been to set its face against such practice, and if the recommendation was approved it would increase difficulties in the future.

Dr. SELLERS (Preston) said it had been claimed that the Insurance Act would give the death-blow to other forms of contract practice, but if the recommendation were adopted juvenile clubs would be encouraged.

Dr. JOHNSON (Bury) also opposed the recommendation.

Mr. WALKER (Liverpool) said his Division also opposed the recommendation; its members were not at all impressed by the arguments brought forward in the Council's report.

Dr. WARD (North and South Suffolk) strongly urged that the whole question of contract practice for children

should be left in abeyance by the Association and dealt with, as far as possible, locally.

Dr. MACKRITH (Southampton) said the Council appeared to think it was not possible to get more than 4s. 4d. for juveniles, but in Southampton there was a society which was paying 6s. 6d. for juveniles. In this society there were 10,000 members altogether; the adults, who constituted one half, paid 8s. 8d. a year, and juveniles paid 6s. 6d. each. It was well to bear in mind also that a society in opposition to their own in Southampton paid 5s. 8d. each for the juveniles. These instances showed that it was possible to get more than the Council indicated in the report.

Mr. GARSTANG desired to point out that the recommendations were not made as the outcome of any inherent wickedness on the part of the Council, or any love on its part for the extension of contract practice. When he mentioned that some districts were getting as little as 2s. 6d. for juveniles it would be understood how it was that the Council came to fix the minimum charge at 4s. 4d.

On a vote the section of the annual report dealing with this subject was rejected by a large majority.

Saturday, July 24th.

The proceedings were resumed on Saturday, July 24th, at 9.30 a.m., with Dr. T. JENNER VEREALL (Chairman of Representative Meetings) in the chair. The minutes of the previous day's proceedings were corrected and confirmed.

REPRESENTATION OF NAVAL MEDICAL SERVICE.

On the motion of the CHAIRMAN, Fleet Surgeon Frederick Davidson Linnley, R.N. (ret.) was appointed Representative of the Royal Navy Medical Service on the Council in place of Sir James Porter, K.C.B., R.N., resigned, to hold office until the termination of the Annual Representative Meeting, 1917.

SELECT COMMITTEE ON PATENT MEDICINES.

The CHAIRMAN of the Medico-Political Committee (Mr. Garstang) moved the following recommendation of Council:

That the Representative Body place on record its satisfaction with the recommendations of the Select Committee on Patent Medicines, and instruct the Council, as soon as it considers the time opportune, to take all necessary steps in pressing for legislation on the lines of the report.

Mr. GARSTANG remarked that the report formed one of the most important endorsements of the views of the Association which had ever emanated from a Select Committee of the House of Commons.

The motion was carried, and it was agreed, on the suggestion of the CHAIRMAN of the Medico-Political Committee, to forward a copy of the resolution to Sir Henry Norman, the chairman of the Select Committee.

UNQUALIFIED PRACTICE OF DENTISTRY.

The CHAIRMAN of the Medico-Political Committee moved that the Representative Body should approve the draft bill of the British Dental Association concerning the practice of dentistry by unqualified persons.

Dr. J. WISHART KERR (Glasgow Eastern) expressed the hope that the rights of medical practitioners who practise dentistry exclusively would be protected. A dispute had occurred in Glasgow with regard to refusal to accept a certificate by a doctor who practised as a dentist, on the ground that he was not registered as a dentist. The doctor was thereby injured in his practice.

The motion was passed.

FEES FOR MEDICAL ATTENDANCE ON CASES RECEIVING AMBULANCE TREATMENT THROUGH MUNICIPAL SERVICES.

The CHAIRMAN of the Medico-Political Committee moved the following recommendation of Council:

That the Representative Body approve the establishment of local ambulance services for emergency cases of sickness or accident on the following conditions:

- The responsibility to be undertaken by some local authority.
- The cases to be referred to the nearest available practitioner.
- The fees to be paid by the local authority on the following scale:
 - For a day call between 8 a.m. and 8 p.m., 3s. 6d.;
 - for a night call between 8 p.m. and 8 a.m., 7s. 6d.
 - Mileage beyond first mile at the rate of 1s. per mile

Captain LARKIN questioned the practicability of the proposals in the case of a large town.

Mr. GARSTANG said it was not contemplated that the resolutions would apply in the great towns where a municipal ambulance service existed.

Mr. J. H. EWART (Eastbourne) remarked that a doctor was often requested by a policeman to attend in street accident cases, or a private individual was sent by the policeman. It frequently happened that the local authority afterwards disclaimed responsibility and the doctor received no fee.

Mr. GARSTANG said that to meet this it was proposed by the Council that a local authority should undertake the responsibility.

Dr. SHEAHAN (Potsmouth) confirmed Dr. Ewart's statements.

The CHAIRMAN remarked that the vague term, "local authority," was used in the motion because the responsibility for treatment of street casualties would fall upon different bodies in different areas. The responsibility ought to be accepted by the proper local authority.

Dr. JOHN STEVENS (Edinburgh and Leith) asked who would accept responsibility for treatment if a private individual called in a doctor to attend a street accident case.

Mr. GARSTANG said the first condition the Association wished to establish was that some local authority should accept responsibility.

The motion was approved.

CRIME AND PUNISHMENT SUBCOMMITTEE.

The CHAIRMAN of the Medico-Political Committee, in moving that the report on the question of the present state of the law with regard to the legal responsibility for crime (SUPPLEMENT, May 8th, p. 186, para. 9) be approved, said that the report was one of the most important which had ever been laid before the Representative Meeting.

Lieutenant FOTHERGILL (Brighton) referred to the correspondence on the question which had appeared in the JOURNAL, and asked if the Subcommittee was satisfied that the criticisms there had been met.

Mr. E. J. DOMVILLE (Bristol), replying as Chairman of the Subcommittee, said that the comments in the JOURNAL had been almost wholly laudatory. It had been stated that the Subcommittee had not recognized Dr. Mercier's opinion as expressed in his book, but as a matter of fact that book was under consideration when the Committee formulated its conclusions, and had been most useful to it. The work of the Subcommittee marked a further stage in promoting the influence of the British Medical Association with the public and the legal profession. It was very important to seize all opportunities of educating the legal profession with regard to lunacy as understood by medical men. Some judges appeared to think that lay minds were quite capable of deciding the state of mind of a person charged with the commission of a crime.

In reply to a further question, Mr. DOMVILLE said that as soon as the report was approved steps would be taken to have it circulated as widely as possible amongst those who were interested.

The report was approved.

ELECTION OF STANDING COMMITTEES.

The CHAIRMAN mentioned that if it was the intention of the Representatives to complete the business that day it would be necessary to suspend certain Standing Orders with regard to elections to committees and to place in the hands of the Election Returns Committee the duty of electing on behalf of the Representative Meeting, from nominations made by the Representatives, the members of the various standing committees. He moved the suspension of the Standing Orders accordingly.

Mr. E. J. DOMVILLE (Bristol) seconded.

Dr. R. A. LUNDIE (Edinburgh and Leith) proposed an amendment that the election of Representatives to the several standing committees should be carried out by postal vote. The amendment was lost and the necessary Standing Orders were suspended.

ASSISTANT ASYLUM MEDICAL OFFICERS.

On the motion of the CHAIRMAN of the Medico-Political Committee, the Special Report on the Conditions of Employment and Remuneration of Assistant Medical Officers (Appendix XII, Annual Report, 1914) was adopted.

May 8th, p. 226) was received, and he then moved the recommendations attached to the report, as follows:

Salaries and Emoluments.

- (a) That the minimum commencing salary of assistant asylum medical officers be £220, rising after one year of probation to £250, and then by £25 per annum to £350 per annum irrespective of promotion, and that the salaries of officers who are not promoted should then rise automatically by £10 per annum for ten years.
- (b) That in addition to the operation of the above scale, an officer on being promoted to second assistant should receive an additional £50 per annum, and on being promoted to senior assistant an additional £50 per annum.
- (c) That assistant asylum medical officers who have received promotion should also participate in the automatic increase of £10 per annum for ten years, which commences after five years' service.
- (d) That emoluments should be valued at least at £100 per annum, and made commutable for full value at the end of five years.

House Accommodation.

- (e) That every asylum should contain a separate house suitable for a married assistant officer, and that where an asylum contains four or more assistants, two such houses for assistant officers should be provided.

The recommendations were, he said, the result of a conference the Committee had with a deputation of assistant asylum medical officers.

Dr. J. STEVENS (Edinburgh and Leith) moved to refer the report back for reconsideration, on the grounds that much diversity of opinion existed amongst those concerned.

Dr. W. BLAIR (South-Eastern Counties), in seconding this amendment, asked whether the motion, if carried, would be binding on assistant medical officers of asylums.

Mr. GARSTANG said that nothing passed by the meeting would be binding on an individual, but the Association would do its best to get the standard laid down recognized by all concerned.

Dr. A. A. MACKETH (Southampton) asked if the JOURNAL would be prevented from inserting advertisements offering lower salaries than those set forth in the motion. He thought the motion should be binding, at any rate, on the Association.

In reply to Lieutenant FOTHEREILL, Mr. GARSTANG said that the matter was urgent. One great complaint amongst assistant asylum medical officers was that they were in a blind alley occupation, because senior posts were few in proportion to assistant posts. Therefore, the great majority of the assistants spent the best years of their lives in getting to a point at which they were useless for any other form of practice. They asked that the financial conditions of their service should be improved in order that it should be worth while to undertake and remain in such work. If the recommendation were approved the Association would decline to accept advertisements which did not reach the required standard.

The amendment was lost, and the recommendation was approved.

INSPECTION AND TREATMENT OF SCHOOL CHILDREN.

On the motion to approve the Memorandum on Medical Inspection and Treatment of School Children, as a statement of the policy of the Association in regard to these matters (SUPPLEMENT, May 8th, p. 227),

Dr. AGNES ESTCOURT-OSWALD (North-East Essex) moved the following rider:

That, without special payment, treatment should not be included in the duties of the school medical officer.

She said that the treatment of school children was rather a difficult question, and that the ideal method was, undoubtedly, treatment by the children's own doctor. If, however, the private practitioner undertook the treatment of school children, the amount of clerical work involved would be enormous, unless he acted as a part-time school doctor, in which case he would be treating occasionally another doctor's patients. In some cases, when medical treatment was undertaken by a school medical officer, it was not paid for. The number of places in which this occurred was increasing every year, and the plan appeared to have the sanction of the Association—perhaps not the official sanction, but certainly the Association shut its eyes to it.

Mr. GARSTANG asked Dr. Estcourt-Oswald if it was meant that the existing school medical officers should not be re-

quired to undertake treatment without additional payment or that the salary should include payment for inspection and treatment from the beginning. The policy of the Association, as laid down at its meetings up to the present, had always included the defence of the interests of the private practitioner against encroachment by any whole-time State-paid service. A number of State-paid whole-time services were in operation. The Association could not alter that, but there appeared to be a tendency for these services to increase. The recommendation made by the Council attempted to maintain the original position of the Association. It modified the Association's original position to the extent that it said that where the local medical practitioners could not or would not undertake the treatment of school children, the Association would not take exception to treatment being carried out by whole-time officers. Under certain conditions the Association bowed to the inevitable, and recognized the possibility of different arrangements to those which it would itself prefer.

Mr. ALBERT LUCAS (Birmingham Central) moved an amendment to the rider by North-East Essex to omit the words "without special payment," so that the rider would read:

That treatment should not be included in the duties of the school medical officer.

He said that in Birmingham the profession had done its utmost to prevent treatment being carried on by whole-time school medical officers, on the ground that the interests of the general practitioner should be protected. The fear was that if the educational authorities were allowed to use their school medical officers for the purposes of treatment, they would be enabled to undersell the general practitioner.

Dr. W. JOHNSON SMYTH (Bournemouth), in seconding, said that his Division desired to enter a vigorous protest against the whole-time school medical officer taking part in treatment of any kind whatever, even the administration of anaesthetics.

Mr. H. B. BRACKENBURY (Council, Middlesex) said that there was some danger of the Association going too far in this matter. It should maintain the position of the general practitioner as against the whole-time medical officer, but where treatment was done by the whole-time school officer that officer ought to be paid adequately for treatment and medical inspection, and, if possible, for the two separately.

Mr. HARDING H. TOMKINS (South-West Essex) supported the amendment, and said that in the case of new advertisements the Association could prevent treatment being included. In an advertisement applying to his own area, which had originally included "treatment," representations made by the profession led to its alteration before publication.

Captain LARKIN said that the position was not quite clear. The recommendation appeared to provide for two people, one the school medical officer, who had to do with the inspection of children, and the other the persons, unnamed, who might be employed in a whole-time or part-time capacity. The amendment, he thought, did not conflict with the report.

The CHAIRMAN intimated that if the amendment by Central Birmingham was carried, the Chairman of the Committee would prefer to take the whole matter back for reconsideration.

Mr. LUCAS, in reply to Mr. Domville, stated that the term "school medical officer" in the amendment meant school medical officer, inspecting officer, or his assistant.

The CHAIRMAN said that the term "school medical officer" was generally used throughout the kingdom, and was understood to include more than mere inspection.

The amendment by Central Birmingham was carried, whereupon Mr. GARSTANG withdrew the report in order to reconsider the whole question.

TREATMENT OF SCHOOL CHILDREN AT HOSPITALS.

The CHAIRMAN of the Medico-Political Committee moved:

That the Annual Representative Meeting, 1915, approve the Memorandum on the Treatment at Voluntary Hospitals of School Children found Defective on Medical Inspection, as a statement of the policy of the Association in regard to that matter (SUPPLEMENT, May 8th, p. 229).

Dr. WALKER (Liverpool) said that in Liverpool the local authority had approached the hospitals, but was refused permission to obtain treatment for school children at the

hospitals. The matter became acute because the children were not being treated. A special sub-committee had the matter under consideration. The chairman of that sub-committee, who was a medical practitioner, was very anxious that there should be a proper clinic in Liverpool on the lines of that in Birmingham. The committee of the Division had approved generally of this scheme. The Division was desirous that, if general practitioners could do the work they should be allowed to undertake it. It afterwards appeared that the local authority in Liverpool was going behind the back of the committee of the Division, and was approaching hospitals, asking them to undertake treatment. At least three institutions in Liverpool were willing to do the work at a ridiculously small fee. It appeared to the Liverpool Division that the policy of the Association was not sufficiently known throughout the profession. He would like to appeal to the individual doctors and staffs of hospitals not to allow themselves to be used by the hospital committees to deprive their brethren of their legitimate rights.

The motion was approved.

MEDICAL AID INSTITUTIONS.

On the motion of the CHAIRMAN of the Medico-Political Committee, a report of the Medical Secretary on the position of the colliery and works doctors schemes in South Wales and a report of the Medico-Political Committee on a conference between representatives of the Association and of the Friendly Societies Medical Alliance and the South Wales and Monmouthshire Alliance of Medical Societies with reference to proposals of the Council as to medical aid institutions were received.

Mr. GARSTANG said that the report by Dr. Cox was an exceedingly important and valuable document. It contained a history of the South Wales disputes. Very great assistance had been received from Captain Greer, the secretary of the South Wales and Monmouthshire Branch. He moved:

That it is inadvisable to take objection to the acceptance by members of the Association of appointments at those existing institutions recognized under Section 15 (4) of the Insurance Act which will conform to the following conditions:

(a) Salaries or other forms of payment to be satisfactory to the Association.

(b) Free choice of doctor by patient and of patient by doctor to be allowed.

(c) The institution doctor to be placed as nearly as possible in the same conditions as the panel doctor as regards complaints by patients.

(d) The rules of the institution, so far as they affect the doctor, to be approved by the Association before any member is allowed to accept or retain appointment.

(e) Some guarantee to be obtained that the institution is not using the insurance funds to finance the medical attendance on the dependants, thereby lowering the rate which the outside profession would be able to secure for the same work.

The conditions laid down were agreed to at the conference with the representatives of the Medical Alliance. (The minutes of the conference are printed at p. 66.) Mr. Garstang added, in reply to Mr. J. H. EWART (Eastbourne), that Clause (b) was accepted in the sense that every one knew it was one of the fundamental points for which the Association had contended for many years. The Association had not got that point equally and entirely in force, but it was to be carried out as far as was reasonably practicable. In reply to Mr. H. H. TOMKINS, Mr. Garstang explained that it was not always possible to have free choice of doctor, for geographical reasons. The population was scattered over bleak country districts, and it would be quite impossible for the work to be distributed between half a dozen men.

Dr. MACKREITH (Southampton) asked how, in the event of the motion being carried, the members of the British Medical Association and other members of the profession would know which societies met the requirements of the Association.

Mr. GARSTANG said that the report was only preliminary. If it was approved there would be further conferences, and steps would be taken to ensure proper publicity.

Lieutenant FOTHERGILL (Brighton) moved an amendment to refer the matter back, in order that the Divisions might be consulted.

Dr. J. W. BONE (Bedford) said that as he had been instructed by his Division to vote against the recommendation of Council he would second the amendment. Although he had no wish to disturb any arrangement

that might satisfy Wales, his Division was concerned in a conflict with a large medical institute, and had always understood it to be the policy of the Association that no lay committee should intervene between the patient and the doctor. The present recommendation proposed to reverse the policy of the Association by putting the seal of its approval on institutions controlled by lay committees which intervened between the patient and the doctor.

Dr. A. A. MACKREITH (Southampton) thought the Representative Meeting could not carry the present proposals unless previous resolutions were rescinded.

Dr. JOHN STEVENS (Edinburgh and Leith) asked if the position taken up on the subject of free choice in the recommendation of Council was consistent with the latter part of Subsection (4) of Section 15 of the National Insurance Act.

The CHAIRMAN replied that nobody could confidently interpret an Act of Parliament until the courts of law had pronounced on it.

Dr. MAJOR GREENWOOD (City of London) considered that the recommendation safeguarded what the profession had always regarded as first principles. Under the Insurance Act institutions had a definite position, and the Association must have some dealings with them and should seek to make them better.

Captain W. J. GREER (Monmouthshire) admitted that the recommendations before the meeting were in the nature of a compromise. One of the chief difficulties was that in times gone by the Association had allowed its own members to accept positions in connexion with these institutes. When these men were approached and asked to give up the posts they expressed their willingness to do so, but wished to know what the Association would do for them. If the Association bought them out it would be found an expensive matter. None of the members of the Association liked the recommendations, but if there was to be a compromise at all they constituted the only compromise possible.

Mr. GARSTANG said Captain Greer had struck the right note. A conference between bodies which had been engaged in a life and death struggle for years must result in a compromise if it was to do any good. He did not think the Committee could do any more if the matter were to be referred back. In reply to questions, Mr. Garstang added that the Committee had definitely laid it down that it would not approve any additional institutes, and the Welsh representatives definitely undertook on certain conditions to agree to the compromise and to use their influence to see that no further institutes were created. This also included a proviso that no further branches of existing institutes would be formed.

The proposal to refer the matter back was lost.

Dr. J. W. BONE (Bedford) moved an amendment to insert the words "in Wales and Monmouthshire" after the words "existing institutions" in the preamble of the recommendation.

This was seconded by Mr. S. NOY SCOTT (Plymouth). It was accepted by Mr. GARSTANG, and agreed to.

The recommendation as altered was then adopted. Mr. GARSTANG moved the following recommendation of Council:

That the strongest opposition be offered to any extension of similar institutions or schemes, and especially to those schemes formed in South Wales under Section 15 (3) of the Insurance Act.

The whole of the work which led up to this report had been largely in the hands of Dr. Cox, who wished that before this motion was accepted the attention of Representatives should be drawn to the fact that the recommendation involved the strongest opposition to any extension of similar institutions and schemes under Section 15 (3) of the Insurance Act. The representatives who met the Committee put forward the plea that the British Medical Association should agree to some six schemes under 15 (3) being accorded the same status as schemes under Section 15 (4). It was felt that this could not be accepted, and it was accordingly proposed that opposition should still be offered to any further schemes under Section 15 (3).

The motion was ultimately carried in the following amended form:

That the strongest opposition be offered to any extension of similar institutions or schemes under 15 (4), and further

to those schemes which are formed or may be formed in Wales and Northamptonshire under Section 15 (3) of the Insurance Act.

MATERNITY AND CHILD WELFARE.

The CHAIRMAN of the Medico-Political Committee having moved to approve the Special Report submitted by the Council on Maternity and Child Welfare Schemes (SUPPLEMENT, May 8th, p. 230), Dr. AGNES ESTCOURT-OSWALD (North-East Essex) asked if the schemes included any whole-time appointments.

Mr. GARSTANG replied that the intention of the report was to include whole-time appointments under the conditions already discussed, where the private practitioners of a district were not willing or not able to undertake treatment.

Lieutenant FOTHERGILL (Brighton) moved:

That the engagement of a doctor be placed so far as possible on the same terms and conditions as in the case of the treatment of school children scheme.

Mr. H. B. BRACKENBURY (Council) said that the question was of great importance to the profession, and it contained the most serious possibilities of an attack on the position of the general practitioner. Schemes by municipalities or county councils for the treatment of children up to the age of 5 years were being established, and would be established to a greater extent in the future, and it behoved the Association to see that the position of the general practitioner was not undermined. If the general practitioner was deprived of the possibility of treating children up to the age of 5 years—the age at which they were treated by the school medical officer—it required very little foresight to see that the whole-time medical service system was likely to be extended further in the future. The object of the report was to demonstrate to the Local Government Board, to municipalities and to county councils, that the work could be done better by general practitioners than by whole-time officers, and that it was better for the patients themselves that the treatment should be undertaken by the general practitioners in the patients' own homes. The scheme was put forward not as a definite recommendation that the particular payments mentioned should be endorsed by the Representative Meeting, but in response to a request made to the profession by the Local Government Board, and by representatives of municipalities and county councils, that the profession should state its views. The Association had to contemplate the possibility of local bodies creating complete schemes by which the public health authority would undertake complete treatment for all sorts and conditions of children up to 5 years of age. The matter was one for each Division to consider. The scheme was only put forward as an example of what could be done.

The CHAIRMAN of COUNCIL said the report was really more or less a warning of a great danger that lay before the profession—the danger of a whole-time medical service throughout the country. The report had already been submitted to the Divisions for consideration, and the Council had drawn special attention to it.

Dr. CRAWFORD TREASURE (Cardiff) proposed an amendment that the portion of the report referring to remuneration of doctors be referred, together with the motion by Lieutenant Fothergill, to the Council. This was seconded by Dr. STEVENS (Edinburgh and Leith).

Dr. JOHNSON SMYTH (Bournemouth) declared that if any delay occurred it would be found that the local authorities would have entrenched themselves. He hoped the Council would be allowed to proceed as rapidly as possible.

The amendment was carried.

Dr. AGNES ESTCOURT-OSWALD (North-East Essex) asked whether, seeing that no decision had been arrived at as regards remuneration, advertisements for whole-time appointments at £350 per annum would be inserted in the JOURNAL.

The CHAIRMAN said he was informed by the Medical Secretary that in such a case, where no definite salary had been fixed as a general policy and there was any doubt on the matter, the local members of the profession would be communicated with before the advertisement was inserted.

On the suggestion of Captain LARKIN, it was ultimately decided to leave the Council to decide the amount of the remuneration that should be required, and the remainder of the recommendation was adopted.

MENTAL DEFECTIVES: SALARIES OF MEDICAL OFFICERS.
The CHAIRMAN of the Medico-Political Committee moved on behalf of the Council the following recommendation, which was carried:

That the minimum salary of a whole-time medical officer to a committee for the care of the mentally defective, appointed under the Mental Deficiency Act, 1913, should be £500 per annum.

SCHOOL MEDICAL STAFF: ALLOCATION OF DUTIES.

The meeting next proceeded to consider the memorandum (SUPPLEMENT, July 3rd, 1915, p. 11) approved by the British Medical Association and the National Union of Teachers concerning the allocation to school medical officers, teachers, and nurses of various duties in connexion with medical inspection and treatment of school children.

The CHAIRMAN said that a telegram had been received from Dr. ASHKENNY, Secretary of the School Medical Service Group of the Society of Medical Officers of Health, and a member of the subcommittee which met representatives of the National Union of Teachers. The telegram was read to the meeting by the Medical Secretary, and contained the following declaration:

The School Medical Service Group of the Society of Medical Officers of Health have considered the memorandum and unanimously decided that it will not be to their interest, and hopes the meeting will not consider that it represents its considered opinion.

Mr. GARSTANG said that Dr. Ashkeny had attended the meetings of the subcommittee, but from beginning to end had not been in harmony with the views of the majority of the subcommittee. It was quite possible that he might be right and the remainder of the subcommittee wrong, but Mr. Garstang thought the arrangement came to at the conference—he would not use the word compromise because they did not give anything away—was a good one. It was reasonable that the teachers should not be required to do any duty of a medical nature. If the Representative Meeting upset the arrangement the difficulties which had arisen in certain quarters where there had been misunderstandings between the medical officers and the head teachers would be perpetuated.

The memorandum was approved.

MEDICAL FEES FOR LIFE ASSURANCE EXAMINATIONS.

The Special Report of Council on the question of Fees for Medical Examinations for Life Insurance (SUPPLEMENT, July 3rd, p. 12) was received, and the CHAIRMAN of the Medico-Political Committee moved:

That the Representative Body adopt the following fees for medical examinations for life assurance:

£1 1s. for a formal full report, such as that contained in Sub-Appendix A to the Special Report of Council (SUPPLEMENT, July 3rd, p. 15).

10s. 6d. for a formal short report, such as that contained in Sub-Appendix B to the Special Report of Council (SUPPLEMENT, July 3rd, p. 14).

5s. for a simple form of certificate, such as that contained in Sub-Appendix C to the Special Report of Council (SUPPLEMENT, July 3rd, p. 14).

If, he said, there was any strong difference of opinion as to the amounts of the fees it would be better to reject the proposition altogether than to refer them back.

Dr. F. C. LANGFORD (Camberwell) moved an amendment:

That the recommendation be referred back to the Council on the ground that the proposed terms were not satisfactory.

He criticized especially the clause providing for a fee of 5s. for a simple form of certificate.

Dr. D. LAWSON (Aberdeen, Orkney, and Shetland) said it had been the policy of the Association for some years to endeavour to advance the material interests of the profession. The recommendation of Council put back the hands of the clock in this respect. He urged that when a doctor examined a person who was about to be insured he should be paid in some ratio proportionate to the amount of the policy. At present a doctor received the same fee, whether the policy was for £500 or for £5,000. The remuneration to the agent who brought the business was 1 per cent., so that for a £5,000 policy he would receive £50. An architect was paid according to the value of the structure, and there was no reason why a doctor should not receive a fee beyond a guinea when the policy was a large one.

Mr. C. E. S. FLEMING (Salisbury, Swindon, and Trowbridge), in supporting the amendment, asked if the doctors were to accept different remuneration for doing exactly the same work on behalf of insurance companies. The forms could perfectly well be filled up by a clerk; the whole importance of the doctor's report lay in the last clause where he stated whether or not the life was fit for insurance. The insurance companies in the past had a scale proportionate to the premium, and if the profession accepted that principle it should do so on condition that the scale went up as well as down.

Dr. HASLIP (Westminster), after reviewing the history of the question, said that Dr. Lawson had rather exaggerated the value of the opinion that a medical practitioner gave upon a life insurance paper. An agent in a large insurance company had told him that companies could very well do without a medical examination, because, although they would lose something on bad lives accepted, the loss was compensated by the saving of medical fees. In the case of a policy of £10,000 no life office accepted the opinion of one doctor, but obtained the opinions of two or three. The profession would not succeed in obtaining two or three guineas for life insurance examinations.

Dr. R. A. LUNDIE (Edinburgh and Leith) thought that the better class of insurance companies would not think the short formal report and the simple certificate worth the money they were asked to pay for them. There was a tendency at present on the part of insurance companies to accept lives without a medical examination—a course which had been followed systematically in the past by one or two companies. These companies gave the proposer an extremely stringent form of questions to answer. The list of diseases enumerated was very extensive, and if the proposer stated that he had not suffered from any of these the insurance companies could be pretty certain that the proposer's organs were sound. His Division thought the report should be referred back.

On a division the amendment to refer the report back was lost, and an amendment by Dr. C. E. PURSLOW (Birmingham Central), seconded by Dr. H. C. TERRY (Gloucestershire), to insert the word "minimum" before the word "fees" in the Recommendation of Council, was agreed to.

Dr. H. J. MACEVOY (Willesden) moved as an amendment that the fee for a policy of £1,000 or over should be 2 guineas, and this was carried.

Dr. JOHNSON SMYTH (Bournemouth) asked what would be the position of members who received fees of 2s. 6d. from industrial societies in respect of insurance.

The CHAIRMAN replied that he could only repeat an answer he gave to a similar question the previous day. When the Representative Meeting adopted a policy, it was the moral duty of members, so far as they could, to fall in with it, though there were no strong penalties which necessarily followed on their not doing so.

Dr. HASLIP said there was not an insurance company in England, with one or two exceptions, that would give over 1 guinea for a £1,000 insurance. ("No.")

Mr. DOMVILLE proposed an amendment that the phrase "that the Representative Body recommend" should be substituted for the phrase "the Representative Body adopt" in the Recommendation of Council.

The amendment was carried.

Mr. P. NAPIER JONES (Reading) thought it would be wise for the meeting to drop the question of the smaller fee.

The CHAIRMAN OF COUNCIL said that the extraordinary number of different propositions which had been put before the meeting must be proof that it was almost impossible to find a common ground of action in this matter. The question had been discussed at many previous meetings, and he saw no prospect of a unanimous decision being reached.

A resolution that the meeting proceed to the next business was carried by a large majority. The recommendation under discussion accordingly fell to the ground.

NOTIFICATION OF BIRTHS ACT.

Dr. C. O. HAWTHORNE (Marylebone) thought there was a most important omission in the report of the Council on medico-political matters, for it contained no reference to the Notification of Births Act. It had recently been applied to the whole country, and some important obligations were, as a consequence, cast upon the medical pro-

fession in every district. When the original measure was before Parliament, the Association took up a very strong attitude, and it was unfortunate that no reference should now be made to the Act. The public might conclude that the previous attitude of the Association was ill advised.

The motion that the remainder of the Supplementary Report of Council on medico-political matters be approved was then carried.

Major PARKER (Bristol) moved that the meeting enter a protest against the extension of the Notification of Births Act, on the ground that it compelled members of the profession to reveal information which they had received in the course of their professional work.

Dr. HAWTHORNE (Marylebone) seconded.

Mr. W. J. YOUNG (Cambridge, Huntingdon, and Isle of Ely) said he never sent in the cards with reference to notification of births. He left a card with the parent with the instruction that it must be filled in and posted.

The CHAIRMAN of the Medico-Political Committee declared that there was absolutely no compulsion on the doctor to do anything at all under the Act if he would only see that somebody else acted. (Laughter.) It was a distinction with a very great difference. The Act required that there should be notification by the father of the child if he was resident in the house, or by any other person who was in attendance on the patient, within thirty-six hours of the birth, and it was quite easy for the doctor to satisfy himself that one of these persons had carried out the duty.

The motion was carried.

GREAT NORTHERN RAILWAY CONTRACT PRACTICE.

On the motion of Dr. ARTHUR DRURY (Halifax) the following rider was approved:

That it be an instruction of this Representative Meeting to the Council to inquire into the conditions and terms of the Great Northern Railway contract practice, so as to ascertain if they are consistent with the decisions of the Association of contract practice. If found to be inconsistent with those decisions, to take steps to remedy such inconsistency so far as possible where members of the Association have undertaken this contract work.

NATIONAL INSURANCE.

The memorandum of the Council on the legal position of medical aid institutions under the Insurance Acts (SUPPLEMENT, May 8th, p. 233) was approved.

Dr. F. L. POCHIN (Oldham) moved:

That the Council be instructed to approach the Commissioners with a view to inducing them to take such steps as will cause approved societies to see that their agents are fully aware of the effect upon medical benefit generally, and certification in particular, of any regulations which may be issued from time to time by the Commissioners.

The Insurance Commissioners, he said, were constantly sending out new regulations modifying earlier ones. The insured person went to the agent of his approved society, who always tried to make it appear that the doctor was to blame if the patient did not get what he wanted. It was the business of the officers of the approved societies to be thoroughly conversant with the regulations.

Dr. C. E. ROBERTSON (Glasgow Southern) seconded the motion, which was carried.

The remainder of the Report of Council on National Insurance (SUPPLEMENT, May 8th) was then approved.

MEDICAL REFEREES UNDER THE INSURANCE ACTS.

The CHAIRMAN of the Insurance Act Committee then moved the following recommendation of Council (SUPPLEMENT, July 3rd, para. 214):

That the Representative Body reconsider the whole subject of fees for examination and report on cases submitted to part-time referees under the National Insurance Act.

Dr. MACDONALD said that two years ago the Representative Meeting agreed that the fee for reporting on these cases should be 10s. 6d. That decision was reaffirmed at the Representative Meeting in Aberdeen last year. It was then decided that 10s. 6d. was to be regarded as the minimum fee, but the decision had, unfortunately, led to a great deal of trouble throughout the country. As a matter of fact the rule with regard to a fee of 10s. 6d. was carried out in very few districts, scarcely any indeed, and where some of the Divisions had endeavoured to give effect to the decision they had found themselves in a considerable difficulty. Trouble had arisen because some members were not loyal to the recommendation of the Association

and accepted a smaller fee. It had also been found that doctors not members of the Association were prepared to undertake the work at a fee lower than 10s. 6d., and unfortunately some members who had been loyal to the Association had as a result been victimized. From information the Committee had received from various Divisions throughout the country there seemed to be a general feeling that the basis of payment should be reconsidered.

Mr. GARSTANG (Mid-Cheshire) said his Division was responsible for bringing this matter under the notice of the Council. It felt somewhat strongly in regard to it, because loyal members had been adversely affected. In order that the question might come before the Representative Meeting in a concrete form he was prepared to give notice now that at the next annual meeting he would bring forward a motion to rescind the previous resolutions which were now standing in the way. In the twelve months which would intervene the subject could be fully considered by the Divisions and the Council.

The CHAIRMAN thought it would be preferable to refer the whole question back to the Council with a recommendation that, as there was an obvious difference in the character of the cases which arose, some elasticity should be introduced into the rule fixing 10s. 6d. as the fee.

Dr. C. J. PALMER (Nottingham) said his Division was strongly opposed to any alteration in the fee, which was considered a reasonable one. The Division had suffered severely in this matter.

The CHAIRMAN thought the motion might be altered to read, "and that the Council be asked to consider whether there should not be greater elasticity in the matter of fees."

Dr. J. BAIRD (Glasgow N.W.) objected strongly to the matter being hung up for another year, and asked that the meeting should come to a definite decision. Some disloyal members of the Association in his Division had resigned simply because the Division had decided in favour of the 10s. 6d. fee.

The motion was altered as suggested by the Chairman and carried as follows:

That the Representative Body, on reconsidering the whole subject of fees for examination and report on cases submitted to part-time referees under the National Insurance Act, requests the Council to consider and report as to the advisability of greater elasticity as between case and case in the fees demanded for these examinations.

DOMICILIARY TREATMENT OF TUBERCULOSIS.

Dr. MACDONALD, in moving that the Memorandum of the Council on the method of payment for domiciliary treatment of tuberculous insured persons (SUPPLEMENT, July 3rd, p. 14) be approved, drew attention to the very serious questions raised in the Memorandum, and said there were many indications that attempts were about to be made to deprive panel practitioners of some of the money hitherto received in respect of domiciliary treatment. It was suggested that patients were being more cheaply treated by tuberculous officers than by panel doctors.

The memorandum was approved.

CONFERENCE OF LOCAL MEDICAL AND PANEL COMMITTEES.

Dr. MACDONALD moved:

That the special report of the Insurance Act Committee on the resolutions of the Conference of Representatives of Local Medical and Panel Committees held June 16th, 1915, together with the report of the Deputation to the Chairman of the Joint Committee National Health Insurance Commission, July 10th, be received.

The Conference, he said, had been very satisfactory; about 120 representatives were present. There was evidently a great deal of dissatisfaction among panel practitioners throughout the country as to the way in which the medical benefit fund was distributed, but the Conference came to the conclusion that the arrangements provided in the Act were satisfactory as long as they were properly carried out by the administrative bodies concerned. Mr. Charles Roberts, M.P., the Chairman of the Joint Committee of Insurance Committees, when approached by the deputation, led it to believe that a great deal of the disorganization in the payment of doctors was due to the unsatisfactory nature of the arrangements made in the early stages of the administration of the

Act. He hoped, he in very much better working order than in the past. The enlistment of members of clerical staffs of the Commission and Insurance Committees had, however, contributed to the disorganization, so that there might not be much improvement for a time.

The motion was passed.

THE WAR AND SICKNESS INCIDENCE.

On the motion that the remainder of the Supplementary Report on this subject (SUPPLEMENT, July 3rd, pp. 5 and 6) be approved,

Mr. JOSEPH CANTLEY (Salford) moved:

That the profession notes with alarm the disturbance of the probable sickness incidence of insured persons owing to the withdrawal of healthy lives by enlistment in the army, with the probable return of many unhealthy lives into the insured classes at a later date; and also the reduction of advances of grants by the Insurance Commissioners to the different Insurance Committees.

Mr. Cantley said that the motion was intended to focus the attention of the profession upon a really alarming state of matters. His Division had already sent a similar resolution to the local Insurance Committee with excellent results.

It was pointed out by the CHAIRMAN that the motion was not in conflict with the report of the Council, but that it put in stronger form the views expressed there. The motion was carried.

INTEREST ON MONEYS DUE TO INSURANCE PRACTITIONERS.

Dr. SHEAHAN (Portsmouth) moved and Mr. A. P. THUNDER (East Cornwall) seconded a motion expressing the strong opinion that interest accrued on moneys due to practitioners now lying in the Medical Benefit Fund should be paid to them.

The CHAIRMAN of COUNCIL said that the question of payment of interest had only arisen because of the great delays in the payment of moneys due to practitioners. The excuse offered by the Commissioners for these delays was that the method of compiling the panel lists of practitioners had been started on a wrong principle, and that the transfer of patients had been so badly conducted under the original system that matters had not been cleared up yet. The Commissioners believed that under the present system there would be no great delay in paying the money.

Dr. E. E. BRIERLEY (Cardiff) said the point ought to be kept in view that if doctors insisted on the payment of interest on sums not promptly received the Insurance Commissioners might stop advance payments and keep them waiting till the end of each year.

The motion was lost by a small majority.

TENURE OF OFFICE BY MEDICAL OFFICERS OF HEALTH.

In the absence of Mr. James Green, the CHAIRMAN of the Public Health Committee (Mr. E. J. Donville) brought up the passages of the Annual Report of Council under heading "Public Health and Poor Law" (SUPPLEMENT, May 8th, p. 193, paras. 150-6). Referring to the deputation which waited upon the Government with reference to the tenure of office of medical officers of health, he said that it had had a most pleasant reception from Ministers. Unfortunately, as in the case of three previous deputations, the visit was followed shortly afterwards by a change of Government; so that the objects in view had again been impeded.

The report was approved.

HOSPITALS.

MODEL SCHEME FOR TUBERCULOSIS TREATMENT.

Dr. H. J. CAMPBELL, the Chairman of the Hospitals Committee, moved on its behalf:

That the Representative Body express the opinion that it is necessary for the training of medical students in the diagnosis and treatment of tuberculosis that any tuberculosis dispensary situated in the area of a voluntary hospital to which a medical school is attached should, so far as possible, be worked in co-operation with the hospital for teaching purposes.

Owing to the gradual devolution of tuberculosis from general hospitals and teaching schools to special tuberculosis institutions, there was considerable risk that there might be an actual lack of clinical material for teaching in respect of tuberculosis.

The motion was adopted.

VOLUNTARY HOSPITAL STAFFS AND STATE PATIENTS.

Dr. CAMPBELL said that it had been the Association's policy recently to insist that in all cases in which it could be arranged hospital staffs should be adequately paid for services rendered in respect of patients for whose maintenance the State was responsible. On the other hand, the Association had passed a very definite resolution that in all cases efforts should be made to maintain voluntary hospitals upon a voluntary basis. If the Association insisted that hospital staffs should be adequately paid it seemed inevitable that in a large number of cases the voluntary staff would be dispensed with, and whole time medical officers appointed. The reconciliation of this dual policy had been under consideration, but no conclusion was reached by the Committee owing to the delay caused by the war. The Committee proposed to draw up a report dealing with the whole matter, and submit it to the Divisions and to the next Annual Representative Meeting. The motion was approved.

NAVAL AND MILITARY.

The portion of the Report of Council under heading "Naval and Military" (SUPPLEMENT, May 8th, p. 194, and July 3rd, p. 6) was approved without discussion.

SCOTTISH COMMITTEE.

On the motion of Dr. HAMILTON, the Annual and Supplementary Reports of Council relating to Scotland were approved.

Dr. HAMILTON remarked that at the meeting in Aberdeen it was arranged to appoint a medical secretary for Scotland within a certain time, but the matter had been deferred, because the Committee considered that during the war the field of choice was greatly limited, and that after the war eligible men might be available who, though rendered unfit for general practice, were yet quite qualified for the work of secretary.

IRISH COMMITTEE.

Mr. R. J. JOHNSTONE, Chairman of the Irish Committee, moved that the Annual Report of Council under heading "Ireland" (SUPPLEMENT, May 8th, pp. 195-6, paragraphs 176-82) be approved.

In reply to Lieutenant FOTHERGILL (Brighton).

Mr. JOHNSTONE said that a deputation had waited upon Mr. C. H. Roberts, M.P., Chairman of the Insurance Joint Committee, that day, and was given to understand that a scheme was under consideration for dealing with the question of certification in Ireland. It was proposed to place that scheme before the members of the profession in Ireland at an early date.

The motion was carried.

GENERAL APPROVAL OF ANNUAL REPORT OF COUNCIL.

On the motion of the CHAIRMAN of the Council, it was agreed that, subject to amendments and other resolutions adopted by the meeting, the Annual Report of the Council, together with the Supplementary Report, be approved.

VACANCY ON GENERAL MEDICAL COUNCIL.

On the motion by the CHAIRMAN of the Representative Meetings it was resolved:

That the Representatives of Constituencies in England and Wales should consider the nomination of a candidate for election as Direct Representative for England and Wales on the General Medical Council;

And the CHAIRMAN thereupon moved:

That the candidature of Dr. J. A. Macdonald, LL.D., for the seat of Direct Representative for England and Wales on the General Medical Council vacant May, 1916, be supported by the Association.

The CHAIRMAN intimated that the nomination of Dr. Macdonald was the only one which had been received.

The proposal was enthusiastically agreed to.

Dr. MACDONALD said he thanked the meeting very much for selecting him as candidate for the distinguished position of Direct Representative for England and Wales on the General Medical Council. It was a body that required strenuous work and careful attention, and while sometimes the proceedings were a little bit sleepy and not so interesting as those of the Representative Meeting it certainly did an enormous amount of work.

VOTE OF THANKS TO RETIRING CHAIRMAN.

Dr. DOUGLAS (Maidstone) said it seemed hard to believe, with so many familiar faces before him that he had known for many years, that he was the only member who had been continuously a Representative from the first meeting of the Representative Body. Because of that he had been asked to move a resolution, which it was pleasant to know would have the support of every one, namely:

That this meeting of the Representative Body desires to place on record its great appreciation of the services in the chair for the past three years of Mr. T. Jenner Verrall, LL.D., and also its warm feeling of personal regard, and its thanks of the able manner in which he has conducted the business of the Representative Body during a period of exceptional importance to the Association and the medical profession.

The resolution needed no words of his to commend it. They all felt that Dr. Verrall had discharged the duties of Chairman with great ability and great conscientiousness, and they regretted that he had insisted upon vacating the chair at this time. But it was hard work, and the Representatives must feel more than satisfied with the services he had rendered. (Applause.)

Dr. MACDONALD said he regarded it as an honour to second the resolution. He did so from his official position as Chairman of Council, and on another ground—a much stronger one—from his personal regard for Dr. Verrall. The Association could never repay the debt of gratitude it owed to Dr. Verrall for the work he had done in the chair. As the resolution stated, he had occupied the chair during a time of exceptional stress and difficulty for the Association. Dr. Verrall possessed personal qualities which had enabled him to steer the Association successfully through all the difficulties it had encountered. His quick, critical intellect, the rapidity with which he picked up points, the firmness with which he gave his findings when he came to a decision, as well as the rapidity with which he came to a decision—the whole toned with that beautiful suavity characteristic of Dr. Verrall—made him such a chairman that the meeting would find it very difficult to get another to approach him in excellence. He knew no one he felt it a greater honour to be allowed to claim as a friend. For these reasons he had the greatest pleasure in seconding the resolution proposed by Dr. Douglas. (Applause.)

Mr. E. B. TURNER (Chairman-elect) said that as the Elisha on whom the mantle of Elijah was to descend he felt he must support most heartily the vote of thanks to Dr. Verrall. Dr. Verrall must have accomplished what, in the annals of the Association, he believed to be an unparalleled and unsurpassed record, when it was considered that during his term of office he had presided not only at annual but at many Special Representative Meetings, and at the same time he had had a tremendous amount of additional work on Committees. Dr. Verrall had raised the position of chairman to a level even higher than it had been previously maintained. He had the Attic salt of wit and the saving grace of humour; these things were very great factors when a man was managing and controlling a meeting in which feelings, and the expression of feelings, sometimes ran very high. The Association would always owe an enormous debt to Dr. Verrall for his work during these years and would agree that the promise Dr. Verrall gave at the beginning of his term of office had been more than amply fulfilled. Speaking for himself he could only say that when the time came for him to lay down his office he would be satisfied if he had done one-tenth part as well as Dr. Verrall. (Applause.)

The resolution was put and was carried with great enthusiasm and with musical honours.

Dr. VERRALL, in acknowledging the vote of thanks, said he felt the time had come when it was better that a change should be made in the chairmanship of the Representative Body. He did not say that this step did not create in his mind a feeling of regret; it did. On the other hand, he had already said that he did not think it was good for a representative body or an association to continue a man too long in one position. He held that opinion very strongly, and for that reason he had asked that his name should not be submitted as a candidate for the position of Chairman. While he had tried to do his duty, he had at the same time thoroughly enjoyed himself—(laughter)—and that afforded a certain satisfaction to a properly constituted human being. It had given him an opportunity of being occasionally right in his

decisions, and also for being wrong, when he was wrong, with impunity, and this was also attractive. (Laughter.) He thanked the meeting very much for the vote of thanks, and he hoped that in whatever position they might choose to place him in connexion with the Association—if they made him a member of the Council—it would be an honour and pleasure to serve them. (Applause.)

VOTE OF THANKS TO CLERICAL STAFF.

On the motion of Dr. VERRALL, a hearty vote of thanks was accorded the clerical staff for their work in connexion with the meeting.

CHAIRMAN AND DEPUTY CHAIRMAN.

During the meeting a new Chairman and Deputy Chairman were elected. For the first office the only candidate nominated was Mr. E. B. Turner, previously Deputy Chairman, and he was accordingly declared elected. For the office of Deputy Chairman Mr. T. W. H. Garstang, a member of the Council elected by the Lancashire and Cheshire Branch, and the Representative of the Mid-Cheshire Division, was chosen.

CONFIRMATION OF MINUTES.

The minutes of the day's proceedings were thereafter corrected and confirmed.

ELECTION OF MEMBERS OF COUNCIL.

The CHAIRMAN announced the result of the voting for the four members of Council elected by the Representative Meeting as follows: Sir James Barr, Mr. Donville, Dr. Haslip, and Dr. T. Jenner Verrall.

The proceedings then terminated.

MINUTES OF CONFERENCE

BETWEEN THE BRITISH MEDICAL ASSOCIATION AND THE FRIENDLY SOCIETIES MEDICAL ALLIANCE.

A CONFERENCE between representatives of the Medical Political Committee and of the Contract Practice Subcommittee of the British Medical Association, and representatives of the Friendly Societies Medical Alliance and the South Wales and Monmouthshire Alliance of Friendly Societies, was held at the offices of the Association, 423, Strand, London, W.C., on Thursday, July 8th, 1915.

Present: Mr. T. W. H. Garstang (in the Chair); Mr. H. B. Brackenbury, Capt. A. C. Farquharson, Dr. Adam Fulton, Mr. E. J. Donville, Mr. N. Bishop Harman, Dr. R. E. Howell, Lieut. J. T. Macnamara, Dr. H. C. Mactier, Dr. Edwin Rayner, Dr. J. Ratcliff-Gaylard, Dr. W. E. Thomas, Mr. T. Jenner Verrall, H. D., representing the British Medical Association, Mr. E. F. Hind, Mr. Walter R. G. Langford, Mr. Samuel Pride, representing the Friendly Societies Medical Alliance, Mr. Walter Conway, Mr. Sam Filer, Mr. Llewellyn Jones, Mr. Thos. Parfitt, Mr. Evan Pugh, representing South Wales and Monmouth Alliance of Medical Societies.

The CHAIRMAN, in welcoming the representatives of the South Wales and Monmouthshire Alliance of Medical Societies and the Friendly Societies Medical Alliance, expressed the hope that whatever other result the Conference might have, it would be the means of acquainting each side with the other's position. He pointed out that that day's proceedings could not be binding upon either party, as he took it that they were there to hear what each had to say, and report to their respective parent bodies.

Mr. HIND stated that they greatly appreciated the Association's action in meeting them, and said that their desire to confer with the Association was the result of the publication in the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL of May 8th, 1915, of the Recommendations L and M of the Council of the Association to its Representative Body, which had suggested to them the desirability of a conference prior to the meeting of the Representative Body. Their instructions were to ascertain, if possible, the minimum requirements of the Association as regards institutes, and to find out what were the outstanding differences between the two parties.

Mr. S. FILER, on behalf of the Welsh Alliance representatives, stated that they were quite as anxious as the English Alliance to come to a lasting arrangement with the Association. He stated that there was no intention on the part of any one interested in institutes to make money

out of those undertakings, but there were many reasons for their continuance.

WHOLE TIME SERVICE.

Mr. PRIDE stated that one of the principles of the Alliance was the employment of medical officers as whole time officers, and asked whether the Association had any objection to that principle.

After discussion, the following statement by Dr. VERRALL appeared to meet with the approval of the Conference—namely, that the Association did not object to doctors undertaking whole time service, subject to proper conditions, and that if such an officer signed a bond not to take private work he must stand by such bond.

The Conference then discussed the conditions set forth in the Council's Recommendations.

CONDITIONS OF PAYMENT.

Recommendation L.—That it is inadvisable to take objection to the acceptance by members of the Association of appointments at those existing institutions recognized under Section 15 (4) of the Insurance Act which will conform to the following conditions:

Condition (a): Salaries or other forms of payment to be satisfactory to the Association.

Mr. HIND stated that they felt that a minimum salary of £400, plus house (and sometimes light, rates, and extra fees) would make a good starting-point for discussion, and pointed out that all the agreements of the Chesterfield Institute with its medical officers provided for the latter having the right at the end of the financial year to examine the accounts with the view of sharing in surplus funds, if any.

After discussion the CHAIRMAN stated that he thought they were within a measurable distance of agreement on Condition (a), and that any difference of opinion thereon appeared to be more a matter of detail than of principle, but that it would be appreciated that the Association could not attempt to establish a definite scale of salaries that would apply everywhere, because it felt that each case should be dealt with on its merits—that is, on the amount of work allotted to a medical officer.

The MEDICAL SECRETARY pointed out that the method of carrying out any agreement that might be arrived at as regards Condition (a) would be that those institutes that wished to have as medical officers members of the Association or wished to be regarded as institutions to which the Association would take no objection, would submit to the Association full information as to the salary, fees, amount of work, etc., attaching to the post, and that the Association would indicate whether it was prepared to advise the institute and any intending applicants for the post whether it considered the salary and conditions attached to the post were suitable.

A summing up by Dr. VERRALL appeared to be satisfactory to the Conference—namely, that it is reported to the Representative Body that the Association would recommend practitioners not to enter into an agreement with an institute without knowing whether the salary was approved by the Association. He pointed out that the Representative Body might possibly take one of two steps—namely, either fix a minimum salary below which it would not advise any medical practitioner to accept any appointment, or decide that under no circumstances should a practitioner enter into agreement to give his whole time unless a salary were offered which the Association considered to be a fair one in the circumstances.

Mr. HIND asked whether in any instance where the Association centrally approved the terms of an appointment, there would be any likelihood of the local profession being hostile to the decision, and was informed that the central authorities of the Association would deal with the local profession.

The CHAIRMAN suggested that possibly one method of giving effect to any agreement on the point might be that institutes should submit their advertisements for vacancies, together with the conditions attaching thereto, to the Central Office of the Association; and a Welsh Alliance representative suggested that it might be made a condition of the agreement that all advertisements for medical officers of institutes must be published in the BRITISH MEDICAL JOURNAL.

Mr. HIND stated that he would have liked to have some idea of the minimum salary which the Association thought should attach to such posts, but quite understood that the Conference was dealing only with main principles, and suggested the possibility of some later conference to deal with details.

FREE CHOICE.

Condition (b) : Free choice of doctor by patient and of patient by doctor to be allowed.

The CHAIRMAN referred to the fact that Condition (b) had been one of the most strongly held principles of the Association in connexion with the Insurance Act campaign, and was the Association's view of what was the best way of carrying out medical treatment.

Mr. HIND thought they agreed, but pointed out that the Insurance Act allowed persons to choose an institution if they liked, instead of an individual doctor.

The MEDICAL SECRETARY asked if the Alliance representatives meant that when an insured person chose an institution as the means by which he desired to obtain his medical treatment the Association's responsibility ended, as the person has then exercised his free choice; and that the Association should not insist upon any further free choice amongst the medical officers of the institute if there were more than one.

The representatives of the alliances indicated that that was their view of the requirements of the Insurance Act, and agreed that they were entirely with the doctors in objecting to any compulsion or restraint being placed upon an insured person's choice as to joining or remaining outside of an institution, but that when an insured person had chosen an institution they objected to any further requirements on behalf of the profession as to free choice. Mr. HIND stated that they looked upon an insured person who had chosen an institute as having "contracted out" of the medical regulations under the Act. The Welsh Alliance representatives intimated that they were not in agreement with Mr. Hind's interpretation *re* "contracting out," but rather with the Medical Secretary in his interpretation in previous paragraph.

POSITION OF INSTITUTION DOCTOR AS REGARDS COMPLAINTS.

Condition (c) : The institution doctor to be placed as nearly as possible in the same conditions as the panel doctor as regards complaints by patients.

Mr. HIND stated that Condition (c) was impossible to carry out in the light of the Regulations of the Insurance Act, and pointed out that recent rules approved by the English Commissioners provided for the setting up of a board of five independent arbitrators, from whom three were selected by the insured person complaining, for the purposes of settling any particular case of complaint, and from whose decision there was a right of appeal to the Commissioners.

The MEDICAL SECRETARY pointed out that the Association's solicitor held that an insured member of an institute who elected to make a complaint against a doctor had a right to ask that his complaint go straight to the Medical Service Subcommittee of the Insurance Committee of the area, as no Regulations could deprive him of his rights, as an insured person, to the protection of the Insurance Committee.

Mr. HIND did not agree.

Mr. HIND, in reply to a question by Dr. THOMAS as to whether they would agree to the Medical Service Subcommittee being the tribunal for such complaints, stated that they contended that insured persons who had chosen an institute had "contracted out," and that institutes were not desirous of allowing any interference in their work by Insurance Committees, but desired to deal direct with the Insurance Commissioners.

Dr. THOMAS stated that the Association desired that if the Medical Service Subcommittee were not utilized there should be a similarly constituted tribunal to deal with complaints by members of institutes against the doctor.

Mr. LAXFORD stated that, while they were bound by the present rules outlined by Mr. Hind, if a general agreement were come to he did not see why in the future they should not include among their present five arbitrators the names of two or even three medical practitioners.

The Welsh Alliance representatives agreed to the suggestion put forward by Dr. Thomas.

The MEDICAL SECRETARY pointed out that the Welsh Commissioners in their model rules for institutions provided that appeals against the decision of the committee of an institution as regards a complaint should go to the Insurance Committee, which should deal with the matter so far as possible in accordance with Part V of the Regulations.

The Welsh Alliance representatives expressed themselves as quite agreeable to Condition (c), but the English Alliance representatives desired it to be left as a debatable point.

Dr. VERRALL suggested that, with regard to uninsured persons, the English Alliance representatives considered that they had set up an entirely fair committee for the hearing of complaints, but asked whether they would not be inclined so to vary their committee that it would have some medical representation on similar lines to the Medical Service Subcommittee.

Mr. HIND stated that at the moment he must admit that he was prejudiced in that the general feeling of the profession in his locality was one of hostility to the institute, and that therefore they might have considerable difficulty in constituting a satisfactory committee. He felt that it was a debatable point, and one that must be discussed at the Alliance meeting. In reply to Captain FARQUHARSON, he did not think there was any objection to a medical assessor sitting with the committee of arbitrators when the medical officer asked for such.

Mr. HIND, in reply to a question by the CHAIRMAN, stated that the experience of the institutes was that there was not a large number of complaints.

Dr. RAYNER, however, stated that in some areas the number was large.

APPROVAL OF RULES OF INSTITUTION BY THE ASSOCIATION, SO FAR AS THEY AFFECT THE MEDICAL OFFICER.

Condition (d) : The rules of the institution, so far as they affect the doctor, to be approved by the Association before any member is allowed to accept or retain appointment.

The CHAIRMAN stated that by Condition (d) the Association did not desire to dictate to the institutions as regards their rules, but only wished to see that there was nothing unfair or improper in the rules as affecting the doctor.

The MEDICAL SECRETARY stated that in working practice it would mean that those institutions which desired to work in harmony with the Association would send such of their rules as applied to the employment of medical officers to the Association and ask whether there was anything therein to which the Association objected.

No objection was raised to Condition (d).

SAFEGUARD AGAINST USE OF INSURANCE FUNDS TO FINANCE ATTENDANCE ON DEPENDANTS.

Condition (e) : Some guarantee to be obtained that the institution is not using insurance funds to finance the medical attendance on dependants, thereby lowering the rate which the outside profession would be able to secure for the same work.

Mr. HIND suggested that the Committee deal first with the Welsh representatives upon this point.

A Welsh Alliance representative stated they were quite prepared to accept the condition, and that they did not see how they could take any exception to it as it was a point which the Welsh Commissioners already demanded.

The MEDICAL SECRETARY called attention to the fact that in some Welsh colliery areas, prior to the Act, it had been necessary for the provision of medical attendance on workmen and dependants that all workmen, married and single, must pay the same poundage, whereas in some areas now single men were refusing to pay because they were insured persons. It was obvious that in these areas it must be the intention to use insurance money to provide or partly provide for the treatment of dependants.

A discussion followed upon the Aberillery case, and eventually the Welsh Alliance representatives reiterated that they were quite prepared to accept the condition as being a fair one.

Mr. HIND asked if they were to understand that what was required was that the whole of the State money should be kept separate from the voluntary contributions, and that the whole of the State money should be paid, with the exception of a certain percentage, to the

medical officers. If so, what percentage should be paid to the doctors and dispensers, and what amount did the Association think should go for other expenses, as, for example, housing of doctors, locomotion, etc., incurred with the doctor's consent?

The MEDICAL SECRETARY drew attention to the following paragraph of the Welsh Commissioners' rules as to Institutes:

Returns and Accounts.

(5) The administrative expenses shall not exceed a sum which the Commissioners shall, on reference to them, determine to be reasonable. The Board of Management, or any of the medical officers of the institutes, may make such representations to the Commissioners with regard thereto as they may consider necessary, but no deductions shall be made for administrative expenses in excess of the sum so determined from the amount available for cost of medical attendance and treatment.

The Medical Secretary asked, with respect to a suggestion by Mr. Hind that he did not consider Condition (c) necessary in view of what had already been practically agreed upon, if Mr. Hind's point was that if the Association satisfied itself thoroughly under conditions (a) and (d), that is, as to salaries and conditions, there was no need to worry about (c), and Mr. Hind agreed that that was his point.

The discussion on (c) then terminated, the English Alliance representatives reserving themselves on this point until after their Alliance had discussed the subject in the light of the information now obtained.

OPPOSITION TO FUTURE EXTENSIONS.

Recommendation M.—That the strongest opposition be offered to any extension of similar institutions or schemes, and especially to those schemes formed in South Wales under Section 15 (3) of the Insurance Act.

A Welsh Alliance representative, in asking the Association to extend its sympathy to existing 15 (3) Schemes said they felt they were in a difficult position, as they knew there had been considerable contention between the profession and the miners in Wales in regard to 15 (3) Schemes, many of which had gone to considerable expense in their operations. They desired to ask if it would be possible for the Association to agree to accept the existing 15 (3) Schemes as 15 (4) Institutions, and, if it could be so agreed they took it that it would be part of any agreement that they must fall in with any conditions agreed upon as to institutions.

Dr. THOMAS asked if the practitioners who had accepted posts with 15 (3) Schemes against the Association's desire would be dismissed, to which the Welsh Alliance representatives replied that the Alliance would have no power to enforce this. They would, however, if agreement were reached as to recognition of existing 15 (3) Schemes, undertake to prevent, to the best of their ability, any new schemes coming into existence.

The MEDICAL SECRETARY read out from his South Wales report the list of 15 (3) Schemes approved by the Commissioners and asked if that included all for which the Welsh representatives desired recognition. The list was as follows: Blaينا, Risca, Garw Valley, Mountain Ash, Llywynypia, Briton Ferry, and Neath.

The Welsh Alliance representatives agreed, except that the list should include Abertillery, and gave as the reason therefor that that scheme had been in existence since the passing of the Act, but had not been able to apply to the Commissioners for approval owing to trouble with the local profession.

The Welsh Alliance representatives, in reply to Dr. Thomas's query as to what influence they would have in preventing any new scheme being started, stated that they believed that they had been largely instrumental in putting the existing institutions and schemes in South Wales on a sound footing, and that their influence would now be cast against the establishment of any others in the event of agreement.

Dr. VEREALL drew attention to the fact that if the Association agreed to the proposal it would be giving up one of its strongly held convictions—namely, that the approval of 15 (3) Schemes, such as obtained in Wales, was absolutely contrary to the Act itself, and that if the Association once gave away the principle it might (even with the help of the Alliance) have other demands for recognition by any other schemes that might be started,

and, as it would have already given away the principle, it would have no logical basis for refusal of such recognition.

A Welsh Alliance representative stated that if the Association agreed to his proposal to recognize existing schemes, they would be quite willing to join in a joint deputation to the Welsh Commissioners to ask that that body approve no further schemes. He firmly believed that they could persuade the Welsh Commissioners to agree. He further pointed out that the Commissioners could not take that line at present because the Alliance had the written undertaking of the Commissioners to accept 15 (3) Schemes. If the Association agreed, the Alliance was quite willing to free the Welsh Commissioners from the undertaking given them on the point.

The CHAIRMAN asked if he could take it that as regards existing schemes the Welsh Alliance, in order to bring about peace, asked that the Association should extend its approval not only to institutions approved under Section 15 (4) of the Act, but also to existing 15 (3) Schemes under exactly the same conditions, and that the Alliance in return would undertake to use all its influence to prevent any extension of such schemes, and was willing to join with the Association to the Welsh Commissioners in asking them not to approve any more schemes. The Welsh Alliance representatives agreed that that was the position.

MINUTES OF CONFERENCE.

The CHAIRMAN stated that the Medical Secretary would submit draft minutes of the Conference to the Secretaries of both Alliances for their approval or suggestions for alteration, with a view to an agreed report of the Conference being submitted to the respective parent bodies.

BRITISH MEDICAL ASSOCIATION.

DEPUTATION TO THE INSURANCE JOINT COMMITTEE.

The following is the agreed report of the deputation from the Insurance Act Committee to the Chairman of the National Health Insurance Joint Committee on July 9th, 1915, with respect to the resolutions passed by the Conference of Representatives of Local Medical and Panel Committees, June 16th, 1915.

Position of B.M.A. in relation to Local Medical and Panel Committees.

In introducing the Deputation charged with the duty of laying before Mr. Roberts the resolutions adopted by the Conference, Dr. Macdonald stated that the Conference was attended by 117 representatives of the Local Medical and Panel Committees in the United Kingdom. Of these 91 were from the English Committees out of a possible 126, 12 from the Welsh Committees out of a possible 17, 14 from the Scottish Committees out of a possible 56. A large number of Committees intimated that they had wished to appoint representatives but had been unable to find a representative in view of the exceptional pressure upon the profession. The terms of the resolution recorded in Minute 86, viz.:—

Minute 86.—“That this Conference of representatives of Local Medical and Panel Committees cordially welcomes the assistance given by the British Medical Association to these Committees in their work, and urges all Committees to make use of such assistance and to look to the Association to voice the opinion of Local Medical and Panel Committees as a whole in central negotiations.”

had been communicated before the date of the Conference to all Panel and Local Medical Committees, none of which had expressed any dissatisfaction with or taken any exception to the policy embodied therein, while the resolution itself was adopted by the Conference unanimously; and, as affording further evidence of the attitude of these Committees towards the B.M.A., Dr. Macdonald drew attention to the resolutions recorded in Minute 84 and 85 (*vide infra*).

Mr. Roberts expressed his pleasure at receiving the members of a deputation which, as Dr. Macdonald's statement indicated, appeared so justly entitled to speak for the general body of medical practitioners undertaking work under the Insurance Act. He noted with interest the circumstances which had led to the present interview, and while he assumed that it was not suggested that the continuance of the direct relations at present existing between the Commissioners or Insurance Committees and the several Panel and Local Medical Committees was in any way in question, it was recognised that the Association was, in view of the above Resolution, in a singularly favourable position to voice the general opinion of those Committees.

The discussion of the particular resolutions was then proceeded with.

System of Payment of Insurance Practitioners.

Minute 8.—That in the opinion of the Conference the present system of payment of Insurance practitioners is equitable if the administrative details are properly carried out by approved societies and Insurance Committees.

Mr. Roberts stated that he appreciated the assurance contained in this resolution. As regards the administrative details alluded to in the provision, these could be discussed upon the specific resolutions relating thereto, viz., those recorded in Minutes 31, 35, 38, 40 and 41.

Procedure as regards Doctors' Lists.

Minute 31.—That Regulations are desirable with respect to removals of insured persons to secure:—

- (a) That no person be removed from a Doctor's list (except in the event of such person being dead or having ceased to be an insured person) until a new doctor has been chosen by him.

With reference to this resolution, it was pointed out on behalf of the Commissioners that ever since the beginning of 1914 a system had been in force (the Medical Card System) the principle and effect of which was precisely what the resolution regarded as desirable. Prior to the beginning of 1914, the correction of the doctors' lists in respect of removals had depended upon the notification by Approved Societies of the changes of addresses of their members. But this system had proved to be a failure, and the Medical Card System which superseded it was entirely based upon the principle that an insured person who changed his address after choosing a doctor should not be removed from that doctor's list until he chose a new doctor in the area of his new address. If, therefore, in adopting this resolution the Conference had in mind any actual cases in which this general procedure was not followed, such cases must be exceptions to the rule now in force; and it could only be conjectured that any such exceptions related to the clearance of the removals which had taken place prior to the introduction of the Medical Card System.

As already stated, the system previously in force had not proved a success. The Medical Card System, though it had incidentally corrected a good deal of the error which had crept in under the previous system, was not intended, and could not be expected, of itself, to clear it up completely. Accordingly, Insurance Committees had spent much trouble and money in the laudable effort (undertaken almost solely in the doctors' interests) of clearing up the pre-medical card error; and in so doing they have necessarily had to follow the principles previously in operation and to utilise any available sources of information.

The current machinery, however, which has been in force since the beginning of 1914 is based on the very principles recommended in the resolution.

Procedure in cases of Suspension from Medical Benefit.

Minute 36.—That this Conference recommends that Approved Societies, and Insurance Committees in the case of Deposit Contributors, should in all cases of suspension from Medical Benefit of an Insured Person, secure the medical card of that individual and that the Approved Societies should forward it with the suspense slip to the Clerk to the Insurance Committee affected.

It was stated on behalf of the Commissioners that Insurance Committees do as a matter of fact make a practice of calling upon insured persons suspended from medical benefit to surrender their medical cards; and that the Commissioners have lately instituted arrangements to facilitate the work of Insurance Committees in the recovery of these cards. Whether Approved Societies were likely to be any more successful in the recovery was open to doubt; but in any case it was put to the Deputation whether they thought it advisable that any duties of administration of medical benefits should be entrusted to any bodies, such as Approved Societies, other than those specifically charged with those duties, viz., Insurance Committees.

Delay in issue of Medical Cards.

Minute 38. That this Conference draws the attention of the Commissioners to the serious delay in the issuing of the medical cards to insured persons, and urges them to take immediate steps to ensure an earlier delivery by Insurance Committees in the future.

With reference to this resolution, the Deputation were asked what cases they had in mind and upon what information the resolution was based.

It was stated in reply that the Deputation were not as yet fully satisfied as to the particulars of the circumstances referred to and that they would request that the resolution might be regarded as withdrawn pending further enquiry.

Correction of Registers of Committees.

Minute 40.—That the Conference urges upon the National Health Insurance Commissioners the advisability of taking immediate steps to revise and correct the registers of Insurance Committees and to adopt such modification of the Regulations as will ensure that in the future such registers will continuously be a correct index of the number of insured persons entitled to Medical Benefit in each Insurance area, and so secure an accurate factor for estimating and obtaining a true and equitable credit for each area from the Central Medical Fund.

In reply, the Commissioners referred to the intention expressed by them on the occasion of a previous conference with representatives of the B.M.A. on the 22nd December last. The Commissioners had not in any respect abandoned the intention announced on that occasion of taking action to secure greater accuracy in the Index Register, but shortage of staff and increased pressure of work due to the exceptional war conditions had led to unavoidable delay in initiating the action contemplated. In response to an inquiry by the Deputation, it was stated that the Medical Card System had amply fulfilled the expectations with which it had been established, and that the Commissioners had reason to believe that it was working successfully.

Onus of tracing Removals.

Minute 41.—That the onus of tracing removals should be placed upon Approved Societies.

It was pointed out on behalf of the Commissioners that, as already explained in the course of the discussion on Minute 31, the system of tracing removals by means of notifications from Approved Societies had proved in practice to be unsuccessful. Approved Societies were not by any means fully informed as to the changes of address of their members, and such changes of address as came to their knowledge and were notified by them to Insurance Committees were received by the latter too late to be of any practical value. Indeed, as regards the instances brought forward by members of the deputation, in which insured persons had been removed from lists of doctors while still resident in the district of the doctor's practice, it was only under the system of notification by societies that the circumstances complained of could arise, since, as already explained, the removal from the doctor's list under the Medical Card System could not take place until the patient had proved his actual removal by choosing a doctor in another area or district. It was pointed out, therefore, that the course recommended in this resolution would be a retrograde step, and would, it was believed, defeat its own ends. Where, however, the name of an insured person had been removed from a doctor's list in error, the proper course for the Insurance Committee was to reinstate the insured person without a break.

Balancing of General Medical Fund.

Minute 15.—That the Commissioners be urged to take prompt steps to ensure that the Central Medical Fund is balanced and final payments made therefrom not later than the 30th April in the following year, penalties being imposed on persons or bodies not making returns which are necessary to enable this to be done.

With regard to this resolution the Commissioners appreciated that the considerable period which had elapsed between the conclusion of the medical year 1913, and the final settlement in respect of that year had naturally given rise to a desire that arrangements should be made which would enable the accounts to be finally closed at an earlier date. It was pointed out however that the delay as regards 1913 arose directly out of the system adopted in that year, the debts to Societies for that year being calculated on a mean of the membership of Societies based upon their actual membership (as represented by contribution cards) at the beginning and end of the year. Consequently, the calculations necessary for the purpose of a settlement could not begin to be made until considerably after the end of the year; and with the object of obviating this delay the Commissioners had instituted the system, embodied in the Payments to Insurance Committees Regulations, of debiting Approved Societies on their mean membership as represented by their membership in the middle of the year of account. This improved system was in force in 1914, and but for the fact that the new and unavoidable difficulties in securing information as to enlistments had proved in themselves a fruitful

source of delay, the settlement would have been effected for 1914 and subsequent years much earlier than was possible in the case of 1913.

The request contained in the resolution would however be favourably considered by the Commissioners and apart from the present exceptional circumstances there appeared to be no insuperable obstacle in the way of meeting the substance of the request. It should be borne in mind however that any proposals as to a fixed date for settlement must involve two necessary consequences—(a) that any sums of money which would otherwise have accrued to the General Medical Benefit Fund subsequently to the fixed date would have to be excluded from the accounts and carried forward and (b) that any accounts from individual doctors, etc., not received by a fixed date anterior to the settlement date would have to be excluded altogether.

Interest accruing on Moneys due to Practitioners.

Minute 24.—That the interest accruing from the moneys due to Panel Practitioners which are held over after the termination of the Insurance year be paid into the Practitioners' Fund.

It was pointed out that in principle, the sums paid to doctors for medical benefit were the subject of bargain between Insurance Committees and Approved Societies, and that being so, it was immaterial whether the bargain was for the payment of a net sum without interest or for a smaller sum with interest. So far as the resolution had a practical bearing upon the actual present position, it was agreed that it was in fact complementary to the resolution recorded in Minute 15, and that if a final settlement could be secured within a reasonable period after the end of the year (on which point the Commissioners hoped to be able to meet the views of the Conference) no question as to interest would arise.

Reductions from Advances owing to War conditions.

Minute 56.—That in the opinion of this Conference the numbers of insured persons, who may be expected to enlist by the end of the year must necessarily be so uncertain that it is impossible at this stage to determine whether the advice of the Insurance Commissioners to Insurance Committees to advance only £72 per 1,000 on behalf of Medical Benefit was justified or not.

Mr. Roberts stated that the conclusions to which the Conference had arrived, as expressed in this resolution, were fully appreciated by the Commissioners, who had, of course, no other object in the advice which they had given to Insurance Committees but the avoidance of inconvenience and friction which, from the point of view of the medical profession, might otherwise have arisen upon a final settlement had a less conservative basis for advances been adopted.

Suspension of right of transfer in certain cases.

Minute 45.—That the Commissioners be invited to withhold the right of an insured person to transfer from the list of any doctor who is absent on naval or military service for the period of the War or until a reasonable time after his return (either during the year under Section 26 (6) of the N.H.I. Regulations, dated January, 1914, or at the end of the year, as laid down in Section 30 (1) of the N.H.I. Regulations, dated January, 1914).

It was stated on behalf of the Commissioners that they were anxious to meet the profession as regards the request contained in this resolution. It must be recognised, however, that exceptional cases might exist in which hardship might result from any universal prohibition which prevented insured persons from changing their doctor at the end of the year in all cases, and the Commissioners felt it necessary to make provision for such exceptional cases. They proposed, therefore, to make a regulation suspending the right of insured persons to change their doctor in the circumstances alluded to in the resolution unless they were able to make a special case for transfer which after investigation by the Medical Service Sub-Committee was regarded by the Insurance Committee as affording sufficient ground for a transfer being allowed. Enquiry was made of the deputation as to what precise period they regarded as "a reasonable time" after the doctor's return; and a discussion ensued on this point. In conclusion it was stated on behalf of the Commissioners that the question of period would receive their careful consideration and that they would meet the views of the profession so far as might be found practicable without hardship to the insured population.

Doctors' Lists and persons discharged from Military Service.

Minute 64.—That the Conference approves (a) the action of the Insurance Act Committee in approving the arrangement arrived at between the Renfrewshire Insurance and

Panel Committees, and also in some other areas, to the effect that insured persons on discharge from the Army shall be reinstated on the list of the doctor previously selected by them without the necessity of their making a formal choice of that doctor by means of a fresh Medical Card, without prejudice to the right of the insured person to change his doctor, and that of the doctor to refuse to re-accept the insured person, and (b) urges the Commissioners to approve and adopt the foregoing arrangement for general use.

It was stated on behalf of the Commissioners that they were sympathetic to the object of this resolution. It was pointed out, however, that the substance of the resolution could be secured administratively by arrangements between Panel Committees and Insurance Committees, as in fact had been done in several areas, and it was stated that any appropriate administrative action to secure this object would have the Commissioners' acquiescence.

Effects of War on Insurance Practice.

Minutes 54 and 60.—That this Conference requests the B.M.A. to convey to the Insurance Commissioners, and to the Chairman of the National Health Insurance Joint Committee the following findings, etc., of the Conference as regards the question of reduction in amount of the moneys paid to Insurance practitioners under present War conditions:—

(a) That the different bases of allocation of the credits available for medical benefit adversely and unfairly affect Insurance practitioners because whereas the amount available for the Drug Fund is, in certain areas, sufficient to discharge the chemists' accounts either in full or with moderate reduction, the amounts available for the Practitioners' Fund is reduced by between 25 and 30 per cent., although the amount of work done is at least equal to that done prior to the War.

(b) Therefore the whole or greater part of the pecuniary loss represented by the withdrawal of insured persons serving in the Navy or Army has to be borne by practitioners alone.

(c) That in the opinion of this Conference the above facts indicate a condition of things the effects of which ought not to be borne by one class alone but by the nation as a whole.

Minute 60.—That inasmuch as the men who are removed from the panel lists are amongst the best lives, and were unlikely to be any serious charge on the medical services for many years, and that many of them are now returning permanently damaged in health, the Conference is of opinion that the actuarial calculations of the Insurance Act so far as medical benefit is concerned have been vitiated and that some provision should be made by Parliament to meet the situation.

Mr. Roberts said that he gathered that the Conference were not now putting forward any financial proposals to meet the present circumstances created by the exceptional war conditions, but that their desire was to put on record the views expressed in the resolution in order that they might be fully considered after the war. He reminded the deputation, however, that as against the return of a portion of the insured population in damaged health, it was not unreasonable to expect that a large proportion of the insured population would have been considerably benefited in health by the physical training undergone during military service, and that the existence of compensating influences of this kind should not be ignored. Further, he reminded the deputation that in any case some definite evidence would be required before any such proposal could be even considered, and that mere theory or conjecture (which is all that is at present possible) could not be sufficient. He also pointed out that in effect the resolutions amounted to a request from a particular profession to be indemnified by the nation as a whole for the immediate consequences of the war; and he reminded the deputation that if the principle were to be admitted that the State should come to the aid of any particular class or profession which had suffered owing to the war, there would be no end to similar claims from every section of the community.

Notification of Return to Civil Life of Insured Persons.

Minute 62.—That the Commissioners be urged to take steps to expedite the notification to Insurance Committees of the return to civil life of insured persons who have been on War Service.

While the Commissioners were sympathetic with the objects of this resolution, it was pointed out that so far as the individual doctor was concerned, the resolution recorded in

Minute 64 substantially met the case. So far as the resolution dealt with the necessity for securing adequate payment by Societies for the insured persons referred to from the date of their discharge, it was pointed out that the method of debiting Approved Societies and crediting Insurance Committees would secure the proper payment to the fund of the area in respect of the whole period during which the doctors of that area were at risk in respect of the treatment of any discharged soldier.

Additional Payment for Treatment of Permanently Incapacitated Insured Persons.

Minute 67.—That in the opinion of this Conference the position of the Medical Benefit Fund as regards insured persons who are permanently incapacitated is unsatisfactory; and that this Conference urges that some Special Fund should be provided to meet these cases.

It was stated on behalf of the deputation that after fuller consideration of the statements made at the previous conference in December last, the Conference was not wholly satisfied as to the explanations which were then given, viz., that the overpayment in respect of persons who surrendered contribution cards at the end of the first half-year, compensated for the absence of any contribution cards in respect of insured persons permanently incapacitated. In reply it was pointed out on behalf of the Commissioners that the assurance given by them at the previous Conference was based on many complicated calculations involving, to a considerable extent, questions of an actuarial nature, with which it was not possible to deal adequately in the course of oral discussion. At the request, however, of Mr. Roberts, Sir Alfred Watson, Chief Actuary to the Joint Committee, made a statement in the course of which he assured the deputation that he was fully satisfied that the calculations upon which the set-off was based resulted in fact in the Insurance Committees, and through them the doctors, receiving to the full the funds to which they were entitled.

Amendment of Act as regards Certification.

Minute 73.—That the Conference is of opinion that the Insurance Acts should be so amended as to allow of practitioners certifying insured persons as being "unfit to follow their usual occupation."

It was pointed out on behalf of the Commissioners that in any event the legislation which would be required to secure any amendment in the terms of the principal Act as regards the conditions of title to sickness or disablement benefit was not at present practicable. In response to an enquiry as to whether by the use of the word "unfit" the Conference intended to imply any different sense from that of the word "incapable," it was stated on behalf of the deputation that they had no special distinction in meaning in their minds. The deputation were further asked whether the proposed amendment was intended to apply to the early stages of sickness or to all possible stages of sickness which might be involved in a claim for sickness or disablement benefit, and they were reminded that circumstances arose in the later stages of sickness which might render the formula recommended in the resolution inapplicable. In response it was stated on behalf of the deputation that they had not addressed themselves especially to this particular aspect of the matter, and that they would re-consider it before putting forward any definite proposals. It was suggested to them that in so doing they might find it helpful to refer to relevant portions of the Report of the Departmental Committee on Excessive Sickness Claims.

Preparation of New Regulations and Agreements.

Minute 81.—That the Commissioners be asked to give Panel Committees and the British Medical Association not later than the 30th June notice of the draft Regulations and Agreement for the ensuing year.

Minute 84.—That the Conference request the British Medical Association to prepare, in collaboration with Local Medical and Panel Committees, Amendments to Regulations, and to submit them to the Commissioners on behalf of those Committees.

Minute 85.—That the Conference requests the British Medical Association in collaboration with Local Medical and Panel Committees, to deal similarly with the model form of agreement issued by the Commissioners; and that Local Medical and Panel Committees desiring to introduce local variations should be urged to submit such at once to the Association in order that legal advice thereon may, if necessary, be obtained for them.

Enquiry was first made of the deputation as to whether the intention of Minute 81 was that notice should be given of the actual text of the Regulations or whether notice was only

desired of the substantial nature of any revision contemplated; and the deputation stated in reply that their intention was the latter. It was then pointed out on behalf of the Commissioners that what the Conference asked for in Minute 81 had in fact taken place in 1914, and that no difficulty was anticipated in meeting the views of the profession in this respect on future occasions. The difficulty was, however, pointed out that the earlier in any year the process of revision was commenced the less experience was available as to the working of the Regulations in operation during that year; consequently, points of reform which might otherwise have been included in the revision would be omitted. The whole question appeared to be one as to the best utilisation of a reasonable period of time reckoning backwards from the dates towards the end of the year by which the final individual notices would require to be given, and in this connection it was suggested that the more time was used in the central discussion the less time would probably be necessary in the subsequent stages.

Suggested Revision of Regulation 40.

At this stage of the discussion reference was made by the Commissioners to a resolution with regard to the machinery of Article 40 of the Medical Benefit Regulations, consideration of which, as the Commissioners gathered from public reports of the proceedings at the Conference, was postponed pending the report of the Departmental Committee on the Drug Tariff. In view, however, of the desire of the Conference as expressed in Minute 81 that any necessary revision of the regulations should not be postponed to an extent which would provide an unduly short time for their consideration, the point was put to the deputation whether such postponement was advisable in view of the fact that it was possible that the Departmental Committee's Report might not be available for some weeks. It was further pointed out on behalf of the Commissioners that some of the consequences of the Departmental Committee's Report might reasonably be inferred from the terms of their reference without awaiting the Report itself, and that if in the opinion of the medical profession the discharge of the functions of the Departmental Committee, as expressed in their terms of reference, was likely to involve any revision of the Medical Benefit Regulations, it would be of assistance to the Commissioners and of convenience to the profession itself, if the matter could be considered with a view to a further Conference between representatives of the Association and the Commissioners. The Deputation assented to these views, and it was agreed that a further small Conference should be arranged to discuss the matters referred to.

Claims on Drug Fund.

Minute 101.—That in the opinion of the Conference where an insured patient visits a consultant who prescribes proprietary or extraordinary treatment, the panel practitioner of such patient is not bound to, and as a general rule should not, order such treatment at the expense of the General Drug Fund.

It was suggested on behalf of the Commissioners that this resolution appeared to be based upon some misunderstanding as to the position of the panel practitioner. It would probably be agreed that the whole question depended upon whether the panel practitioner endorsed the view of the consultant as to the necessity of the medicine prescribed by him or not. In the former case, if in the exercise of his clinical discretion he is of opinion that the medicine is necessary for the adequate treatment of the patient, he is entitled and obliged to prescribe it at the cost of the Drug Fund; if, however, he is not of that opinion, the patient is not entitled to the medicine, and the panel practitioner in these circumstances would not prescribe it.

B.M.A. Representatives on Advisory Committee.

Minute 110.—That the conference is of opinion that the British Medical Association should take steps to ensure that its nominees on the Advisory Committee be appointed triennially, and that they should be selected from nominations by Local Medical and Panel Committees to the Insurance Act Committee of the Association.

It was stated on behalf of the Commissioners that they were unable to take any immediate steps as regards the constitution of the Advisory Committee. The deputation might take it, however, that the British Medical Association would be consulted as to any appointments to fill vacancies created by the resignation of any members appointed to the Committee on the nomination of the Association.

Domiciliary Attendance on Tuberculous Insured Persons.

Minute 116.—That the Conference is of opinion that the payment to Insurance practitioners for domiciliary attend-

insured on tuberculous insured persons of the sixpence per insured person from the Sanatorium Benefit Fund should be continued; and that Insurance practitioners should insist on taking their proper share in the doncliairly treatment of tuberculous insured persons, and on arrangements being made for proper co-operation between Insurance practitioners and Tuberculosis Officers.

The views of the Conference were noted.

Official Medical Referees.

Minute 126. That this Conference of representatives of Local Medical and Panel Committees respectfully urges upon the National Health Insurance Commissioners for England the urgent necessity which exists for the appointment by them of Official Medical Referees, and would urge that such appointments be made as soon as possible after the declaration of peace.

It was enquired of the deputation whether the Commissioners were to understand that it was the considered opinion of the Conference that any appointments of Government Medical Referees should be postponed until the declaration of peace. On receiving a reply in the affirmative it was stated on behalf of the Commissioners that they noted this view and concurred in it.

Insurance Certification in Ireland.

Minute 119.—That this Conference express most emphatically its dis-approbation of the employment of part-time Certifiers by the Irish National Health Insurance Commission.

Mr. Roberts stated that the position, especially in the present exceptional circumstances, which precluded several solutions of the problem which would otherwise have been possible, was one of great difficulty. He was, however, not hopeless of a settlement, and he expressed his willingness to receive a deputation from the Irish doctors with the object of effecting such a settlement, but he stated his view that it would materially conduce to the possibility of a settlement if the deputation came possessed of plenipotentiary powers. It was stated in response that the Irish doctors had already appointed a Committee with full powers and that they would willingly accept Mr. Roberts's offer to discuss the matter on those lines.

Veneral Diseases and Sickness Benefit.

Minute 127.—That this Conference requests the Insurance Committee of the British Medical Association to consider the advisability of taking such action as may be possible to secure that patients incapacitated for work by venereal disease should not for that reason be refused sickness benefit.

In reply to an enquiry by Mr. Roberts it was stated on behalf of the deputation that the Insurance Act Committee had endorsed the resolution. Mr. Roberts stated that the terms of the resolution had been noted.

The Munitions Act and removal of large numbers of Insured Persons.

The deputation then alluded to the possibility of large masses of the insured population being moved from one district to another under the Munitions Act, and enquired what action the Commissioners would take to protect the doctors affected from any hardship which might accrue. In response it was stated on behalf of the Commissioners that the existing machinery had hitherto proved adequate, with any necessary adaptations, to meet emergencies such as had arisen in the case of workmen engaged in camp construction. The Commissioners would, however, continue to watch any action under the Munitions Act which might appear to call for emergency procedure, and they would be prepared, in the case of any such emergency arising, to put into operation any special adaptation of the existing machinery which might appear to be called for.

ANNUAL GENERAL MEETING.

The eighty-third annual general meeting of the British Medical Association was held in the Connaught Rooms, Great Queen Street, London, on Saturday, July 24th, at 2 p.m.

Dr. Macdonald, Chairman of Council, in the absence of the President, occupied the chair.

The Financial Secretary, Mr. GUY ELLISTON, having read the notice convening the meeting, the minutes of the last general meeting were confirmed.

The CHAIRMAN said that, as members were aware, the Association ought to be enjoying the hospitality of

Cambridge, and it was a matter of great regret that it was not doing so. It was doubly a matter of regret on account of the reason. Furthermore, instead of having the President in the chair, Sir Alexander Ogston was in Serbia.

THE MIDDLEMORE PRIZE.

The next business was the presentation of the Middlemore Prize. The winner of the prize was Dr. R. Foster Moore, for an essay on the pathology of the retina of the eye.

The prize was presented by Sir CLIFFORD ALBUTT, the President-elect, to Dr. Foster Moore.

THE ANNUAL MEETING, 1916.

Sir CLIFFORD ALBUTT, in the course of a brief address, said members of the Association were only too well aware of the difficulties created by the time of trial which, to their honour, had fallen upon all universities, and perhaps with greatest force upon the two great residential universities. That being so, the question was how far it was probable that it might be possible to meet at Cambridge next year. He thought the members would agree that it was impossible to make any forecast as to next year. Let them hope that the favourable issue for which they looked with confidence might be carried through in sufficient time to enable Cambridge University to receive the members of the Association. The meeting in Cambridge might not be a very showy one, but, at any rate, he looked for a good scientific business meeting. (Applause.)

APPOINTMENT OF AUDITORS.

On the motion of Sir THOMAS E. FITZROY (Bolton), seconded by Dr. W. JOHNSON SMYTH (Bournemouth), Messrs. Price, Waterhouse and Co. were appointed auditors of the British Medical Association until the next annual general meeting, at a remuneration of 150 guineas.

This completed the business of the annual general meeting.

EXTRAORDINARY GENERAL MEETING.

An extraordinary general meeting of the British Medical Association was held on July 24th at the Connaught Rooms, London, Dr. MACDONALD, Chairman of Council, presiding.

The Financial Secretary, Mr. GUY ELLISTON, read the notice convening the meeting.

The only business before the meeting was the alteration in certain particulars of the Articles of Association, and especially to amend Article 4 to make it possible to admit to membership of the Association practitioners who do not reside in the area of any Branch of the Association.

The resolutions were adopted, and the meeting agreed that they should be submitted to a further Extraordinary General Meeting, to be held at the Head Office of the Association, No. 429, Strand, London, W.C., on Wednesday, August 11th, 1915, at 2 p.m.

This terminated the business of the Extraordinary General Meeting.

Meetings of Branches and Divisions.

EAST ANGLIAN BRANCH:

SOUTH ESSEX DIVISION.

A MEETING of the Division was held at the Victoria Hospital, Southend, on July 20th, when Dr. V. HODGSON was in the chair.

Annual Representative Meeting.—The Representative was instructed to oppose the Council's resolution dealing with the contract rate of practice for the children of insured people, and also to endeavour to obtain more adequate supervision over the issue of medical cards to the dependants of soldiers and sailors on active service. It was further decided to hold a meeting on July 27th to receive the Representative's report.

Belgian Fund.—The meeting decided to circularize members to support the fund for the relief of Belgian physicians and surgeons.

WEST SUFFOLK DIVISION.

A meeting of the West Suffolk Division was held at Bury St. Edmunds on July 15th, when Dr. METCALFE and subsequently the Vice-Chairman (Dr. Wood) was in the chair.

Annual Representative Meeting.—Dr. Wood consented to act as deputy for Dr. Batt, who was unable to be present at the meeting. The Annual Report of the Council (SUPPLEMENT, May 8th), together with the Supplementary Report (SUPPLEMENT, July 3rd), were considered, and the meeting expressed approval of: (1) The recommendation in regard to the British Medical Association becoming also a federation of other medical bodies; (2) the special report on decisions of the Association; (3) the special report and recommendation in regard to contract fees and treatment of juveniles; (4) the recommendation with reference to a standing Insurance Acts Committee; (5) the Council's decision as to professional secrecy; and (6) the Council's decision with regard to the employment of nurses as sick visitors; the meeting felt very strongly that every effort should be made to stop this practice. In regard to fees for life insurance examinations the Division adhered to its previous resolution, namely, that no fee of less than 10s. 6d. should be accepted. The Representative was requested to vote according to his own judgement bearing in mind the opinion expressed by the meeting.

Medical Treatment of School Children.—The report of the Special Subcommittee on this subject was read, together with a letter from Dr. Cox, stating that the Medico-Political Committee did not approve of the proposed temporary gratuitous scheme of treatment. After some discussion it was decided that the only course open to the Division was to ask the medical staff of the voluntary hospitals in the area to refuse to treat cases of tonsils and adenoids referred to by the school authorities, unless expressly recommended by a medical man, but it was agreed that the Subcommittee should again meet to arrange for the necessary action to be taken.

Insured Persons Receiving Hospital Treatment.—Dr. METCALFE raised the question of hospital patients, and the Secretary was instructed to ask the staff of the Bury Hospital to consider the possibility of refusing to treat, except in cases of emergency, either in-patients or out-patients, unless provided with a doctor's recommendation.

LANCASHIRE AND CHESHIRE BRANCH:
ROCHDALE DIVISION.

A MEETING of the Rochdale Division was held on July 15th, when Dr. GEDDES, the Vice-Chairman, presided.

Vote of Condolence.—A vote of condolence was passed to Mrs. Jefferson and family on the death of Dr. Jefferson, Chairman of the Division.

Annual Representative Meeting.—The Deputy Representative undertook to attend the meeting in place of the Representative, who had been called up on military duty. The Provisional Agenda (SUPPLEMENT, May 8th and July 3rd) were considered. Motion 31, referring to payment to medical practitioners called in by midwives, was carried, as were also Recommendations (F), legislation for patent medicines; (G), practice of dentistry by unqualified persons; (H), local ambulance services, the authority to be the municipal, urban, or rural district authority; (L and M), medical aid institutions; and (O), salaries of medical officers to committees for the care of the mentally defective. It was decided to oppose the amendment of the Salford Division recommending that the expenses of Representatives of Divisions at Representative Meetings should be paid out of the funds of the Association. It was decided to leave the other matters to the discretion of the Deputy Representative.

STIRLING BRANCH.

A SPECIAL meeting of the Branch was held at Stirling on July 15th, when Dr. YOUNG, President, was in the chair.

War Emergency.—The CHAIRMAN reported on the work of the Council in sending to doctors absent on military service documents for signature by the absent doctors or their deputies, to authorize the Council to receive and pay 50 per cent. of income of their practices to those deputizing. The circular of the Scottish Medical Service Emergency Committee was considered, and it was agreed to appoint a central committee and subcommittee for populous areas. The Scottish Emergency Committee considered that four-

teen members from the district should volunteer for whole time service. The meeting was of opinion that the number could be attained provided the commissions dated from May 15th, 1915.

Appointment of Secretary.—Dr. Yellowlees was appointed secretary of the Branch in the place of Dr. D. C. MacLachlan (Denny) who had applied for a commission.

Association Notices.

FURTHER EXTRAORDINARY GENERAL MEETING.

MEMBERS are reminded that a further Extraordinary General Meeting of the British Medical Association will be held at the Head Office of the Association, No. 429, Strand, London, W.C., on Wednesday, the 11th day of August, 1915, at 2 o'clock in the afternoon for the purpose of considering and if thought fit confirming as Special Resolutions the Resolutions which were passed by the requisite majority at the Extraordinary General Meeting of the Association held at the Connaught Rooms, Great Queen Street, London, W.C., on Saturday, the 24th day of July, 1915, Notice of which Meeting was given in the successive SUPPLEMENTS to the BRITISH MEDICAL JOURNAL dated June 26th and July 3rd, 10th, and 17th.

It is necessary that a quorum should be obtained at this Meeting in conformity with By-law 29, otherwise the Meeting will have to be adjourned in pursuance of the provisions of By-laws 29 and 30.

By order,

GUY ELLISTON,
Financial Secretary and Business Manager.

BRANCH AND DIVISION MEETINGS TO BE HELD.

NORTH OF ENGLAND BRANCH.—Dr. James Don, Honorary Secretary, 1, Grove Street, Newcastle-on-Tyne, gives notice that the annual meeting of the Branch, which will be purely a business meeting, will be held at the Royal Victoria Infirmary, Newcastle-upon-Tyne, on Tuesday, August 10th, at 3.30 p.m.

INSURANCE COMMITTEES.

LONDON.

Dispensary Treatment of Tuberculosis.

At the meeting of the Insurance Committee on July 22nd a lengthy discussion took place upon the agreement with the borough councils as to the dispensary treatment of insured persons suffering from tuberculosis. The form of agreement sanctioned at a previous meeting provided that a certain sum should be allocated for two or three years from the sanatorium benefit fund, and applied for dispensary services throughout the county. This sum was to be apportioned by the Local Government Board between the various boroughs. It had been anticipated that the cost of dispensary services for insured persons would not exceed £5,000 a year, but the Sanatorium Benefit Subcommittee now reported that the Commission had been unable to induce the Local Government Board to accept any sum less than £9,300 a year. In view of the fact that the Commissioners had made strong representations as to the necessity for a complete dispensary system being set up without delay, and the apparent impossibility of any other arrangement, the subcommittee agreed to pay the sum suggested, although the increase in cost would almost inevitably necessitate a reduction in the number of beds for institutional treatment. This action did not meet with the full concurrence of the Committee, and ultimately the matter was referred back to the subcommittee for further consideration and report. At the end of June, 526 persons were receiving institutional treatment for tuberculosis, 789 dispensary treatment, and 1,354 domiciliary treatment under practitioners on the panel.

Duties of a Full Time Medical Adviser.

The duties of the full time medical adviser to the Committee (Dr. J. Edward Squire), who was appointed in May last, have been set out in detail. The principal of them is to classify cases to be recommended for sanatorium benefit, and to examine the applicant when necessary. He is also to visit tuberculosis dispensaries to confer with the officers, and to assist in securing co-operation between the dispensary medical officer and the panel practitioner. The

visiting of institutions, the submitting of reports in connexion with the administration of sanatorium benefit and other matters, as well as the responsibility for the preparation of the medical records of the Committee are also among his duties.

Practitioners on War Service.

The Committee concurred in the scheme proposed by the Panel Committee for providing for the treatment of insured persons on the lists of practitioners who accepted commissions in the forces, and decided to support the Panel Committee also in its application to the Insurance Commissioners to suspend during the period of the war the right of an insured person on the list of a practitioner engaged on active service to change his doctor at the end of the year. It is proposed that the right shall be suspended until the end of the year following the conclusion of the war or the practitioner's retirement from military service, whichever should be the earlier.

INSURANCE ACT IN PARLIAMENT.

BELGIAN REFUGEES.

MAJOR-GENERAL SIR IVOR HERBERT asked the Chairman of the Joint Committee of Insurance Commissioners on July 22nd whether he could state the grounds on which claims were made under the National Insurance Act for contributions in respect of health insurance for Belgian refugees temporarily engaged as agricultural labourers and from their employers, seeing that they were not permanently domiciled in this country, that no provision existed for free medical attendance on them in case of illness or accident, and that on return to their own country all possible benefit of such contributions would be lost to them. Mr. C. Roberts, in reply, referred to a statement made on this subject in the House of Commons on July 12th (SUPPLEMENT, July 17th, p. 36). The persons referred to were required to be insured in accordance with the terms of the Statute. Attention had been drawn to the fact that they would in many cases obtain a certificate of exemption, and if they did so were not themselves liable to pay any contributions, though their employers' contributions remained payable. Whether exempt or not, they were entitled to medical and sanatorium benefit under the appropriate conditions. If they were deposit contributors, four-sevenths of the amount standing to their credit might be returned when they permanently ceased to reside in the United Kingdom. It was a statutory obligation upon the employers to pay their contributions.

IDENTIFICATION OF INSURANCE CARDS.

Earl of Ronaldshay asked the Prime Minister, on July 22nd, if the Insurance Commissioners had decided to place an identification mark upon insurance cards; if this decision was a contravention of promises given by ministers during the passing of the Act; and, if so, under whose authority such decision had been taken. Mr. C. Roberts, Chairman of the Joint Committee of Insurance Commissioners, said that the regulation enabling a society, if it thought fit, to inscribe a distinctive mark upon contribution cards, was issued in consequence of strong representations from approved societies of every type; the proposal was endorsed by the Parliamentary Committee of the Trades Union Congress and the General Federation of Trade Unions. It rested entirely with individual societies to decide for themselves whether they would adopt the course provided for in this regulation, and steps had been taken to insure that the marks employed should not convey any suggestion as to the nature of the society.

TUBERCULOSIS DISPENSARY SERVICES.

Mr. Booth, on July 26th, asked the President of the Local Government Board whether the chairman of the Insurance Commission (England) had informed the London Insurance Committee that the Local Government Board stipulated for a sum of £9,500 annually for a scheme of dispensary services to deal with tuberculous patients; and whether he could give the Committee any information to enable it to come to a decision about the proposed expenditure. Mr. Long said that the answer to the first part of the question was in the affirmative. He was informed that the Committee had arrived at a decision as to the amount to be paid, excepting the amount which was esti-

mated by the Local Government Board to be the annual cost of the maintenance of the services; he had no special knowledge. Mr. Booth asked if Mr. Long was not aware that the London Insurance Committee had refused to endorse the action of the subcommittee, had rejected the paragraph, and asked for further information. Mr. Long said he would be glad to consider anything sent him, but he had no control over the London Insurance Committee, and no right to represent them there. In reply to a question by Mr. Booth on the same day, the Chairman of the Joint Committee of Insurance Commissioners (Mr. C. Roberts) said that the Insurance Commission had merely communicated to the London Insurance Committee, for its consideration, certain proposals resulting from the negotiations undertaken, at the request of the London Insurance Committee, by the Local Government Board with the metropolitan borough councils, together with an explanation of the principles on which those proposals were based.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments were announced by the Admiralty: Fleet Surgeon F. B. C. Gillman to be Acting Interpreter in German; and E. Poulton to the *Frieda*, additional, for disposal; P. V. Jackson (vet.) and F. Mahon to the *Fenbroke*, additional for disposal. Staff Surgeon W. G. Smith to the *Victory*, additional, for disposal; L. L. Greig to the *Attentive*; C. T. Baxter to the *Esquimaux*, additional, for Malta Hospital; C. Ross to the *Fenbroke*, additional, for disposal; Surgeon E. R. L. Jones to the *Fenbroke*, additional, for disposal; F. J. O'Riordan, M.B., to the *Frieda*, additional, for disposal. Temporary Surgeons: R. E. M. Barn to the *Fenbroke*, additional, for Chatham Hospital; R. J. Inman, M.B., R. Lyon, M.B., G. S. B. Long, and A. F. McIntosh, M.B., to the *Victory*, additional, for Haslar Hospital; A. Young, M.B., and J. D. Milligan, M.B., to the *Frieda*, additional, for Plymouth Hospital; E. Grainger, M.B., to the *Fenbroke*, additional, for disposal; H. Williamson, to the *Frieda*, additional, for disposal; R. Bennett, M.B., to the *President*, additional; J. B. J. Willis, M.B., to the *Prince of Wales*, vice Hereford; F. A. V. Denning, to the *Princess Royal*, vice Baryl; G. W. Woodhouse to the *Victory*, additional, for Royal Naval Division, Crystal Palace; W. Lovell, to the *Warrior*.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon-Probationer A. Macrae to the *Cameleon*, vice Griffiths, P. B. Surgeon-Probationer: B. Moore, H. W. Hackett, R. McI. Gardner, J. Hughes, R. Walker.

ARMY MEDICAL SERVICE.

Colonel H. M. Stoggett is retained on the active list, and is superannuated.

ROYAL ARMY MEDICAL CORPS.

J. Keay, M.D., F.R.C.P., to be temporary Lieutenant-Colonel whilst employed at the Edinburgh War Hospital.

J. A. Martin, D.S.O., late Deputy Inspector-General, R.N. Medical Department, to be temporary Major.

Captains to be Majors: G. F. Ruge, J. Fairbairn, M.B., R. G. Anderson, and remain in special duties; M. D. R. E. Lewis, A. L. O'Gway, M.B., C. H. Turner, E. C. Whitehead, M.B., W. F. H. Vaughan, R. B. Hole, M.B., T. C. Lucas, G. B. Cathcart, W. Wiley, M.B., H. Harding, M.B., J. A. Turnbull, M. F. Grant, M.D., D. P. Johnston, M.D., M. Moore, M.B., J. B. Paton, M.B.; A. A. Meaden, R. J. Cahill, M.B., S. C. Bowie, H. B. Connell, A. S. Arthur, M.B., William Byram, and to remain seconded: C. Ryles, P. Dwyer, M.B., P. C. T. Darcy, M.B., H. T. Wilson, R. C. Hallows, J. H. H. Bann, M.B., J. H. Harvey, H. C. Winckworth, H. W. Russell, M.D., H. C. Sidgwick, M.B., M. Sinclair, M.B., G. R. Pantoun, N. Low, A. N. Fraser, M.B., R. H. L. Corrier, H. St. M. Carter, D.S.O., M. D. A. Frost, M.D., F. R. S. E., late Captain G. J. O. MacLachlan, P. C. R. Millar, J. St. A. Maughan, L. V. Thurston, A. W. Gater, J. P. Lynch.

To be temporary Captains: G. A. D. McArthur, M.B., Captain Andrew A. M. D., temporary Lieutenants A. Phillips, late Surgeon-Captain A. M. Reserve of Officers: A. W. Robertson, late Surgeon-Captain East Indian Railway Vol. Rifles, H. T. du Heume, late Captain Royal Jersey Artillery, M.D., E. B. Paton, M.B.; A. A. Hudson, M.D., F. R. S. E., late Captain Cape Medical Staff Corps; B. Hudson, M.D.; temporary Lieutenant G. B. Price, M.D.; Captain D. O'C. Finigan, from 7th Battalion York and Lancaster Regiment; J. D. White, G. G. Skinnard, Home Hospital Reserve; F. F. German, late Surgeon-Captain R.G.A. (Vois).

G. Dreyer to be temporary honorary Captain. The following are granted temporarily honorary rank as stated when they joined the St. John Ambulance Brigade Hospital:—To be Majors: Lieutenant-Colonel and Honorary Colonel C. J. Trimble, C.M.G., T.F.R., Captain S. M. Smith, M.B., F.R.C.S., R.A.M.C.(F). To be Captains: P. Houston, M.D., J. R. MacLachlan, M.D., G. W. M. Hope, M.D., F.R.C.S., F. W. Gwyder, M.B., F.R.C.S., R. W. Collum, P. T. Crymble, M.B., F.R.C.S. To be Lieutenants: A. D. Brunwin, M.D., F. Hall, M.B., J. M. McCloy, M.D., C. E. Butterworth, M.B., W. R. Mason, M.D., J. V. S. Taylor, H. de L. Crawford, M.B., F.R.C.S.I., J. Beckett, M.D., A. C. McAllister, W. D. Copstone.

The following Lieutenants of the Canadian Army Medical Corps to be temporary Lieutenants: H. T. Lippatt, M.D., J. S. McCellan, M.D., D. W. Davis, M.D., P. McGibbin, M.B., S. J. Staples, M.D., A. Drouin, M.D.

K. C. Walker, F.R.C.S., M.D., is granted temporarily the honorary rank of Captain whilst serving with No. 1 British Red Cross (Duchess of Westminster's) Hospital.

Captain W. D. Chambers, M.D., from 7th (Service) Battalion, Royal Irish Fusiliers, to be temporary Captain (substituted for notification published in the *London Gazette* of July 17th).

The name of temporary Lieutenant Walter Groomie is as now described, and not as stated in the *London Gazette* of August 25th, 1914.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,422, 2,246, and 2,747 at the end of the three preceding weeks, had fallen to 2,468 on Saturday, July 17th; 299 new cases were admitted during the week, against 332, 348, and 322 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 985 births and 561 deaths were recorded during the week ending Saturday, July 17th. The annual rate of mortality in these towns, which had been 15.7, 16.6, and 15.7 per 1,000 in the three preceding weeks, fell to 12.5 in the week under notice, and was 11.1 per 1,000 above the rate in the ninety-six large English towns. Among the several towns the death-rate ranged from 5.0 in Motherwell, 8.1 in Hamilton, and 9.1 in Falkirk, to 14.1 in Kilmarnock, 14.3 in Paisley, and 15.3 in Dundee. The mortality from the principal epidemic diseases was 2.0 per 1,000, and was highest in Paisley, Leith, and Kirkcaldy. The 272 deaths from all causes in Glasgow included 31 from measles, 8 from infantile diarrhoea, 5 from scarlet fever, 5 from whooping-cough, 2 from diphtheria, and 4 from enteric fever. Three deaths from measles were recorded in Paisley and 3 in Leith; from scarlet fever, 2 deaths in Aberdeen; and from diphtheria, 3 deaths in Paisley.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, July 17th, 548 births and 293 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 537 births and 309 deaths in the preceding period. These deaths represent a mortality of 12.6 per 1,000 of the aggregate population in the districts in question, an against 13.3 per 1,000 in the previous period. The mortality in the principal large English towns was 12 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 23.6 per 1,000 of population. As to the mortality of individual localities, that in the Dublin registration area was 13.96 (against an average of 16.6 for the previous four weeks); in Dublin city, 14.2 (as against 16.7); in Belfast, 12.0 (as against 12.3); in Cork, 10.9 (as against 16.1); in Londonderry, 24.0 (as against 15.7); in Limerick, 15.7 (as against 16.6); and in Waterford, 7.6 (as against 15.7). The zymotic death-rate was 1.2, the same as in the previous period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BERMONDSEY MEDICAL MISSION FOR WOMEN AND CHILDREN.—Resident Assistant Medical Officer. Salary, £80 per annum.

BIRMINGHAM AND MIDLAND EAR AND THROAT HOSPITAL.—(1) Surgeon; (2) Assistant Surgeon.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Junior House-Surgeon. Salary, £100 per annum and £5 laundry and registration.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £250 per annum.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—House-Surgeon. Salary, £100 per annum.

BOTHWELL, KIRKLANDS ASYLUM.—Resident Medical Superintendent. Salary, £500 per annum.

BRIGHTON COUNTY BOROUGH ASYLUM, Haywards Heath.—Temporary Assistant Resident Medical Officer. Salary, 25 guineas a month.

BRISTOL GENERAL HOSPITAL.—House-Physician. Salary, £150 per annum.

BRISTOL ROYAL INFIRMARY.—Honorary Surgeon, and, if necessary, an Honorary Assistant Surgeon.

BROMLEY EDUCATION COMMITTEE.—School Dental Surgeon. Salary, £150 per annum.

BURY INFIRMARY.—Senior House-Surgeon. Salary, £250 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £140 per annum.

CARDIFF: WELSH METROPOLITAN WAR HOSPITAL, Whitechurch.—(1) Resident Surgeon; (2) Resident Physician.

CHIDDLETON MENIAL HOSPITAL, Staffordshire.—Locum tenent Medical Officer. Salary, £1 1s. per diem.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—(1) Resident Medical Officer; (2) House-Physician. Salary, £200 and £100 per annum respectively.

DELFORD ROYAL ALBERT HOSPITAL.—House-Surgeon. Salary, £150 per annum; 21s. allowed weekly for working single-handed.

FOLKESTONE: ROYAL VICTORIA HOSPITAL.—House-Surgeon. Salary, £150 per annum.

GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

HAMSTEAD GENERAL HOSPITAL, Haverstock Hill, N.W.—Resident Medical Officer. Salary, £200 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

INDIA: IMPERIAL BACTERIOLOGICAL (VETERINARY) LABORATORY, Muziris, Superintendent Bacteriologist. Salary, Rs. 1,200 per mensem, rising to Rs. 1,500.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £150 per annum.

LONDON COUNTY ASYLUM, Bexley Heath.—Locum tenent Medical Officer. Salary, £6 6s. per week.

LONDON LOCK HOSPITAL, Marrow Road, W.—House-Surgeon. Salary, £130 per annum.

MANCHESTER: COUNTY ASYLUM, Prestwich.—Assistant Medical Officer. Salary, £250 per annum, rising to £300, and upon promotion to £50.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST, Bowdon.—Resident Medical Officer. Salary, £250 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £120 per annum.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Resident Medical Officer. Salary, £100 per annum.

NORTHAMPTON GENERAL HOSPITAL.—House-Surgeon. Salary, £150 per annum.

NORWICH CITY ASYLUM, Hellesdon.—Assistant Medical Officer. Salary, £250 per annum, rising to £300.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—District Resident Medical Officer. Salary, £60 per annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—(1) Resident Assistant Surgeon, salary, £110 per annum. (2) Locum Resident House-Surgeon, salary, 26 6s. per week.

ROYAL FETTER HOSPITAL, Southwark, S.E.—House-Surgeon. Salary, £100 per annum.

SALISBURY GENERAL INFIRMARY.—Assistant House-Surgeon. Salary, £100 per annum.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon in the Gynaecological and Maternity Department. Salary, £80 per annum.

SHEFFIELD ROYAL INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Physician. Salary, £100 per annum.

SHEFFIELD UNIVERSITY.—Demonstrator of Pathology and Bacteriology.

SHREWSBURY: ROYAL SALOP INFIRMARY.—House-Surgeon. Salary, £250 per annum.

SIDLAW SANATORIUM.—Resident Medical Officer.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTH HAMPTON HOSPITAL.—Junior House-Surgeon. Salary, £120 per annum.

STOCKPORT UNION.—Resident Assistant Medical Officer at the Stepping Hill Hospital, Salary, £300 per annum.

TRURO: ROYAL CORNWALL INFIRMARY.—House-Surgeon. Salary, £150 per annum.

VICTORIA HOSPITAL FOR CHILDREN, The Street, S.W.—Temporary Assistant Physician to Out-patients.

WALSLEY AND DISTRICT HOSPITAL.—Assistant House-Surgeon and Anaesthetist. Salary, £150 per annum.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior House-Surgeon. Salary, £200 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—(1) House-Surgeon; (2) Assistant House-Surgeon. Salary, £150 and £120 per annum respectively.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—(1) Resident Medical Officer; (2) House-Physicians and House-Surgeons. Salary, for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY. Junior House-Surgeon. Salary, £150 per annum.

WINSLEY SANATORIUM, near Bath.—Senior Resident Medical Officer. Salary, £200 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Sixmillebridge (co. Clare).

To secure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BARBOT, J. M., M.B., Civilian Medical Officer to the 2/4th King's Shropshire Light Infantry, stationed at Ramsey, Isle of Man.

MADDEN, Frank Cole, M.D., M.Ch., F.R.C.S. Eng., Operating Surgeon to the British Forces in Egypt and attached for duty to the Military Hospital at the Citadel, Cairo.

VERTY, R. J. S., F.M.S.S.A., Medical Officer of Health to the Aberystwyth Urban District Council.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded in Post Office Orders or cheques with the notice not later than the first post Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

BARKING.—On July 23rd, at 6, Vignara Road, Edgaston, Birmingham, the wife of Lieutenant-Colonel Seymour Barling, F.R.C.S., R.A.M.C.(T.), of a son.

DEATH.

GRIFFITH.—On the 23rd inst., William Starbuck Griffith, of Milford House, Milford Haven, aged 47 years.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	JULY.
30 Fri.	London: War Emergency Committee, 11.30 a.m. to 1.0 p.m.
	AUGUST.
5 Thur.	London: Insurance Acts Committee, 2 p.m.
10 Tues.	North of England Branch, Annual Meeting, Newcastle-on-Tyne, 3.30 p.m.
11 Wed.	FURTHER EXTRAORDINARY GENERAL MEETING, 429, Strand, London, V.C., 2 p.m. London: Representative Body and Council Election Returns Committees, 2 p.m.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, AUGUST 7TH, 1915.

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Association Intelligence.

PROCEEDINGS OF COUNCIL.

THERE was a meeting of the Council at the Connaught Rooms, London, on the morning of Saturday, July 24th, 1915.

Present:

- Dr. J. A. MACDONALD, LL.D., Taunton, Chairman of Council, in the chair.
- Mr. T. JENNER VERBALL, LL.D., Bath, Chairman of Representative Meetings.
- Dr. EDWIN RAYNER, Stockport, Treasurer.
- Lieutenant-Colonel Sir JAMES BARR, M.D., LL.D., Liverpool
- Dr. M. G. BIGGS, London
- Mr. H. B. BRACKENBURY, London
- Dr. H. J. CAMPBELL, Bradford
- Dr. J. SINGLETON DARLING, Lurgan
- Lieutenant E. ROWLAND FOTHERGILL, Hove
- Major James GALLOWAY, London
- Mr. T. W. H. GARSTANG, Altrincham
- Dr. THOMAS A. GOODFELLOW, Manchester
- Dr. JOHN GORDON, Aberdeen
- Major T. DENCAN GREENLEES, Weymouth
- Dr. MAJOR GREENWOOD, London
- Major W. J. GREER, Newport, Mon.
- Dr. J. R. HAMILTON, Hawick
- Mr. RICHARD HARDING, New Radnor
- Major R. WALLACE HENRY, Leicester
- Mr. R. J. JOHNSTON, Belfast
- Captain F. CHARLES LARKIN, Liverpool
- Major ALBERT LUCAS, Birmingham
- Fleet Surgeon F. D. LUMLEY, R.N., Greenock
- Dr. H. C. MACTIER, Wolverhampton
- Major GEORGE PARKER, Bristol
- Dr. A. TENNYSON SMITH, Orpington
- Dr. W. JOHNSON SMYTH, Bournemouth
- Mr. E. B. TURNER, London
- Dr. O. K. M. WOOD, Woolpit

APOLOGIES.

Letters of apology for non-attendance were read from: The President-elect, Major S. H. Lee Abbott, I.M.S.; Dr. John Adams, Dr. David Ewart, Dr. J. J. Giussani, Mr. James Green, Colonel R. I. D. Hackett, Colonel W. Jolmston, Lieutenant-Colonel J. Munro Moir, Captain J. E. Moorhouse, Major F. J. Smith, and Dr. Denis Walshe.

DEATHS.

The deaths of Mr. Edmund Owen, a former Chairman of Council, and Dr. Bruce Goff, for many years a member of the Council, were reported by the CHAIRMAN, who was requested to convey to the respective families the deep sympathy of the Council in their bereavement, and at the same time to express sincere appreciation of the valuable services they rendered to the Association.

REPRESENTATIVE MEETING.

The minutes of the Representative Meeting of Friday, July 23rd, 1915, were considered and approved.

SCIENCE COMMITTEE.

The CHAIRMAN OF COUNCIL (in the absence of the Chairman of the Science Committee) presented the report of the Science Committee.

RENEWED GRANTS.

Renewed grants were made for 1915-16 for the following work:

- Donald, John, M.D.Glasg., D.P.H.Camb.: The action of hectol upon animals, especially on heart and vessels.
- Knowles, Kate, M.B., B.S.Lond.: (1) The causes of osteomalacia. (2) The action of extracts of ductless glands on the disease, including B and P records. (3) Examination of blood, urine, and ovaries of patients suffering from osteomalacia.
- Mutch, Nathan, M.D., B.C.Cantab., M.A.Cantab.: The bacteriological and chemical investigation of chronic intestinal infections.
- Sykes, W. L., M.R.C.S.Eng.: On digitalis: (1) Diuresis. (2) Influence of enzymes on digitalis glycosides. (3) Mutual influence of the several digitalis glycosides.

NEW GRANTS.

New grants were made for 1915-16 for the following work:

- Barber, H. W., M.B., B.C.Cantab., M.A.Cantab.: (1) To complete research begun in Hamburg "On the chemical nature and staining properties of certain undescribed substances in the epidermis"; (2) On the metabolism of psoriasis patients; (3) The bacteriology of the faeces in certain diseases.
- Drinkwater, H., M.D., C.M., F.R.S.Edin.: A second brachydactylous family. (The work is completed.)
- Harvey, W. H., M.D.Tor., M.A.Cantab.: Investigation of the musculature of glands, especially in reference to the kidney.
- Dove, Miss E. L., M.B.Lond.: The simplest and most practicable means in the home of disinfecting floor surfaces, handkerchiefs, books, toys, etc., which have been exposed to infection by the tubercle bacillus.

AWARD OF GOLD MEDAL FOR DISTINGUISHED MERIT.

The following letter was read from Captain Martin-Leake, V.C.:

Marshalls, Ware,
July 16th, 1915.

The Secretary, British Medical Association.

Dear Sir,—I am in receipt of your letter dated July 7th stating that at a meeting of the Council of the British Medical Association it was decided that the Gold Medal for Distinguished Merit should be offered to me. In reply I beg to request that you will convey my deep feelings of appreciation to the members of the Council for their great honour, and inform them that I shall accept the medal with great pride and gratitude. I much regret to say that at present I cannot see my way to have the honour of attending to accept the medal as I have to return to France in a few days.—I am, Sir, your most obedient servant,

A. MARTIN-LEAKE.

CENTRAL NURSING COUNCIL FOR LONDON.

Mr. E. B. TURNER, representative of the Council on the Central Nursing Council for London, reported that owing to new Standing Orders having been agreed upon it would be necessary for the Council to appoint its three representatives. Mr. Turner was thanked for his services, and the consideration of the question was deferred until the October Council.

There was a further meeting of the Council in the evening of July 24th, this being the new Council for 1915-16. Dr. J. A. MACDONALD (Taunton), Chairman of Council, in the chair.

WAR EMERGENCY COMMITTEE.

There were seven nominations for the four members of the Council to the War Emergency Committee, appointed under Minute 37 of the A.R.M., and Lieutenant-Colonel Sir James Barr, Lieutenant-Colonel J. A. Bolam, Major James Galloway, and Mr. Bishop Harman were duly elected.

RETURNS OF THE ELECTION OF MEMBERS OF COUNCIL BY THE REPRESENTATIVE MEETING.

The Chairman of Representative Meetings reported the returns of the election of members of Council as follows:

(a) Elected by Grouped Representatives.

Dr. M. G. Biggs, Major Russell Coombe, Dr. J. Singleton Darling, Major A. C. Farquharson, Lieutenant E. Rowland Fothergill, Mr. T. W. H. Garstang, Mr. N. Bishop Harman, Dr. H. C. Mactier, Colonel C. H. Milburn, Lieutenant-Colonel J. Munro Moir, and Captain J. E. Moorhouse.

(b) Elected by the Representative Body as a Whole.

Lieutenant-Colonel Sir James Barr, Mr. E. J. Domville, Dr. G. E. Haslip, and Dr. T. Jenner Verrall.

DATES OF MEETINGS.

The following dates were provisionally fixed for the quarterly meetings of Council for the ensuing twelve months: Wednesday, October 27th, 1915; Wednesday, January 26th, 1916; Wednesday, April 26th, 1916; and Wednesday, June 7th, 1916.

MINUTES OF ANNUAL REPRESENTATIVE MEETING.

The Chairman of Representative Meetings presented the minutes of the Representative Meetings of Saturday, July 24th, which were considered and approved.

It was left to the Chairman of Council, in conference with the Chairman of Representative Meetings, to remit the various resolutions of the Representative Meeting to the appropriate Committees.

[The meeting terminated at 6.25 p.m.]

Association Notices.

FURTHER EXTRAORDINARY GENERAL MEETING.

MEMBERS are reminded that a further Extraordinary General Meeting of the British Medical Association will be held at the Head Office of the Association, No. 429, Strand, London, W.C., on Wednesday, the 11th day of August, 1915, at 2 o'clock in the afternoon for the purpose of considering and if thought fit confirming as Special Resolutions the Resolutions which were passed by the requisite majority at the Extraordinary General Meeting of the Association held at the Connaught Rooms, Great Queen Street, London, W.C., on Saturday, the 24th day of July, 1915, Notice of which Meeting was given in the successive SUPPLEMENTS TO THE BRITISH MEDICAL JOURNAL dated June 26th and July 3rd, 10th, and 17th.

It is necessary that a quorum should be obtained at this Meeting in conformity with By-law 29, otherwise the Meeting will have to be adjourned in pursuance of the provisions of By-laws 29 and 30.

By order,

GUY ELLISTON,
Financial Secretary and Business Manager.

BRANCH AND DIVISION MEETINGS TO BE HELD.

NORTH OF ENGLAND BRANCH.—Dr. James Don, Honorary Secretary, 1, Grove Street, Newcastle-on-Tyne, gives notice that the annual meeting of the Branch, which will be purely a business meeting, will be held at the Royal Victoria Infirmary, Newcastle-upon-Tyne, on Tuesday, August 10th, at 3.30 p.m.

A list of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian, at the house of the Association, 429, Strand, W.C. The regulations governing the loan of these publications are stated in the introduction to the list. The Library is open for consultation from 10 a.m. till 5 p.m. (on Saturdays till 2 p.m.).

LOCAL MEDICAL AND PANEL COMMITTEES.

BERKS COUNTY.
MEDICAL COMMITTEE.

THE thirty-first meeting of the Berks County Medical Committee was held in the Board Room, Royal Berks Hospital, on July 8th, when Mr. NAPIE JONES was in the chair.

Election of Committee.—The HONORARY SECRETARY reported that he had, by permission of the Commissioners, sent notices to all the practitioners on the panel, asking whether they had any objection to the Panel Committee remaining in office for a year. About fifty answers had been received, and no objections had been raised. The Committee approved the Honorary Secretary's action.

Committees.—Dr. Bokenham was elected on the Finance Subcommittee in place of Dr. Sussman, and the members of the Medical Service Subcommittee were re-elected.

BIRMINGHAM.
PANEL COMMITTEE.

THE first meeting of the Birmingham Panel Committee for the year 1915-1916 was held on July 27th, when Mr. PARROTT (the Returning Officer) presided at the outset.

Election of Officers.—The following were elected:

Chairman: Dr. Dain.
Vice-Chairman: Dr. Lydall.
Honorary Secretary: Dr. Garbutt.
Honorary Treasurer: Dr. Dain.

Several members were co-opted and casual vacancies were filled. The various Subcommittees were also elected.

Excessive Prescribing.—A list of those practitioners who had exceeded the capitation fee during 1914 was presented by the Pharmaceutical Committee with a request for investigation of the same. The matter was referred to the Pharmacopoeia Subcommittee.

EAST SUFFOLK.
PANEL COMMITTEE.

A MEETING of the East Suffolk Panel Committee was held at Saxmundham on July 13th, when Dr. HELSHAM was in the chair.

Medical Service Subcommittee.—Drs. Leach, Perry, and Giuseppe were appointed to represent the Committee on the Medical Service Subcommittee.

Final Settlement for 1913.—The CHAIRMAN reported that the subcommittee appointed at the last meeting to deal with the final settlement for 1913 had effected a satisfactory settlement upon the basis shown in the statements, copies of which had been sent to each member of the Committee. The action of the subcommittee was confirmed.

Attendance of Members of Committee.—A letter from the Insurance Commissioners, dated June 9th, 1915, was read with reference to the absence of certain members of the Committee from three consecutive meetings. The question of altering the time and place of the meetings of the Committee was postponed.

Prescriptions.—The CHAIRMAN read the report of the checker with reference to prescriptions for the quarter ending March 31st, 1915, and explained that the Committee might deem it advisable to hold inquiries in certain cases of alleged over-prescribing. The Clerk to the Insurance Committee was requested to furnish a copy of the report and analysis to each member of the Committee, and the matter was adjourned to the next meeting.

Pharmacopoeia.—Drs. Baron, Giuseppe, Havell, Keor, and Ranson were appointed a subcommittee to consider and report on the advisability of adopting a pharmacopoeia.

LOCAL MEDICAL COMMITTEE.

A meeting of the East Suffolk Local Medical Committee was held on the same day and with the same Chairman.

Representative on the Insurance Committee.—It was resolved that Dr. Barraclough be appointed to fill the vacancy upon the Insurance Committee caused by the resignation of Dr. H. Muir Evans.

Medical Service Subcommittee.—It was resolved that Dr. Askin be appointed to represent the Committee upon the Medical Service Subcommittee.

WEST SUFFOLK.

LOCAL MEDICAL AND PANEL COMMITTEE.

A MEETING of the West Suffolk Local Medical and Panel Committee was held at the Angel Hotel, Bury St. Edmunds, on July 13th, when Dr. Wood was in the chair.

Suspense Register.—It was reported that 1,460 slips had been cleared from the suspense register, but as against this 995 slips had been added to it in respect of persons for whom no "slip" had been entered. The result of some six months' work, therefore, was the diminution of the suspense register by 465 slips.

Final Credit for the Year 1913.—A letter was read from the Clerk to the Insurance Committee pointing out that the method of distribution of the final credit for 1913 suggested by the Panel Committee at its last meeting could not be carried out, and that the portion of the credit applicable to the first quarter of the year 1913 must be distributed on the basis previously adopted for the provisional credit in order to ensure a full and legal discharge for the Insurance Committee. It was agreed to request the Insurance Committee that in respect of the portion of the final credit for 1913 applicable to the first quarter of the year, the balance after paying the doctor's accounts for attendance in full should be paid in proportion to the numbers on the doctors' lists at the end of the quarter.

Election of Panel Committee.—The SECRETARY read a letter from the Commissioners stating that practitioners must be given the opportunity of objecting to the postponement of election. A circular on the subject had been issued and no objections had been raised.

GLOUCESTERSHIRE.

LOCAL MEDICAL AND PANEL COMMITTEE.

A MEETING of the newly-elected Panel Committee of Gloucestershire took place at the Royal Infirmary, Gloucester, on July 15th. Dr. CAMPBELL was re-elected Chairman, and will continue to act as Secretary. Dr. Miles having promised to assist him where necessary.

The following were co-opted: Dr. F. Lidderdale, Cheltenham; Dr. A. P. Davies, Stroud; Dr. A. F. Turner, Tewkesbury; Dr. T. G. Miles, E. Dean; Dr. A. H. Grace, Chipping Sodbury; Dr. William Cox, Winchcombe; Dr. E. Dening, Stow-on-the-Wold; Dr. W. I. Awdry, Berkeley; Dr. H. Cairns Terry, Gloucester.

The election expenses were calculated to amount to £20. At this election thirty-three voters attended. Thirteen members were elected and five elections were void through absence of voters or other causes. The absurdity of carrying on elections in this manner was considered to be apparent. A postal vote is contemplated in the future, and the Committee were unanimous in desiring triennial elections.

Conference of Local Medical and Panel Committees.—Dr. H. CAIRNS TERRY gave an account of the proceedings at the conference of representatives of Local Medical and Panel Committees, and its decisions were approved.

Excessive Prescribing.—It was reported that the Pharmaceutical Committee seemed to object to a circular issued by the Panel Committee requesting doctors to abstain from expensive prescribing, but it was felt to be necessary from time to time to draw the attention of panel doctors to the risk of being surcharged in cases where expensive drugs, etc., were used.

Fee for Attendance on a Panel Patient.—It was agreed that a patient temporarily residing six miles from the doctor's house, there being other panel doctors within a mile or two of this patient's temporary abode, should be charged a fee, as not only did the patient not present a medical card or inform the doctor that he was a panel patient, but the distance was over that which the agreement covered (four miles).

Checker's Salary.—The Insurance Committee, having requested the Panel Committee to pay 25 per cent. of the "Checker's" salary for the investigation of prescriptions, the Chairman was directed to inform the Insurance Committee that the Local Medical and Panel Committee would be willing to pay its share if the Pharmaceutical Committee would pay a similar amount out of the voluntary levy made by it.

LANCASHIRE.

PANEL COMMITTEE.

A MEETING of the Lancashire County Panel Committee was held at Preston on June 9th, when Dr. H. F. OLDFHAM was in the chair.

Medical Certification.—Three doctors practising on the Lancashire County panel had been summoned to attend the meeting for the purpose of giving explanations of their conduct in having broken the rules governing the system of medical certification in so far as they had antedated and post-dated certificates. It was found that in each case the rules had not been broken wilfully, but chiefly through ignorance of the correct procedure with regard to the issuing of certificates. The practitioners expressed their regret and stated that it was their intention to adhere more rigidly to the rules in future. It was decided that no action should be taken in these cases, but it was pointed out to each of the three practitioners in question that a very serious breach of the certification rules had been made, and that, should there be a recurrence of such conduct, the Committee would have no alternative but to place the matter in the hands of the General Medical Council, which would deal very firmly with such cases.

Excessive Prescribing.—A number of cases of alleged prescribing were considered. In the majority satisfactory explanations had been given, and it was found that only a comparatively small number of practitioners could be said to have prescribed excessively. It was considered, however, that some were at fault in prescribing in excess of the requirements of the case, and in each of these cases the Committee estimated the amount of such excess. The Secretary was instructed to write to the Lancashire Insurance Committee, informing them of the Committee's finding in the above-mentioned cases.

SOUTHPORT.

LOCAL MEDICAL AND PANEL COMMITTEE.

A MEETING was held on July 30th, when Dr. LIMONT was in the chair.

Election of Officers.—The SECRETARY reported that the Commissioners had dispensed with an election and the present members were to remain in office for another year. The following officers were elected:

Chairman: Dr. Limont.
Vice-Chairman: Dr. Brown.
Secretary and Treasurer: Dr. Penrose.

Annual Report.—The annual report and statement of accounts were approved.

Vote of Thanks.—The Committee accorded a vote of thanks to Dr. Penrose for his work as Secretary during last year.

Recognition of Committee.—The SECRETARY reported that the Commissioners had "recognized" the Committee as the Local Medical Committee for Southport for 1915-1916.

Contract Practice.—It was resolved to request the Assistant Secretary of the local Division of the British Medical Association to write to two doctors, newcomers to the town, with reference to the payments for contract practice which are acceptable to the local profession.

Payments.—It was resolved:

That the Insurance Committee be requested, when making out the statements for payments at the end of each quarter, to adhere to the old system, namely, that the amount indicated is for "so many" insured persons on the list, at "so much" per person. Also that it be made clear in the receipt form that the payment is "on account."

YORK.

LOCAL MEDICAL AND PANEL COMMITTEE.

A MEETING of the York Local Medical and Panel Committee was held on June 30th and an adjourned meeting on July 5th.

Complaint against a Practitioner.—It was reported that the agent of an approved society, who had brought a complaint against a practitioner which was subsequently proved to be groundless, had refused to apologize in any way, and it was decided that the practitioner should forward the correspondence to the Medical Defence Union, of which he was a member, for advice.

Unallocated Insured Persons.—A letter was read from the Clerk to the Insurance Committee, stating that the Commissioners considered the draft scheme dealing with unallocated insured persons should provide for treatment being given forthwith in urgent cases by the practitioner to whom the insured person applied in the first instance, and that the basis of apportionment of capitation fees should be subject to revision in any case in which a

practitioner neglected to carry out any duties devolved upon him. It was agreed to accept the suggestions.

Expenses of Pharmaceutical Committee.—A letter was read from the Clerk to the Insurance Committee, stating that the Pharmaceutical Committee had submitted a claim for £47 in respect of its administration expenses for 1914, and asking whether the Panel Committee would have any objection to that amount being paid out of the moneys available for the provision of medical benefit, provided the Commissioners approved. The Committee strongly disapproved, and instructed the Secretary to suggest that the funds of the Pharmaceutical Committee should be raised by voluntary subscription, as was done in the case of the Panel Committee.

Conference of Local Medical and Panel Committees.—Dr. J. C. LYTH reported the proceedings at the conference on June 16th. Great satisfaction was expressed at the results achieved, and Dr. Lyth was thanked for his services as Representative.

Reinstatement of Insured Persons discharged from the Army.—It was decided to request the Insurance Committee to arrange that insured persons on discharge from the army shall be reinstated on the list of the doctor previously selected by them without the necessity of their making a formal choice of that doctor by means of a fresh medical card, but without prejudice to the right of the insured person to change his doctor, and that of the doctor to refuse to reaccept the insured person.

Change of Address of Insured Persons.—The Secretary was instructed to ascertain from the Clerk to the Insurance Committee whether the new address of an insured person could be stated in the notice of removal from the doctor's list.

NEWCASTLE-UPON-TYNE, PANEL COMMITTEE.

A MEETING of the Newcastle-upon-Tyne Panel Committee was held on July 20th for the purpose of electing officials of the new Panel Committee for the ensuing year.

Dr. Rutter, Dr. Dagger, and Mr. David Ranken were appointed Chairman, Vice-Chairman, and Secretary respectively. It was unanimously agreed that the co-opted members for the past year should be re-elected for the ensuing year. Dr. Mathews was elected to the vacancy for the Central district, caused by the resignation of Dr. A. J. Collis. The Medical Service Subcommittee and the Drug Subcommittee were re-elected. The same Executive Committee was re-elected, with the exception that Dr. Slater was elected instead of Dr. Hawthorn, who, owing to military duties, was unable to attend the Executive Committee meetings.

Surcharging.—The question of the surcharging of certain doctors on the panel was then debated.

COUNTY OF SURREY, PANEL COMMITTEE.

THE monthly meeting of the County of Surrey Panel Committee was held at Surliton Cottage Hospital on July 16th, when Dr. LANKESTER was in the chair.

Election of Officers.—The following officers were elected for the ensuing year:

Chairman: Dr. Lankester.
Vice-Chairman: Dr. Lyden.
Honorary Treasurer: Dr. Walters.
Honorary Secretary: Dr. Cran.

Term of Office of Panel Committee.—It was reported that the Insurance Commissioners had extended the period of recognition of the present Committee to July 15th, 1916.

Temporary Residents.—A letter was read from the British Medical Association, stating that it saw no reason why patients in convalescent homes should not be treated as temporary residents. The Honorary Secretary was instructed to explain that the Panel Committee only took exception to the patients being treated as temporary residents when all they needed was a certificate.

Nurses Acting as Sick Visitors.—A letter was read from the British Association stating that the Queen Victoria Institute of Nurses agreed as to the undesirability of nurses acting as sick visitors. It was resolved to ask the British Medical Association to bring the matter to the notice of other nursing associations, and also if possible get a notice into some of the nursing papers, and distribute through the medium of the panel associations to the provincial nursing associations.

Joint Meetings of Local Medical and Panel Committees.

—It was agreed that in future the Local Medical and Panel Committees should meet jointly each month, and that the minutes be kept separately.

Prescriptions for Insured Persons in Hospitals.—Replies were received from the hospitals in the county on the prescribing for insured persons in those institutions. It was resolved:

That any medical officer of a hospital who is a panel practitioner may only order medicines for insured persons under his care in the hospital, on Insurance Act prescription forms, provided that such patient is on his panel list, and is only receiving such treatment as he or she is entitled to under the Insurance Act.

The Honorary Secretary was instructed to send a copy of this resolution, together with an explanation of what treatment was included, to all hospitals where insured persons receive their medicine from Insurance Act prescription forms.

Expenses of Pharmaceutical Committee.—The question of the expenses of the Pharmaceutical Committee was again considered, and the Honorary Secretary was instructed to write to the Insurance Committee and state the items in the estimate to which the Panel Committee took exception were the rent of office and its furnishing and clerical assistance apart from the Secretary's remuneration, and it was resolved that if the estimate was reduced to £80 per annum the Panel Committee would put no obstacle in the way of the Commissioners granting it.

Special Mileage Grant, 1914.—The Honorary Secretary was instructed to write to the County Committee and ask for an increased grant for 1914, and it was resolved that the method of distribution should be the same as 1914.

COUNTY OF GLAMORGAN, PANEL COMMITTEE.

A MEETING of the County of Glamorgan Panel Committee was held at the Glamorgan Insurance Offices, Cardiff, on July 27th, when Dr. W. E. THOMAS was in the chair.

Deductions from Payments to Doctors.—The Secretary was instructed to send the following resolution to the Insurance Commissioners and Insurance Committee:

That this Panel Committee enters its most emphatic protest against the various excessive deductions made from our payments during the past twelve months, and unless a satisfactory answer is received from the Insurance Commissioners and the Insurance Committee within a reasonable time we shall have to take stronger steps.

Unallotted Persons.—The scheme of the Glamorgan Insurance Committee for the division of the surplus fund and the assigning of insured persons was agreed to.

SWANSEA.

LOCAL MEDICAL AND PANEL COMMITTEES.

Conference of Local Medical and Panel Committees.—Dr. KNIGHT gave an interesting account of the recent conference, and was thanked for his services.

Payments to Doctors.—It was reported that the Finance Subcommittee of the Local Insurance Committee had recommended that 1s. 2d. per patient should be paid; that this was passed by the full Committee, and was sent to the Commissioners, who replied that they would not pay more than 11d. per patient. The meeting passed a resolution strongly protesting against the proposal to pay only 50 per cent. of the moneys now due, and pointing out that the percentage of insured persons enlisted cannot in fact exceed 20 per cent., and that the panel doctors feel they are being unfairly treated. Further, the resolution asked that the Insurance Commissioners state upon what basis they arrive at the 50 per cent. proposed to be deducted, and that unless a satisfactory answer is given the meeting will consider the "advisability of taking further steps."

Removal of Insured Persons.—It was decided that each doctor should help the Clerk to the Local Insurance Committee in tracing people who were in suspense.

Stock Mixtures.—Ten stock mixtures were adopted.

AYRSHIRE.

PANEL COMMITTEE.

A MEETING of the Panel Committee of the County of Ayr was held in the County Hospital, Ayr, on May 27th, when Dr. BEVERIDGE was in the chair.

Payment for Domiciliary Treatment of Dependents.—A letter was read from the Clerk to the Insurance Committee intimating that a communication had been received from the Commissioners approving of the scale of payment laid down for the domiciliary treatment of tuberculosis in connexion with dependants of insured persons, subject to the reservation that mileage should be paid only in cases where the person lives beyond a three-mile radius from the place of residence of the practitioner. The arrangement with the Insurance Committee was that mileage should be paid in cases where the persons resided outside a two-mile radius, and it was decided to adhere to that arrangement. The meeting was resolved into a joint meeting with the Local Medical Committee, the members of the latter Committee present consisting of the members attending the Panel Committee meeting, with the addition of Dr. J. Wilson.

Notification of Tuberculosis.—The CHAIRMAN raised the question of insufficient notification of cases of tuberculosis, and the assistant secretary was instructed to issue a circular to panel practitioners recommending them to notify all cases of tuberculosis of every kind.

A further meeting of the Committee was held at Kilmarnock on June 25th, when Dr. BEVERIDGE presided.

Payments for 1914.—A letter from the Clerk to the Insurance Committee was submitted suggesting that the total Practitioners' Fund credited to the Insurance Committee for 1914, including the "suspense sixpence," and deducting the sum paid to the Panel Committee for administrative expenses, and the P. O. Medical System, in all £112 17s. 7d., should be divided among the doctors under contract with the Committee during that year, according to the number of persons on doctors' lists as at December 31st last, less payments to account made for that year. The number of persons on doctors' lists, as at December 31st last, was stated at 56,842, and the balance of cash available for division £2,718 15s. 5d. This showed a payment of within a fraction of 7s. instead of 7s. 6d. per person, the reason given for the discrepancy being that no deduction in respect of soldiers and sailors was being made from any doctor's list. The letter also proposed that doctors who were dispensing medicines on a capitation basis, and who had been paid at the rate of 1s. per person to account, should be paid the remaining 6d., the sum to be paid being 50 per cent. of the payments to account already made, the amount still to be paid under this head being £456 10s. 6d. The suggestions were approved. The meeting was strongly of opinion that the Commissioners should furnish a statement annually, showing how the sums credited to the Insurance Committee for medical benefit were arrived at, as practitioners, and also the Insurance Committee, were at present furnished with no information of any kind on this most important matter.

Payments for 1915.—A letter was read from the Clerk of the Insurance Committee regarding payments to be made on account to doctors for the quarter ending June 30th, 1915, stating that of the amount credited to the Insurance Committee for that quarter for medical benefit the seven-ninths available for payments to doctors amounted to £3,546 (a decrease compared with last quarter of £483), which would permit of a payment on account of 70 per cent. only of the 9d. per person per quarter due, as against 80 per cent. paid last quarter. The payment of 70 per cent. would absorb £3,496. It was agreed to accept this, coupled with a protest against the reduction in the sum to be paid on account, it being pointed out that the possible number of insured persons who had enlisted was insufficient to justify such a reduction as was being made, and that the fact of this unwarranted deduction emphasized the need of an annual statement from the Commissioners showing how sums credited to each insurance area were arrived at.

Conference of Local Medical and Panel Committees.—Dr. PATTERSON gave an interesting report as to the conference held in London on June 16th, which he attended as the delegate of the Local Medical and Panel Committees. A hearty vote of thanks was accorded Dr. Paterson for his services and report.

RENFREW COUNTY.

PANEL COMMITTEE.

A MEETING of the Renfrew County Panel Committee was held in the Y.M.C.A. Rooms, High Street, Paisley, on June 23rd, when Dr. CORRETT presided.

"Rep. Mist."—The Committee expressed the opinion that the arrangement presently in force with the Renfrew Insurance Committee whereby "repeats" are limited to one calendar month should be afforded a reasonable trial. Authority was given to Drs. Hill and Corbett to represent to the Insurance Committee the views of the Panel Committee, and, if possible, to come to some arrangement whereby the limited use of "repeats" might be continued.

Report of Central Checking Bureau.—The points raised in the first monthly report issued from the Central Checking Bureau on Chemists' Accounts were fully discussed, but it was decided to delay any formal expression of opinion until the Insurance Committee had had an opportunity of considering the report, when its views would probably be communicated to the Panel Committee.

WIGTOWNSHIRE.

PANEL COMMITTEE.

A MEETING of the Wigtownshire Panel Committee was held on July 16th.

Reduced Payments.—The reduction of the last quarterly payment to 65 per cent. was considered much more drastic than the needs of the area required, but, in view of the great difference in the percentage of recruits in different areas, it was not considered advisable to make any appeal against the reduction.

Non-payment of Balance for 1914.—It was agreed, in view of the increased cost of drugs, dressings (most of the practitioners in the area dispense), and other working expenses, to call upon the Scottish Commissioners to pay the balances for 1914 within one month, and to inform them that failing payment the panel practitioners would reconsider their position with a view to repudiating their contracts with the Insurance Committee.

Doctors' Lists.—It was decided to request the Clerk to the Insurance Committee to furnish each panel practitioner with a list of insured persons who have been put on each quarter, along with the quarterly list of withdrawals from their panels.

MATERNITY BENEFIT.

MATERNITY BENEFIT AND APPROVED SOCIETIES.

An important conference was held at Dundee on July 16th between representatives of the approved societies under the Insurance Act and the Maternity Hospital, dealing with the present unsatisfactory regulations as to midwifery in Scotland, and especially the payment that should be made by approved societies for the treatment at confinements of their insured members at hospitals or by the staffs of hospitals. Dr. J. C. McVail, Vice-Chairman of the Scottish Insurance Commissioners, presided, and among many others present were: Miss Paterson, of the Insurance Commission; Professor Kynoch, Professor of Obstetrics, University College, Dundee; and Dr. Hugh Fraser, of the Dundee Royal Infirmary.

Dr. McVail said that though the Commissioners were not actually parties to the conference, they had a very distinct interest in its subject. Experience of the operation of the Insurance Act had tended to dissipate many of the fears which the hospitals had at first entertained, but the Commissioners had agreed that it would be useful if the insurance committees and the hospital authorities of the four cities which had maternity hospitals could be brought together to discuss certain questions that had arisen between these hospitals and the approved societies. It was very distinctly to the interest of the approved societies that the maternity hospitals of Scotland should be prosperous and successful. He was not for a moment suggesting on behalf of the Commissioners that any one should go to the hospital for maternity attendance rather than be attended by a skilled doctor or midwife at home, as the Act gave the mother an absolute free choice of doctor or midwife, but the question that had to be considered was simply one of finance between the societies and the hospitals when the mother elected to go to the hospital.

Professor Kynoch said that when the Insurance Act came into force the directors and staffs of maternity hospitals had felt some anxiety lest the usefulness of these hospitals should be crippled instead of increased. The chief object of maternity benefit was to obtain the best possible attendance for confinements. The Midwives Act

of 1902 had proved to be a safeguard for the poor women, and it was to be hoped that it would soon be extended to Scotland, so that every woman should be assured of attendance by a fully qualified doctor or midwife. But they could not afford to wait for such legislation, and it was necessary to emphasize the importance at the present moment of doing all in their power to reduce infant mortality. In 1913 there were born in Scotland 121,000 children, and of these 13,163 died within the first year of life—a death-rate of 106.8 per 1,000 births. Moreover, the antenatal mortality was probably quite as large as the death-rate in the first year of life; putting the two figures together, it would appear that quite one-third of the new population that should be the nation of to-morrow did not survive the first year. The future health of the unborn child depended on the health of the expectant mother, and to obtain satisfactory surroundings and efficient nursing it was necessary to remove many of the mothers from their homes. Universal experience showed that manipulative midwifery in the homes of the poorer patients was dangerous, and from his own experience of twenty years he could say that nearly a third of the diseases and derangements requiring gynaecological treatment was due to previous childbed illness. Patients in healthy, clean homes could quite well be treated at home, whereas those living in unhealthy homes were best treated in hospitals, as were also complicated cases. It must be remembered that the hospitals were kept up by voluntary subscriptions, and were training centres for nurses and doctors. For that training it was not sufficient that only serious and complicated cases should be admitted. The future nurses and doctors must be enabled to see normal cases, and for that purpose it was important that the maternity hospitals should be well filled. Last year the Dundee hospital only received £410 from insurance societies, and most of this was given voluntarily by insured persons. It was very difficult to get all insured persons to contribute on a voluntary basis, and it would be better if all societies would enter into an agreement with the maternity hospitals so as to equalize payment. In Australia the infant death-rate, in spite of a £5 bonus paid to the mothers for every child, still continued at 71 per 1,000, while in New Zealand, where the assistance was wholly given in the form of skilled attention and teaching, the infant death-rate had fallen in five years from 80 to 35 per 1,000. It thus appeared that skilled assistance was far better than mere cash, and he thought that such assistance could best be obtained by an agreement between the insurance societies and the hospitals, so that the maternity cases might receive the best attention in the hospitals or in their own homes under the maternity hospital authorities. In that way much of the impaired health, chronic suffering, and disablement which later cost the societies so much would be prevented, so that the societies would be more than compensated in the long run. It had been suggested that patients treated in the hospitals might contribute 10s., and those treated in their homes by the hospital staffs might contribute, say, 7s. 6d., but personally he thought that some fixed sum for both classes would be better.

After some discussion, during which it appeared that several of the approved societies had already some agreement with the hospitals, the following resolution was carried unanimously:

That the various approved societies in Dundee should enter into a uniform agreement with the Dundee Maternity Hospital as to the amount to be paid for indoor and outdoor cases who elect to be treated in the hospital or by the hospital staff.

A further resolution was also carried to the effect that:

This meeting records its opinion that it is most important that the Midwives Bill for Scotland should be passed at the earliest possible date.

MATERNITY HOSPITALS AND MATERNITY BENEFIT.

On the evening of July 23rd a conference was held between the officials of the approved insurance societies of Edinburgh and district and representatives of the Edinburgh Royal Maternity Hospital. Dr. McVail, Vice-Chairman of the Scottish Insurance Commissioners, presided, and Sir Halliday Croom gave the principal address; the hospital was also represented by Mr. Middleton (Chairman), Mr. James Peterson (Secretary), and by Bailie

Buchan. The object of the conference was to correlate more effectively the working of the maternity hospital and the approved societies; and meetings for the same object are being held in the other large towns of Scotland. It was considered by the Insurance Commissioners that a systematic utilization of the services of the competent staff of the maternity hospital would be a considerable step in the right direction.

Dr. McVail said that he was there more in the capacity of an onlooker, but he referred to the many-sided value of an institution like the Royal Maternity Hospital, in which everything was done to prevent not only any immediate evil results, but also any chronic ailment of mothers at childbirth, in which pains were taken to prevent eye disease in the infants such as might, if unchecked, cause blindness, and in which doctors and midwives were trained. In the absence of a Midwives Act for Scotland, it was necessary to limit as far as possible the sphere of activity of ignorant women of the Sairey Gamp type.

Sir Halliday Croom, in his address, spoke of the maternity benefit as one of the most satisfactory features of the Insurance Act, for the proper care and conduct of maternity was one of the most urgent problems of the time. In three ways death might come to a woman during maternity: She might die of some ordinary ailment, such as bronchitis, occurring solely as an accidental complication; she might die through one of the conditions known as the accidents of childbirth, such as eclampsia; or she might perish through puerperal infection. Of the women who died in childbed, one quarter succumbed to the accidents referred to, and the rest died from blood poisoning, which was entirely and absolutely preventable. At one time this puerperal blood poisoning decimated the inmates of maternity hospitals, from 15 to 25 per cent. dying of it, whilst the ordinary death-rate in childbed was only 1 in 120. Maternity hospitals then were dangerous places; now Lister's antiseptic treatment of wounds had altered all that, and blood poisoning in hospitals had been practically stamped out, the cases which still occurred being purely sporadic. Outside the hospitals, however, the disease went on unchecked, and the mortality from blood poisoning in private work remained extraordinarily high; for, whilst at the hospitals the doctors and nurses were under discipline and antiseptic treatment was carried out under pain of dismissal, in private practice nurses and doctors could do what they pleased, and there was a tendency to both laxity and carelessness; and, further, in private practice some of the antiseptic precautions could not be carried out so thoroughly. Sir Halliday proceeded to describe the advantages offered by the hospital, referring to the trained medical staff and nurses and to the consultants attached to the institution. He spoke of the prenatality home, where girls pregnant for the first time were taken in and supervised medically, of the pre-maternity ward for the treatment of the diseases of pregnancy, of the pregnancy and infant clinics for out-patients, and he gave details of the extern department of the hospital, with its nurses, students, and qualified doctors. He claimed he had made out an absolutely incontrovertible case for the maternity hospital, and he touched, in addition, upon the relief of suffering through the administration of chloroform, which was used more freely in Scotland than in any other quarter of the globe. He further showed the importance of all these matters in connexion with infantile mortality, referring to the greater mortality (for mothers and infants) in male births and to the necessity in these days, when men were at a premium, to conserve the sex as far as possible. The prevention of ophthalmia neonatorum meant the saving of many individuals from blindness. The fee to be charged by the hospital for persons under the Insurance Act was 10s. for intern cases and 5s. for those attended at their own homes, and he made a special appeal to the approved societies to support the hospital adequately in order that the teaching of the subject of midwifery might not cease.

A discussion followed, during which a resolution was passed in favour of a Midwives Act for Scotland; a further resolution was carried expressing the earnest hope that the outcome of the conference would be that all the societies in the district would enter into an agreement with the Royal Maternity Hospital, the question of the fee to be paid by each patient being left open.

EXCESSIVE PRESCRIBING.

The Croylon Panel Committee has issued the following circular to the members of the local panel:

Report of Subcommittee on the Checker's Statement for March, and the Prescriptions referred for Examination.

Your Subcommittee beg to report that they have given careful and detailed consideration to the Checker's Statement for March, and to the prescriptions referred for examination, and they are of opinion that it is essential for the Panel Committee to adopt a settled policy and to carry out that policy with determination.

Either they must abandon all care of the Drug Fund or put down excessive prescribing.

That two-thirds of the men on the Panel can give adequate treatment for an average of less than 1s. 6d. a head shows that excessive prescribing is unnecessary and a waste of public money.

We recommend that from time to time warning notices (a suggested form for which is appended) should be sent to those men who appear to be exceeding 2s. a head, and that no surcharges be made until the end of the year.

Then, after full inquiry as to any possibly mitigating circumstances, a surcharge should be recommended of those men who continued to prescribe excessively after the warnings.

We make these recommendations for the following reasons: Any surcharges made now would be comparatively trifling in amount, and would by no means compensate for the damage done to the Drug Fund.

Many prescriptions to which exception is taken might be defended if considered alone, but taken in bulk their successful defence is impossible.

Further, it might fairly be argued that a pecuniary bad case may have caused the amount for any particular month to appear excessive, but at the end of the year, if the average rate of prescribing has been anything like reasonable, there should be no excuse for exceeding the 2s.

A study of the prescriptions in general suggests the reflection that some of the excessive prescribers present symptoms merely, and when at a loss for further treatment give pleasing draughts of well-flavoured mixtures.

Thus, naturally enough, they fail to cure their cases, and patients come again and again for medicine, giving these practitioners a fictitious appearance of high sickness incidence.

The argument that this is to the advantage of insured persons and to the funds of approved societies will not stand examination for a moment.

Such methods of treatment are disadvantageous to both. In prescribing, as in most other things, economy and efficiency walk hand in hand.

A. Chalm, M.B., D. Whyte, M.B., F.A. J. R. Brooke, A. McEwan, M.B., M. B. Smith, M.B., W. M. Thomas, C. J. West, M.D., G. A. Upcott-Gill, F.R.C.S.E., J. F. W. Leech, M.D., F. Nichols, E. D. Wolff, H. W. Dyke, M.B., H. W. Hodgson, W. C. O'Brien, M.B., E. C. Cunningham, H. Hope, M.B., A. G. Glass, M.D., C. D. Pile, M.B., H. Croly, M.D., Temporary Lieutenant J. Smith, M.B., relinquishes his commission.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenant W. McE. Shodgers, M.B., is confirmed in his rank. Cadet Sergeant T. Y. Barley, M.B., and Cadet J. S. Armstrong, M.B., from the Edinburgh University Contingent, O.T.C., to be Lieutenants on probation.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel W. B. Scott Moncrieff (ret.), on re-employment, was posted as Civil Surgeon, Quetta, from January 12th to February 17th, 1915; and as Residency Surgeon in the Western States of Rajputana, with effect from February 20th, 1915. Lieutenant-Colonel R. Shore (ret.), on re-employment, was posted as Residency Surgeon, Bhowar, with effect from March 9th, 1915; and to hold visiting charge of the office of Medical Officer, Mervat, Pbil Corps, in addition to his own duties, with effect from March 15th, 1915.

Major T. S. B. Williams, Agency Surgeon, Eastern Rajputana States, is appointed temporarily to hold visiting charge of the office of Agency Surgeon, Kotah and Jhalawar, in addition to his own duties, with effect from May 1st, 1915.

To be temporary Lieutenants: Shapurji Hornasji Modi, F.R.C.S., Vinnyak Halvart Gokhale, Ali Azhar Hasanally Fyzee, Jehangir Eddaji Framji Sorabji Mehta, Sorab Dhanooji Bhikshu, M.B., Upendra Nath Banerjee, Mehta, M.B., J. Nasaranyji Hornasji Choksy, M.B., Balley Glenicje Valerie Dias, Ramroo Narayan Ajikush, M.B., Upendra Nath Banerjee, Alexander Dias, Vinayak Krishna Gupta, Nilman Chatterjee, Pramadha Nath Ghosh, M.B., C. E. R. Norman, Ratan Chandra Mahabadi, M.B., Housi Shalvex Dastur, Rusbion Burjorji Spencer, M.B., Devendra Bhadravajra, Dadaji Mitra, M.B., H. Anuj Khin, M.B., Shridhar Chhistanjan, Jrs, Pirojsha Kerpawje Antia, M.B., Manseekjee Mervanjee Cowasjee, Dns, Bushan Kanja, M.B.

INDIAN MEDICAL SUBORDINATE DEPARTMENT.

Senior Assistant Surgeons, with the honorary rank of Lieutenant, to be Senior Assistant Surgeons, with the honorary rank of Captain: C. W. E. Carr, C. Fox, W. J. Corridor, E. J. Greenon.

To be Senior Assistant Surgeons, with the honorary rank of Lieutenant: 1st class Assistant Surgeon J. Malir assisted by H. Holmes, W. J. Gilson, F. G. H. Deeks, W. Bamford, and W. G. Mersh.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

1st London (City of London) General Hospital.—Captain T. J. Hodder is seconded; N. S. Fizzi to be Captain, whose services will be available on mobilization.

2nd London (City of London) General Hospital.—Major C. H. Fiske, M.H., F.R.C.S., is seconded while in charge of the Hampstead Military Hospital.

3rd London General Hospital.—Captain V. W. Low, M.D., F.R.C.S., is seconded.

4th London General Hospital.—Major A. H. Tabby, M.B., F.R.C.S., F.R.C.S., are seconded. Captain J. C. Stewart, M.D., F.R.C.P., and H. S. Clogg, M.B., F.R.C.S., are seconded.

3rd Home Counties Field Ambulance.—Lieutenant M. A. Curry relinquishes his commission.

1st Eastern General Hospital.—H. A. Cookson, M.B., F.R.C.S.E., to be Captain, whose services will be available on mobilization.

1st East Anglian Field Ambulance.—Major G. M. Hethington to be temporary Lieutenant-Colonel. To be Lieutenants: J. E. Brooks, S. D. Graham, M.B.

1st South-Western Mounted Brigade Field Ambulance.—Captain C. W. Edwards, F.R.C.S.E., from Attached to Units other than Medical Units, to be Captain.

3rd Western General Hospital.—To be Lieutenants: J. Lloyd, M.D., E. W. Richards, M.B.

Notte and Derby Mounted Brigade Field Ambulance.—Captain F. R. M. Hesse, from F.R.N., to be Captain, temporary (substituted for notice published in the London Gazette of April 26th). To be Lieutenants: J. W. Rammell, W. Bailey-Thomson, M.B.

1st East Lancashire Field Ambulance.—Lieutenant R. S. Young, M.B., from F.R.N., to be Lieutenant.

2nd East Lancashire Field Ambulance.—Lieutenant-Colonel W. R. Matthews, M.B., from 3rd East Lancashire Field Ambulance, to be Lieutenant-Colonel, temporary.

West Lancashire Casualty Clearing Station.—R. K. Merson to be Lieutenant.

1st West Lancashire Field Ambulance.—Major W. P. Blackledge, M.B., from 2nd West Lancashire Field Ambulance, to be Lieutenant-Colonel, temporary; Captain H. Hulton, M.D., from Attached to Units other than Medical Units, to be Major; Captain M. J. Dick, from 3rd West Lancashire Field Ambulance, to be Captain.

2nd West Riding Field Ambulance.—Captain F. G. Dobson, M.B., to be temporary Lieutenant-Colonel.

1st Northern General Hospital.—W. Johnston, M.B., to be Lieutenant.

2nd Northern General Hospital.—Majors to be temporary Lieutenant-Colonels: W. H. M. Collins, W. Thompson, F.R.C.S., Major G. W. Watson, M.D., to be transferred to permanent personnel. Captains to be temporary Majors: A. L. Whitehead, L. R. Braithwaite, M.B., R. A. Little, M.D., C. W. Vining, M.D., J. B. Hall to be Captains whose services will be available on mobilization.

5th Northern General Hospital.—M. W. Williams and A. Foster, M.B., late Surgeon-Lieutenant 1st Volunteer Battalion East Lancashire Regiment, to be Captains whose services will be available on mobilization.

1st Highland Field Ambulance.—R. R. Macnicoll, M.B., late Captain, Ban Aghashire Battalion (Princess Louise's) Argyll and Sutherland Highlanders, to be Captain, temporary.

3rd Scottish General Hospital.—J. Patrick, M.B., F.R.C.S.E., to be Captain, whose services will be available on mobilization.

Attached to Units Other than Medical Units.—Lieutenant W. Marley-Cass to be Captain. To be Lieutenant: J. de V. Mather, M.D.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Staff Surgeon W. C. B. Smith to the *Comus*, vice Hughes; Surgeon A. M. Dammatt and J. Smith, M.B., to the *Victory*, additional; for Plymouth Hospital: W. S. O'Loughlin, M. B. Macleod, M.B., R. M. Dyott, F. C. Gladstone, M.B., A. L. Blinn, C. S. Ogilvy to the *Victory*, additional, for Haslar Hospital: J. P. Johnson, M.B., A. W. Guan, M.B., and D. A. E. Clarke, M.B., to the *Penelope*, additional, for Cleethorpe Hospital: J. Drommond, M.B., to the *Warrior*; E. J. Tongue to the *Ganges*, additional, for Shotley Sick Quarters. To be temporary Surgeon: P. U. Mawer.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationers: R. McI. Gardner to the *Ouse*, vice Baker; D. McEachran to the *Lionnet*, vice Storrer; J. B. D. Gallahue to the *Blenheim*, additional. To be Surgeon Probationers: G. Woods, A. B. Byrn, D. Macgregor, A. Macpherson, R. D. Mackenzie, B. Bannerman, A. M. Davidson, J. Johnston.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

H. A. Kidd to be temporary Lieutenant-Colonel whilst employed at the Graylingwell War Hospital (substituted for the notification published in the London Gazette of April 16th).

To be temporary Majors whilst employed at the Graylingwell War Hospital: W. Pearson, M.D., F.R.C.S.I., J. L. Maxwell, M.D. (substituted for notification published in the London Gazette of May 1st).

Major A. E. Saultson, M.B., is retained on the active list and to be supernumerary.

Sir David Hardie, M.D., from temporary Major to be temporary honorary Lieutenant-Colonel whilst serving with the Australian Voluntary Hospital.

G. A. Paul, M.B., is granted the temporary honorary rank of Captain whilst serving with the Australian Voluntary Hospital.

The following having ceased to be employed with the Australian Voluntary Hospital relinquish their temporary honorary commissions: Lieutenant-Colonel Sir A. MacCormick, M.D., Captain L. L. Harris.

The following are granted temporary rank while employed at the Brook War Hospital: As Lieutenant-Colonel: J. B. Byles, M.B., F.R.C.S., and Major: E. Swainson, M.D., Captain: L. L. Harris.

To be temporary Captains: E. R. Tweed, late Surgeon-Captain 3rd Battalion Devonshire Regiment; temporary Lieutenant C. J. Edgar, temporary Lieutenant A. W. Adinolfi, M.D. (substituted for notification published in the London Gazette of April 15th).

To be temporary Lieutenants: H. Rogers-Thomson, M. B. Blacklock, M.D., N. McC. Boyce, M.B., J. A. Meccall, J. V. Cope, M.B.,

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In ninety-six of the largest English towns, 7,430 births and 3,555 deaths were registered during the week ended Saturday, July 26th. The annual rate of mortality in these towns, which had been 11.9, 11.7, and 11.4 in the three preceding weeks, was again 11.5 per 1,000 in the week under notice. In London the death-rate was equal to 11.2, while among the ninety-five other large towns it ranged from 4.4 in Wimbledon, 5.3 in Hornsey, 5.7 in Acton, 5.8 in Leyton, 6.0 in Enfield, 6.2 in Bury, 10.3 in Gillingham, 10.5 in Waltham, 10.5 in Middlesbrough, 16.6 in Halifax, 18.9 in Birkenhead, 19.5 in Barnsley, and 20.3 in West Bromwich. Measles caused a death-rate of 1.6 in Rotherham and in Rhondda, 2.1 in Halifax, 2.2 in Barnsley and in Middlesbrough, 3.1 in York, and 3.8 in West Bromwich. The mortality from the remaining infective diseases showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The either by a registered medical practitioner or by a coroner; of this number, 4 were recorded in Gillingham, 3 in Birmingham, 3 in Rhondda, and 2 each in London, Liverpool, Manchester, Newcastle-on-Tyne, and Carlisle. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,486, 2,471, and 2,468 at the end of the three preceding weeks, rose to 2,483 on Saturday, July 26th; 342 new cases were admitted during the week, against 348, 322 and 290 in the three preceding weeks.

HEALTH OF SCOTCH TOWNS.

In the sixteen largest Scottish towns, 1,083 births and 942 deaths were registered during the week ended Saturday, July 26th. The annual rate of mortality in these towns, which had been 16.6, 15.7, and 12.5 in the three preceding weeks, rose to 14.7 in the week under notice, and was 2.8 per 1,000 above the rate recorded in the ninety-six large English towns. Among the several towns the death-rate ranged from 5.4 in Hamilton, 6.1 in Falkirk, and 8.2 in Clydebank, to 10.3 in Aberdeen, 13.4 in Leith, and 14.2 in Glasgow. The mortality from the principal infective diseases averaged 2.2 per 1,000, and was highest in Aberdeen, Glasgow, and Hamilton. The 342 deaths from all causes in Glasgow included 29 from measles, 10 from infantile diarrhoeal disease, 9 from whooping-cough, 7 from scarlet fever, and 2 each from enteric fever and from diphtheria. Four deaths from measles were recorded in Aberdeen and 3 in Paisley; 7 from scarlet fever in Aberdeen and 2 in Edinburgh; 2 from whooping-cough in Aberdeen, 5 from diphtheria in Edinburgh; and 4 from infantile diarrhoea in Dundee and 2 in Motherwell.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, July 26th, 550 births and 341 deaths were registered in the twenty-five largest districts of Ireland, against 548 births and 293 deaths in the preceding period. These deaths represent a mortality of 14.7 per 1,000 of the aggregate population in the districts in question, as against 12.6 per 1,000 in the previous period. The mortality in these towns was therefore 3.3 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 25.7 per 1,000 of population. As for mortality in individual localities, that in the Dublin registration area was 14.3 (as against an average of 16.0 for the previous four weeks), in Dublin city 15.2 (as against 16.1), in Belfast 14.4 (as against 12.0), in Cork 15.6 (as against 16.3), in Londonderry 16.3 (as against 19.6), in Limerick 23.0 (as against 18.6), and in Waterford 7.6 (as against 14.3). The zymotic death-rate was 1.1, as against 1.2 in the previous period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

- BIRMINGHAM AND MIDLAND EYE HOSPITAL.**—Junior House-Surgeon. Salary, £100 per annum and £3 laundry allowance.
- BIRMINGHAM GENERAL DISPENSARY.**—Resident Medical Officer. Salary, £200 per annum.
- BRISTOL GENERAL HOSPITAL.**—House-Physician. Salary, £150 per annum.
- BURNLEY VICTORIA HOSPITAL.**—House-Surgeon. Salary, £135 per annum.
- BURY INFIRMARY.**—Senior House-Surgeon. Salary, £250 per annum.
- CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.**—Second House-Surgeon. Salary, £150 per annum.
- CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST.**—Victoria Park, E. (1) Resident Medical Officer; (2) House-Physician. Salary, £300 and £100 per annum respectively.
- DEVONPORT.**—ROYAL ALBERT HOSPITAL.—House-Surgeon. Salary, £150 per annum; 2ls. allowed weekly for working single-handed.
- DORSET COUNTY COUNCIL EDUCATION COMMITTEE.**—School Dentist. Salary, £260 per annum.
- DUNDEE.**—SIDLAU SANATORIUM.—Resident Medical Officer.
- ILKESTONE.**—ROYAL VICTORIA HOSPITAL.—House-Surgeon. Salary, £150 per annum.
- GUILDFORD.**—ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.
- HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.**—Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.
- LEEDS PUBLIC DISPENSARY.**—Lady Resident Medical Officer. Salary, £150 per annum.
- MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.**—House-Surgeon. Salary, £120 per annum.

- NATIONAL SANATORIUM.**—Benenden.—Assistant Medical Officer. Salary, £120 per annum.
- NORTHAMPTON GENERAL HOSPITAL.**—House-Surgeon. Salary, £150 per annum.
- OCHIL HILLS SANATORIUM.**—Milnathort, N.B.—Junior Medical Officer. Salary, £150 per annum, rising to £200.
- OXFORD LYE HOSPITAL.**—House-Surgeon. Salary, £100 per annum.
- ROYAL EYE HOSPITAL.**—Southwark S.E.—House-Surgeon. Salary, £100 per annum.
- ST. MARK'S HOSPITAL FOR CANCER.**—FISTULA, Etc., City Road, E.C.—House-Surgeon. Salary, £150 per annum.
- SALISBURY GENERAL INFIRMARY.**—Assistant House-Surgeon. Salary, £100 per annum.
- SHEFFIELD ROYAL INFIRMARY.**—(1) House-Surgeon; (2) Assistant House-Physician. Salary, £100 per annum.
- SHEFFIELD UNIVERSITY.**—Demonstrator of Pathology and Bacteriology.
- SHEWENSBURY BOROUGH.**—Medical Officer of Health and School Medical Officer. Salary, £500 per annum.
- SOUTHAMPTON.**—ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House-Surgeon. Salary, £120 per annum.
- STOKE-ON-TRENT INFECTIOUS DISEASES HOSPITAL.**—Resident Lady Medical Officer. Salary, £200 per annum.
- WALSALL AND DISTRICT HOSPITAL.**—Assistant House-Surgeon and Anaesthetist. Salary, £150 per annum.
- WEST HAM AND EASTERN GENERAL HOSPITAL.**—Stratford.—(1) Resident Medical Officer; (2) House-Physician and House-Surgeons. Salary for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.
- WIGAN.**—ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £150 per annum.
- WINSLEY SANATORIUM.**—near Bath.—Senior Resident Medical Officer. Salary, £400 per annum.
- CERTIFYING FACTORY SURGEONS.**—The Chief Inspector of Factories announces the following vacant appointment: **Knaresborough** (Yorkshire, West Riding).
To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

- BAINBRIDGE.** F. A. M.D., F.R.C.P., to the University Chair of Physiology at St. Bartholomew's Hospital.
- BIDGE.** E. J. H., L.R.C.P. and S. Edin., L.F.P.S. Glas., District Medical Officer of the Cardiff Union.
- EARLE.** H. G., M.B. Camb., Professor of Physiology at the University of Hong Kong.
- JAGO.** E. B., M.B., C.M. Glas., Medical Officer of Health to the Greenborough Urban District Council.
- MENZIES.** James A., M.D. Edin., Professor of Physiology, University of Durham College of Medicine, Newcastle-upon-Tyne.
- RANSAT.** Mabel L., M.D., Ch.B. Edin., D.F.H. Camb., Anaesthetist (during war) to the South Devon and East Cornwall Hospital, Plymouth.
- SMILES.** W. H., M.D. Lond., Certifying Factory Surgeon for the Henley District of Warwick.
- WRIGHT.** S. R., M.R.C.S., L.R.C.P., Certifying Factory Surgeon for the Roumford District, Co. Essex.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded to Post Office Orders or Stamps with the notice not later than the first post Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

- COLLINS.**—On July 31st, at Woodford Green, Essex, the wife of F. Garland Collins, Lieutenant R.A.M.C., of a son.
- DICKSON.**—On July 30th, at Nelson Place, Newcastle, Staffordshire, the wife of Robert H. Dickson, F.R.C.S., of a son.
- STUART.**—On July 24th, at Leamore, Walsall, Violet (Mallie), wife of Allen Murray Stuart, M.R.C.S., L.R.C.P., of a son.

MARRIAGE.

- THOMAS.**—WAGGOTT.—On July 27th, 1913, at the Church of All Saints, St. Pegasus, County Scotland, by the Rev. W. K. Knight-Aldin, E.A., Chaplain Royal Navy, Surgeon E. Fairfield Thomas, M.B., D.P.H., Royal Navy, third son of Mr. and Mrs. Edmund Thomas, Gilwern House, Pontllantrah, Monmouthshire, to Gertrude, second daughter of Mr. and Mrs. J. B. Waggott, of Warden House, Tynemouth.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	AGUST.
10 Tues.	North of England Branch, Annual Meeting, Newcastle-on-Tyne, 3.30 p.m.
11 Wed.	FURTHER EXTRAORDINARY GENERAL MEETING, 429, Strand, London, W.C., 2 p.m. London: Representative Body and Council Election Returns Committees, 2 p.m.
25 Wed.	London: War Emergency Committee.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, AUGUST 14TH, 1915.

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British Medical Association.

WAR EMERGENCY COMMITTEE.

It has already been reported that the War Emergency Committee appointed by the Representative Meeting on July 23rd had at its meeting on July 30th elected Dr. T. Jenner Verrall chairman, Dr. A. E. Shipley, Master of Christ's College, Cambridge, and Mr. E. B. Turner, Chairman of Representative Meetings, vice-chairmen, and Mr. Bishop Harman and Dr. Alfred Cox, Medical Secretary of the Association, joint secretaries. The membership of the Committee as at present constituted is shown below.

The Committee met for the second time on Wednesday, August 4th, when Dr. T. JENNER VERRALL was in the chair. The other members present were Sir T. Clifford Allbutt, K.C.B., M.D., F.R.S., Lieutenant-Colonel Sir James Barr, LL.D., Major James Galloway, Major W. J. Greer, Mr. N. Bishop Harman, Dr. J. A. Macdonald, LL.D., Dr. Edwin Rayner, Dr. A. E. Shipley, F.R.S., and Mr. E. B. Turner.

It was announced that Professor Harvey Littlejohn, Dean of the Faculty of Medicine of the University of Edinburgh, had accepted the invitation to become a member of the Committee; he was co-opted accordingly, and was present at the meeting.

A letter was read from Sir Donald MacAlister, President of the General Medical Council, stating that while he was very willing, as in the case of the Scottish Emergency Committee, to co-operate with the Committee to the best of his power, he preferred, having regard to his official position, not to accept the responsibility of membership.

CORRESPONDENCE WITH THE WAR OFFICE.

The following correspondence with the War Office was read:

July 30th, 1915.

Sir,—We are instructed to inform you that at the Annual Representative Meeting of the British Medical Association on Friday, the 23rd inst., it was resolved to appoint a Special War Emergency Committee with the following constitution, reference, and personnel:

1. That a War Emergency Committee be appointed for the Session 1915-16.

2. That it consist of the four *ex officio* members, four members elected by the Council from its own number, four members elected by the Representatives present in the Representative Meeting, and four other members elected in the same way, who shall themselves be Representatives.

3. That it shall have power to co-opt not more than six other members representative of universities, colleges, and other medical bodies.

4. That the reference to the Committee be to organize the medical profession in England, Wales, and Ireland in such a way as will enable the Government to use every medical practitioner fit to serve the country in such a manner as to turn his qualifications

to the best possible use; to deal with all matters affecting the medical profession arising in connexion with the war; and to report to the Council.

Members of Committee.

Sir Thomas Clifford Allbutt, K.C.B., M.D., F.R.S., Cambridge.
 Sir William Osler, Bt., M.D., F.R.S., Oxford.
 Dr. A. E. Shipley, F.R.S., Master of Christ's College, Cambridge.
 Sir Alex. Ogston, K.C.V.O., Aberdeen (*President, British Medical Association*).
 Mr. E. B. Turner, F.R.C.S., London (*Chairman of Representative Meetings, British Medical Association*).
 Dr. J. A. Macdonald, LL.D., Taunton (*Chairman of Council, British Medical Association*).
 Dr. Edwin Rayner, Stockport (*Treasurer, British Medical Association*).
 Lieutenant-Colonel Sir James Barr, M.D., LL.D., Liverpool.
 Lieutenant-Colonel R. A. Bolam, Newcastle-upon-Tyne.
 Dr. C. Buttar, London.
 Major Russell Coombe, Exeter.
 Major J. Galloway, London.
 Major W. J. Greer, Newport, Monmouthshire.
 Mr. N. Bishop Harman, London.
 Major Albert Lucas, Birmingham.
 Dr. T. Jenner Verrall, LL.D., Bath.

[Dr. Frederick Taylor, President of the Royal College of Physicians of London, and Sir Rickman Godlee, Bt., ex-President of the Royal College of Surgeons of England, have since joined the Committee.]

The meeting to-day appointed Dr. Verrall as its Chairman.

We are instructed to say that the Committee desires to place itself freely at the disposal of the War Office for any purposes included in its reference in which you think it could be of service.

As you are already aware, the British Medical Association has for some time been engaged in forming a register of the whole medical profession in England and Wales and Ireland which will show what the members of the profession are doing, or are prepared to do, in connexion with the war, and that register is now sufficiently complete as regards certain areas for the Committee to ask practitioners who have stated their willingness to apply for commissions to do so. The Committee feels, however, very strongly that its position in approaching practitioners for this purpose would be greatly strengthened if the War Office would state, as far as could safely be done, its actual requirements as regards medical officers, and would give its authority to approach practitioners on behalf of, and in the name of, the War Office. Doubtless you will be best able to indicate the way in which this could be done, but the Committee is firmly convinced that without some such authorization its usefulness will be greatly limited. We are authorized to say on behalf of the Chairman that we, together with the Chairman, if thought desirable, would be ready to confer with you on this matter in order to further the objects for which the Committee has been constituted.—We are, Sir, your obedient servants,

(Signed) N. BISHOP HARMAN,
ALFRED COX,
Secretaries.

Surg.-Gen. Sir Alfred Keogh, K.C.B.,
Director-General A.M.S.,
War Office, S.W.

War Office,
London, S.W.,
31st July, 1915.

Sirs,—I am directed to acknowledge your letter of the 30th July and am to request you to convey to the War Emergency Committee the deep appreciation of the Director-General, Army Medical Service, for the good work they have done and are doing in organizing the medical profession so as to meet the requirements of the war.

I am to say that Sir Alfred Keogh would be glad to meet representatives of the Committee, say six, at 11 a.m., on Wednesday, 4th August, when he would be glad to explain to them the present and the anticipated future needs of the Army Medical Services, and to discuss with them the best means of meeting them.

I am to add that the Director-General suggests that Major Galloway should be appointed to represent the Army Medical Service on the Committee, as this gentleman has been for some years on our Advisory Board and is therefore informed as to our military necessities, and is in close touch with the medical representatives of the War Office Staff.—I am, Sirs, your obedient servant,
(Signed) A. P. BLENKINSOP, Colonel,
for Director-General, Army Medical Service.

The Secretaries,
British Medical Association,
429, Strand, W.C.

The CHAIRMAN reported that, in compliance with the invitation contained in Colonel Blenkinsop's letter, a deputation from the Committee, consisting of himself, the two vice-chairmen of the Committee (Dr. Shipley and Mr. E. B. Turner), Major James Galloway, and the two secretaries, had that day had an interview with Sir Alfred Keogh, who stated that he was very glad that the Association had widened the scope of the Committee by appointing members of bodies outside the Association. The members of the deputation stated that the Committee desired to have the authority of the War Office in calling upon medical practitioners to join the R.A.M.C. Sir Alfred Keogh replied that while he believed the constitution and scope of the Committee to be well known to the profession, he was quite ready to give such authority if it was thought that further recognition would be useful. The following letter has since been received:

War Office,
Whitehall, S.W.,
August 9th, 1915.

Dear Sirs.—As I explained at my interview with members of the War Emergency Committee on the 4th instant, I cordially welcome the establishment of the new Committee on its extended basis, representing as it does all sections of the medical profession, and I hope to receive from it much help in my work of providing officers for the Royal Army Medical Corps.

In order that there may be no doubt as to the close relationship which I hope will exist between your Committee and this department, I have pleasure in stating that I recognize in it an excellent medium for dealing with the great problem which now faces the profession—namely, how to supply medical officers for the forces and at the same time to protect the needs of the civil population as far as possible, and I gladly authorize the Committee to make appeals to the profession with the object of securing these ends.

After my conversation with your deputation, I need only emphasize the importance of prompt and increasing supplies of medical officers by saying that, in my opinion, you cannot put the claims of the Medical Department of the War Office too strongly.—I am, yours faithfully,
(Signed) ALFRED KEOGH, D.G., A.M.S.

The Secretaries,
Officers of the British Medical Association,
429, Strand, W.C.

Sir Alfred Keogh went very thoroughly with the deputation into the question of the number of practitioners who during the next six months would be required by the War Office.

Having heard the correspondence and the statements of the members of the deputation, the Committee resolved that the following letter, based upon that recently issued by the Scottish Emergency Committee, should be sent to every practitioner in England and Wales, except those at present on active service, pointing out the urgent needs of the army for medical practitioners under 40 years of age.

WAR EMERGENCY COMMITTEE.

Offices, 429, Strand,
London, W.C.,
August, 1915.

To Members of the Medical Profession not on Active Service.

Dear Sir,—The War Emergency Committee is anxious to impress on every medical practitioner not at present on whole-time naval or military service its opinion that the immense military effort in which this country is engaged necessitates a further and immediate response from our profession.

A deputation of the Committee met Sir Alfred Keogh, Director-General of the Army Medical Service at the War Office, on August 4th, and received from him such information as left no doubt in his mind as to the vital and immediate necessity for more medical officers of military age—namely, 40 years and under. Sir Alfred Keogh has authorized the Committee to act as his agent in securing this further response from the profession, which, in view of the fine way in which the profession has already risen to the occasion, we have no doubt will be forthcoming.

Without medical officers fighting units cannot be properly constituted. They are necessary to keep the soldier fit, to supervise his physical activities in drill and march, to watch food and water, to secure a sanitary camp, and above all, to act as an educational influence to the men from the physical and sanitary point of view. If a medical man is to carry out such duties successfully he must have some military training. Professional training alone is not sufficient. The officers are therefore required at once so that they may be trained for the calls which will be made upon them in the early future both for the above-mentioned services, and for the treatment of the sick and wounded.

This appeal is addressed to you personally. The Committee knows how difficult it is for most medical men to arrange to leave their work, but the same thing applies to a greater or less extent to nearly every man who is serving his country. If you are of military age, we ask for your personal service as a naval or military medical officer. If you are over age, we ask you to encourage the enlistment of the younger men by co-operating with your neighbours as to set free the men who are willing to go if arrangements can be made. The elder man who helps to release the younger man is doing his part just as much as he who serves abroad.

Already in most areas special Committees have been set up representative of the whole medical profession, in order to make arrangements for setting practitioners free for naval or military service, and this Committee is urging those areas which have not constituted local Committees to do so at once.

You will no doubt be approached shortly by the Secretary of your local Committee, but in the meantime we urge you to act at once, and to communicate with us so that we may help you in making such arrangements as are necessary.

It is realized that the responsibilities for carrying on your work must rest primarily with your neighbours, but we invite you to look to this Committee for any advice or assistance that can be given centrally, and the Committee, acting in co-operation with the local Committee, will by every means in its power try to protect the interests of practitioners who respond to the call of their country.

Finally, we ask you to believe, on the strength of confidential information which has been given to this Committee, that the need for medical officers of military age is extremely urgent, and the Committee has no doubt that it is the duty of every medical man of military age who can by any possibility offer himself for service, to do so.

(Signed) T. JENNER VERRALL, Chairman,
N. BISHOP HARMAN, } Secretaries.
ALFRED COX, }

Conditions of Service.

Offers for whole-time service may be divided into two classes:

1. Men under 40, whose services will be accepted for a period of twelve months, and who will be liable for service at home or abroad.
2. Men over 40, who may offer their services for a period of six or twelve months. These will not in present circumstances be sent to the front, but will be employed in this country (if they have joined for six months only) or at home or in such stations as Egypt, Malta, and Gibraltar (if they have joined for twelve months). If they desire it, and have been found serviceable, they may be re-engaged at the end of six months. Men not much over 40 of good physique should, however, offer for general service, as they may be required to do duty with the Expeditionary Force later on.

Men may enrol their names with the War Emergency Committee, declaring their readiness to join after a certain date on receiving thirty-six hours' notice from the War Office that their services are forthwith required. If they engage on a twelve months' contract they will receive temporary commissions in the R.A.M.C., with an allowance of £30 for outfit, and pay at the rate of 2s. a day, with 1s. 9d. for ration allowance, and a gratuity of £60 at the termination of the engagement, subject to satisfactory service. If the engagement is for six months the terms are the same as for the longer period, but the gratuity would be £15 instead of £60.

It was also resolved to issue a letter to Division secretaries and secretaries of local War Emergency Committees (1) informing them of the issue of the above circular letter to every practitioner, and (2) stating (a) that the Committee now left it to each area to supply its quota of the number of practitioners still required (the actual proportionate number required of each area being given), (b) that in those areas where a War Emergency Committee was already in existence it should deal with the question, and such Committees representative of the whole of the local profession, and not restricted to members of the Association, should be appointed in all other areas for the purpose; (c) that the local War Emergency Committee should proceed to obtain the signatures of the number of men required from its area to the contract form of the War Office, which forms, after being duly noted by the local Committee, should be forwarded to the Central War Emergency Committee, and (d) that the local Committee, when urging practitioners to join the R.A.M.C., should advise them

- (i) To enter into a properly drawn agreement with their local colleagues as to the working of their practices while absent;
- (ii) To appoint a legal representative who could be consulted on their affairs during their absence;
- (iii) To apply to the Central War Emergency Committee for advice in case any difficulty is experienced in making arrangements for the carrying on of their practices during absence; and
- (iv) That the Central Committee was prepared, in co-operation with the local Committee, to safeguard their interests both during their absence and on their return, to the best of its ability.

SUPPLY OF MEDICAL OFFICERS.

It was reported that the following reply had been received from the Director-General to the letter written to him on May 26th on behalf of the Association concerning the grievances of medical men serving in the army, and the difficulties which are preventing medical practitioners from accepting commissions:

War Office,
London, S.W.,
31st July, 1915.

Sir.—With reference to your letter of the 26th instant I am directed to acquaint you that the points mentioned in your letter of 26th May are still under consideration.

Approval has, however, been given to the promotion of Special Reserve and Territorial Force Lieutenants to the rank of Captain after six months' mobilized service, but no promotion to be antedated beyond 1st April inst.—I am, Sir, your obedient servant.

(Signed) A. P. BLENKINSOP, Colonel,
for Director-General, Army
Medical Service.

The Medical Secretary,
British Medical Association,
423, Strand, W.C.

EXECUTIVE SUBCOMMITTEE.

It was resolved to appoint an Executive Subcommittee as follows: The Chairman, Dr. T. Jenner Verrall, Major Galloway, Mr. E. B. Turner, Dr. Charles Buttar, and the two Secretaries.

NEXT MEETING.

The next meeting of the Committee will be held on Wednesday, August 25th.

INSURANCE ACTS COMMITTEE.

A MEETING of the Insurance Acts Committee was held at the office of the Association on Thursday, August 5th, when Dr. J. A. MACDONALD, LL.D., was in the chair, and the other members present were:—*England and Wales*: Mr. H. B. Brackenbury (London), Dr. T. Campbell (Wigan), Dr. J. Divine (Hull), Major A. C. Farquharson (Spennymoor), Lieutenant E. R. Fothergill (Hove), Dr. P. V. Fry (Sowerby Bridge), Dr. Major Greenwood (London), Mr. R. Harding (New Radnor), Dr. I. W.

Johnson (Bury), Mr. P. Napier Jones (Reading), Dr. B. A. Richmond (London), Dr. T. Ridley-Bailey (Bilston), Mr. Harding H. Tomkins (Leyton), Dr. W. B. Crawford Treasure (Cardiff), Dr. T. Jenner Verrall, LL.D. (Bath), *Scotland*: Dr. John Adams (Glasgow), Dr. J. R. Dreyer (Glasgow), Lieutenant J. Hunter (Corstorphine), *Es officio*: Mr. E. B. Turner, Chairman of Representative Meetings (London), Dr. E. Rayner, Treasurer (Stockport).

APPOINTMENT OF CHAIRMAN.

Dr. J. A. Macdonald was reappointed Chairman for the ensuing session.

ELECTION OF REPRESENTATIVE MEMBERS.

Dr. Olive Clayton (Oldham), having been nominated by the two Associations of Registered Medical Women, was appointed a member of the Committee.

INSURED TUBERCULOUS PERSONS AND INSTITUTIONAL TREATMENT.

A correspondence with the Joint Committee of Insurance Commissioners regarding the position of insured tuberculous persons suspended from institutional treatment because of refusal to obey orders having been read, it was resolved:

That the Commissioners be informed that the Committee is of opinion that the suspension of such recalcitrant insured persons from sanatorium benefit is not the best method of punishment, and would, in addition, be unfair to the Drug Fund and the insurance practitioner; and be asked whether the model rules for the administration of medical benefit, which confer power on Insurance Committees to inflict fines in similar cases occurring in connexion with medical benefit, apply to sanatorium benefit. That the Commissioners be also informed of the opinion of the Committee that if the rules do not so apply steps should be taken to extend their range to such cases.

NURSES AS SICK VISITORS.

With regard to the question of nurses acting as sick visitors, it was decided to communicate with the Victoria Jubilee Institute for Nurses, as the principal representative body of nurses, to suggest that it should use its influence to persuade other nursing associations to adopt the view already approved by it, namely, that the functions of nurses and sick visitors are essentially different, and could not be properly combined in one individual.

APPROVED SOCIETIES AND SICKNESS BENEFIT CERTIFICATES.

After considering a circular issued by an approved society stating that no payment was to be made for sickness benefit in cases in which the certified cause of illness was included in a list of 141 illnesses named until the case had been visited by the sick visitor from the district office of the society, the Committee expressed the following opinions: (1) That it was inadvisable for the profession to concern itself in matters primarily concerning the insured persons and the approved society; and (2) that in suitable cases aggrieved insured persons should be advised to lay a complaint with the Insurance Committee.

APPOINTMENT OF EXECUTIVE SUBCOMMITTEE.

A Subcommittee was appointed to consider subjects referred to it by the Insurance Acts Committee and to take action when authorized, to keep in close touch with and assist in the co-operation of all Local Medical and Panel Committees, advising them on all circulars, memorandums, and documents issued locally or centrally, having reference to the medical service under the Insurance Acts, and generally to advise the Insurance Acts Committee.

The members of the Subcommittee are the Chairman (Dr. J. A. Macdonald), Mr. John Adams, Mr. H. B. Brackenbury, Dr. Olive Clayton, Dr. John Divine, Lieutenant E. R. Fothergill, Mr. P. Napier Jones, Dr. B. A. Richmond, Dr. W. B. Crawford Treasure, Mr. E. B. Turner.

The following matters were referred to the Subcommittee: (1) The question of the amendment of regulations with power to make representations to the Commissioners. (2) The further consideration of matters arising out of the conference of representatives of Local Medical and Panel Committees and the deputation to the Commissioners thereon. (3) The resolutions adopted by the Annual Representative Meeting concerning the Insurance Acts.

CENTRAL INSURANCE DEFENCE FUND.

Two applications for assistance from the fund were considered. With regard to one it was decided to make a grant of £50. In the other the Committee found it impossible to accede to the request.

CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL AND PANEL COMMITTEES.

DEPUTATION TO COMMISSIONERS.

Under date of July 29th the Medical Secretary has addressed a letter to the honorary secretaries of Local Medical and Panel Committees enclosing a copy of the agreed report of the deputation from the Insurance Acts Committee of the Association on July 9th to the Chairman of the National Health Insurance Joint Committee with respect to the resolutions passed by the conference of representatives of Local Medical and Panel Committees held on June 16th. The report was published in the SUPPLEMENT of July 31st, p. 63, et seq. The report was adopted by the Annual Representative Meeting on July 24th (SUPPLEMENT to the JOURNAL of July 31st, p. 64). The Medical Secretary in his letter to the honorary secretaries of Local Medical and Panel Committees called attention to the fact that from the report of the conference it would be seen that the Commissioners were willing to recognize the British Medical Association as the mouthpiece of the Local Medical and Panel Committees of the country knowing that the Association would continue to consult with and support those Committees in their work for the protection of the interests of insurance practitioners. Dr. Cox went on to request the secretaries to keep him acquainted with any matters of interest dealt with by their committees, and to ask for any help the Insurance Acts Committee or the central office could give to those committees.

INSURANCE ACTS COMMITTEE.

The six members of the Insurance Acts Committee selected by the conference on June 16th for appointment upon the new standing Insurance Acts Committee of the British Medical Association were at the meeting of that Committee on Saturday, July 24th, unanimously appointed members of the Committee, which is constituted as follows:

Nominated by the Conference.

Dr. T. Ridley-Bailey, Bilston, Staffs (Chairman, Local Medical Committee and member of Insurance Committee of County of Staffordshire).

Mr. H. B. Brackenbury, London (Chairman of Panel Committee and member of Insurance Committee of County of Middlesex).

Dr. T. Campbell, Wigan (Secretary, Local Medical and Panel Committees and member of Insurance Committee of Lancashire).

Dr. J. R. Drever, Glasgow (Secretary, Local Medical and Panel Committees of Glasgow).

Dr. P. V. Fry, Sowerby Bridge (Treasurer and Assistant Secretary, Local Medical and Panel Committees of West Riding of Yorkshire).

Mr. P. Napier Jones, Crowthorne, Berks (Chairman of Local Medical, and member of Panel and Insurance Committees of Berkshire).

Ex officio.

Sir Alex. Ogston, K.C.V.O., M.D., Aberdeen, President of the Association.

Mr. E. B. Turner, London, Chairman of Representative Meetings (member of Advisory Committee and late member of London Insurance Committee).

Dr. J. A. Macdonald, LL.D., Taunton, Chairman of Council, Direct Representative on General Medical Council (member of Advisory Committee and of Local Medical, Panel, and Insurance Committees of County of Somerset).

Dr. Edwin Rayner, Stockport, Treasurer of the Association.

Two Co-opted Non-panel Practitioners.

Dr. T. Jenner Verrall, LL.D., Bath, late Chairman of Representative Meetings, Direct Representative on General Medical Council (member of Advisory Committee and member of Insurance Act Committee since its inception).

Vacancy.

Elected by the Representative Body.

Dr. J. Adams, Glasgow (member of Advisory Committee; member, late Chairman, of Local Medical Committee, and member, Panel Committee of Glasgow).

Dr. J. S. Daring, Lurgan, co. Armagh (member, Advisory Committee).

Elected by the Representative Body.

Dr. John Divine, Hull (Secretary, Local Medical and Panel Committees, and member of Insurance Committee of Kingston-upon-Hull).

Captain A. C. Farquharson, Spennymoor, Durham (member of County of Durham Local Medical and Panel Committees, and member of Durham County Insurance Committee).

Lieutenant E. R. Pothergill, Hove, Sussex (member of Local Medical and Panel and Insurance Committees of Brighton).

Mr. R. Harding, Radnor (Chairman and Secretary of Local Medical and Panel Committees, and Chairman of Insurance Committee of Radnorshire).

Lieutenant J. Hunter, Corstorphine (Secretary, West Lothian Local Medical and Panel Committees).

Dr. I. W. Johnson, Bury (member of Local Medical and Panel Committees of Bury).

Dr. B. A. Richmond, London (Secretary, Local Medical and Panel Committees for County of London, and member of Insurance Committee).

Mr. Harding H. Tomkins, Leyton (Secretary, Local Medical and Panel Committees of County of Essex).

Dr. W. B. Crawford, Cardiff (Secretary, Local Medical and Panel Committees, and member of Insurance Committee of Cardiff).

Nominee of Poor Law Medical Officers Association.

Dr. Major Greenwood, London (member of Local Medical and Panel Committees of London).

Nominee of Society of Medical Officers Association.

Not yet appointed; the late representative (who may probably be reappointed) was Lt.-Colonel Herbert Jones, M.O.H. Herefordshire Combined Districts, member of Advisory Committee and of the Insurance Act Committee since its inception.

Nominee of Registered Medical Women's Associations.

Dr. Olive Claydon (Secretary, Oldham Panel Committee).

LOCAL MEDICAL AND PANEL COMMITTEES.

MIDDLESEX.

PANEL COMMITTEE.

The Middlesex Panel Committee has issued its report for 1914-15. The first Panel Committee for the County of Middlesex came into office in January, 1914, the second in July, 1914. The Committee consists of 39 members—36 elected and 3 co-opted. Up to the present there have been held 12 meetings of the Committee and 30 of Sub-committees.

Method of Election.—The scheme imposing the method of election issued by the Insurance Commissioners was found to be totally unsuited to the conditions of Middlesex. Serious representations were made to the Commissioners, and certain amendments of the scheme have now been adopted by the Committee, which it is hoped may be accepted and found suitable.

Agreement for 1915.—The agreement which practitioners have signed with the Insurance Committee is not yet exactly in the form in which the Panel Committee would wish to have it, but after conferences with the Insurance Committee and the Commissioners certain modifications were secured which seemed to be an improvement on the original provisions, and the Panel Committee therefore feel justified in recommending practitioners to accept it. The Panel Committee, however, made it a condition of this recommendation that rules for the conduct of insured persons should be made by the Insurance Committee in accordance with a form approved by the Panel Committee, and this was accordingly done.

Drug Tariff.—The drug tariff has never been submitted to the Panel Committee in sufficient time to allow of its proper examination. The Committee has protested against this, as it is convinced that the tariff still contains anomalies which it would be advantageous and economical to correct. The Committee has not been able to recommend the adoption of a special pharmacopoeia for the county, but it has now prepared a list of some twenty simple prescriptions of an economical kind.

Treatment of Unallotted Insured Persons.—The insurance practitioners of Middlesex are collectively responsible for giving to all properly authenticated insured persons in the county who have not been allowed to make other arrangements such treatment as they may require. The assignment of the comparatively few cases in which there is some difficulty in obtaining treatment to practitioners by any lay body seemed to the Panel Committee to be an objectionable course, and it has been avoided by the adoption of a scheme made pursuant to Regulation 21 whereby these cases are to be dealt with by the profession themselves acting through a local representative of the Panel Committee in each insurance area. The number of cases

dealt with under this scheme has so far been very few, but it is essential that in any difficulty the provisions of the scheme should be loyally adhered to by every practitioner, as it is by virtue of these arrangements that practitioners are assured of the distribution amongst them of the whole of the available medical benefit funds.

Doctors' Lists.—At one period so great was the confusion with regard to the issue of medical cards whereby practitioners might accept patients, to the correctness of the lists of persons who had been accepted, and to the correspondence of payments made to practitioners with the numbers on their lists, that the Panel Committee sent a very strongly-worded protest to the Insurance Committee. In consequence of this, steps were immediately taken by the latter Committee to remove such of the causes of the muddle as lay within their control, and a clearer understanding was arrived at as to the correction of practitioners' lists and the calculation of the numbers thereon. Though there has been a considerable improvement, the position is still far from satisfactory, and the Panel Committee are at present in communication with the Insurance Committee and the Commissioners with regard to certain irregularities, and are making inquiries in order to discover whether it would be practicable to advise all practitioners in the county to refuse attendance on any insured person who could not produce a medical card or such a form of application for a medical card as would enable the practitioner to signify his intention to accept the patient.

Checking of Prescriptions.—With a view to preventing any undue demands upon the drug fund and thereby securing at least a full payment of the pharmacists' accounts and possibly some surplus for distribution among practitioners, the Panel Committee have entered into an arrangement jointly with the Pharmaceutical Committee and the Insurance Committee for checking all the prescriptions written and reporting as to any that appear extravagant. The Panel Committee has not initiated any investigation, but it has inquired carefully into a number of cases to which the Pharmaceutical Committee has drawn its attention, and in ten of these cases it has felt compelled to advise the Insurance Committee to make some deduction from the amount payable to the practitioner. The Panel Committee has appointed two members of the Medical Service Subcommittee, and has carefully watched the proceedings of that subcommittee. It is glad to report that in no case has any serious complaint against a practitioner been substantiated.

Expenses of Committee.—The expenditure of the Panel Committee is met by a sum authorized by the Commissioners to be deducted from the medical benefit fund, such sum not to exceed one halfpenny per insured person in the area.

COVENTRY.

PANEL COMMITTEE.

THE annual report of the Panel Committee states that there had only been one complaint by the Insurance Committee against a medical practitioner; it related to his refusal to supply charts and reports in tuberculous cases; the Panel Committee replied that the charts and reports should be kept in accordance with the doctor's agreement.

The local pharmacopoeia had been amended and inserted in the drug tariff, 1915. A memorandum issued by the Commissioners in October, 1914, gave the Panel Committee power to specify a certain number (not exceeding ten) of stock mixtures which should be dispensed at half rates. The Panel Committee, however, did not think this reduction in dispensing fee called for, and gave an undertaking to the Pharmaceutical Committee that they would not in future star any stock mixtures to be dispensed at a reduced rate.

An analysis of prescriptions for one quarter of 1914 had shown that the doctors generally were endeavouring to keep within reasonable limits, and the Secretary had interviewed most of those practitioners whose prescriptions cost above the average, and endeavoured to show how their cost could be reduced without loss of efficiency. In future all prescriptions would be analysed by a special prescription clerk in the offices of the Insurance Committee.

With regard to the fees received in connexion with the practices of those doctors who had gone on active service,

it was agreed that two-thirds should be paid to the absentee doctor, and one third to the locum provided the absent practitioner approved.

Arrangements had been made with Insurance and Pharmaceutical Committees that emergency drugs and dressings should now be paid for at a flat rate of 1s. per annum per 100 insured persons.

The Commissioners having dispensed with an election this year owing to the war the personnel of the Committee remains the same.

LIVERPOOL.

PANEL COMMITTEE.

A MEETING of the members elected by the panel practitioners to form the Panel Committee was held at the Medical Institution on July 23rd, when Dr. BAXTER was in the chair.

Co-optation of Members.—The following were co-opted members of the Committee: Mr. F. Charles Larkin, Dr. F. H. Barendt, Dr. T. R. Bradshaw, Dr. T. Clarke, Dr. Richardson, Dr. J. G. Moyle, Mr. G. P. Newbolt.

A meeting of the Committee was held on July 30th, when Mr. LARKIN was requested to act as Chairman of the meeting.

Election of Officers.—The following officers were elected for 1915-16:

Chairman: Mr. F. Charles Larkin.

Vice-Chairman: Dr. J. C. Baxter.

Honorary Treasurer: Dr. Hamilton Shaw.

Honorary Secretary: Dr. W. T. D. Allen.

Auditors: Drs. Barendt and Baxter.

Representatives on Medical Service Subcommittee: Drs. Richardson, Bennett, and Paterson.

Sanatorium Benefit.—A communication was received from the Insurance Committee suggesting a joint conference to consider the question of sanatorium benefit—domiciliary sixpence. The Panel Committee decided that before considering the desirability of a joint conference the Honorary Secretary be directed to write to the Administrative Officer inquiring what were the "several grounds" on which the Insurance Committee considered the present arrangements unsatisfactory.

SHROPSHIRE.

PANEL COMMITTEE.

A MEETING of the Shropshire Panel Committee, convened by the clerk to the Salop Insurance Committee, was held at Shrewsbury on July 30th.

Election of Officers.—The following officers were elected:

Chairman: Dr. Exham, Market Drayton.

Vice-Chairman: Dr. Lytle, Shrewsbury.

Secretary: Dr. Cuthbert, Newport.

Special Mileage Fund.—It was decided to adopt the Derbyshire Insurance Committee's scheme, with an addition that 6d. be paid the doctor for every insured person on his list residing a quarter of a mile off a metalled road.

Medical Service in the Munslow Area.—The area being without a medical man, through death, it was decided that the neighbouring practitioners should endeavour to provide an adequate service in the area.

Scrutiny of Prescriptions.—The Committee decided to pay one-third (about £25) of the salary of the official checker of chemists' prescriptions, and for this and other expenses it was decided to raise a voluntary levy of 1d. per insured person on each doctor's list.

CORRESPONDENCE.

THE GOVERNMENT GRANT OF 2s. 6d. PER INSURED PERSON TO PANEL PRACTITIONERS.

DR. E. ROWLAND FOTHERGILL (HOVE) writes: A copy of what a certain periodical has termed "a stirring appeal" has been received during the past few days by every insurance practitioner who happens not to be a member of that trade union organization called "the Panel Medicopolitical Union."

As similar appeals have been issued by that body in the past it would be well to consider this one carefully before adopting the advice given therein, namely, to put one's trust in it and to join forthwith.

This stirring appeal contains two statements in its argument.

1. That the Commission intend at a few weeks' notice to introduce in the regulations what certain members of that union have termed "revolutionary changes."

2. That the 2s. 6d. per head grant is in jeopardy and probably will not be paid for 1916 as the Government is being urged on all sides to effect all possible economy.

The appeal terms the former "a threatened momentous alteration," whilst it considers the latter a "special sacrifice" of panel practitioners. It urges all to join the union at once and by so doing place it in funds to fight the enemy. What are the true facts on these two points?

A. That the Commission notified last March through the British Medical Association that it had "no changes of any kind under consideration for adoption during the currency of the present year." This was published in the *BRITISH MEDICAL JOURNAL* and the *Panel Medico-Political Union* periodical.

B. That on July 14th last Parliament passed the Estimates for Civil Services, 1915-16, which included the 2s. 6d. grant for 1916 (Class VII, pages 12, 16, and 20).

That being so, this stirring appeal for money has been issued either in total ignorance of these two facts, thus marking the Panel Medico-Political Union as an unreliable body, or with the deliberate intention and hope to trade on the probable ignorance of the average panel practitioner.

This circular goes on to state that the Panel Medico-Political Union obtained recently certain delayed payments. Shortly, probably, we shall hear that it has obtained the payment of this 2s. 6d. per head grant.

At this time, when every medical practitioner, even if he can only crawl into a motor or carriage, is trying to repay in part his debt to his country, this appeal for funds for an aggressive campaign is greatly to be deprecated, especially when it is based on fiction. Panel practitioners will do well to consult some reliable and recognized authority for confirmation of "facts" before they part with their hardy earned guineas in response to any "stirring appeals" that may reach them.

Meetings of Branches and Divisions.

[The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the JOURNAL.]

SURREY BRANCH.

The annual meeting of the Branch was held at the house of the Association, 429, Strand, on July 1st, when the President, Dr. A. R. WALTERS, was in the chair.

Election of Officers.—Owing to the war the officers were re-elected as follows:

President: Dr. A. R. Walters (Reigate).

Vice-Presidents: Dr. A. M. Mitchell (Guildford), Dr. J. Hewson (Reigate).

Honorary Secretary and Treasurer: Mr. Cecil P. Lankester (Guildford).

Honorary Auditors: Dr. A. M. Mitchell, Dr. F. K. Weaver.

Annual Report and Financial Statement.—The annual report and financial statement for the year were adopted.

Model Rules.—The meeting adopted, with one or two slight modifications, the new model Branch rules issued by the Association as the rules of the Branch, and also the model ethical rules of the Association.

Motor Ambulance for the War.—The SECRETARY reported that, in response to the appeal, the £300 required for the purchase of a motor ambulance had been subscribed by Surrey doctors, and an ambulance to form one of a convoy organized by Mr. Arthur du Cros, M.P., had been presented to the War Office for service on the Continent.

A list of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian, at the house of the Association, 429, Strand, W.C. The regulations governing the loan of these publications are stated in the introduction to the list. The Library is open for consultation from 10 a.m. till 5 p.m. (on Saturdays till 2 p.m.).

British Medical Association.

FURTHER EXTRAORDINARY GENERAL MEETING.

MEMBERS are hereby informed that as there was not a quorum present at the Further Extraordinary General Meeting of the British Medical Association called for Wednesday, the 11th day of August, 1915, at 2 o'clock in the afternoon, at the registered offices of the Association, 429, Strand, London, W.C., by notice published in the SUPPLEMENTS of 31st July and 7th August, 1915, such meeting stands adjourned to Wednesday, the 18th day of August, 1915, at 2 o'clock in the afternoon, at the registered offices of the Association, in accordance with the provisions contained in the By-laws of the Association.

By order of the Council,
GUY ELLISTON,
Financial Secretary and Business Manager.

Dated this Eleventh day of August, 1915.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: M.P. To the *Zeacomb*, vice Macleod; C. H. Cook to the *Becker*, for R.N. College, Osborne, vice Jones; J. A. L. Campbell to the *Victory*, for R.N. Division, Crystal Palace, vice Cook; H. L. Georgetown, M.B., to the *Zeacomb*, vice Parish, Staff Surgeon; G. J. Ashdown, M.B., to the *Victory*, additional, for Haslar Hospital, Surgeon; R. F. Quinton to the *Victory*, additional, for Portland Hospital, Temporary Surgeon; G. L. Ranking to the *Victory*, additional, for disposal; J. C. Wain, M.B., to the *Pembroke*, additional, for disposal; J. L. Pringle, M.B., and R. W. Townley, to the *Hindustan*; J. D. Judson, M.B., to the *Pembroke*, for R.N. Barracks; F. U. Mawer to the *Victory*, additional, for Haslar Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon W. J. Quine, M.B., to the *President*, additional, Surgeon Physicians; J. H. Hughes to the *King Edward VII*, additional, to the *Riflemen*. To be Surgeon Probationers: L. V. Galt, D. J. Morrison.

ARMY MEDICAL SERVICE.

Colonel R. S. F. Henderson, K.H.P., is seconded for service under the Colonial Office.

To be temporary Colonels: Lieutenant-Colonel C. Stonham, C.M.G., F.R.C.S., R.A.M.C.(T.); Lieutenant-Colonel W. Thorburn, M.D., F.R.C.S., R.A.M.C.(T.); Major G. L. Guiland, M.D., R.A.M.C.(T.); Colonel C. S. Ryan, M.B., Australian A.M.C.; temporary Lieutenant-Colonel F. D. Birch, M.B., F.R.C.S., temporary; Major Sir Victor A. H. Horsley, M.D., F.R.C.S., R.A.M.C.

Lieutenant-Colonel R. J. Blackham, C.I.E., from the seconded list, is re-embodied.

Temporary honorary Lieutenant-Colonel G. S. Buchanan, M.D., to be temporary Lieutenant-Colonel.

ROYAL ARMY MEDICAL CORPS.

T. P. Legg, M.B., F.R.C.S., to be temporary Lieutenant-Colonel. H. G. Ashwell to be temporary Lieutenant-Colonel whilst employed at the Bechtelme War Hospital.

J. F. W. Silk, M.D., to be temporary Major.

Sir John Collie, M.D., to be temporary honorary Major.

Temporary honorary Lieutenant T. G. Evans, M.D., to be temporary honorary Captain whilst serving with the Welsh Hospital, Netley.

Captain R. J. B. Buchanan is placed temporarily on the half-pay list on account of ill health.

To be temporary Captains: J. C. Woods, M.D., P. H. Gillies, M.B., late Captain 8th (Army)shire Battalion (Territorial), Princess Louise's (Argyll and Sutherland Highlanders), Captain Norval J. Watt, M.B., South African Medical Corps, R. B. Wallace, M.B., R. H. Makgill, M.D., temporary Lieutenant, P. R. Fisher, M.B., late Surgeon, M.S. G. F. D. temporary Lieutenant A. Matthey, late Captain British Guiana Militia Force.

Temporary Lieutenant G. W. Maw relinquishes his commission. (Substituted for notification published in the *London Gazette* of July 7th.)

Temporary Lieutenant J. L. Ferris, M.B., relinquishes his commission.

To be temporary Lieutenants: L. J. Legris, M.D., D. T. Skeen, M.B., T. C. Ritchie, M.D., J. E. Power, M.B., A. L. Saunders, Lieutenant A. Peden, M.B., R.F.A. (T.F.A.), F. Flower, K. B. Pinson, M.B., E. D. F. Hayes, M.B., G. R. Alley, M.B., F. Greeno, M.D., S. G. Winter, H. Armstrong, J. C. Fisher, M.B., A. D. Hamilton, M.B., F. G. Ralston, M.B., D. Renton, M.B., L. S. Shoomath, E. H. Piddison, M.F., R. Dow, M.B., A. G. Cook, M.B., N. Macleod, M.B., J. M. Swanton, G. De F. P'Amico, M.D., D. Reeves, M.D., T. Morgan, M.B., J. R. McVail, M.B., H. P. Hall, M.B., G. Buchanan, M.B., A. F. Studdert, G. R. Plaister, A. R. Young, C. L. Miller, M.B., E. A. Lindsay, A. Z. Phillips, M.D., H. H. Green, M.D., A. J. W. Cunningham, W. B. McE. B. Purce, M.B., J. Cook, M.B., A. Patrick, M.D., F. B. Martin, M.B., F.R.C.S., R. N. Geach, F.R.C.S., J. Patrick, M.B., D. Glen, M.B., A. Gibson, M.B., F.R.C.S., C. D. Davies, W. Yorke, M.D., C. Spalding, M.B., W. G. McN. O. P. Kelly, M.B., M. D. F. McKenna, M.D., H. S. Smith, M.B., E. Fullerton, M.B., P. A. Sullivan, W. P. Jones, C. Russell, M.B., R. Rimmer, M.B., A. C. Major, F. C. H. Figgott, M.D., G. H. Sheehan, M.B., O. P. Cartwright, W. Williams, F. B. Purce, M.B., A. W. Mitchell, J. K. Small, M.B., J. Hegarty, W. Hutcheson, M.D., W. H. N. Bright, M.B., R. W. Statham, A. F. G. Codd, M.B., F.R.C.S., J. C. Watson, M.B., D. A. Birrell, M. D. Cruickshank, M.B., H. E. R. C. W. Russell, M.B., W. H. McVicar, M.B., G. F. Moffat, M.B., A. M. J. Halligan, J. Brown-Sun, M.B., A. H. Craik, M.B., C. S. Miller, M.B., F. C. Tibbs, W. Wignlesworth, D. Wilson, M.D., C. Wace, F.R.C.S., Lieutenant V. F. Stock, M.B., Canadian A.M.C.

To be temporary honorary Lieutenants: Eric A. Soot, J. R. Tibbles, C. S. Doldon, H. J. Bower.
The appointment to a temporary honorary lieutenantcy of Wm. F. Thompson, published in the *London Gazette* of July 21st, is cancelled.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.
1st Wessex Field Ambulance.—E. Holly to be Lieutenant.
1st Western General Hospital.—Major C. Ruddle, M.D., to be temporary Lieutenant-Colonel.
1st South-Western Mounted Brigade Field Ambulance.—Captain R. Waterhouse, M.D., to be temporary Major.
1st Southern General Hospital.—To be Captains whose services will be available on mobilization: Lieutenant E. C. Bradford; B. S. Jones, F.R.C.S.
1st Eastern General Hospital.—Major H. A. Ballance, M.D., F.R.C.S., to be temporary Lieutenant-Colonel.
1st London General Hospital.—Lieutenant A. W. Stott is seconded for duty with a General Hospital overseas; J. D. L. Currie to be Lieutenant.
5th London Sanitary Company.—C. D. Edwards, M.D., to be Lieutenant.
2nd East Anglian Field Ambulance.—To be Lieutenants: J. Anderson, M.B., N. McG. Smith, M.B., W. J. Wilkinson, J. Humphrey, A. D. Reid, M.B. The surname of Lieutenant Arthur Greene, M.D., F.R.C.S., is as now stated, and not as announced in the *London Gazette* of July 20th.
1st West Riding Field Ambulance.—Lieutenant H. W. Shadwell to be Captain.
1st West Lancashire Field Ambulance.—Major W. T. Blackledge, M.B., to be temporary Lieutenant-Colonel.
1st South Midland Mounted Brigade Field Ambulance.—Major T. H. Forrest, M.B., to be Lieutenant-Colonel.
1st Northern General Hospital.—To be Lieutenants: A. J. W. Stephen, M.B., R. A. Hooper, M.B., late Cadet, University Contingent, Senior Division, O.T.C.
3rd Northern General Hospital.—J. S. C. Douglas to be Captain, whose services will be available on mobilization. To be Lieutenants: J. Pearson, M.B., F. Harvey.
1st Northumbrian Field Ambulance.—To be Lieutenants: F. J. B. Beeson, M.B., C. G. Strachan, M.B., Cadet A. G. McFarlane, M.B., from Durham University Contingent, Senior Division, O.T.C.
3rd Northumbrian Field Ambulance.—Major J. Gray to be temporary Lieutenant-Colonel.
1st Loveland Field Ambulance.—E. S. Forde, late Captain 5th (Dumfriess and Galloway) Battalion, King's Own Scottish Borderers, to be Major, temporary.
1st Loveland Field Ambulance.—R. Lawson, M.B., to be Lieutenant.
1st Highland Mounted Brigade Field Ambulance.—Major J. Leach, M.B., from Attached to Units other than Medical Units, to be Major.
3rd Highland Field Ambulance.—Lieutenant F. C. Chaudler, M.B., to be temporary Captain.
Attached to Units Other than Medical Units.—H. W. Clark to be Second Lieutenant, temporary, for service with the War Major's Grammar School Contingent, Junior Division, O.T.C. To be Majors: Captain W. L. Martin, M.B., Captain S. W. Plummer, M.D. To be Captain: G. Higginson, late Lieutenant, 1st Shropshire and Staffordshire R.G.A. (Vols.).

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.
Captain A. C. Bird, from Attached to Units other than Medical Units, to be Captain.

Vital Statistics.

VITAL STATISTICS OF LONDON DURING THE SECOND QUARTER OF 1915.

[SPECIALLY REPORTED FOR THE "BRITISH MEDICAL JOURNAL."]
In the accompanying table will be found summarized the vital statistics of the City of London and of the metropolitan boroughs, during the year. The mortality figures in the table relate to the deaths of persons actually belonging to the several boroughs, and are obtained by distributing the deaths of persons in institutions among the several boroughs in which the deceased persons had previously resided. The annual rate of 24.1 per 1,000 of the population; in the corresponding quarters of the three preceding years the rates were 24.7, 25.2, and 25.2 per 1,000 respectively. The lowest birth-rates last quarter were 11.0 in the City of Westminster, 14.0 in Holborn, 17.2 in Hampstead, 18.2 in Kensington, 18.6 in Paddington, and 18.8 in Chelsea and in Stoke Newington; among the highest rates were 28.5 in Southwark, 29.4 in Poplar, 29.7 in Brompton, 30.0 in Stepney, 30.3 in Shoreditch, and 35.0 in Finsbury.

During the quarter the deaths of 17,120 London residents were registered, equal to an annual rate of 15.2 per 1,000; in the corresponding quarters of the three preceding years the rates were 12.4, 13.3, and 13.1 per 1,000 respectively. The death-rates last quarter ranged from 11.0 in Lewisham, 11.7 in Wandsworth, 12.0 in Hampstead, 13.0 in Woolwich, 13.6 in Hackney, and 13.8 in Stoke Newington, to 17.1 in Poplar, 17.4 in Finsbury, in Southwark, and in Greenwich, 19.2 in the City of London, 19.3 in Brompton, and 19.7 in Shoreditch.

The 17,120 deaths from all causes included 24 from enteric fever, 96 from measles, 90 from scarlet fever, 417 from whooping-cough, 136 from diphtheria, and 201 from diarrhoea and enteritis among children under two years of age. Of the 24 deaths from enteric fever, 4 belonged to Hackney, 3 to Camberwell, and 2 each to Paddington and Southwark. Measles was proportionally most fatal in Fulham, Chelsea, Shoreditch, Poplar, Brompton, and Battersea; scarlet fever whooping-cough in Fulham, Islington, Finsbury, Shoreditch, Brompton, Battersea, Deptford and Greenwich; and diphtheria in Holborn, Bethnal Green, Poplar, Stepney and Southwark. The mortality from diarrhoea and enteritis among children under two years of age in proportion to the births registered during the quarter was greatest in Paddington, Kensington, the City of Westminster, Stoke Newington, Bethnal Green, and Poplar.

The deaths from phthisis among London residents last quarter numbered 1,597, and were equal to an annual rate of 1.42 per 1,000, against 1.21, 1.27, and 1.28 in the corresponding quarters of the three preceding years. The death-rates from this disease last quarter ranged from 0.72 in Lewisham to 2.79 in Hampstead, 0.95 in Stoke Newington, 1.11 in Fulham, and 1.12 in Wandsworth, to 1.85 in Finsbury, 1.84 in Greenwich, 1.85 in Stepney, 1.92 in Shoreditch, 1.95 in Southwark, and 2.05 in Brompton.

Infant mortality, measured by the proportion of deaths among children under 1 year of age to registered births, was equal to 93 per 1,000 last quarter, against 82, 81, and 79 in the corresponding quarters of the three preceding years. Among the lowest rates recorded last quarter were 38 in the City of London, 54 in Hampstead, 74 in Lambeth, in Lewisham, and in Woolwich, and 79 in Greenwich; the highest rates were 115 in Deptford, 114 in Battersea, 115 in Southwark, and 121 in the City of Westminster, 126 in Brompton, 127 in Shoreditch, and 131 in Kensington.

Analysis of the Vital Statistics of the Metropolitan Boroughs and of the City of London after Distribution of Deaths occurring in Public Institutions during the Second Quarter of 1915.

Boroughs.	Estimated Population middle of 1914.	Births.	Deaths.	Annual Rate per 1,000 Living.		Deaths from								
				Births.	Deaths.	Enteric Fever.	Small-pox.	Measles.	Scarlet Fever.	Whooping-cough.	Diphtheria.	Diarrhoea and Enteritis (Under 2 Years).	Phthisis.	
COUNTY OF LONDON	4,518,021	27,095	17,120	24.1	15.2	24	—	946	90	417	136	201	1,597	93
Paddington	142,193	657	593	18.6	14.8	1	—	25	2	14	2	11	43	87
Kensington	773,234	773	661	18.2	13.5	1	—	41	3	7	9	5	50	131
Hammersmith	123,853	703	479	22.8	15.4	—	—	—	—	—	—	—	6	46
Fulham	157,305	983	566	24.8	14.3	—	—	57	7	23	—	—	5	100
Chelsea	65,511	299	267	11.0	14.1	—	—	35	2	—	—	—	1	27
City of Westminster	154,544	419	535	14.8	16.8	—	—	20	4	—	—	—	1	107
St. Marylebone	114,355	978	401	34.8	14.2	—	—	20	4	—	—	—	5	122
St. Pancras	86,386	372	260	17.2	12.0	—	—	6	1	—	—	—	4	33
Islington	325,496	1,896	1,548	23.4	15.0	1	—	37	2	24	4	11	95	96
Stoke Newington	50,511	275	174	18.8	13.8	—	—	86	13	45	10	14	107	88
Holborn	223,393	1,353	759	24.3	13.6	4	—	24	2	19	—	—	13	122
Finsbury	84,521	726	360	35.0	17.4	1	—	20	4	—	—	—	7	66
City of London	17,831	106	82	24.8	19.2	—	—	5	—	3	2	—	5	38
Hampstead	109,569	822	535	30.3	19.7	1	—	47	4	17	5	—	7	58
Bethnal Green	127,807	1,050	520	27.7	16.3	—	—	34	1	15	11	7	5	127
Stepney	275,061	2,044	1,077	30.0	15.4	—	—	40	4	17	5	13	56	100
Wandsworth	160,839	1,176	684	29.4	17.1	1	—	50	4	8	15	18	126	85
Southwark	188,321	1,319	810	28.3	17.4	2	—	30	5	11	9	9	60	109
Brompton	123,683	919	599	29.7	19.3	1	—	49	2	25	2	9	63	126
Lambeth	297,094	1,983	1,174	26.8	15.9	1	—	25	2	31	10	11	117	74
Battersea	187,451	986	685	23.2	16.4	—	—	87	2	3	—	—	11	51
Deptford	159,211	1,359	933	19.7	17.1	1	—	63	5	19	11	9	95	86
Canterbury	261,268	1,575	754	24.1	16.6	3	—	27	1	16	4	6	85	86
Poplar	109,829	751	454	27.6	16.7	1	—	17	1	17	—	—	3	113
Greenwich	96,018	721	416	25.9	17.4	1	—	26	—	12	—	—	4	79
Lewisham	159,211	846	472	19.5	11.0	1	—	26	—	17	—	—	4	31
Woolwich	122,431	631	398	23.9	15.0	—	—	22	1	6	5	4	39	74

* No correction is made for births in lying-in institutions; the boroughs principally affected are marked thus (*).

HEALTH OF ENGLISH TOWNS.

In ninety-six of the largest English towns 7,916 births and 3,554 deaths were registered during the week ended Saturday, July 31st. The annual rate of mortality in these towns was 44.1, which compares with 45.6 in the three preceding weeks, was again 11.4 per 1,000 in the week under notice. In London the death-rate was equal to 10.9, while in the ninety-five other large towns it ranged from 3.5 in Wingham, 5.6 in Southampton, 5.9 in Hove, 6.3 in Cambridge, 6.5 in Southport, 6.6 in and 6.6 in Edmonton, to 16.6 in Northampton, 16.7 in Warrington, 17.0 in Acton, 17.6 in Aberdare, 17.8 in Gillingham, and 17.9 in Wallasey. Measles caused the greatest number of deaths, 1,710, and 1,143 in Barnsey, and 2.6 in Lincoln; and diphtheria of 1.8 in Bourne-mouth. The mortality from the remaining infective diseases was not marked except in any of the large towns, and no fatal case of small-pox was registered. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,471, 2,468, and 2,483 at the end of the three preceding weeks, fell to 2,431 on Saturday, July 31st; 294 new cases were admitted during the week, against 322, 290, and 342 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns, 1,568 births and 622 deaths were registered during the week ending July 31st. The annual rate of mortality in these towns, which had been 15.7, 12.5, and 14.2 in the three preceding weeks, fell to 13.8 per 1,000 in the week under notice, and was 2.4 per 1,000 above the rate in the ninety-six largest English towns. In the several towns the death-rate ranged from 4.9 in Clydebank, 9 in Falkirk, and 11.3 in Motherwell, to 16.9 in Leith, 17.1 in Aberdeen, and 18 in Greenock. The mortality from the principal infective diseases averaged 1.9 per 1,000, and was highest in Paisley and Aberdeen. The 288 deaths from all causes in Glasgow included 32 from measles, 7 from infantile diarrhoeal diseases, 5 from scarlet fever, 2 from diphtheria, and 1 from whooping-cough. Five deaths from influenza were recorded in Aberdeen, 3 in Leith, and 2 in Paisley; from scarlet fever 4 in Aberdeen and 2 in Paisley; from diphtheria 3 in Aberdeen; and from infantile diarrhoea 5 in Dundee.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, July 31st, 560 births and 337 deaths were registered in the twenty-seven principal Irish districts of Ireland, as against 550 births and 314 deaths in the preceding period. These deaths represent a mortality of 14.1 per 1,000 of the aggregate population in the districts in question, as against 14.7 per 1,000 in the previous period. The mortality in these Irish areas was therefore 2.7 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 24.1 per 1,000 of population. As for mortality of infantile diarrhoeal diseases, that in the registration area was 13.6 (as against an average of 15.7 for the previous four weeks), in Dublin city 14.0 (as against 16.1), in Belfast 15.0 (as against 12.4), in Cork 9.5 (as against 11.9), in Londonderry 16.5 (as against 21.1), in Limerick 23.0 (as against 21.6), and in Waterford 11.4 (as against 10.9). The zymotic death-rate was 1.3, as against 1.1 in the previous period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notices) in the present issue of the *Journal* regarding the publication of notices as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Junior House-Surgeon. Salary, £100 per annum and 10s. 6d. travelling allowance.
BIRMINGHAM EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary, £500 per annum.
BRISTOL ROYAL INFIRMARY.—Resident Obstetric and Ophthalmic House-Surgeon. Salary, £120 per annum.
BURLEY VICTORIA HOSPITAL.—House-Surgeon. Salary, £175 per annum.
BURY INFIRMARY.—Senior House-Surgeon. Salary, £250 per annum.
BURY ST. EDMUND'S UNION.—Medical Officer for St. James's District. Salary, £100 per annum.
CROYDON UNION.—Assistant Medical Superintendent of Infirmary and Assistant Medical Officer of Union House and Children's Homes. Salary, £225 per annum, rising to £250.
DEVONPORT ROYAL ALBERT HOSPITAL.—House-Surgeon. Salary, £150 per annum; 21s. allowed weekly for working single-handed.
DONCASTER ROYAL INFIRMARY AND DISPENSARY.—Resident House-Surgeon. Salary, £200 per annum.
DORSET COUNTY COUNCIL EDUCATION COMMITTEE.—School Dentist. Salary, £260 per annum.
FOLKSTONE ROYAL VICTORIA HOSPITAL.—House-Surgeon. Salary, £150 per annum.
GUILDFORD ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.
HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.
ISLE OF WIGHT UNION.—Medical Officer and Public Vaccinator for the Ryde District. Salary, £100 per annum and fees.
ITALIAN HOSPITAL, Queen Square, W.C.—House-Surgeon. Salary, £80 per annum.
LANCASHIRE COUNTY COUNCIL.—Medical Superintendent at High Carley Sanatorium. Salary, £450 per annum, rising to £550.
LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130 per annum.
LIVERPOOL EYE AND EAR INFIRMARY.—Honorary Anaesthetist.

MANCHESTER COUNTY ASYLUM, Preswick.—Assistant Medical Officer. Salary, £250 per annum, increasing to £300, and on promotion to £450.
MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £120 per annum.
NORTHAMPTON COUNTY BOROUGH.—Clinical Tuberculosis Officer. Salary, £400 per annum.
OXFORD EYE HOSPITAL.—House-Surgeon. Salary, £100 per annum.
RHONDDA URBAN DISTRICT COUNCIL.—Temporary Assistant Medical Officer of Health and School Medical Officer. Salary, £350 per annum.
ST. MARK'S HOSPITAL FOR CANCER, FISTULA, Etc., City Road, E.C.4.—House-Surgeon. Salary, £250 per annum.
ST. PETER'S HOSPITAL FOR STONE, Henrietta Street, W.C.—Junior House-Surgeon. Salary, £75 per annum.
SALISBURY GENERAL INFIRMARY.—Assistant House-Surgeon. Salary, £100 per annum.
SHEFFIELD ROYAL INFIRMARY.—(1) House-Surgeon; (2) Assistant House-Physician. Salary, £100 per annum.
SHEFFIELD UNIVERSITY.—(1) Demonstrator of Pathology and Bacteriology; (2) Demonstrator of Anatomy.
SOUTHAMPTON ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House-Surgeon. Salary, £120 per annum.
SUNDERLAND ROYAL INFIRMARY.—Junior House-Surgeon (male). Salary, £150 per annum.
SURREY EDUCATION COMMITTEE.—Female Assistant School Medical Officer.
SWANSEA EDUCATION COMMITTEE.—(1) Lady Assistant School Medical Officer; (2) Temporary Assistant School Medical Officer. Salary, £300 per annum each.
WALSAL AND DISTRICT HOSPITAL.—Assistant House-Surgeon and Anaesthetist. Salary, £120 per annum.
WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—(1) Resident Medical Officer; (2) House-Physicians and House-Surgeons. Salary for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.
WEST HAM UNION.—At the Infirmary: (Third Assistant Medical Officer (male); Fourth Assistant (Resident Lady) Medical Officer. Salary, £200 and £180 per annum, rising to £220 and £200 respectively. At the Workhouse: Resident (Lady) Assistant Medical Officer. Salary, £180 per annum.
WEST RIDING COUNTY COUNCIL.—Resident Medical Superintendent at the Middleton-in-Wharfedale Sanatorium. Salary, £400 per annum.
WESTMINSTER GENERAL DISPENSARY, Gerrard Street, Solo, W.—Resident Medical Officer. Salary, £220 per annum.
WIGAN ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £150 per annum.
CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories and Workshops has the following vacancies for appointments: Ashton-under-Lyne (Lancashire), Salts (Cornwall).
To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS, MARRIAGES, AND DEATHS.

The *clauses for inserting announcements of Births, Marriages, and Deaths* is 5s., which sum should be forwarded in Post Office Order or Stamps with the notice not later than the first post Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

BOND.—On the 3rd August, at Warrington Lodge (nursing house), Warrington Crescent, W., the wife of C. Hubert Bond, D.Sc., M.D., Commissioner of the Board of Control—*a* daughter.
CRICHTON-MILLER.—At Bowden House, Harrow, on 6th inst., the wife of H. Crichton-Miller, M.D., 124A, Harley Street, W., of a son.

MARRIAGE.

GROGONO—STEELE.—On July 29th, at St. Paul's Church, Hammer-smith, Dr. Jonathan Grogono, third son of late Dr. Grogono, of Weymouth, Dorset, and Mrs. Grogono, Herne Bay, to Florence Muriel (Sissie), elder daughter of late Dr. Russell Steele, of Henstead House, Hemel Hempstead, and Mrs. Steele, 32, Arnhem Road, West Kensington.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	AUGUST.
18 Wed.	FURTHER EXTRAORDINARY GENERAL MEETING, 429, Strand, London, W.C., 2 p.m.
19 Thur.	London: Insurance Acts Committee.
25 Wed.	London: War Emergency Committee, 2 p.m.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, AUGUST 21st, 1915.

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HIGHLANDS AND ISLANDS MEDICAL BOARD.

SCHEMES FOR GRANTS.

SCHEMES framed by the Highlands and Islands (Medical Service) Board providing for (A) grants to medical practitioners, (B) grants to district nursing associations, (C) grants to hospitals and for ambulance services, (D) grants towards the provision or improvement of houses for doctors and nurses, (E) grants towards specialized services, (F) grants towards telegraph and telephone facilities, have been approved by the Secretary for Scotland with the consent of the Treasury, and issued on August 16th.*

A.—GRANTS TO MEDICAL PRACTITIONERS.

General Conditions under which Medical Practitioners will be eligible to participate in Grants from the Highlands and Islands (Medical Service) Fund.

1. The purpose for which the Fund has been created is, as defined in Section 1 (2) of the Highlands and Islands (Medical Service) Grant Act of 1913, for "improving medical service, including nursing, in the Highlands and Islands of Scotland, and otherwise providing and improving means for the prevention, treatment, and alleviation of illness and suffering therein."

2. While the Board have in contemplation various schemes for the prevention, treatment, and alleviation of illness and suffering within their area, the first and most pressing need is, in their opinion, for the adoption of means whereby an efficient medical service can be brought within the reach of persons of the crofter and cottar classes and their families, and others in like circumstances, at fees which they can reasonably be expected to pay, it being understood that the cost of such medical attendance shall not be increased by reason of their distance from the residence of a medical practitioner.

3. The first step, therefore, which the Board propose to take is to endeavour to adjust with the various practitioners the subsidy that may be payable to them in order that they may be in a position to offer an adequate medical service at fixed and reasonable charges to persons of limited means, irrespective of their distance from the doctor. The introduction of low uniform fees, or a system of annual payments within the means of such persons, for medical attention will no doubt result in more work for the doctor, and, in many cases, a considerable addition to his travelling expenses, but it is precisely to meet this that

the Board believe that a considerable part of the funds at their disposal should be applied.

4. It is important that it should be made quite clear at the outset what the funds at the disposal of the Board amount to. The annual grant-in-aid voted by Parliament is £42,000. The grant of £10,000 previously voted in aid of mileage and other special charges connected with attendance on insured persons in the Highlands and Islands is, however, included in the annual grant-in-aid, and the additional grant provided for by the Act of 1913 is therefore £32,000. For the current year no payments will be made by the Insurance Committees in respect of mileage for attendance on insured persons, but the subsidy payable to the doctor will be arranged on a footing that will cover the travelling expenses involved in attendance on insured persons as well as on all others entitled to receive medical attention under any arrangement between the doctor and the Board.

5. With a view to the provision of a more effective general medical service the Board also propose, according to circumstances, to attach certain general conditions to the payment of grants to medical practitioners. Amongst these the following may be enumerated:

(a) That within the area of his ordinary practice the doctor shall visit systematically and when asked to do so all persons in need of medical attention.

(b) That, in single-practice areas, he shall continue to give attendance to Poor Law and insured patients in accordance with his agreements with the parish council and Insurance Committee respectively; and that he shall, when required by the Board, undertake, on terms and conditions to be approved by the Board, such duties as the public health authorities of the district may desire him to perform.

(c) That wherever practicable he shall give, when required, personal attendance in midwifery cases.

(d) That he shall arrange for regular and systematic visits to certain localities on fixed days.

(e) That, in suitable cases, and according to circumstances, he shall provide himself with a motor-car, motorcycle, motor-boats, or other means of conveyance, and use it, so far as practicable, in his practice.

(f) That he shall give such regular attendance at schools, or elsewhere, on such terms as may be agreed upon with the School Board or the Secondary Education Committee, with the approval of the Board, for the treatment of diseases and defects disclosed by the medical inspection of school children.

(g) That he shall keep a classified register, to be supplied by the Board, and to be open to inspection by a duly accredited representative of the Board, of cases attended under arrangements with the Board, showing in each case the number of visits paid, the distance of the patient from his house, and the fees collected.

6. The claims of individual practitioners fall into two main categories. First, there is the case of single-practice areas in insular districts, or in wide and sparsely-populated districts on the mainland, where the service of separate doctors cannot be dispensed with, but where the total professional income is entirely inadequate either as a

* The memorandums can be purchased, 6d. each, either directly or through any bookseller, from H.M. Stationery Office, Scottish Branch, 23, North Street, Edinburgh.

fair recompense for the work involved, or as an inducement to a suitable medical man to settle in the locality. Second, there is the case of multiple-practice areas or districts where there are several doctors whose practices overlap to some extent and who, in most cases, have patients of very limited means or insured persons living at a considerable distance.

In the first case it may be necessary to guarantee such a supplement to the income of the doctor as will bring his total emoluments up to a fixed sum after he has paid all rates and taxes (other than Income Tax) and such approved charges under the heads of travelling expenses and house rent as, in the circumstances, may appear to the Board to be appropriate.

In the second case referred to above, the arrangement with the doctor will take the form of a payment in respect of additional work and any increase in travelling expenses involved in giving medical attention at modified fees to patients living at a distance.

7. While the salaries paid to medical practitioners by parish councils for attendance on the registered poor and on other persons entitled to medical relief might be held to cover the cost of locomotion so far as attendance on such persons is concerned, it would be extremely difficult in practice to apportion the doctor's travelling expenses as between persons entitled to free medical attendance and persons entitled to attendance under arrangements made with the Board. But where the provision of travelling facilities under any public service enables the doctor to overtake these public duties more expeditiously there is obviously a saving of time, which can, to some extent at least, be set against the extra work that may be involved in the fuller medical service which will be available for the community as a whole.

The provision of a reasonably full service of well qualified nurses, and the possibility of it being made a requirement that special calls for the doctor's services from remote localities should be made through the nurse, should help to save the doctor's time and to keep down his travelling expenses.

It is the intention of the Board to assist, where necessary and as far as may be practicable, in the provision and improvement of houses for doctors throughout their area.

From what has already been said, it is clear that the allowances payable to doctors will, in every case, fall to be reconsidered from year to year in the light of the experience of the previous year's working of the scheme, and also in the light of any new factors affecting the medical service in the district, that may arise from time to time.

8. Always provided that the fees to be charged to persons receiving medical attention under arrangements made with the Board are strictly reasonable, and such as, in all the circumstances, the Board can approve, they desire to interfere as little as possible between the doctor and his patient in the matter of payment for services rendered. The question of securing the maximum local contribution to the medical service, in the shape of fees, depends to some extent on the system of payments that has been in use in the district. All medical practitioners making a claim on the Fund will be invited by the Board to frame a tariff of fees suited to local circumstances, whereby persons of limited means may be assured of medical attendance at a low uniform fee per visit, or by a system of annual payments per individual or per family. In other than single-practice areas the Board will endeavour to allow a free choice of doctor to persons coming under any scheme of medical attendance arranged by them so far as this may be found to be practicable, and so long as it does not materially add to the cost of the scheme.

A separate charge should, as a rule, be made for medicines supplied by the doctor to persons receiving medical attention under arrangements with the Board, the cost to the patient being kept as low as possible. But if, in any district, or for any particular class of patients, it has been customary for the doctor to make an inclusive charge for advice and medicines the Board may, if they are satisfied that the charge is reasonable, agree to a continuance of the custom. Arrangements for the supply of expensive drugs or appliances at anything less than cost price may be made only with the special approval of the Board, if any such arrangement would involve a charge on the funds at the disposal of the Board.

Medicines for insured persons will be provided in

accordance with the arrangements made on their behalf by Insurance Committees.

9. From the suggestions which have reached the Board from various local bodies, and persons interested in medical services in the Highlands and Islands, it would appear that, except in a few localities, there is no pressing need for additional medical practitioners, if adequate travelling facilities are provided to enable doctors to overtake their work. The Board recognize, however, that this view may be modified when all that is involved in a full and efficient medical service comes to be realized. In the districts where additional medical assistance is required the Board will endeavour to arrange with the existing practitioners for a fair division of the work as between them and any new medical man who may be appointed. In some cases the difficulty may be met by the appointment of an assistant to the doctor already in practice in the district. But, in view of the present scarcity of doctors,^{*} the Board can hope to overtake this part of their work only by degrees.

10. The Board hope to give assistance towards the provision of certain specialized services such as the examination and treatment of eyes, ears, and teeth, medical consultations, assistance at operations, and other approved forms of special medical service. Arrangements for this branch of the Board's work will be made after consultation with county and district medical officers of health, school medical officers, Secondary Education Committees, Insurance Committees, and representatives of the medical profession in the various districts. In considering the question of assistance towards provision, by school clinics or otherwise, for the medical treatment of school children, the Board will have regard to the imperial funds available to school boards and Secondary Education Committees for this purpose.

11. So far as practicable, arrangements will be made to enable medical practitioners subsidized by the Board to be absent for a fixed period for the purposes of a holiday, or post-graduate study, or during illness, or for other approved reasons. Such assistance will usually take the form of a grant towards the cost of employing a deputy if the services of a doctor in the direct employment of the Board are not available.

12. As a condition of grants to any practitioner the Board must be satisfied as to the efficiency of the service both as regards his fitness for the work he is called upon to do for the Board, and as regards the manner in which he discharges his duties. Where the Board are satisfied that any medical practitioner employed or subsidized by them is not giving efficient service in terms of any scheme under the Highlands and Islands (Medical Service) Grant Act, 1913, no part of the funds at the disposal of the Board shall, after reasonable notice, be applied towards the remuneration of such practitioner.

13. Generally, the Board propose to take all necessary steps to satisfy themselves that the whole local income available for medical services in the various districts in their area is being maintained, and that the general principle which the Lords Commissioners of His Majesty's Treasury have taken occasion to lay down is being observed—namely, "That the grant should be devoted wholly to increasing and improving the medical and kindred services in the Highlands and Islands, and in no degree to relieving those who at present bear the cost of these services, or any part of that cost." Accordingly, the Board propose to make it a condition of grant to, or in respect of, any medical practitioner employed or subsidized by them who may, at the same time, be employed by a parish council in terms of the Poor Law Acts that, except with the special sanction of the Board, a salary calculated on the average salary of the three years ended May 15th, 1914, shall continue to be paid by the parish council to such practitioner in respect of attendance on the registered poor and other persons entitled to medical relief, and that any fees or other remuneration that have hitherto been paid, or that may in future be payable, for certification and visitation of lunatics and defectives and for vaccination, shall be duly paid to the practitioner.

* In the exceptional circumstances of the present time, and so long as the services of suitable doctors are not available, certain districts that may reasonably hope to see a separate doctor established in their midst must, in the meantime, be content with the help that the Board can give in the shape of additional travelling facilities to the existing practitioners.

B.—GRANTS TO DISTRICT NURSING ASSOCIATIONS.

The Memorandum in regard to district nursing associations and as to the general conditions under which such associations will be eligible to participate in grants from the Highlands and Islands (Medical Service) Fund is as follows:

The Board desire to call the attention of district nursing associations, county councils, public health authorities, parish councils, Secondary Education Committees, school boards, and other bodies and persons interested in nursing in the Highlands and Islands to the annexed statement of general conditions under which district nursing associations will be eligible to participate in grants from the Highlands and Islands (Medical Service) Fund.

The Board are of opinion that a well-organized nursing service is the natural corollary of any efficient medical service. They are, accordingly, prepared to treat in a liberal spirit all reasonable proposals for the maintenance or extension of the nursing service wherever anything like adequate local support is forthcoming. But they would view with concern any indication that the local efforts, on which this branch of the service has hitherto had to depend for its existence, were likely to be relaxed in anticipation of grants from the Board. The qualifications of nurses will always require careful scrutiny, having regard to the work which they will be called upon to perform. In most cases, the nurse should have had a training in midwifery sufficient to enable her to act in cases where the services of a doctor may not be available. In addition, an adequate general medical and surgical training will be necessary wherever the nurse is required to assist, in the domiciliary treatment of tuberculosis, in the treatment of diseases and defects of infants and school children, or in promoting among the people a knowledge of personal and household hygiene. The claims of island communities for the services of well-qualified nurses, where the population is not sufficiently large to warrant the appointment of resident medical practitioners, will receive sympathetic consideration. Nurses have already been sent with the help of the Board, and on a temporary footing, to some of the more remote islands, and these provisional arrangements will now fall to be incorporated on a more permanent basis in the general nursing schemes of the Board. The Board will endeavour to utilize to the full the existing nursing organizations, and the services of nurses in the employment of such organizations. There should be in every parish, or group of parishes, a nursing association to act as the managers of the local nursing scheme, to keep alive local interest, and, generally, to see that the nurse duly performs her duties under the direction of the medical practitioner. Larger nursing associations on a county or other basis would serve a most useful purpose in the matter of organization. By helping to form new nursing areas, or to rearrange existing ones where necessary, and by maintaining a sufficient number of relief nurses, or nurses specially qualified for emergency work, such associations would materially assist the Board in the development of an efficient nursing system throughout their area.

With a view to providing for a more effective general nursing service the Board will endeavour to arrange that the services of nurses employed or subsidized by them, whether directly or through nursing associations, or otherwise, shall be made available to county councils, public health authorities, Secondary Education Committees, school boards, and parish councils in respect of cases for which these bodies may desire the services of a nurse or for whose nursing they may be responsible.

Proper housing accommodation for nurses is a matter to which the Board attach much importance, and they will be prepared to consider the question of providing or of giving assistance towards providing houses for nurses in suitable cases. But, in view of the fact that the number of nurses employed in the Highlands and Islands will be considerably increased as the result of the Board's grants, they think that wherever fairly convenient houses can be rented, or suitable lodgings can be procured, the question of the erection of houses should be deferred till any necessary readjustment of districts has been effected, and until experience has shown where the nurse should be stationed for her own convenience and for the convenience of those to whom she will give attendance.

General Conditions under which District Nursing Associations will be Eligible to Participate in Grants from the Highlands and Islands (Medical Service) Fund.

1. The Highlands and Islands Medical Service Board must be satisfied as to:

(a) The constitution, organization, and management of the Association.

(b) The need for assistance from the Fund, regard being had to the circumstances of the district.

(c) The maintenance of a reasonable local contribution towards the expenditure.

(d) The accounts of the Association.

(e) The efficiency of the nursing service, including arrangements for the supervision of the nurse's work by a duly qualified medical practitioner.

(f) The terms on which nurses are made available for nursing services to the various classes of the community.

2. The Association must, within its present area or such other area as may be arranged, undertake responsibility for the employment, housing, payment of salaries and travelling and other expenses of the nurses, and for the provision of substitutes for them during their absence on holiday or on account of illness.

3. The Association must submit for the approval of the Board a statement of the qualifications of all nurses before their appointment, and a copy of the rules under which they work.

4. The nurses must reside at the centres deemed to be most suitable for the work of their respective districts.

5. The Association must arrange that its nurses shall be prepared to act under the direction of the local medical practitioner, and, in so far as they are qualified and if required by the Board to do so, in the treatment of diseases and defects in school children as disclosed by the system of school medical inspection, in the domiciliary treatment of tuberculosis, the domiciliary nursing of infectious diseases, in maternity and general medical and surgical nursing, and in the nursing of the registered sick poor and old age pensioners:

Provided that where a district nurse is employed in nursing a case of infectious disease treated at home, arrangements shall be made for relieving her of her ordinary duties while she is so engaged if, in the opinion of the doctor in attendance, such an arrangement is necessary in the interests of the community.

6. The Association must keep accounts showing particulars of income from all sources and of expenditure, and, at the beginning of each year or on such date as may be arranged, it must submit to the Board a statement of its accounts for the past year and an estimate, on a form to be supplied by the Board, of its income from all sources and of its proposed expenditure, including any necessary expenses of management.

N.B.—The foregoing regulations are intended to apply mainly to existing nursing associations organized on the basis of a parish or group of parishes and employing, as a rule, one or two nurses, and to new associations formed on a similar basis. Schemes proposed by nursing associations on a larger basis, such as that of a county or district of a county, will be considered individually by the Board.

C.—GRANTS TO HOSPITALS AND FOR AMBULANCE SERVICES.

General Conditions under which Grants will be made from the Highlands and Islands (Medical Service) Fund towards Capital Expenditure and Maintenance of Hospitals, and for the Provision of Ambulance Services in Connection therewith.

I. HOSPITALS.

1. In considering applications for grants, the Highlands and Islands Medical Service Board must be satisfied as to—

(a) The constitution, organization, and management of the hospital.

(b) The need for assistance from the Fund, regard being had to the circumstances of the district.

(c) The maintenance of a reasonable local contribution towards the expenditure.

(d) The accounts of the hospital.

(e) The sufficiency of the medical and nursing staff and as to their qualifications.

(f) The terms and conditions on which patients, treated under arrangements with the Board, may be admitted to the hospital.

2. The Board may make it a condition of grant that a representative of the Board is associated with the board of management or trustees.

3. The Board may require, as a condition of the payment of grants to a hospital, that it shall be open for the reception and treatment of patients from such districts as the Board may determine, and the districts from which patients will be received, under arrangements with the Board, must be specified.

4. Where under a Trust Deed or other instrument a hospital is reserved to a particular class of patients or to patients from a specified area, steps must be taken by the trustees or managers to ascertain how far the constitution can be modified so as to permit of the admission of other patients if it is desired to increase the usefulness of the hospital with the help of grants from the Board.

5. No grant will be made towards capital expenditure or maintenance of hospitals or institutions established under the Poor Law Acts or Public Health Acts for the treatment of the registered sick poor or for the treatment of infectious diseases.

II. AMBULANCE.

1. In considering applications for grants from the Fund for the provision of an ambulance service or for assistance towards such provision, and the upkeep thereof, the Board must be satisfied as to—

(a) The need for the provision or improvement of an ambulance service, regard being had to the circumstances of the district.

(b) The area for which such a service will be available.

(c) The conditions under which the service will be at the disposal of the persons for whom it may be needed.

(d) The provision for the proper housing, care, and custody of the ambulance.

2. No grant will be payable to any public health authority in respect of the provision or maintenance of an ambulance used exclusively for infectious diseases. But if in any district separate services for infectious and for general medical and surgical cases are not required, the Board would be prepared to consider any scheme whereby a single service might be available for all cases, provided the construction of the ambulance is such as to lend itself readily to the process of disinfection, and provided due precautions are taken by the public health authorities for its disinfection after its use for infectious cases. As a rule, the scheme for an ambulance service should be arranged by the public health authority, with the approval of the authorities of the general hospital of the district, and must provide for the requirements set forth in Section 1 above.

3. The Board may require, as a condition of the payment of any grant towards the provision of the ambulance, or the upkeep thereof, that it shall be available for use in such districts as the Board may determine, and the districts served by the ambulance must in all cases be specified.

D.—GRANTS TOWARDS THE PROVISION OR IMPROVEMENT OF HOUSES FOR DOCTORS AND NURSES.

Scheme providing for the General Conditions under which Grants will be payable from the Highlands and Islands (Medical Service) Fund towards the Provision or Improvement of Houses for Doctors and Nurses.

1. The Board regard the provision and improvement of houses for doctors and nurses as a matter of much importance, and they are prepared to consider applications for grants from the Fund so far as practicable for this purpose.

2. In Section 3 (3) of the Highlands and Islands (Medical Service) Grant Act, 1913, it is provided that—

Where under any such scheme any money is to be applied by a local authority for any purpose, that authority shall have all such powers for the purpose as the scheme may provide, and, if the scheme so provides, any powers vested in a local authority of acquiring land, or erecting buildings, or borrowing on the security of any rate for any purpose, shall be extended so as to include the purposes of the scheme, and any Act conferring any such power shall be construed accordingly.

3. The Board will, as a rule, proceed in this matter through the agency of the parish council, and where a suitable scheme can be arranged they will be prepared to submit for the approval of the Secretary for Scotland and

the Treasury a special scheme extending the powers of the parish council under Section 3 (3) of the Act.

4. On any application for a grant, the Board must be satisfied that the provision or improvement of a house for a doctor is a necessary part of a scheme for the improvement of the medical service of the district, and that a suitable house in a convenient situation is not available.

5. Before agreeing to a grant towards the purchase of a house the Board will require to be satisfied as to the present value of the property and state of repair, and as to the title and the terms of the conveyance.

6. Where a new house is to be erected with the help of a grant from the Fund the Board must be satisfied as to the site and the title thereto, and as to the plans.^{*} Specifications and estimates must be submitted to and approved by the Board before the work is begun or contracts are made.

7. The title to any property acquired or provided with the Board's assistance will usually be vested in the parish council, but in all cases where a grant is made from the Fund for this purpose provision must be made, to the satisfaction of the Board, for the repayment to the Board of the grant given from the fund in the event of the house being sold or used for any other purpose than as a house for a doctor, unless at any time the Board shall resolve, with the consent of the Treasury, that such repayment or any part thereof shall not be insisted upon.

8. The proportions in which the Board and the parish council may respectively contribute to the initial expenditure and to the upkeep and annual burdens affecting the property shall be matter for arrangement between the Board and the parish council in each individual case, after consultation between the Board and the Local Government Board for Scotland.

9. The Board will be ready to deal in like manner with applications from parish councils or other local bodies or persons for assistance towards the provision or improvement of houses for nurses at suitable centres, and, so far as the funds at their disposal will permit, they are prepared to contribute towards suitable proposals. In this connexion reference should be made to the scheme providing for the general conditions under which district nursing associations will be eligible to participate in grants from the Fund.

10. The Board will not be in a position to consider the question of a grant towards improvements in houses for either doctors or nurses which are private property unless suitable conditions as to lease and subsequent upkeep can be arranged.

11. The conditions under which a medical practitioner or nurse is allowed to occupy a house provided or improved with the assistance of grants from the Fund shall be subject to the approval of the Board.

E.—GRANTS TOWARDS SPECIALIZED SERVICES.

The preliminary scheme indicating the general conditions under which grants will be made from the Highlands and Islands (Medical Service) Fund towards specialized services, including medical consultations, assistance at operations, and the provision of surgical appliances, dentistry, school clinics, and other approved forms of special medical service is as follows:

1. The Board recognize that the inadequacy of the medical service in the Highlands and Islands cannot be entirely removed merely by bringing ordinary medical attention within the reach of the various classes of the community at fees which they can reasonably be expected to pay.

2. The Highlands and Islands (Medical Service) Committee has placed it on record "that apart from specialisms like dentistry, or ophthalmology, or pathological bacteriology, there ought to be much more provision for medical and surgical consultations between local doctors." The Committee add that "there should be provision for assistance at operations, or in difficult confinements, or in the administration of anaesthetics, or in the many classes of unforeseen emergency, where professional discussion and assistance are desirable."

^{*} Model plans, approved by the Board, will be available for the guidance of parish councils and other local authorities.

3. It is clear that the organization of assistance of the kind contemplated by the Committee must depend largely on the existing facilities in the various districts of the Highlands and Islands, on the proximity or availability of well-equipped general hospitals, and on various local considerations in regard to which the Board have not at present sufficiently detailed information.

4. In order that a beginning may be made with this important branch of their work the Board propose to ask the county and district medical officers of health, the school medical officers, one or two representatives of the Local Medical Committees or Panel Committees under the National Insurance Act, the principal medical officer and one other representative of each of the various general hospitals, the chairman or some other member of the Insurance Committee and of the Secondary Education Committee and one or more persons nominated by the Board, to meet at an early date, under the chairmanship of the conveners or vice conveners of the various counties, for the purpose of discussing the whole matter and framing suggestions for the guidance of the Board.

5. The Board feel that recommendations framed by persons so intimately acquainted with the difficulties of medical service in its broader aspects as those referred to in the preceding paragraph would carry great weight, and they will be ready to give the most careful consideration to any proposals that may be put forward.

6. The Board do not desire to anticipate any recommendations that may be made to them, but they feel that there are some general considerations affecting specialized services to which reference might suitably be made, and it might be convenient to refer to them under the following main heads:

- (a) Medical consultations, assistance at operations, and the supply of surgical appliances.
- (b) Dentistry, medical treatment of school children, and school clinics.
- (c) Laboratory facilities.

(a) *Medical Consultations, Assistance at Operations, and the Supply of Surgical Appliances.*

7. The Board believe that the provision of an efficient ambulance service and arrangements with central hospitals, to which reference is made in a separate memorandum, should greatly reduce the number of serious cases treated at home. From all points of view it is obviously the best arrangement that patients in need of specially skilled treatment should be removed at the earliest possible moment to some central hospital or institution where such treatment can be obtained. Generally, the Board feel that, wherever practicable, the patient should be brought to the specialist rather than that the specialist should be sent to the patient.

For purely local consultations—that is, consultations between neighbouring practitioners and for assistance at operations such as a general practitioner usually undertakes—no special provision would seem to be required. Medical men have been accustomed to meet each other in this way in the past, and, in view of the grants to be made to them from the Fund, it is expected that they will be better able to do so in future at fees within the reach of the patient.

8. The remuneration of a specialist for services rendered is a matter that will call for very careful consideration. It may be found to be desirable to make arrangements with specialists whereby, in return for a retaining fee from the Board and modified fees from patients who are unable to pay the usual charges, they shall undertake to visit, as required, a certain area and to treat at a convenient centre patients sent to them for the purpose. In the case of patients of very limited means no additional charge should be made in respect of a consultation or operation, it being understood that the fee payable by them for ordinary medical attendance is all that they can reasonably be expected to meet.

It may further be found to be desirable to make arrangements with physicians or surgeons in various centres whereby, in return for a fee from the Board and modified fees from patients, they shall be prepared to place their advice and assistance at the disposal of local practitioners.

9. The provision of assistance towards obtaining surgical appliances for persons who are not in a position to provide themselves with what is required to make the treatment effective, and who are unable to obtain the same from any

other source, would, the Board think be a legitimate charge on their funds. All such cases would, however, need very careful consideration and, as indicated in the scheme in regard to grants to medical practitioners, would require to be specially reported to the Board.

(b) *Dentistry, Medical Treatment of School Children, and School Clinics.*

10. Where under any scheme of medical treatment school boards or Secondary Education Committees propose to employ doctors or dentists for the treatment of diseases of eyes, ears, and teeth of school children, the Board would be prepared to co-operate with the school boards or Secondary Education Committees in obtaining the services of doctors or dentists—either whole-time or part-time—provided it could be arranged that their services would be available, on terms and conditions to be agreed upon, for the pupils who have left school and for the adult population in need of such treatment.

11. School boards are empowered to provide medical (including surgical and dental) treatment for school children either independently or in combination with one or more other school boards or with the Secondary Education Committee for the district. Where such provision is made to the satisfaction of the Scottish Education Department the school boards are entitled to receive a grant-in-aid from public funds not exceeding one-half of the net expenditure, and in these circumstances the Board do not contemplate that, as a rule, any assistance from the Fund will be required by individual school boards. Where, however, it is proposed to provide special central premises for the purpose of medical treatment of school children the Board would be prepared to consider the question of giving assistance, so far as the funds at their disposal will permit, if it can be shown that, in the special circumstances of the district, the grants from other sources are inadequate for this purpose, and that no other premises are available, and provided that any such special premises will be available, as may be arranged for the purpose of any general scheme of the Board.

12. Where treatment is carried out by the local doctors the Board propose to make it a condition of grants to medical practitioners that they shall give such regular attendance at schools or elsewhere on such terms as may be agreed upon with the school board or Secondary Education Committee, with the approval of the Board, for the treatment of diseases and defects disclosed by the medical inspection of school children. Similarly, as a condition of grant, district nursing associations must be prepared to arrange that their nurses shall act under the direction of the local medical practitioner, in so far as they are qualified, and if required by the Board, to do so, in the treatment of school children upon terms and conditions to be agreed upon between the school board and the association with the approval of the Board.

(c) *Laboratory Facilities.*

13. Individual doctors in certain districts maintain small pathological laboratories and provide vaccines of various kinds. But, while independent work of this kind might suitably be encouraged, the pathological service should not be left to the accident of locality or to the intellectual interests of individuals. It will be the endeavour of the Board to place this branch of medical service on an organized footing, and to bring medical men in the Highlands and Islands into closer touch with the laboratories at the great medical schools. Whether this can best be done through the agency of the public health authorities, or directly by the Board, or otherwise, has yet to be determined, but the matter is one which will be specially considered in connexion with the questions already referred to.

F.—GRANTS TOWARDS EXTENSION OF TELEGRAPH AND TELEPHONE FACILITIES.

The general conditions under which grants will be made from the Highlands and Islands (Medical Service) Fund towards the extension of telegraph and telephone services in connexion with the improvement of the medical and nursing service in the Highlands and Islands, are set out as follows:

1. The part of the Fund which can be utilized for the purpose of such extensions is strictly limited, and the Board could

undertake to share only to a very limited extent and in suitable circumstances in any guarantee required by the Post Office in connexion with extensions which are required for general business purposes or for the convenience of the general public, and only in so far as such extensions would serve a distinct purpose for the improvement of the existing medical and kindred services.

2. The main purpose for which payments from the Fund will be made will be the connecting up of doctors' and nurses' houses and hospitals with central call offices or Post Offices where suitable arrangements can be made.

3. Where the telephone is already used at any telegraph office in a country district the Board would be prepared to consider the question of the payment of the rent or a contribution towards the cost of a circuit to the local doctor's or nurse's house on a representation from the parish council or other local body that such an extension would be advantageous to the public from the point of view of the medical and nursing services of the locality. But no representation could be considered unless exact information were placed before the Board as to—

(a) The cost involved.

(b) To what extent the proposed facilities would improve the medical or nursing services, that is, to what extent the public would be placed in closer touch with the doctor or nurse.

4. It is obvious that the question of telegraph and telephone extension could be considered from the point of view of a single parish only in such local extensions as those referred to in the preceding paragraph. Larger schemes would, as a rule, affect several parishes, and must in all cases be considered in connexion with the existing facilities. Where such is the case, the Board would be ready to consider any representation prepared by the district committee or the county council giving the information indicated in the previous paragraph.

Appended to this scheme is a copy of a memorandum supplied to the Board by the Postmaster-General, showing the lines upon which he is in a position to arrange for the extension of telegraph and telephone facilities. As suggested in that memorandum, the local bodies should in the first place communicate with the Secretary, General Post Office, Edinburgh, in regard to any scheme that they think to be necessary in order that inquiry may be made and terms quoted.

WAR EMERGENCY COMMITTEE.

- Dr. T. Jenner Verrall, Bath, *Chairman*.
 Sir William Osler, Bt., F.R.S., Oxford.
 Sir T. Clifford Allbutt, F.R.S., Cambridge.
 Dr. Frederick Taylor, President Royal College of Physicians, London.
 Sir Rickman Godlee, Bt., Ex-President Royal College of Surgeons of England.
 Professor Harvey Littlejohn, Dean of the Faculty of Medicine, University of Edinburgh.
 Dr. A. E. Shipley, F.R.S., Master of Christ's College, Cambridge.
 Sir Alex. Ogston, K.C.V.O., LL.D., Aberdeen (President, British Medical Association).
 Mr. E. B. Turner, F.R.C.S., London (Chairman of Representative Meetings, British Medical Association).
 Dr. J. A. Macdonald, Taunton (Chairman of Council, British Medical Association).
 Dr. Edwin Rayner, Stockport (Treasurer, British Medical Association).
 Lieutenant-Colonel Sir James Barr, M.D., Liverpool.
 Lieutenant-Colonel R. A. Bolam, Newcastle-on-Tyne.
 Major J. Galloway, London.
 Dr. C. Buttar, London.
 Major Russell Combe, Exeter.
 Major W. J. Greer, Newport, Mon.
 Major Albert Lucas, Birmingham.
 N. Bishop Harman, F.R.C.S., London, }
 Alfred Cox, M.B., Medical Secretary, } *Secretaries*.
 British Medical Association.

It was announced last week that the Chairman and Secretaries of the War Emergency Committee established by the British Medical Association had addressed a letter to every medical practitioner in England and Wales, except those at present on active service, pointing out the urgent need of the army for medical practitioners under 40 years of age. The Committee has since issued the following letter to Honorary Secretaries of Divisions of the British Medical Association, and of local War Emergency Committees, and to the Honorary Secretaries of Branches of the British Medical Association for their information.

War Emergency Committee.

Offices:
 429, Strand, London, W.C.
 August, 1913.

Dear Sir,

We are instructed by the War Emergency Committee to send you a copy of a letter just issued to every practitioner in England and Wales who is not on whole-

time active service.* The issue of this letter is the first step in what it is hoped will be a most active campaign for the enlistment of every medical man of military age who can possibly be spared.

The Committee is well aware of the great sacrifice which the acceptance of a commission entails on many medical men who join the army, but in view of the statements made to it by Sir Alfred Keogh, the Committee feels it to be its duty to press on the profession the absolute necessity of such sacrifices being made, if the medical demands of the army are to be met. The Committee particularly wishes to impress upon you the fact that it has been convinced by irrefutable arguments and figures that the demand is both great and urgent.

As you will see, the Director-General has authorized the War Emergency Committee to act as his agents in securing medical men for commissions, and the Committee has accepted the responsibility, feeling sure of the support of the profession throughout the country. It now asks you as Secretary of a Division of the British Medical Association or of a local War Emergency Committee to organize the profession in your area so that your quota of medical men may be secured.

Acting on the information given to it by the Director-General as to the number of medical officers required, the Committee has decided that your area should be expected to produce . . . whole-time military medical officers. The way in which this number is secured must be left very largely to local initiative. It is essential, however, that the effort should be made and *at once*. If you have a local War Emergency Committee, it should at once set about interviewing the practitioners of military age with a view of making it possible for them to apply for commissions. Practitioners above the military age will be doing their duty if they throw themselves into the task of so arranging their work that they can do the work of those who are willing to take commissions. The Committee is assured that before the war is over the military authorities will need a great deal of the part time service which has been so freely offered by the profession. The need *at present*, however, is for whole-time men of about 40 years and under.

If you have no local War Emergency Committee, the machinery of the Division should be set to work to establish one, and it should be made representative of all practitioners in the area, both members and non-members of the Association.

Enclosed is a list of all the men of 45 and under resident in your area, so far as has been ascertained by the replies to our War Register circular. The following is suggested as an outline of what your local War Emergency Committee should do:

- (1) Interview all the practitioners of military age.
- (2) Get such of them as are prepared to do so to sign a copy of the application to the War Office for a commission, a supply of which is enclosed; more will be sent on application here.
- (3) Ascertain the earliest dates at which such practitioners can be freed to commence service.
- (4) Draw up agreements between the practitioner volunteering for service and his local colleagues as to the working of his practice during his absence. Appended will be found suggestions which will, it is hoped, serve as a basis for a local agreement. The War Emergency Committee will be glad to advise local committees on any difficulties that may arise.
- (5) Get the practitioner to appoint a legal representative who can be consulted on his affairs during his absence.
- (6) Send up the completed forms to us as soon as possible, after noting the names of those offering service on your local list.

This Committee will be glad to advise your local Committee as to any difficulties which arise in making arrangements for the carrying on of practices, or as to any other matter connected with the safeguarding of the interests of men who accept service.

Please advise us as soon as possible either that your Committee has begun work, or that a committee will at once be formed, and keep this Committee in touch with what is going on.

* The text of this letter was published in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL of August 14th, p. 86.

The War Emergency Committee, in pressing that no time shall be lost in dealing with this matter, trusts you will believe that this urgent appeal for your assistance is based on definite knowledge that the occasion is one which brooks no delay. A great responsibility rests on the profession of any area which fails to rise to the occasion. In the words of the Director-General, the War Emergency Committee feels that "the claims of the Army Medical Service cannot be pressed too strongly."

We are,

Yours faithfully,
T. JENNER VERRALL, *Chairman*.
N. BISHOP HARMAN, } *Secretaries*.
ALFRED COX, }

P.S.—The Editor of the BRITISH MEDICAL JOURNAL is trying to publish lists of the sons of doctors who lose their lives in the war. The idea, unfortunately, did not occur at the beginning, so that there are considerable arrears. As the official lists do not state anything as to the percentage of officers or men killed, the Editor must depend largely upon the assistance of parents, and it is hoped that you will be so good as to take any opportunity you may have, informally, of making the proposal known to members of your Division. The Editor would, of course, be grateful for any assistance you can yourself give.

APPENDIX.

SUGGESTIONS AS TO LOCAL ARRANGEMENTS.

A.—The following suggestions as regards the division of remuneration between the practitioner on service and the practitioner or practitioners doing his work are taken from the circular of the Scottish Medical Service Emergency Committee:

CLASS I.—*Town Practice*.—Large towns where the question of mileage is not a very important consideration. Here it is suggested that an equal division of the remuneration should be agreed upon, this to apply both to private and insurance practice. Where a bureau is in operation the plan should be to deduct the expenses of working from the receipts and divide the balance equally.

CLASS II.—*Town and Country Practice*.—Towns with a considerable population, but with a large amount of country work, necessarily involving the question of travelling expenses. It may be possible to ascertain these with more or less exactness, but as a general rule probably a division of all remuneration on the basis of three-eighths to the absentee and five-eighths to the man who is doing all the work and paying all the expenses is the nearest to equity.

CLASS III.—*Country Practice*.—Smaller centres or single practice areas where the question of travelling expenses and consumption of time becomes still more important. In such, three-fourths at least should be allotted to the man who is doing the work.

B.—The following letter and form of undertaking issued by the Mid-Cheshire Division of the British Medical Association may be found useful and suggestive:

Several medical men in the area of this Division are offering themselves, and have asked the Division to help them in making arrangements as to carrying on their work while they are away, and restoring their practices to them intact on their return.

At the last meeting of the Division a subcommittee was appointed to consider the matter, and this subcommittee has decided to ask every medical man in practice in this area to undertake that he will attend any patients of a man on service for him during his absence, and that he will refuse to attend any patients he thus comes in contact with as his own patients for at least six months after the absentee's return.

[Note (by War Emergency Committee).—*Twelve months is the more usual arrangement.*]

It is arranged that all fees for confinements attended for an absentee shall belong to the medical man who attends the case, and that all other fees paid for work done shall be equally divided between the absentee and the doctor who has acted for him.

The subcommittee realizes that much extra work will be thrown on practitioners, and it is clear that any doctor must have the right to refer such patients of the absentee as he cannot find time to attend to some other doctor.

The subcommittee expects that no medical man will feel disinclined to assist his country and his professional friends who are making such a great sacrifice,

and it therefore instructs me to ask you to sign the enclosed undertaking, and send it to me by return of post.

BRITISH MEDICAL ASSOCIATION.
To the Honorary Secretary of the Mid-Cheshire Division.

Dear Sir,
I hereby promise on my word of honour that if any persons, who are ordinarily patients of any medical man practising in this neighbourhood who is on active service with the Forces, consult me during his absence, I will attend them for him (on the terms arranged by the Division's Subcommittee appointed for the purpose) and will refuse to act as their medical attendant on my own behalf from the date of his return until at least six months have elapsed. Also I will in every way do all in my power to safeguard the absentee's interests with the patients I attend for him, and to induce them to return to him when he resumes practice.

Signed.....
Date.....

Terms arranged are: Equal division of all fees, other than confinements, between the absentee and the doctor who attends the patient; the whole fee in the case of confinements to belong to the doctor who attends the case.

British Medical Association.

EXTRAORDINARY GENERAL MEETING.

ALTERATION OF ARTICLES OF ASSOCIATION.

An Extraordinary General Meeting of the British Medical Association, adjourned from Wednesday, August 11th, 1911, was held at the registered offices of the Association, 429, Strand, London, W.C., on Wednesday, August 18th, 1915.

In the absence of the President (Sir Alexander Ogston), Dr. J. A. MACDONALD, Chairman of Council, took the chair. Mr. GUY ELLISTON, Financial Secretary and Business Manager, read the notice convening the meeting.

The minutes of the Extraordinary General Meeting of July 24th having been signed by the CHAIRMAN, he explained that the meeting was a purely formal one and was called for the purpose of confirming the Resolutions passed unanimously by an Extraordinary General Meeting of the Association held at the Connaught Rooms on July 24th, 1915. He accordingly moved *seriatim* the following resolutions, which were duly confirmed:

1. That Articles 3, 43 and 44, and the words "whether an existing Member or a future Member" in Article 9, be cancelled.
2. That in Article 4 there be inserted immediately after the word "Acts" the words following, "and any Medical Practitioner who does not reside within the area of any Branch of the Association and who though not so registered is possessed of any of the qualifications described in Schedule (A) of the Medical Act, 1857."
3. That in Heading III. immediately after Article 11 the word "and" be substituted for the word "or."
4. That in Article 23 the last six words be altered so as to read "provisions as to Referendum hereinafter contained."

NOTIFICATION OF BIRTHS ACT.

The following is the text of the Notification of Births (Extension) Act, 1915:

CHAPTER 64.

An Act to extend the Notification of Births Act, 1907, to Areas in which it has not been adopted, and to make further provision in connexion therewith for the Care of Mothers and Young Children. (29th July 1915.)

BE it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

1. *Extension of Notification of Births Act, 1907* (7 Edw. VII, c. 40).—(1) The Notification of Births Act, 1907 (in this Act referred to as the principal Act), shall, on and after the first day of September, nineteen hundred and fifteen, extend to and take effect in every area in which it is not already in force, and in the case of an area for which it could be adopted either by the council of an urban or

rural district, or by the county council, shall take effect as if it had been adopted by the council of the district.

(2) Where by virtue of this Act the principal Act comes into force in any county district in which it is not already in force, the medical officer of health shall send duplicates of any notices of birth received by him under that Act to the county medical officer of health as soon as may be after they are received.

(3) Where by virtue of this Act the principal Act comes into force in any area in which it is not already in force, it shall be the duty of the local authority to bring the provisions of the principal Act to the attention of all medical practitioners and midwives practising in the area.

2. *Arrangements for Attending to Mothers and Young Children (54 and 55 Vict. c. 76).*—(1) Any local authority within the meaning of the principal Act (whether a sanitary authority or not) may, for the purpose of the care of expectant mothers, nursing mothers, and young children, exercise any powers which a sanitary authority has under the Public Health Acts, 1875 to 1907, or the Public Health (London) Act, 1891, as the case requires.

(2) Any expenses incurred in the exercise of these powers shall be defrayed in the same manner as expenses of the local authority are defrayed under the principal Act.

Any such powers may be exercised in such manner as the authority direct by a committee or committees which shall include women and may comprise, if it is thought fit, persons who are not members of the authority. Any such committee may be empowered by the authority by which it is appointed to incur expenses up to a limit for the time being fixed by the authority, and, if so empowered, shall report any expenditure by them to the authority in such manner and at such times as the authority may direct. A committee appointed for the purposes of this section shall hold office for such period not exceeding three years as the authority by which it is appointed may determine.

3. *Application to Scotland and Ireland.*—(1) In the application of this Act to Scotland—

(a) Subsection (2) of section one shall not apply: Provided that the Local Government Board for Scotland may, if they think fit, by order, authorize any two or more local authorities to act together for the purposes of the principal Act and this Act, and may prescribe the mode of such joint action and of defraying the costs thereof.

(b) The following subsection shall be substituted for subsection (1) of section two:—

(1) Any local authority within the meaning of the principal Act may make such arrangements as they think fit, and as may be sanctioned by the Local Government Board for Scotland, for attending to the health of expectant mothers and nursing mothers, and of children under five years of age within the meaning of section seven of the Education (Scotland) Act, 1908 (8 Edw. VII, c. 63).

(2) In the application of this Act to Ireland—

(a) Subsection (2) of section one shall not apply.

(b) The following subsection shall be substituted for subsection (1) of section two:

(1) Any local authority within the meaning of the principal Act may make such arrangements as they think fit, and as may be sanctioned by the Local Government Board for Ireland, for attending to the health of expectant mothers and nursing mothers, and of children under five years of age.

(c) The provisions for the extension of the principal Act shall not apply as respects any rural district; and

(d) The expression "medical officer of health" means, for the purposes both of this Act and the principal Act, as respects any district for which there is a medical superintendent officer of health that officer, and elsewhere the medical officer of health of the dispensary district.

4. *Short Title and Repeal.*—(1) This Act may be cited as the Notification of Births (Extension) Act, 1915, and the principal Act and this Act may be cited together as the Notification of Births Acts, 1907 and 1915.

(2) The enactments mentioned in the Schedule to this Act are hereby repealed (except as respects rural districts

in Ireland) to the extent specified in the third column of that Schedule.

SCHEDULE.

Session and Chapter.	Title.	Extent of Repeal.
7 Edw. VII. c. 40.	The Notification of Births Act, 1907.	In section one, the words "in which this Act is adopted by that authority in accordance with the provisions of this Act," in subsection (1) the words "in an area in which this Act is adopted," and in subsection (4) the words "whose sub-district or any part thereof is situate within any area in which this Act is adopted." Subsections (1) (2) and (3) of section two, and in subsection (4) the words "who may adopt the Act either for their whole county or for any county district therein." Section three. The Schedule.

GENERAL MEDICAL COUNCIL.

EXECUTIVE COMMITTEE.

A MEETING of the Executive Committee was held on July 26th, when Sir DONALD MACALISTER was in the chair, and Sir Henry Morris, Mr. Tomes, Mr. Hodson, Dr. Norman Walker, Sir John Moore, and Sir Charles Ball were present.

RECIPROCITY WITH CANADA.

Saskatchewan.

A communication dated June 10th was received from the Clerk to the Privy Council stating that an Order in Council had been made recognizing the Province of Saskatchewan in the Dominion of Canada as a separate British possession, applying to it the second part of the Medical Act, 1886. It was reported that application had been made to the Registrar of the Medical Council, Saskatchewan, for further information as to the course of study and examination required. The Executive Committee adopted the following resolution:

That in the event of information being received that the arrangements for reciprocity with the Province of Saskatchewan have been satisfactorily completed, and that a course of professional study extending over five years has been instituted in the province, the President be empowered on behalf of the Executive Committee to direct the Registrar as follows:

That any person who holds the licence of the College of Physicians and Surgeons of Saskatchewan, granted after examination in medicine, surgery, and midwifery, together with the licence to practise in the province, shall be entitled to be registered in the Colonial List of the *Medical Register*, provided he satisfies the Registrar of the General Medical Council regarding the other particulars set forth in Part II of the Medical Act, 1886.

That the attention of the Council of the College of Physicians and Surgeons of Saskatchewan be called to the resolution of the General Medical Council of June 5th, 1890, requiring that the course of professional study should occupy at least five years, and the Council be informed that the foregoing resolution becomes operative only on condition that such a course is instituted in the province.

Ontario.

Correspondence with the Registrar of the College of Physicians and Surgeons, Ontario, was read. It was reported that a telegram had been received, in reply to an inquiry, stating that the College had adopted the reciprocity legislation, and that a copy of the regulations was in the hands of the Ontario Government. The Executive Committee adopted the following resolution:

That in the event of information being received that the arrangements for reciprocity with the Province of Ontario have been satisfactorily completed, the President be empowered on behalf of the Executive Committee to direct the Registrar as follows:

That any person who holds the licence or membership of the College of Physicians and Surgeons of Ontario, granted after examination in medicine, surgery, and midwifery, together with the licence to practise in the province, shall be entitled to be registered in the Colonial List of the *Medical Register*, provided he satisfies the Registrar of the General Medical Council regarding the other particulars set forth in Part II of the Medical Act, 1886; and

That any graduate in medicine, surgery, and midwifery of the province of Ontario, approved by the College of Physicians and Surgeons of the province, whose name is registered in the Colonial List, shall be entitled to register his medical

degree as an additional title in the Colonial List of the *Medical Register*.

The following are the universities at present approved by the College of Physicians and Surgeons of Ontario:
Queen's University, Kingston, Ontario;
The Western University, London, Ontario, and
The University of Toronto.

Manitoba, Alberta, and British Columbia.

The following report by the Acting Registrar was read:

Report.

With regard to the other Provinces of the Dominion of Canada which are taking steps to secure the extension of Part II of the Medical Act to Manitoba, Alberta, and British Columbia respectively, it was reported that nothing further has been heard since the presentation of the report of May 7th, 1915, except in the case of British Columbia.

On May 28th, 1915, the Registrar, by direction of the President, forwarded to the Clerk of the Privy Council a communication from the Colonial Office asking for the application of Part II of the Medical Act, 1886, to that province, together with the correspondence in regard to the matter and copies of the provincial Medical Acts.

L.M.S. UNIVERSITY OF MADRAS.

A communication was read from the Acting Principal of the Medical College, Madras, giving particulars as to the requirements at the examinations. The Executive Committee adopted the following resolution:

That the Principal of the Madras Medical College be informed that the Executive Committee is not prepared to recognize the L.M.S. degree of the University of Madras, if the pass marks are of a lower standard than those required to obtain the corresponding degree of the University of Bombay—namely, 53 per cent. in Anatomy, 33 per cent. in Physiology and Histology, and 45 per cent. on the total—that is, Anatomy and Physiology and Histology taken together; and for the final examinations 50 per cent. in each of the four subjects (1) Medicine and Pathology; (2) Midwifery and Diseases of Women and Children; (3) Surgery; and (4) Medical Jurisprudence and Hygiene.

And further, that the Committee had been informed that it was the intention of the other Indian universities whose L.M.S. degree had been recognized by the General Council to discontinue granting this or any degree of lower standard than the M.B., B.S. degrees.

SOCIETY OF APOTHECARIES OF LONDON.

A letter was read from the Clerk to the Society of Apothecaries of London stating that two of the surgical examiners—Mr. Warren Low and Mr. Philip Turner—were at the present time in France with the British forces, and that they had, with the approval of the Society, requested Mr. Hugh Lett and Mr. H. S. Pendlebury, both of whom were former surgical examiners, to act in their places. The President stated that he had assented to the suggestion, and his action was approved.

APOTHECARIES' HALL, DUBLIN.

Sir CHARLES BALL stated that Mr. Taylor, owing to illness, had been unable to take up his duties in connexion with the professional examinations of the Apothecaries' Hall on June 28th and 29th, and that the Irish Branch Council had asked Dr. Little to attend on behalf of the Branch Council at the final examination of the Apothecaries' Hall on June 28th, and Sir John Moore at that on June 29th, and had requested them to report thereon to the General Medical Council.

FINANCE.

A report was received *in camera* from the Senior Treasurer on the steps taken by the trustees of the English Branch Council and the Dental Fund to convert the 2½ per cent. Consols held into War Loan stock.

The powers of the Office Site Committee were enlarged to include the provision of suitable furniture for the new premises.

SALE OF LAUDANUM.

A letter was received from the Clerk to the Privy Council transmitting a correspondence with the Pharmaceutical Society of Great Britain. The Lord President of the Council desired the opinion of the General Medical Council on the question whether the Pharmaceutical Society was acting properly in assisting the sale of any preparation of opium that does not comply with the requirements of the new edition of the *British Pharmacopoeia*.

The correspondence which was remitted to the Pharmacopoeia Committee for report was as follows:

The Clerk of the Council,
Privy Council Office, London, S.W.,
July 22nd, 1915.

Sir,—I am directed by the Lord President of the Council to transmit to you the accompanying copy of a correspondence, as marked in the margin,* relating to the sale of laudanum, and to state that His Lordship will be glad to be favoured with any observations the General Medical Council may have to offer thereon, with special reference to the Recommendation passed by the Council of the Pharmaceutical Society in January last.

In the Lord President's view, the question to be determined is whether the Society is acting properly in assisting the sale of any preparation of opium that does not comply with the requirements of the new edition of the *British Pharmacopoeia*.—I am, Sir, your obedient servant,

ALMERIC FITZROY.

The Registrar,
General Medical Council.

(Copy.) 115.749.
Privy Council Office, Whitehall, S.W.,
May 8th, 1915.

Sir,—I am directed by the Lord President of the Council to transmit to you the accompanying copy of a letter received from Dr. P. J. Waldo, His Majesty's Coroner for the City of London and Borough of Southwark, together with a copy of the annual return mentioned in that letter, and to ask you to be good enough to move the Council of the Pharmaceutical Society to favour His Lordship with any observations they may have to offer on the point referred to in the first paragraph of Dr. Waldo's letter, and on pages 10-11 of the return.

You will observe that according to Dr. Waldo's statement, laudanum, that is, tincture of opium, is being made up on a formula distinct from that prescribed by the new edition of the *British Pharmacopoeia*.—I am, Sir, your obedient servant,

ALMERIC FITZROY.

The Secretary and Registrar,
Pharmaceutical Society of Great Britain,
17, Bloomsbury Square, W.C.

(Copy.) Coroner's Office,
Golden Lane, City, E.C.,
May 4th, 1915.

My Lord,—I have the honour to enclose a copy of my annual return for 1914, in which I refer to the important subject of the easy purchase of poisonous drugs, such as tincture of opium or laudanum, under which latter name chemists are selling two kinds of different strength.

My return may, possibly, be of service to you and your Council.—I have the honour to be, your obedient servant,

P. J. WALDO, M.D.,

His Majesty's City Coroner,
The Earl Beaudchamp,
Lord President of the Privy Council.

(Copy.) Pharmaceutical Society of Great Britain,
17, Bloomsbury Square, London, W.C.,
July 20th, 1915.
No. 115.749.

Sir,—Referring to your letter of May 8th last, enclosing copy of a letter received from Dr. F. J. Waldo, His Majesty's Coroner for the City of London and Borough of Southwark, together with a copy of his annual return, I have to state that these communications have been carefully considered by the Law Committee and the council of this society, and I am instructed to inform you that in January last the council of this society passed and published the following recommendation:

That the policy to be advocated by the council in regard to the sale of laudanum should be that when "laudanum" is asked for the 1914 preparation should be supplied and the poison book signed; but where the 1898 preparation is demanded great care should be taken to label it accordingly, and the attention of the purchaser should be called to the fact that it is the 1898 preparation.

—I am, Sir, your obedient servant,
W. J. UGLOW WOOLCOCK,
Registrar.

The Clerk of the Council,
Privy Council Office, S.W.

ELECTION OF DIRECT REPRESENTATIVES.

It was resolved to address a communication to the Lord President suggesting the expediency in the present emergency of postponing all the separate elections of direct representatives till the end of the year 1916.

DENTAL BUSINESS.

A letter was read, dated June 12th, from the Colonial Office, transmitting a copy of an ordinance to provide for the registration of dentists in Ceylon. The Executive Committee referred the ordinance to the Dental Education and Examination Committee for its information, and adopted the following resolution:

That the Colonial Office be informed that the Executive Committee expresses its warm approval of the provision

* Note by the Acting Registrar.—The correspondence marked in the margin is that which follows the letter of the Clerk of the Council.

of the Ceylon Ordinance No. 3 of 1915, by which it made a punishable offence for an unregistered and unqualified person (other than Veteralans, Government apothecaries, estate dispensers appointed with the approval of the principal civil medical officer, and existing unqualified practitioners) to practise dentistry for gain, or to profess to practise or publish his name as practising dentistry or dental surgery, and trusts that the local exigencies which require the exceptions in favour of the unqualified persons specified may be of a temporary nature, and that Ceylon may soon be in a position to require that all those who undertake to practise dentistry and dental surgery should be fully qualified for that important duty.

LOCAL MEDICAL AND PANEL COMMITTEES.

EAST SUSSEX.

LOCAL MEDICAL AND PANEL COMMITTEES.

A MEETING of the Local Medical and Panel Committees was held at Lewes on July 28th.

Reappointment of Committees.—The Commissioners having reappointed the former members, the meeting re-elected the officers as follows:

Chairman: Dr. Benham (Hove).
Vice-Chairman: Dr. Collins (East Grinstead).
Honorary Secretary and Treasurer: Dr. Vallance (Lewes).
Secretary: Mr. Morgan, solicitor (Hustings).
Executive Committee: Drs. F. Barfield, T. S. Taylor, and E. W. Skinner, together with the Chairman, Vice-Chairman, and Secretary.

Drug Committee: Drs. Mackwood and Simpson.
Representatives on Medical Service Subcommittee of Insurance Committee: Drs. Vallance, Holman, and J. R. Skinner.

Payment of Accounts.—The meeting approved of the arrangements proposed by the Medical Service Subcommittee of the Insurance Committee for the settlement of the accounts for 1913-14. Approval was expressed at the decision of the Insurance Committee that payments on account for 1915 might, in the circumstances of East Sussex, be made on a more liberal footing than that suggested by the Commissioners.

Treatment of Tuberculosis.—The scale suggested by the Insurance Committee for attendance on certain dependants of insured persons in cases of tuberculosis was discussed. As it was not proposed to pay mileage for distances, however long, upon metalled roads, but only for distances off such roads, it was decided to press for the former also.

Checking Chemists' Accounts.—The Committees consented to the payment out of the Medical Benefit Fund of one-third of the cost of checking chemists' accounts for 1914, but objected to such payment in the future. The checking has already been suspended for the current year by the Insurance Committee.

Temporary Residents.—The Committees advised practitioners to continue to treat temporary residents until further notice, and decided that an additional grant ought to be made to meet the additional cost of the drugs supplied to such patients.

Conference.—Dr. BENHAM reported on the proceedings of the recent conference of the Local Medical and Panel Committees, and was accorded a vote of thanks for attending.

CORRESPONDENCE.

NATIONAL INSURANCE AND INCAPACITY FOR WORK.

DR. LACHLAN GRANT (Ballachulish) writes: As a panel doctor who has dealt with a considerable number of cases under the Act, I beg to point out what I consider a minor flaw in regard to certificates for incapacity.

Form Med. 40 requires certification that the patient is "incapable of work" before he or she is entitled to benefit, but it frequently happens this is not strictly according to fact, and applies only to the regular occupation, which may be more or less onerous. The patient might be all the better of some light kind of work, sedentary or otherwise, which he might do with advantage to himself and others. Especially does this apply in the case of female insured persons, and also where a patient is nearing recovery, where some slight activity, such as gardening, messages, or light home work would aid the cure and act as a tonic for mind and body. In cases, for example,

of influenza, nerve strain, debility, or fractured limb, where symptoms of illness or of injury go off slowly this would in some cases be very helpful in hastening the patient's recovery. Sometimes a doctor, using his discretion, may allow a patient to undertake some light duties, but there is no statutory sanction for such procedure, and the patient is compelled to affirm in certificate that he or she has not been at work since the last certificate was forwarded. I therefore submit that a clause should be added to certificates empowering the medical man in charge to permit some modified form of work, if, after due consideration, he deems same beneficial for the patient. This would prevent the depressing *ennui* of long periods of enforced idleness, help on the world's work, tend to lessen dishonest methods in our patients, and, in a certain number of cases, partially relieve the drain on the funds of the approved societies by reducing malingering, and get many off to regular work considerably earlier than under present regulations. It might be arranged that when a patient was permitted to undertake light duties during convalescence that there would be a corresponding reduction of the usual weekly allowance—say, from 10s. to 7s. 6d. or 6s., and the 5s. benefit to 4s. or 3s. 6d. I fully admit that under this arrangement some patients would be inclined to take fullest advantage of the permit, and do as much for themselves as possible while at home; but, as is well known, such work really goes on surreptitiously under the conditions obtaining at present. If it were found that a patient was unduly prolonging his convalescence the permission could be withdrawn.

We know that the appointment of medical referees to decide on doubtful cases would partly meet the difficulty, but even then it would be advisable to leave some discretion in the matter of off-time occupation to them and to the doctor in attendance.

NON-PANEL DOCTORS AND NATIONAL INSURANCE CERTIFICATES.

IN order to minimize as much as possible the inconveniences caused to doctors who attend insured persons in their private capacity, the Association has published books of certificates which, it is believed, will meet the requirements of approved societies, so far as is practicable in the case of certificates not given under the obligations of the official medical certification rules. The form of certificate is sufficiently like the official form to remove many of the difficulties which insured persons who have been attended by private doctors have had in satisfying the requirements of their approved societies, but is sufficiently distinct from the official form to show at once that it is being used by a doctor who is attending the patient in a private capacity—that is to say, either by a doctor who is not on a panel, or by a panel doctor other than the one on whose list the insured person is.

The Association has shown the certificates to the Insurance Commissions for England, Scotland, and Wales, and they raise no objection to the issue of them by the Association to medical practitioners for use when attending insured persons not being their panel patients, and not being persons whom they are attending as medical officers of institutions under Section 15 (4), or in virtue of "own arrangements" under Section 15 (3).

The books are being issued at cost price. They contain 50 certificate forms, and may be obtained from the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C., price 6d. each, post free.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Staff Surgeons W. G. Edwards to the *Victoria*, additional; A. B. Marsh to the *Feinike*, additional; Surgeons E. L. Atkinson to the *Exmouth*, W. F. Beattie, M.B., to the *St. Vincent*, vice Atkinson. Temporary Surgeons: J. A. B. Snell to the *Duke of Edinburgh*, vice Edwards; E. Granger, M.B., to the *Collingwood*, vice Marsh; G. J. C. Smyth to the *Princess*; J. E. C. Martin, M.B., to the *Fife*, vice Smyth; J. McFarlane and F. S. Martyr, M.B., to the *Fife*, additional, for Plymouth Hospital; H. O. Martin to the *Colossus*, vice Goble. To be temporary Surgeons: D. W. K. Moody, M.D., C. G. Dyer.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationer R. D. Macdonald to the *Minerva*, vice Kerby; H. L. Moody to the *Lamball*; D. Macgregor to the *Peterhead*; G. C. Lockhart-Cottle to the *Afridi*, vice Macdonald. To be Surgeon Probationer: J. A. Robertson.

PUBLISHERS' ANNOUNCEMENTS.

Messrs. J. and A. Churchill will shortly publish the following new editions: A sixth edition of Professor Cusby's *Text-book of Pharmacology and Therapeutics*; several new chapters have been added upon recently introduced remedies, and the whole text has been revised. A fourth edition of Dr. T. W. Eden's *Manual of Midwifery*; a new feature has been introduced by the insertion of coloured plates. A fourth edition of *Elementary Hygiene and Sanitation*, with special reference to the Tropics, by W. T. Prout, M.B., C.M.G., Medical Adviser to the Colonial Office.

The same firm will publish in September a sixth edition of *The Operations of Surgery*, originally written by W. H. A. Jacobson, now entirely revised by Messrs. R. P. Rowlands and Philip Turner. Of the 800 illustrations 420 have been specially drawn for this edition, and about 40 of the figures appear in colour. The same firm will publish a *Text-book of Surgery*, by Mr. Richard Warren, Assistant Surgeon to the London Hospital, in two volumes, containing over 500 original illustrations.

Mr. John Murray announces that he will publish in the autumn a book by Dr. Thomas Buzzard, entitled *With the Turkish Army in the Crimea War*. It records his experiences of service with the British medical staff in the Turkish army. He was for some time attached to Omar Pacha's staff in the Crimea and Transcaucasia, but the reminiscences chiefly refer to the less known incidents of the war, such as the battle of the Tchernia and the operations in Asia Minor connected with the siege of Kars.

Mr. Henry Kington announces the following new books: *Surgery of the Blood Vessels*, by Dr. J. Shelton Horsley, surgeon in charge of St. Elizabeth's Hospital, Richmond, Virginia; and *Operative Gynaecology*, by Dr. Henry Sturtevant Crossen, Associate in Gynaecology, Washington University Medical School.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements)—Important Notice re Appointments appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

ANGLO-SERBIAN HOSPITAL, Vrnjatka, Ranja, Serbia.—Surgeon.
ASHTON-UNDER-LYNE UNION.—Resident Assistant Medical Officer for the Workhouse. Salary, £250 per annum.
BIRMINGHAM AND MIDLAND EAR AND THROAT HOSPITAL.—House-Surgeon. Salary, £100 per annum.
BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Junior House-Surgeon. Salary, £100 per annum and 45 laundry allowance.
BIRMINGHAM: CITY FEVER HOSPITAL.—Resident Lady Medical Officer. Salary, £550 per annum.
BRADFORD ROYAL INFIRMARY.—(1) House-Physician; salary, £150 per annum. (2) Two Honorary Assistant Physicians.
BRISTOL ROYAL INFIRMARY.—(1) Resident Obstetric and Ophthalmic House-Surgeon; salary, £120 per annum. (2) Dental House-Surgeon; salary, £120 per annum.
BURY INFIRMARY.—Senior House-Surgeon. Salary, £250 per annum.
BURY ST. EDMUND'S UNION.—Medical Officer for St. James's District. Salary, £100 per annum.
CROOKSBURY SANATORIUM.—Resident Medical Officer (temporary).
DEVONPORT: ROYAL ALBERT HOSPITAL.—House-Surgeon. Salary, £150 per annum; 21s. allowed weekly for working single-handed.
DOHSEY COUNTY COUNCIL EDUCATION COMMITTEE.—School Dental Officer. Salary, £250 per annum.
FOLKESTONE: ROYAL VICTORIA HOSPITAL.—House-Surgeon. Salary, £150 per annum.
GLASGOW ROYAL MATERNITY AND WOMEN'S HOSPITAL.—(1) House-Surgeons at the Hospital. (2) House-Surgeon at the West End Branch (female).
GUILDFORD: ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £150 per annum.
HASTINGS: EAST SUSSEX HOSPITAL.—House-Surgeon. Salary, £100 per annum.
LANARSHIRE COUNTY COUNCIL.—Medical Superintendent at High Carley Sanatorium. Salary, £450 per annum, rising to £550.
LEWIS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130 per annum.
LIVERPOOL EYE AND EAR INFIRMARY.—Honorary Anatomist.
LIVERPOOL INFIRMARY FOR CHILDREN.—(1) Two Resident House-Physicians; (2) Resident House-Surgeon. Salary, £30 each for six months.
MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £120 per annum.

MANCHESTER ROYAL INFIRMARY.—Assistant Director in the Clinical Laboratory. Salary, £75 per annum.
MIDDLEBROUGH: NORTH ORMESBY HOSPITAL.—House-Surgeon. Salary, £150 per annum.
NORTHAMPTON COUNTY BOROUGH.—Clinical Tuberculosis Officer. Salary, £400 per annum.
NOTTINGHAM GENERAL HOSPITAL.—Assistant House-Surgeon. Salary, £250 per annum.
OLDHAM UNION.—Resident Assistant Medical Officer for the Poor Law Institution. Salary, £350 per annum.
PORTSMOUTH COUNTY BOROUGH.—Chief Tuberculosis Officer. Salary, £500 per annum.
QUEEN ELIZABETH'S LIVING IN HOSPITAL, Marylebone Road, N.W.—District Resident Medical Officer. Salary, £60 per annum.
ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Resident Medical Officer (male) to the Military Block.
ST. MARY'S HOSPITAL, Paddington, W.—Resident Medical Officer for the Inoculation Ward. Salary, £100 per annum.
ST. PETER'S HOSPITAL FOR STONE, Henrietta Street, W.C.—Junior House-Surgeon. Salary, £75 per annum.
SALISBURY GENERAL INFIRMARY.—Assistant House-Surgeon. Salary, £100 per annum.
SHEFFIELD ROYAL INFIRMARY.—(1) House-Surgeon; (2) Assistant Surgeon and Resident Physician. Salary, £100 per annum.
SHEFFIELD UNIVERSITY.—(1) Demonstrator of Pathology and Bacteriology. (2) Demonstrator of Anatomy.
SHEREWSBURY: ROYAL SALOP INFIRMARY.—House-Physician. Salary, £120 per annum.
STORTES HALL ASYLUM, Kirkburton.—Locumtenent. Salary, £5 5s. per week.
SURREY EDUCATION COMMITTEE.—Female Assistant School Medical Officers.
SWANSEA EDUCATION COMMITTEE.—(1) Lady Assistant School Medical Officer. (2) Temporary Assistant School Medical Officer. Salary, £200 per annum each.
WALSALL AND DISTRICT HOSPITAL.—Assistant House-Surgeon and Anaesthetist. Salary, £150 per annum.
WELSH METROPOLITAN WAR HOSPITAL, Whitechurch.—Resident Surgeon and Resident Physician.
WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—(1) Resident Medical Officer. (2) House-Physicians and House-Surgeons. Salary for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.
WEST HAM UNION.—At the Infirmary: Third Assistant Medical Officer (male); Fourth Assistant (Resident Lady) Medical Officer. Salary, £200 and £180 per annum, rising to £220 and £200 respectively. At the Workhouse: Resident (Lady) Assistant Medical Officer. Salary, £180, rising to £200.
WESTMINSTER GENERAL DISPENSARY, Gerrard Street, Soho, W.—Resident Medical Officer. Salary, £120 per annum.
WEST RIDING COUNTY COUNCIL.—Resident Medical Superintendent at the Middleton-in-Wharfedale Sanatorium. Salary, £200 per annum.
WHITECHAPEL UNION INFIRMARY.—Second Assistant (female) Resident Medical Officer. Salary, £200 per annum.
WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £150 per annum.
CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Gainsborough, Cambridgeshire.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ADAIR, E. W. M., L.R.C.P. and S.L. District Medical Officer of the Caistor Union.
CHILD, W. N., M.A. Camb., M.R.C.S., L.R.C.P., District Medical Officer of the Cuckfield Union.
FLETCHER, A. H. B., M.B., Ch.B. Vict., District Medical Officer of the North Bierly Union.
GALBRAITH, S. Nicol, M.B., Ch.B. Glasg., D.P.H. Camb., Medical Officer of Health and School Medical Officer for the Borough of Newark-on-Trent.
PARKINSON, H. R., L.R.C.P. and S. Edin., J.F.P.S. Glasg., District Medical Officer and Medical Officer of Cottage Homes of the Fyde Union.
PULLEN, J. B., M.B., B.C. Cantab., District Medical Officer of the Faringdon Union.
SCOTT, R. A., L.R.C.P. and S. Edin., District Medical Officer of the Pickering Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

REY.—On August 15th, at 9, Park Road, Bognor, Sussex, the wife of Jules F. Rey, a son.

MARRIAGE.

BRUNTON—MIRN.—On August 14th, at the Church of St. John, Knotty Ash, by the Vicar, the Rev. F. J. Powell, George L. Brunton, M.D., Lieutenant R.A.M.C., to Lucy Mary, M.B., only daughter of the late Robert Muir, Esq., Upper Scapa, Orkney.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, AUGUST 28TH, 1915.

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British Medical Association.

SCIENCE COMMITTEE.

The Science Committee has presented to the Council a report on the work of research scholars and recipients of scientific grants during 1914-15.

(A) SCHOLARS.

The researches of all the scholars are in abeyance owing to the war. The names of these gentlemen and the subjects they had proposed to investigate were as follows:

Ernest Hart Memorial Scholar.

ARMSTRONG, Richard Robins, M.B., B.C.Cantab.
1. The causation, method of infection and spread, and the treatment of all forms of pneumonia.
2. Experimental production of pneumonia in animals.

Research Scholars.

BEDSON, S. Phillips, M.D., B.S.Durh.
A continuation of the investigation on the effect of nuclein and nucleic acid on the normal antibody, and also an experimental inquiry into purpura and allied conditions.

INCHLEY, Orlando, M.D.Cantab.

The influence of the constant current on the absorption of drugs.

SCHLESINGER, Edward G., M.B., B.S.Lond.

1. The regulation of sweating, and its relation to internal and external changes.
2. The influence of the pericardium on the circulation, and the possibilities and effects of its surgery.
3. The surgical applications of variations in blood supply by means of vessel anastomosis.

(B) GRANTEES.

J. O. W. BARRATT, M.D., D.Sc.

STUDY OF NATURE AND MODE OF ACTION OF SUBSTANCES CONTAINED IN OR DERIVED FROM BLOOD PLASMA, AND TAKING PART IN PLASMA OR SERUM REACTIONS; ALSO CYTOLOGICAL STUDIES.

The first portion of this research upon the relation between (1) the time required for coagulation of fibrinogen to occur and (2) the amounts of thrombokinase, thrombin, and calcium chloride present has been completed and will shortly be published in full. An equation, valid for the experiments made within wide limits of concentration, has been obtained, by the aid of which the coagulation periods, corresponding to given amounts of thrombokinase, thrombin, and calcium chloride, can be calculated. In addition, further observations upon the physico-chemical relations of thrombokinase, thrombin, and fibrinogen have been made, but are not yet ready for publication. The work has been carried out at the Lister Institute. The progress of the

research has been greatly aided by the grant, and thanks are due to Dr. C. J. Martin, Director of the Lister Institute, for the valuable assistance received from him.

R. A. CHISOLM, M.D., B.Ch.

THE INVESTIGATION OF NEPHRITIS BY EXPERIMENTAL METHODS.

Two researches have been carried out.

1. A further investigation into the regulation of the blood volume in experimental nephritis. The results were published in full in the *Journal of Pathology and Bacteriology*, vol. xix, October, 1914.

2. An investigation, conducted with Dr. G. Marshall, into the amount of active principle present in the pituitary body in various pathological conditions. The results, which are at present incomplete, go to show that in conditions where the blood pressure falls very low before death, such as shock and haemorrhage, all the active principle is washed out of the pituitary into the circulation, and very little remains in the gland. There is some evidence that the amount present in the gland is increased in pregnancy and also in diseases of the other ductless glands, but these points require further investigation.

JOHN DONALD, M.D., C.M.

THE ACTION OF HEDONAL OR OTHER ANAESTHETICS UPON ANIMALS, USED MAINLY AS WOULD BE DONE IN THE HUMAN SUBJECT.

EXPERIMENTS have been made on the action of "hedonal" by intravenous injection in animals:

1. Action on auricle and ventricle.
2. Effect on the vessel walls.
3. Muscle—effect on contractility.
4. Nerves—effect on excitability and conductivity, effect on the vagi.
5. Respiration.
6. Anaesthetic effect.

LEONARD FINDLAY, M.D.

TUBERCULOSIS AND TETANY.

DR. FINDLAY has been engaged on two problems: (1) The effect of light and drying on the bovine and human types of the tubercle bacillus, and (2) on the relationship of infantile tetany to rickets.

The work on the tubercle bacillus is being continued, but as yet there is nothing to report beyond what was published by Dr. Martin and himself in the *BRITISH MEDICAL JOURNAL* for December, 1914.

Most time has been spent on the question of tetany, its cause and relationship to rickets, but as yet the results are not sufficient to warrant the expression of any opinion. This work is also being continued.

IVY MACKENZIE, M.D.

ARTERIO-SCLEROSIS AND ITS RELATION TO
KIDNEY DISEASE.

The report is based on the examination of 14 cases, in 6 of which the disease appeared to be primarily arterial and general, while in 8 it appeared to be renal in origin.

1. In those cases of arterio-sclerosis which came to *post-mortem* examination, the heart varied in weight from 17 to 25 oz., and the kidneys were in each case larger than normal. In 4 of the kidneys, there was a distinctly granular appearance, after stripping the capsule; in one case there was a very slightly granular appearance, and in another case the kidney surface was quite smooth. The sclerotic condition of the arteries was general, and in each case was more marked in the mesenteric arteries than in any others in the body. In some cases the small arterioles protruded from the cut surface of fat in the axilla, groin, and mesentery, just as they did from the cut surface of the kidney. In all these cases the lesions—cardiac, renal, and arterial—are probably secondary to a functional disturbance of the vasomotor mechanism controlling the tonicity of the arterial musculature. The kidney changes are probably the result, in the first instance, of a deficient blood supply resulting from contraction of the small arterioles in an organ where the blood has passed through two systems of capillaries between the arteries and the veins.

2. These cases of arterio-sclerosis are quite distinct from cases of kidney disease of a chronic character, in some of which the heart may be enlarged, and in others of which the heart may not be enlarged. Cardiac enlargement is not an inevitable result of any form of chronic kidney disease, but it is an inevitable result of any such cases of arterio-sclerosis as are referred to in the preceding paragraph. To what extent certain cases of chronic kidney disease predispose to an increase in the general blood pressure through increased vascular tonus is a question for further study.

NATHAN MITCH, M.D., B.C.

INVESTIGATION OF POINTS CONCERNING THE
PATHOLOGY OF CHRONIC INTESTINAL INFEC-
TIONS.

DURING the past year several points concerning the pathology of chronic intestinal infections have been investigated, and the conclusions reached are:

1. Parahydroxyphenylacetic acid is often excreted in the urine by constipated patients.
2. The infection of the ileum with organisms of the *B. coli* group varies in intensity directly as the degree of ileal stasis.
3. In constipation the excretion of indoxyl, indolacetic acid, and parahydroxyphenylacetic acid in the urine varies directly as the degree of infection of the ileum with *B. coli* and its mutants.
4. The duodenum in diabetes mellitus is usually greatly enlarged, and has in two cases been shown to be severely infected with *Streptococcus brevis*. This organism is rarely found in other conditions.
5. Ileal stasis is frequently present in diabetes mellitus, and in proportion to its severity affects the prognosis adversely.
6. Chronic multiple arthritis has been found to be associated with chronic infection of the duodenum, ileum, mesenteric glands, and blood with pyogenic staphylococci. These organisms have not been found in these localities in other diseases.

More detailed accounts of these researches will be found in the following articles published during the last year:

1. The Isolation of Parahydroxyphenylacetic Acid from the Urine in Disease (*Journ. Physiol.*, 1914).
2. Bacterial Activity in the Alimentary Tract (*Brit. Journ. of Surg.*, 1915).
3. Bacterio-chemistry of the Ileum (chapter in Lane's *Operative Treatment of Chronic Intestinal Stasis*, 1915).
4. The Duodenum in Diabetes Mellitus (*Practitioner*, 1915.)
5. Chronic Staphylococcal Infection of the Alimentary Tract as a Cause of Chronic Arthritis. (*American Medicine*, 1915).

List of Grantees whose Researches are not yet Completed and who are Continuing their Work.

GOODBART, Gordon W., M.B., B.C.

Tumour growth in relation to anaplasia.

KENNWAY, E. L., M.D., M.A.

1. Estimations of the amounts of different acetone bodies in the blood in diabetic comas and other conditions in conjunction with investigation by Dr. Foulton of reaction of blood in pathological conditions.
2. Investigation of metabolism of two isomers of β -oxybutyric acid in diabetes and other conditions.
3. Testing of methods for estimation of acetone bodies in blood.

KNOWLES, Kate, M.D., B.S.

1. The causes of osteomalacia.
2. The action of extracts of ductless glands on the disease.
3. Examination of blood, urine, and ovaries of patients suffering from osteomalacia.

PEMBREY, M. S., M.D., B.Ch.

Continuation of observations on secretion of sweat in cases of injury or disease of nerves. Respiratory exchange of infants in health and in disease. Continuation of observations upon influence of anaesthetics and narcotics upon respiratory exchange.

RYFTEL, J. H., B.C., M.A.

1. On acid formation, especially lactic acid formation, in the alimentary canal in infants, with reference to diet and the possible effects on metabolism.
2. The relation between chloride in blood serum and in urine under physiological and pathological conditions (*continued*).

STEWART, M. J., M.B., Ch.B.

The study of the nature and conditions of occurrence of foreign-body giant cells and the investigation of the relation of cholesterol to various lesions both in man, and, under experimental conditions, in animals.

SYMES, W. L., M.R.C.S.

Effect of digestive juices on digitalis glucosides. Mutual influence of digitalis glucosides on the activity of each other.

List of Grantees whose Researches are in Abeyance owing to the War.

BACH, Edward, M.B., B.S.

The relation between the pathogenic and non-pathogenic acid-fast bacilli.

CASSELLS, W. L., M.B., Ch.B., B.Sc.

The action of thyroid on the nervous mechanism of the heart. The interaction of the thyroid and the suprarenals on nerve endings, and on blood pressure.

CLARK, Alfred J., M.D.

To determine the manner in which the electric variations of the mammalian heart are modified when the composition of the circulating fluid is altered.

COPLANS, Myer, M.D.

Action of the silicates upon bacteria, with special reference to immunity.

DEAN, Henry R., M.D., B.Ch.

- (a) The mode of formation and nature of complement.
- (b) The nature of interaction of antigens and antibodies.
- (c) The serum diagnosis of tuberculosis.

DOUGLAS, J. S. C., M.D.

Immunity reactions in animals suffering from experimental renal necrosis.

EMRYS ROBERTS, E. M.D., Ch.B.

The effects upon the respiratory system of particles of coal dust and shale—of varying composition—with special reference to the incidence of pulmonary tuberculosis amongst workers in coal.

GROVES, E. W. Hey, M.D., M.S.

Application of operative treatment of fractures to horses and dogs. Also some investigations on the repair of fractures in cats by bone-grafting.

LAIDLAW, P. P., B.C., M.A.

The electrical response in the heart as a result of a paradoxical action of the vagus nerve.

PEDEX, Andrew, M.B., Ch.B.

The retention of iodine and bromine in the thyroid gland. The output of acetone as influenced by different diets.

POULTON, E. P., M.D., M.R.C.S.

Investigations on the metabolism and reaction of the arterial blood in various pathological conditions by Barcroft's and other methods.

A list of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian, at the house of the Association, 429, Strand, W.C. The regulations governing the loan of these publications are stated in the introduction to the list. The Library is open for consultation from 10 a.m. till 5 p.m. (on Saturdays till 2 p.m.).

Meetings of Branches and Divisions.

[The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the JOURNAL.]

NORTH OF ENGLAND BRANCH.

The annual meeting of the North of England Branch was held at the Royal Victoria Infirmary, Newcastle-upon-Tyne, on August 10th. Considering the urgent demands on the services of medical men at the present time, there was a good attendance. In the absence of the retiring president, Dr. A. C. Farquharson, Dr. McDOWALL was in the chair.

Election of Officers.—The following officers were elected:

President: Dr. T. W. McDOWALL (Morpeth).
President-elect: Dr. A. E. MORISON (Sunderland).
Vice-Presidents: Dr. C. G. MACLAGAN (Berwick-on-Tweed), Major L. G. DILLON, M.D. (Seaham Harbour).
Secretary: Dr. J. DON (Newcastle).
Scientific Secretary: Staff Surgeon R. J. WILLAN, R.N.V.R., F.R.C.S.

Dr. McDOWALL, in proposing a vote of thanks to the retiring president, said that though Dr. A. C. Farquharson had been mobilized at an early stage of the war he had at first been able to attend the meetings, but not latterly. The Branch, however, was grateful to Dr. Farquharson for the services he had rendered as president, and a vote of thanks was heartily accorded him. A telegram was subsequently received from Dr. Farquharson sending his best wishes, and congratulations to the new president, Dr. McDOWALL.

Annual Report.—The report of the Branch Council showed that the efforts of the Branch on behalf of its members had been both numerous and varied, and, despite the prevailing conditions in the medical world, had been highly successful. It was felt, however, that the unsuccessful efforts which had been made to secure a grant on behalf of the widow of a deceased member who had suffered through his loyalty to the Association should not be allowed to rest, and it was agreed to make a local appeal on her behalf. The financial statement for the year 1914 showed that there was a balance in hand on December 31st, 1914, of £117 6s. 1d., which, however, was more than expended in paying the accounts which became due in January, a deficit being then left of £3 1s. 5d.

Uncertified Midwives.—The HONORARY SECRETARY read a letter from Dr. Hill, M.O.H. of the County of Durham. From this and other sources of information it appeared that practice by uncertified midwives was on the increase in the county, and there was reason to believe that certain medical men encouraged it and even took advantage of the services of these women to attend patients for whom they themselves were responsible. Several speakers strongly deprecated such a relationship between doctors and the uncertified midwives, and the following resolution was unanimously agreed to:

That this annual meeting of the North of England Branch condemns the practice which it is led to believe exists, in that certain medical men have professional relationships with uncertified midwives in the carrying out of their midwifery practices.

Vote of Thanks.—A vote of thanks to the Honorary Secretary for his services during the year concluded a highly successful business meeting.

SOUTH MIDLAND BRANCH:

BUCKINGHAMSHIRE DIVISION.

The annual general meeting of the Buckinghamshire Division took place at Aylesbury on June 8th, Dr. SHAW in the chair.

Election of Officers.—On the motion of Dr. BRADBROOK, seconded by Dr. BENSON, the office-bearers were unanimously re-elected. The committee was empowered to elect substitutes to fill vacancies caused by present holders being on active service.

Annual Report of the Council.—The annual report of the Council was considered and the recommendation regarding juvenile members of friendly societies agreed to. The recommendation with reference to fees for practitioners called in by midwives was also agreed to, and the

following resolution regarding the difficulty of obtaining these fees was adopted after some discussion:

That the Council be urged to take some action to fix the responsibility for fees to practitioners called in by midwives upon the association or society under which the midwife works.

War Emergency.—Colonel MURRAY, Colonel WARD, Colonel ARCHER, and some twenty officers of the R.A.M.C. in the district were invited to the meeting, and Colonel MURRAY said that there was a demand for men under 40 to take up temporary commissions for service anywhere; also for men over 40 for whole-time service at home in certain cases. Part-time service was confined chiefly to the areas in which troops were billeted or in camp, or where there were temporary hospitals. The duties consist of sick parade, the inspection of sanitary surroundings and arrangements of camp and billets, examination of recruits, visiting sick in billets, or attendance at hospital, sitting on medical boards, etc. He impressed the necessity of being careful in the use of the term "maalingering," unless one could swear to it on all points, and advised the use of the phrase, "Going sick without sufficient cause." Dr. SHAW, in proposing a vote of thanks, commented on the disparity between the pay of the temporary lieutenants and of the R.A.M.C. Territorials. Colonel MURRAY explained the difference as to terms of service between the R.A.M.C. and R.A.M.C. Territorial, and stated that temporary commission was for one year, or the duration of the war if that be less than one year. Colonel MURRAY, in reply to a question by Dr. HENDERSON regarding the amount of records to be kept, pointed out the importance of certain documents which had to be filled up, particularly those with reference to invaliding. In reply to Dr. ROSE, he stated that the appointment for part-time services would not carry a commission, and those willing to offer services should write to him (Colonel Murray, 35, Spring Road, Bedford). Colonel Murray made an emphatic request that certificates for extension of furlough on the ground of unfitness should not be granted indiscriminately, and stated that if not confined to bed the man should be sent to join his regiment and report sick on arrival, when the medical officer will decide what to do with him. A hearty vote of thanks was accorded to Colonel Murray.

Trench Foot.—The members present were entertained at tea by the Chairman, and afterwards Lieutenant C. KERNE read a paper on trench foot, showing two cases which were well on the way to recovery. One occurred in December and the other in February. Both presented the same symptoms—intense pain in metatarsophalangeal joints, and early numbness followed by swelling extending to the ankles; the swelling increased, blebs appeared on the dorsum of the foot, and filled with blood-stained serum. As the swelling subsided ulceration appeared on the site of the blebs, and, later, gangrenous sloughs. The affected areas were early anaesthetic, and in cases shown the anaesthesia still persisted in the healed toes. He and Lieutenant KNOCKER, whose cases they were, had found colloidal argentinum valuable in the treatment of the ulcerated surfaces. In the case contracted in February the dorsum of the foot was still purple, puffy, and cold to the touch, and both had intense pain in the metatarsophalangeal joints if they were moved.

Members on Active Service.—On the motion of Dr. BENSON, seconded by Dr. LONG, the meeting passed a hearty vote of good wishes for the members on service.

THE LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

BOOKS NEEDED TO COMPLETE SERIES.

THE Librarian will be glad to receive any of the following volumes, which are needed to complete series in the Library:

- American Association of Genito-Urinary Surgeons. Transactions. 1906.
- American Climatological Transactions. Vols. 1, 4, 5, 6.
- American Dermatological Association Transactions. Vols. 5, 7, 8, 11, and 29.
- United States Department of Agriculture, Bureau of Animal Industry. Reports 1-7, 10-14.
- United States Hygienic Laboratory Bulletins. Nos. 3, 8, 9, 10, 11, 12, 13, 15, 17, 18, 19, 24, 29, 43.
- Virchow's Archiv. Vols. 1-150.
- Watt. Bibliographia Britannica, 4 vols., 1824.
- Yearbook of Pharmacy. 1912.

British Medical Association.

INSURANCE ACTS COMMITTEE.

A MEETING of the Insurance Acts Committee was held at the office of the British Medical Association on Thursday, August 19th, when Dr. J. A. MACDONALD, LL.D., was in the chair. The other members present were:—England and Wales: Dr. T. Ridley Bailey (Bilston), Mr. H. B. Brackenbury (London), Dr. T. Campbell (Wigan), Dr. Olive Clayton (Oldham), Dr. J. Divine (Hull), Major A. C. Parquharson (Spennymoor), Lieutenant E. R. Fothergill (Here), Dr. P. V. Fry (Sowerby Bridge), Dr. Major Greenwood (London), Mr. R. Harding (New Radnor), Mr. P. Napier Jones (Reading), Dr. B. A. Richmond (London), Mr. Harding H. Tomkins (Leyton), Dr. W. B. Crawford (Treasure (Cardiff)). Scotland: Dr. John Adams (Glasgow), Dr. J. R. Dreyer (Glasgow), Lieutenant J. Hunter (Corstorphine). *Ex officio*: Mr. E. B. Turner, Chairman of Representative Meetings.

The minute of the meeting of August 5th regarding the appointment of the Executive Committee having been rescinded, it was decided to increase the Executive Subcommittee to eleven members, in addition to the Chairman *ex officio*, and to invite Dr. T. Jenner Verrall to accept one of the vacancies. Dr. T. Ridley Bailey, one of the Panel Committees' representatives, was elected to the other vacancy.

Dr. W. Ainslie Hollis (Brighton) was co-opted as a non-panel practitioner to serve on the Insurance Acts Committee.

DRUG TARIFF.

Most of the sitting was taken up by consideration of the question of drug supply finance, in the event of the introduction of a commercial tariff. Further discussion was adjourned to a meeting to be held on August 26th.

CORRESPONDENCE.

THE INSURANCE ACTS COMMITTEE AND ITS WORK.

SIR,—We cannot be mistaken in assuming that your leading article of August 14th last gives authoritative expression to the feeling of the British Medical Association. In this article we find published an emphatic disapproval of a circular recently issued by the Panel Medico-Political Union. The union finds itself charged with ignorance of the present security of the panel profession. If it is to escape from the charge of ignorance it must fall under the imputation of "malice," though towards what body—whether the British Medical Association, the Commissioners, or the panel profession itself—we are not at all informed. In any event the Panel Medico-Political Union has in the mind of our critic "set afoot a false alarm," and "played upon the fears" of the panel practitioner in the hope that a crop of new members may "be frightened into its ranks." That the fear did exist is on all hands admitted—this is allowed us even by our critic. We assert that a grave financial danger continues to await the panel profession, and we contend that the degree of that danger is materially enhanced by the fact that its incidence is no longer furnished with a date.

Our critic is of opinion that a danger under a cloak is a danger diminished. We, on the contrary, believe that it is a danger increased. Nothing short of a Governmental pledge of a three years' grant induced the medical profession to accept service under the Act. Attached to that pledge was a reconsideration and revision which, in the ordinary course, was to take place in July last—six months before the stipulated time. *This period of three years under a Government pledge, with a fixed date for revision, was, in our opinion, a term of three years of guaranteed security.* Much as our critic may dislike the phrase, we assert that the term has well nigh run its appointed course. Indeed, this expression is inadequate by the over-modesty of its statement.

Our critic is entirely reassured by an extension of the grant for three months. "It need only be pointed out," he remarks, "that the 2s. 6d. was voted in the Estimates for 1915-6, and no alteration of the terms of remuneration can take effect before March of next year at the earliest."

Our comment upon this statement is a very material one. *A definite pledge of a number of years, and running between precise dates, is a state of affairs altogether different from a system of dates meted out at intervals to cover a period of indecision in the mind of the Government.* Does any one believe that it was the intention of the Government to renew the grant at the time of the revision? Surely not. The postponement of the whole matter was due to the absence of so many medical men who are giving their services in the field. A reduction of their incomes could not with decency be carried out in their absence. Had the Government intended to renew the grant there had been no occasion for postponement. But why in these circumstances has not the Government renewed its pledge for a full year or for a period covering the duration of the war? And why has it not appended to that pledge a guarantee that no revision of terms shall take place later than six months before the termination of the grant? This would have been straightforward dealing. No! We see here a recognition on the part of the Government of "an unforeseen contingency" in the shape of such a financial embarrassment as may lay them under the necessity of reducing civil expenditure. It is to this unforeseen contingency that Sir Robert Morant, in our opinion, makes allusion—a contingency which is to preserve to the Commissioners the right of taking action at eight weeks' notice. What man of judgement can doubt that such a season of financial crisis lies in the immediate future as has perhaps never in past history fallen upon this country. Into this straitened period the panel profession is advancing, seduced by a system of short periodical extensions of the Treasury grant and comforted by ill defined reassurances from high places. The panel community together with others is prepared to take its share in national sacrifice, but it demands to be treated openly and provided with full opportunity for business discussion.

We have shown that in place of ignorance we are in full possession of the facts, and what is perhaps more important, that our mind has passed through those facts to their proper interpretation. We propose to pause for a moment upon an illuminating statement from the pen of our critic. "No alteration in the terms of remuneration," writes this gentleman, can take effect before March of next year at the earliest! with which statement we find ourselves in complete agreement, but, continues he, "whether or not any attempt will be made at that time to revise the terms, it is quite likely that the medical profession will have ample warning through the British Medical Association" (!) Our critic, if he indeed means what he writes, presents to us the ominous possibility that the termination of the grant may mark the date chosen for revision. This picture of the labourer deprived of his accustomed wage and continuing his task with no fixed scale of payment while he bargains with his employer makes bright comedy! Unfortunately, however, it makes bad business! The smile is seen upon the lips of the employer be it understood—the bad business will be found in the pockets of the labourer! But did our critic mean what he has written, or in the sentences we have quoted did he endeavour to conceal the fact that if the grant is not to be renewed next March it is already high time that we were preparing ourselves to meet the necessary revision? Did our critic guess that herein lay the *raison d'être* of our circular appealing to the panel profession? Remembering who it is who has charged us with stupidity on the one hand or with misrepresentation upon the other, we hold him now upon the horns of this dilemma. Struggle how he may he shall not extricate himself from his difficulty except he leave behind him either his good sense or his honesty. Bereft of one or other of these polemical requisites, he will be hard put to it to explain to the world how an ample warning on the part of the British Medical Association provides the panel profession with a loss of their present remuneration and a bargain for their future emolument, coincidentally, in the month of March, 1916.

If the flattering description which our critic renders of the new standing Insurance Acts Committee is to be taken at its face value, what occasion is there for such a body as the Panel Medico-Political Union!

We must defend, it appears, our very existence. The necessity for such defence has about it a somewhat humorous peculiarity. This is inevitable when we place

upon record our confident belief that the constitution of this new Insurance Acts Committee is the direct outcome of our own example. When the Insurance Act came into operation the British Medical Association was an ancient and revered organization. As month after month passed by it became apparent that the business of the Association was but little concerned with the affairs of the panel profession; that, speaking generally, its members of council were not themselves engaged in panel practice; that, in fact, many of them were antagonistic to the panel system altogether, provided a sufficient explanation. The appreciation of this point led naturally enough to the formation of the Panel Medico-Political Union—a new and independent body with a constitution of panel men only, and devoted to panel interests alone. The steady growth of this new organization has been accompanied by an increasing activity in the British Medical Association. That each new step adventured by the union has provoked an outburst of energy in the same direction in the elder body has given us courage and built up our confidence. Any discouragement arising in the course of our activities has always been countered by the consciousness that at least we existed as an efficient stimulus. Need we remind the profession that it is in the nature of a stimulus to create irritation, and that the relief from irritation in the sting of criticism is after all an appropriate phenomenon.

And to-day we have the new standing Insurance Acts Committee, of whose twenty-five members "seventeen are actually insurance practitioners." We enjoyed "actually." There is a sort of iridescent play and double meaning about the word which touched for a moment our lighter vein of humour. But, seriously, seventeen members out of twenty-five on that Committee are actually Insurance practitioners! Surely we should be satisfied! The figures look well and the words sound finely, but what degree of meaning are we to attach to that word "actually"? To what depth of actuality in panel practice are these gentlemen engaged. We will challenge them to declare that actuality.

For how many panel patients are these seventeen members personally responsible? We venture to think that the publication of these individual and true figures will place the members of the Committee in an invidious position. The council of the Panel Medico-Political Union will stand pledged to do the like. It should prove an interesting comparison! A few panel patients and a handsome private practice; a big panel practice with a few handsome patients—can we not see these two men and the wide world of difference in their respective attitudes? But for us this does not end the matter; when all is said, the decisions of the standing Insurance Acts Committee are at the mercy of the Association. The British Medical Association does not reflect the soul of the panel man nor the heart of the general practitioner. Through the failure to recognize this piece of wisdom the rank and file of our profession are suffering the sad consequence to-day. Upon the ranks of the profession is now weighing the obligation of supplying gratuitous attendance to the dependants of between three and four million persons. That a hasty and inefficient endeavour was made to gauge the feelings of the general medical world we readily admit. But that the idea emanated from and was imposed by the Association is a point which cannot be sufficiently emphasized. That the general practitioner upon whom the whole weight of this philanthropy has fallen is disallowed the dignity of exercising his personal discretion is an index of the attitude held towards him by those who are supposed to represent his interests. The event has proved that the great mass of dependants are to-day in better financial circumstances than in the time of peace. Many a practitioner has found himself in the anomalous position of pocketing a fee tendered with a tact and a delicate insistence which indicates only too clearly that the cloak of philanthropy has been lifted from the shoulders of the physician to be carried with dignity upon the person of his humble client! Such incidents sharply point the panel profession to the need of personal organization. When the continued growth and popularity of the Panel Medico-Political Union shall have made that institution the accredited body of the panel practitioner blunders of the type indicated will find less opportunity for reaching their fruition. Every new advantage is tinged with a regret. Perhaps in times

to come we may lament the impossibility of producing so humorous a spectacle as that we enjoy to-day—we allude to the picture of the British Medical Association enjoying the glorious exercise of a vicarious patriotism.—I am, etc.,

A. WELPLY,

General Secretary.

London, E.C., Aug. 24th.

The letter from the Secretary of the Panel Medico-Political Union seems to be an attempt to beg for a perfectly clear position. If times had been normal, the Government would have been justified in revising the financial bargain at the end of this year; but times are not normal, and the British Medical Association has obtained from the Commissioners an assurance that no attempt will be made to force any revolutionary propositions on panel practitioners during the war. When the war is over the profession must of course be ready to meet the situation. Dr. Welply claims that everything useful that the Insurance Acts Committee has done has been done at the instigation or because of the fear of the Panel Medico-Political Union. This is as true as the repeated assertions of that body that it was owing to its exertions that the unallocated funds in London and Glasgow were distributed to the panel practitioners—assertions which we leave to the Panel Committees of those areas to characterize. May we suggest to Dr. Welply that his concluding paragraph is an aspersion on the practitioner who is willingly giving his services in suitable cases to soldiers' dependants? To suggest that this service is "imposed" on him by the British Medical Association, and that but for its power these practitioners would not be taking part in an effort of which the profession is justly proud, is an insult to the intelligence as well as to the patriotism of the profession.

Lieutenant CHARLES FORBES, R.A.M.C.(T.), writes under date August 18th: The Insurance Acts Committee, as resuscitated by the Representative Body, is, as the article in the JOURNAL of August 14th points out, on its trial. That the Committee, as now constituted, will prove a most admirable clearing house for Panel Committees, and that it will prove itself generally to be indispensable to Panel Committees in the proper discharge of their administration, no one can more sincerely desire than the writer. As one who has had experience of the advantages of a central body in assisting a Panel Committee I would urge all Panel Committees to respond to the appeal made in the leading article referred to and make the Committee their "central agent," and thus "build up a strong central and peripheral organization." If I could I would desire to make a "stirring appeal," for this is surely a question that is vital to the interests of all panel men. The leading article, no doubt voicing the opinions of the majority of the members of this Committee, recognizes that a strong organization has not been made by the reconstitution of the Insurance Acts Committee; nor, indeed, could it, when only 6 out of a Committee of 26 are directly representative of the insurance practitioner. In a former letter I urged panel men to bestir themselves and secure a strong central organization to fight their battles when the next big fight comes along. The Insurance Acts Committee linked up with the Panel Committees, and guided by an annual or more frequent conference between these Committees, and having amongst its members seventeen practitioners with experience of panel work, is an admirable central body for administrative purposes if the Panel Committees care to make it so. It has done good work in the past, and with the hearty co-operation of the local committees it should do even better work in the future in negotiating with or fighting the Commissioners over details of administration, such as the "drug tariff," etc. Like the writer of the leading article and Mr. Fothergill, I have a contempt for "mischievous divisions" or any attempt to break up the profession into groups. The British Medical Association holds the field as the only organization that is likely efficiently to represent panel practitioners, and this for reasons obvious to all who have followed the course of medical politics in recent years.

There is all the more need for wisdom on the part of those who are guiding the policy of the Association in these times of remodelling things medical. The best organization would undoubtedly be one representative of insurance practitioners having the hearty support of the whole profession. I notice that the idea of making the British Medical Association a sort of federation of

associations of the different classes of practitioners, although pronounced to be legally incompetent, has not been entirely set aside. But whatever form the organization of the profession may take under the aegis of the British Medical Association one thing is certain—unless we are to go in for Prussianism panel practitioners must be allowed to decide that for themselves when a crisis comes. I would therefore appeal again to our political leaders to recognize the basic fact that if the British Medical Association is to claim to speak for panel men, it can only do so on a direct representative basis. How this is to be worked out within the limitations of the present constitution of the Association is not clear, but if the last word is to be the Insurance Acts Committee's re-constitution, then there is danger ahead. Finally, I would again appeal to panel men not to rest content with a central organization on which they have a representation of only 6 in 26. I know most of that could and has been said by those who think the present organization is strong enough for all purposes. It is strong enough for administrative purposes but it is not strong enough to fight a big battle in Parliament and before the country, and hold the profession together.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Staff Surgeons J. C. F. D. Vaughan and J. H. Addison, for disposal; A. Marsh, M.B., to the *Victory*, additional, for disposal; Surgeon H. G. T. Major is placed on the retired list. Temporary Surgeons S. Worthington, M.B., to the *Cornetant*, additional, for Gibraltar; H. S. Pitt, M.B., to the *Victory*, additional, for Haslar; M.B. and M.B., to the *Royal Marine Division*, Chatham, vice Shepherd; C. H. Murray to the *Penobscot*, additional, for Chatham Hospital; C. E. Leake, M.B., to the *Victory*, additional, for disposal.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Practitioner L. Malta, A. M. Davidson to the *Z. Riche*, vice Braja, J. A. Robertson to the *Miranda*, vice Stewart.

ARMY MEDICAL SERVICE.

Temporary Major Alexis Thomson, from R.A.M.C., to be temporary Colonel.

ROYAL ARMY MEDICAL CORPS.

To be temporary Lieutenant-Colonels: Temporary hon. Lieutenant-Colonel P. Sargent, M.B., F.R.C.S., temporary and hon. Major G. M. Holmes, M.D.

Temporary Major C. G. Watson, F.R.C.S., to be temporary hon. Lieutenant-Colonel whilst serving with No. 1 British Red Cross Hospital.

Major F. W. Lamballe, M.B., from the Half Pay List, to be restored to the establishment.

A. R. Ferguson, M.D., to be temporary Major.
To be temporary Captains: H. E. Joy, M.D., H. W. M. Tims, E. H. Hutcheon, Captain; D. W. H. Alexander, O.T.C., and Captain Australian Army Medical Service: temporary Lieutenants H. W. Drew, F.R.C.S., and W. G. Davies.

Temporary Captains: Temporary Lieutenants: R. S. Cooke, F.R.C.S., E. C. Stubb, F.R.C.S., W. W. Topley, M.B.

To be temporary Lieutenants: S. H. Harris, M.B., M. Dobbs, M.D., A. Cowen, A. L. Badcock, M.B., J. Campbell, M.B., W. Samson, M.D., E. Newton, M.B., G. C. M. M.B., W. H. F. G. Godwin, D. A. Evans, J. C. Hindley, M.B., A. L. Martin, J. R. Polson, M.D., F. C. Ellison, M.D., E. Montgomery, F.R.C.S., L. A. G. Clark, M.B., D. McNeill, M.B., W. Martin, M.B., E. P. S. Gibson, M.D., J. S. Gilchrist, M.B., W. S. Campbell, M.B., J. D. Watson, M.B., J. M. Macfie, M.B., J. R. Rennie, M.B., I. M. Berra, M.B., W. G. D. McCull, J. V. Grant, M.B., A. M. Adam, M.B., P. I. Parker, M.B., A. H. Park, M.B., T. J. W. Swinburne, M.B., P. I. Park, M.B., H. G. Havin, M.B., E. F. Bashford, M.D., W. Kelley-Patterson, M.D., R. J. Harley, M.D., W. E. Passmore, L. Gibbons, C. A. Wickham, M. Clover, G. Hayward, D. R. Alexander, R. E. Ingram-Johnson, M.D., R. B. Woodcock, A. W. Johnson, R. C. Poyser, W. P. Wippl, R. L. Bealy-Smith, A. Scott, M.B., D. McFarlane, M.B., P. H. Cole, M.B., J. G. H. G. Havin, M.B., W. S. Gibson, M.D., G. W. Cunningham, M.B., J. A. Roder, M.B., W. S. Gibson, M.D., S. J. Corwell, H. L. G. Hughes, T. W. Eagles, from R.F.A.; J. M. Wishart, M.B., Ian A. Clarke, M.B., P. C. Davis, M.B., A. F. Miller, G. W. Middlemiss, M.B.; Second Lieutenants: M. B. Jackson, from 1st Battalion (Amoy) and 2nd Territorial Black Watch, Royal Highlanders (substituted for notice published in the *London Gazette* of May 2nd); C. R. Wills, M.B., W. Young, M.D., F.R.C.S.E., A. B. McLeslie, F.R.C.S., G. Kennedy, M.B., M. B. Jackson, M.B., S. J. Corwell, H. L. G. Hughes, S. A. Alexander, T. W. Sheldon, J. C. Knox, M.B., J. A. Longley, M.B., F.R.C.S.E., F. W. H. Hutchinson, M. Coghlan, M.B., P. MacD. Little, M.B., G. M. Jackson, M.B. The appointment to a temporary Lieutenantcy of A. G. Owen, M.B., notified in the *London Gazette* of July 26th, 1915, is cancelled.

Temporary Lieutenants P. C. Clarke and J. H. Fleming relinquish their commission on account of ill health.
The following temporary Lieutenants relinquish their commissions: M. Radford, M.B., G. C. Chubb, M.D., F.R.C.S., R. G. Brown, A. P. H. Ford, F. G. Chandler, M.B., G. C. Metcalfe, A. G. Lovell, M.D., R. L. G. S. C. F. W. S. G. G. Havin, M.B., W. S. Gibson, M.D., H. G. Greaves, M.B., E. R. Douglas.

To be temporary hon. Lieutenants: A. H. Morley, T. W. Melhuish, W. Crickelsack, M.B.

F. P. Young, M.D., to be temporary hon. Lieutenant whilst serving with No. 1, British Red Cross (the Duchess of Westminster) Hospital.

The notification regarding temporary hon. Lieutenant W. F. Thompson, published in the *London Gazette* of August 7th, 1915, is cancelled.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

1st Scottish General Hospital.—F. W. C. Brown, M.B., to be Lieutenant.
1st Lowland Field Ambulance.—Captain A. W. Anderson, M.D., 5th (Dumfriesshire and Galloway) Battalion, King's Own Scottish Borderers, to be Major, temporary.

3rd North Midland Field Ambulance.—J. W. G. H. Riddell, late Second Lieutenant 1st Lowland Brigade, R.F.A., to be Lieutenant.

1st West Lancashire Field Ambulance.—Captain E. B. Taylor, M.B., F.R.C.S., to be temporary Major.

North and Derby Mounted Brigade Field Ambulance.—D. W. Griffiths to be Lieutenant.

2nd South Midland Mounted Brigade Field Ambulance.—Lieutenant A. Roder, M.B., to be Captain.

3rd North Midland Field Ambulance.—Captain B. M. Footner, from Attached to Units other than Medical Units, to be Captain.

1st Eastern General Hospital.—E. C. Crickton, M.B., to be Captain, whose services will be available on mobilization.

London Mounted Brigade Field Ambulance.—Captain H. S. Bendles to be temporary Major.

London (City of London) Field Ambulance.—Captain D. S. Sutherland, M.D., to be temporary Major.

1st London (City of London) Sanitary Company.—Lieutenant J. E. Wilson, M.D., from the 3rd North Midland Field Ambulance, to be Lieutenant.

2nd London (City of London) General Hospital.—R. J. W. A. Cushing to be Lieutenant.

3rd London Sanitary Company.—Sergeant T. J. Murray, from 3rd North Midland Field Ambulance, to be Lieutenant.

2nd Southern General Hospital.—Major A. B. Prowse, M.D., F.R.C.S., to be temporary Lieutenant-Colonel.

1st Ambulance.—J. W. Cook, late Second Lieutenant 4th Welsh Brigade, R.F.A., to be Captain, temporary.

3rd Western General Hospital.—J. T. Williams, M.D., to be Lieutenant.

Special Reserve for Service with the O.T.C.—Cadet E. W. Walker, from the Oxford University Contingent, Senior Division, O.T.C., to be Lieutenant for service with the medical unit of the contingents.

Attached to the O.T.C.—Other O.T.C. Captains: Captain A. E. Clouston resigns his commission on account of ill health; Captains G. D. Laird, M.B., and T. D. Brown, M.B., to be Major.

To be Major: Captain G. D. Laird, M.B., and T. D. Brown, M.B., from 3rd Highland Field Ambulance; Lieutenant G. MacL. Leveck, M.B., from 14th (Reserve) Battalion, Sherwood Foresters (Nottinghamshire and Derbyshire Regiment).

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant A. E. Taylor, M.B., from 2nd Northumbrian Field Ambulance, to be Lieutenant.

Vital Statistics.

ENGLISH URBAN MORTALITY IN THE SECOND QUARTER OF 1915.

[SPECIALLY REPORTED FOR THE "BRITISH MEDICAL JOURNAL."]

In the accompanying table will be found summarized the vital statistics of ninety-six of the largest English towns, including the Registrar-General's returns for the second quarter of the year. The Registrar-General's returns in these towns during the quarter under notice (1915) are tabulated in these towns during the quarter under notice corresponded to an annual rate of 24.2 per 1,000 of the population, estimated at 18,156,180 persons in the middle of 1900, while among the other birth-rates it ranged from 15.8 in Bournemouth, 14.5 in Hastings, 14.8 in Southampton, 15.0 in Bath, 15.3 in Farnborough, and 15.5 in Reading, 16.3 in Liverpool, 16.4 in Barrow-in-Furness, 16.5 in Walsall, 16.8 in South Shields, 17.0 in West Bromwich, 17.2 in South Shields, and 17.3 in Gateshead.

The 68,338 deaths in these towns were equal to an annual rate of 25.1 per 1,000; in London the death-rate was 15.2 per 1,000, while among the other towns the rates were 9.7 in Ilford, 10.0 in Wimbledon, 10.1 in Walthamstow, 10.2 in Enfield and in Leyton, and 10.5 in Oxford, 10.8 in Lincoln, and the highest rates were 18.4 in Wolverhampton, 18.5 in Walsall, 19.0 in Bath, 19.3 in Farnborough, 19.4 in Wigan, 19.2 in West Bromwich, 19.6 in South Shields, 21.2 in Sunderland, and 25.3 in Middlesbrough.

The deaths from all causes included 144 from enteric fever, 6 from small-pox, 3,559 from measles, 335 from scarlet fever, 1,408 from diphtheria, 695 from measles, 695 from diphtheria, and 894 from diarrhoea and enteritis among children under 2 years of age. The fatal cases of enteric fever were small-pox belonged to Bristol, 24 in 1915, 12 in 1914, and 10 in 1913; London; among the other towns the rates ranged upwards to 16.0 in Stoke-on-Trent and in Preston, 0.11 in Bolton, 0.12 in Salford, in 1915; and in Rochester, 0.13 in Blackpool, and 0.20 in Tynemouth. The 3,559 fatal cases of measles were equal to an annual rate of 0.89 per 1,000; in London this disease caused a death-rate of 0.84 per 1,000, while among the other towns the highest rates were 0.84 per 1,000 in Farnborough, 0.85 in Walsley, 0.86 in Walsley, 0.87 in Walsley, 0.88 in Walsley, 0.89 in Walsley, 0.90 in Walsley, 0.91 in Walsley, 0.92 in Walsley, 0.93 in Walsley, 0.94 in Walsley, 0.95 in Walsley, 0.96 in Walsley, 0.97 in Walsley, 0.98 in Walsley, 0.99 in Walsley, 1.00 in Walsley, 1.01 in Walsley, 1.02 in Walsley, 1.03 in Walsley, 1.04 in Walsley, 1.05 in Walsley, 1.06 in Walsley, 1.07 in Walsley, 1.08 in Walsley, 1.09 in Walsley, 1.10 in Walsley, 1.11 in Walsley, 1.12 in Walsley, 1.13 in Walsley, 1.14 in Walsley, 1.15 in Walsley, 1.16 in Walsley, 1.17 in Walsley, 1.18 in Walsley, 1.19 in Walsley, 1.20 in Walsley, 1.21 in Walsley, 1.22 in Walsley, 1.23 in Walsley, 1.24 in Walsley, 1.25 in Walsley, 1.26 in Walsley, 1.27 in Walsley, 1.28 in Walsley, 1.29 in Walsley, 1.30 in 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Analysis of the Vital Statistics of Ninety-six of the Largest English Towns during the Second Quarter of 1915.

Towns.	Population esti- mated to be the middle of the Year 1915.	Births.	Deaths.	Annual rate per 1,000 Living.		Deaths from Principal Infectious Diseases.								Deaths under 1 year to 1,000 Births.	Uncertified Deaths per Cent. of Total.
				Births.	Deaths.	Enteric Fever.	Small-pox.	Measles.	Scarlet Fever.	Whooping- cough.	Diphtheria.	Diarrhoea and Enteritis (under 2 years).			
													Births.			Deaths.
96 Great Towns	18,136,180	109,648	68,338	24.2	15.1	144	6	3,609	336	1,408	605	894	99	0.8	
London	4,516,612	27,095	17,120	24.1	15.2	24	—	946	90	417	136	201	93	0.1	
Wrexham	181,956	983	599	21.7	13.2	1	—	62	2	5	5	5	62	—	
Widened	59,598	255	149	17.2	10.0	1	—	10	2	1	1	1	91	—	
Reading	271,530	1,409	897	19.9	12.5	1	—	107	1	2	2	2	59	—	
Acton	64,369	384	204	23.9	12.7	1	—	10	—	—	—	—	22	—	
Willesden	167,922	931	473	22.2	11.3	2	—	35	10	11	5	6	82	—	
Hammersmith	88,353	365	240	16.5	10.8	—	—	26	—	2	2	3	47	—	
Tottenham	149,408	837	485	25.1	13.0	—	—	50	—	—	—	—	88	—	
Uxbridge	71,024	433	208	24.5	11.7	—	—	15	5	5	—	—	6	—	
Enfield	61,069	344	155	22.6	10.2	—	—	6	—	—	—	—	1	—	
West Ham	295,570	1,747	1,073	29.0	14.5	3	—	76	8	16	11	4	18	0.1	
East Ham	146,726	865	580	23.7	10.4	—	—	—	—	—	—	—	4	—	
Leyton	133,719	340	204	21.2	10.2	1	—	1	—	1	2	2	58	—	
Walthamstow	134,825	744	339	22.1	10.1	—	—	13	2	18	8	5	75	—	
Hendon	91,041	410	221	22.1	9.7	—	—	6	—	—	—	—	85	—	
Highgate	55,559	289	126	29.9	17.0	—	—	2	1	1	3	3	59	16.1	
Hastings	59,620	212	184	14.3	12.4	—	—	7	7	—	—	—	33	0.5	
Eastbourne	56,662	213	164	15.5	11.8	—	—	1	—	1	—	—	70	—	
Ilford	133,536	625	485	18.5	14.5	—	—	1	—	1	—	—	31	—	
Portsmouth	245,827	1,225	786	30.0	12.8	3	—	54	5	10	16	6	78	—	
Bournemouth	85,904	295	273	13.8	12.7	1	—	—	—	—	—	—	91	0.8	
Southampton	125,948	731	408	23.7	13.2	—	—	18	1	17	10	3	67	—	
Reading	90,083	466	246	20.7	11.0	1	—	1	—	8	3	1	69	2.4	
Oxford	54,339	250	139	18.5	10.3	2	—	—	—	—	—	—	4	0.7	
Northampton	91,123	424	374	19.1	16.5	1	—	69	2	10	14	3	136	0.8	
Newbury	57,676	252	127	25.7	17.9	—	—	—	—	—	—	—	63	0.8	
Southend-on-Sea	83,908	566	235	17.5	11.2	—	—	5	—	—	—	—	79	1.7	
Ipswich	76,472	440	290	23.1	15.2	—	—	—	4	1	3	3	89	—	
Great Yarmouth	57,502	303	182	21.1	12.7	—	—	—	—	—	—	—	11	—	
Norwich	124,107	684	281	21.3	13.9	—	—	7	1	1	11	10	79	0.2	
Swindon	52,750	305	175	23.2	13.3	—	—	1	1	4	—	—	11	—	
Exeter	60,788	315	197	20.8	13.0	—	—	6	—	1	—	—	86	—	
Plymouth	242,141	1,107	894	20.9	15.9	5	—	10	1	8	11	7	1	57	
Bath	70,292	245	130	25.0	13.0	—	—	—	—	—	—	—	1	—	
Bristol	363,312	4,959	1,222	21.6	13.5	6	6	11	2	19	8	10	83	0.4	
Gloucester	50,759	312	173	24.7	13.7	—	—	—	—	—	—	—	3	—	
Stoke-on-Trent	241,430	1,768	1,057	23.4	17.6	—	—	48	6	19	17	5	138	2.5	
Wolverhampton	195,925	959	519	23.9	18.4	—	—	59	—	—	—	—	18	—	
Walsall	94,093	708	450	30.2	19.2	2	—	103	2	3	4	11	124	0.2	
West Bromwich	69,430	558	320	32.2	18.5	—	—	67	4	3	2	7	129	3.4	
Bolton	51,885	381	226	29.4	17.5	—	—	4	—	—	—	—	94	5.3	
Birmingham	868,430	5,671	3,059	32.2	14.1	—	—	113	14	39	29	65	94	3.5	
Stochwick	76,314	479	264	25.2	13.9	—	—	24	—	4	4	9	113	0.8	
Coventry	119,005	782	413	26.4	13.9	—	—	67	5	—	—	—	91	1.5	
Leicester	232,664	1,305	746	24.4	12.9	—	—	4	—	—	—	—	14	—	
Lincoln	60,243	284	155	18.9	10.3	—	—	1	—	1	6	—	76	0.3	
Grimsby	78,667	567	273	28.9	13.9	1	—	6	—	3	1	1	65	0.4	
Nottingham	266,918	1,492	936	22.4	14.1	2	—	6	7	25	2	9	100	0.5	
Derby	126,389	742	446	23.5	14.2	1	—	47	2	1	6	4	67	—	
Stockport	126,040	636	465	19.9	14.8	—	—	1	—	—	—	—	6	—	
Birkenhead	137,710	1,022	539	23.9	14.1	—	—	1	2	10	1	1	90	0.2	
Wallasey	87,175	460	239	21.2	11.0	—	—	1	—	2	3	3	47	—	
Liverpool	677,992	5,808	3,410	30.3	17.8	—	—	21	19	99	24	53	105	—	
Bootle	50,530	279	129	27.9	12.9	—	—	36	1	13	3	3	106	5.5	
St. Helens	100,775	773	434	30.8	18.2	2	—	121	1	25	5	5	128	3.9	
Southport	71,747	265	148	13.0	8.0	—	—	3	—	3	1	1	83	3.4	
Wigan	91,491	605	335	26.6	19.1	—	—	22	7	73	4	4	175	—	
Warrington	79,923	521	255	27.9	13.7	—	—	9	3	5	4	3	75	0.8	
Bolton	185,247	914	643	19.4	13.9	5	—	17	1	23	2	6	102	—	
Bury	59,213	289	123	19.6	10.7	—	—	3	1	—	4	4	90	2.6	
Manchester	738,538	4,469	3,138	24.3	17.0	17	—	226	19	24	16	52	116	0.4	
Salford	345,975	1,957	1,090	29.9	18.6	—	—	114	7	20	20	130	130	0.1	
Oldham	151,044	782	508	20.8	15.9	1	—	11	3	6	3	10	104	—	
Rochdale	94,320	433	268	14.4	15.6	—	—	—	—	—	—	—	5	—	
Burnley	110,090	537	374	19.6	13.6	—	—	—	—	—	—	—	16	—	
Blackburn	134,387	670	409	27.9	14.5	—	—	—	—	—	—	—	122	1.0	
Preston	118,514	690	467	23.4	15.8	3	—	14	2	6	2	2	109	2.6	
Blackpool	62,205	259	151	16.7	14.9	—	—	—	—	—	—	—	89	1.7	
Barrow-in-Furness	65,921	499	295	30.4	17.9	—	—	35	6	3	1	1	82	3.1	
Lodgefield	119,485	529	359	18.5	16.1	—	—	6	1	2	4	4	93	0.9	
Halifax	100,373	414	243	16.5	17.2	3	—	11	2	—	—	—	1	—	
Bradford	291,482	1,336	1,226	18.4	16.9	3	—	10	9	24	13	9	103	0.1	
Leeds	459,260	2,634	1,755	22.9	15.3	8	—	8	11	48	13	18	100	0.1	
Doncaster	54,083	308	209	22.8	17.0	—	—	—	—	—	—	—	3	—	
Wakefield	71,643	271	162	27.6	13.9	—	—	2	—	—	—	—	3	—	
Barnsley	53,929	405	227	30.2	15.4	—	—	6	—	—	—	—	9	—	
Sheff. Id.	477,228	3,108	2,264	26.1	19.0	4	—	366	12	30	20	32	138	0.3	
Rotherham	65,313	485	278	29.8	17.1	2	—	6	1	11	5	4	101	1.4	
York	83,822	477	290	27.9	14.5	—	—	1	2	1	2	2	88	—	
Hull	291,118	1,872	1,036	25.8	14.3	1	—	7	2	19	9	7	97	0.4	
Mid. Leobrough	126,452	952	799	30.2	25.3	—	—	147	4	19	7	2	122	5.7	
Darlington	61,441	426	189	27.8	12.3	—	—	—	—	—	—	—	7	—	
Stockton-on-Tees	59,211	432	211	23.2	15.1	—	—	—	—	—	—	—	8	—	
West Hartlepool	64,374	458	280	28.5	17.4	—	—	31	—	6	2	1	87	4.8	
Sunderland	152,927	1,251	808	32.8	21.2	—	—	99	9	11	7	15	125	2.6	
South Shields	111,357	917	552	33.0	19.9	—	—	38	2	19	6	6	130	3.6	
Gateshead	119,322	585	383	28.3	18.3	—	—	14	—	4	1	1	109	0.5	
Newcastle-on-Tyne	273,415	1,972	1,113	28.9											

Norwich, 16.43 in Darlington, 18.78 in Snettwhick, 22.17 in Barnsley, 23.13 in Middleton, and 29.80 in Burnley.

Infant mortality, measured by the proportion of deaths among children under 1 year of age to registered births, was equal to 99 per 1,000 in London, the proportion being 92 in 1,000 white among the other towns it ranged from 33 in Hastings, 44 in Oxford, 47 in Hornsey, 48 in Wallasey, 51 in Wimbledon, 53 in Lincoln, 57 in Bath, and 58 in Leyton, to 136 in Northampton and in Wolverhampton, 137 in Tyne-mouth, 138 in Sheffield, 147 in Burnley, 152 in Middlesex, and 175 in Wigan.

The causes of 565, or 0.8 per cent., of the deaths registered in the ninety-six towns last quarter were not certified either by a registered medical practitioner or by a duly qualified medical officer, and among the causes of all the deaths were duly certified; among the other towns the highest proportions per cent. of uncertified deaths recorded were 3.5 in St. Helens, 4.4 in Wigan, 4.5 in Gateshead, 5.3 in Dudley, 5.5 in Beccle, 7.1 in Warrington, and 16.1 in Gillingham.

HEALTH OF ENGLISH TOWNS.

In ninety-six of the largest English towns 7,925 births and 3,979 deaths were registered during the week ended Saturday, August 28. The annual rate of mortality in these towns, which had been 11.4, 11.3, and 11.5 per 1,000 in the three preceding weeks, fell to 11.4 per 1,000 in the week under notice. In London the death-rate was equal to 12.5, while among the ninety-five other large towns it ranged from 4.7 in Hornsey, 5.2 in Hastings, 6.1 in Coventry, 6.4 in East Ham and in Swansea, 6.6 in Gillingham, and 6.7 in Bath, to 16.1 in stockport and in Middlesbrough, 17.0 in Liverpool, 19.7 in South Shields, 19.9 in Wigan, 22.5 in Gateshead, and 23.1 in Burnley. Measles caused a death-rate of 1.2 in Middlesbrough, 1.3 in Gateshead, 2.0 in Aberdare, 2.9 in Barnsley, and 3.5 in Lincoln. The deaths of children from diphtheria and enteritis, which were 171, 226, and 262 in the three preceding weeks, further rose to 348, and included 85 in London, 39 in Liverpool, 22 in Birmingham, 17 in Manchester, 15 each in Sheffield and Hull, and 13 in Leeds. The mortality from the remaining infectious diseases showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The causes of 30, or 0.8 per cent., of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number 7 were recorded in Birmingham, 6 in Liverpool, 4 in Sunderland, 3 in Gateshead, and 2 in South Shields. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,361, 2,436, and 2,415 at the end of the three preceding weeks, fell to 2,347 on Saturday, August 21st: 225 new cases were admitted during the week, against 294, 285, and 279 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 967 births and 552 deaths were registered during the week ended Saturday, August 28. The annual rate of mortality in these towns, which had been 13.8, 13.7, and 12.6 per 1,000 in the three preceding weeks, further fell to 12.3 in the week under notice, but was 0.9 per 1,000 above the rate in the ninety-six large English towns. Among the several towns the death-rate ranged from 4.4 in Perth, 9.3 in Ayr, 10.2 in Glasgow, 10.4 in Aberdeen, 14.7 in Dundee, and 17.2 in Paisley. The mortality from the principal infective diseases averaged 1.6 per 1,000, and was highest in Dundee and Paisley, 2.85 deaths from all causes in Glasgow included 13 from measles, 13 from infantile diarrhoea, 4 from whooping cough, 2 from diphtheria, 1 from enteric fever, and 1 from scarlet fever. Three deaths from measles were recorded in Edinburgh, 2 in Aberdeen, and 1 in Paisley. In Glasgow 4 deaths from diphtheria and 1 from diphtheria 3 deaths in Paisley; and from infantile diarrhoea 8 deaths in Dundee.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index) *Advertisement*—Important Notice re Appointments appearing in our advertisement columns, and particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

ASBTON-UNDER-LYNE UNION.—Resident Assistant Medical Officer for the Workhouse. Salary, £250 per annum.

BRIMMINGHAM AND MIDLAND EAR AND THROAT HOSPITAL.—House-Surgeon. Salary, £100 per annum.

BRIMMINGHAM AND MIDLAND EYE HOSPITAL.—Junior House-Surgeon. Salary, £100 per annum and £5 per month.

BRIMMINGHAM.—CITY FEVER HOSPITAL.—Resident Lady Medical Officer. Salary, £250 per annum.

BLACKBURN AND EAST LANCASHIRE ROYAL INFIRMARY.—Senior and Junior House-Surgeons. Salary, £200 and £250 per annum respectively.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Junior Resident Officer. Salary, £100 per annum.

BRISTOL ROYAL INFIRMARY.—(1) Resident Obstetric and Ophthalmic House-Surgeon; salary, £120 per annum. (2) Dental House-Surgeon; salary, £120 per annum.

BUXTON.—DEVONSHIRE HOSPITAL.—Assistant House-Physician. Salary, £100 per annum.

CARDIFF.—KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £150 per annum; 21s. allowed weekly for working single-handed.

EVELINA HOSPITAL FOR SICK CHILDREN. Southwark. — (1) House-Physician; (2) House-Surgeon. Salary, £75 per annum each.

FALKLAND ISLANDS.—Colonial Dental Surgeon. Salary, £300 per annum.

FOLKESTONE.—ROYAL VICTORIA HOSPITAL.—House-Surgeon. Salary, £150 per annum.

GUILDFORD.—ROYAL SURREY COUNTY HOSPITAL.—House-Surgeon. Salary, £131 per annum.

HASTINGS.—EAST SUSSEX HOSPITAL.—House-Surgeon. Salary, £100 per annum.

HOSPITAL (SPECIAL) FOR MENTAL CASES UNDER THE WAR OFFICE.—Resident Medical Officer.

KENNINGTON AND FULHAM GENERAL HOSPITAL. Earl's Court, S.W.—Dental Surgeon.

LANCASHIRE COUNTY COUNCIL.—Medical Superintendent at High Carley Sanatorium. Salary, £450 per annum, rising to £550.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130 per annum.

LIVERPOOL INFIRMARY FOR CHILDREN.—(1) Two Resident House-Physicians; (2) Resident House-Surgeon. Salary, £30 each for six months.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £120 per annum.

MANCHESTER ROYAL INFIRMARY.—General Superintendent and Secretary. Salary, £70 per annum.

MIDDLESBROUGH.—NORTH ORMESBY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

MIDDLESEX COUNTY ASYLUM, Napsbury.—Temporary Assistant Medical Officer. Salary, 45 fs. per week.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House-Surgeon. Salary, £250 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—District Resident Medical Officer. Salary, 450 per annum.

READING.—ROYAL BERKSHIRE HOSPITAL.—Resident Clinical Assistant. Salary, £150 per annum if qualified, and £75 if unqualified.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Resident Medical Officer (male) to the Military Block.

ST. MARY'S HOSPITAL, Paddington, W.—Resident Medical Officer for the Isolation Wards. Salary, £100 per annum.

ST. PETER'S HOSPITAL, FOLKSTONE, Herne Bay Street, W.C.—Junior House-Surgeon. Salary, £75 per annum.

SALFORD ROYAL HOSPITAL.—(1) Resident Surgical Officer; (2) House-Physician; (3) House-Surgeon; (6) Junior House-Surgeon; (5) Casualty House-Surgeon; Salary for (1) £120, (2) £110, and (3), (4), and (5) £100 per annum and £5 per month war bonus.

SALISBURY GENERAL INFIRMARY.—Assistant House-Surgeon. Salary, £100 per annum.

SOUTHAMPTON.—ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House-Surgeon. (2) House-Physician. Salary, £200 and £150 per annum respectively.

STORTES HALL ASYLUM, Kirkburton.—Locum-tenent. Salary, £5 6s. per week.

WANDSWORTH UNION INFIRMARY, S.W.—Female Assistant Medical Officer. Salary, £200 per annum.

WELSH METROPOLITAN WAR HOSPITAL, Whitechurch.—Resident Surgeon and Resident Physician.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—(1) Resident Medical Officer; (2) House-Physician and House-Surgeons. Salary for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.

WHITECHAPEL UNION INFIRMARY.—Second Assistant (female) Resident Medical Officer. Salary, £300 per annum.

WIGAN.—ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Eichenbriek (Kent), Lettermeyer (co. Donegal), Milford Haven (Pembrok).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found, it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

COOMER, A. B., M.R.C.S., L.R.C.P., Temporary Assistant Medical Officer at the Hendon Infirmary of the Westminster Union.

SALMON, Henry, M.D., F.R.C.P., etc., Medical Officer and Public Vaccinator, No. 5 District, Leicester Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

SEDWICK.—On the 16th of August, at Baveno, Theybergh, near Rothbarth, to the wife of G. H. Sedwick, M.R.C.S., L.R.C.P., a son.

TAYLOR.—At Kola Bharu, F.M.S., on 12th or 13th August, the wife of L. H. Taylor, M.B., of a son. (By eulic.)

WARR.—On the 23rd August, at the Clipping, Wood-under-Edge, Glos., the wife of H. Welshman Ward, F.R.C.S. Edin., of a son.

MARRIAGES.

COLTHER-KING.—On the 19th inst., at Holy Trinity Church, Claxgate, Surrey, by the Rev. — Garrard, Lieutenant Claude H. Colther, M.B., young son of M. R.C.S., etc., Medical Officer of The Larches, Horsham, to Gladys May, daughter of the late Robert King, Esq., J.P., of South Africa.

ROWAN-WILKINSON.—On August 2nd, at the Church of St. Andrew, Leamington, by the Rev. F. Wood, M.R.C.S., etc., Medical Officer and Superintendent, Derby County Asylum, to Sara C. Wilkinson.

DEATH.

JOYCE.—On August 17th, at Glyn Rhonda, Cathedral Road, Cardiff, Robert Conwy Joyce, M.B., C.M., aged 53.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, SEPTEMBER 4TH, 1915.

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THE WAR EMERGENCY.

THE APPEAL TO THE PROFESSION.

We would press upon our readers the importance of making a special effort to ensure the success of the recruiting scheme for whole-time commissioned medical officers. Notes of the proceedings of each of the meetings of the War Emergency Committee have been published, and it will be evident to the readers of these reports that the need for medical men under 40 years of age is urgent.

The figures of the Committee's register show that one man in every three under the age of 40 and now at home must volunteer to meet the present demand.

The Committee asks therefore that:

1. Men who will volunteer for immediate service should send in their names forthwith to the Committee's secretaries at the offices of the British Medical Association, 429, Strand, London, W.C.; or, if resident in Scotland, to the Convener of the Scottish War Emergency Committee at the Royal College of Physicians, Edinburgh.
2. Men who will volunteer for some late and specified date should send in their names with this date clearly marked.
3. Men who are willing to send their names on a special list of those willing to be called upon for service if and when there is a call for more men in special urgency should send in their names with this qualification noted.

The Committee reports that it is most anxious that local War Emergency Committees should be set up in every area representative of the whole profession. These local committees are necessary to the satisfactory working of the scheme. It will be necessary for these local committees to review the work to be done in their districts and the men who possibly could be spared for foreign service. Local committees alone can safeguard the practices of those who have volunteered. Further, the War Office has agreed to accept the nomination of local committees for men applying for commissions.

The Central Committee is preparing a number of leaflets. These have been drawn up so as to meet deficiencies, personal and local, shown in a voluminous correspondence. Local secretaries are invited to apply for advance copies.

At the meeting of the War Emergency Committee on August 25th the following business was transacted, in addition to that recorded in the *JOURNAL* of August 28th,

p. 333: The Committee considered further the terms of its reference from the Representative Body; it was instructed "to organize the medical profession in England, Wales, and Ireland in such a way as will enable the Government to use every medical practitioner fit to serve the country in such a manner as to turn his qualifications to the best possible use; to deal with all matters affecting the medical profession arising in connexion with the war; and to report to the Council." Dr. Buttar, Chairman of the Executive Subcommittee, suggested that the Committee should go rather further than it had hitherto, and bring before the profession the fact that the War Emergency Committee was willing to enrol medical men under 40 years of age for full-time service, and to arrange that after enrolment such men should be called up as required. The proposal was supported by Major Galloway, and the Committee adopted the following resolution:

That the policy of this Committee be to urge all medical practitioners who are under 40 years of age and physically fit to enrol themselves with the War Emergency Committee to come up for whole-time service whenever called upon by the Committee.

The resolution is intended to include, among others, all men under 40 years of age physically fit for military service who are at present at base hospitals in civilian capacities; and, as already reported, it was resolved at a later stage of the meeting, to ask the Director-General to instruct the Deputy Directors of Medical Services and Assistant Directors of Medical Services not to retain or accept for work in military hospitals at home medical practitioners of military age who are physically fit, but to encourage them to accept commissions in the R.A.M.C. It was further resolved that this principle should apply to those practitioners who have signed the Imperial Service declaration and are at present at work in Red Cross and Voluntary Aid Detachment hospitals. In addition, as already stated, the Committee resolved to address a letter to the governing bodies of hospitals, pointing out the urgency of relieving from their hospital duties those junior members of their resident and visiting staffs who are eligible for commissions in the R.A.M.C., and to notify the British Hospitals Association that such a letter was being issued.

The Medical Secretary of the British Medical Association made a report on the Medical War Register and the work hitherto done by the Committee. In preparing the register it had been borne in mind that in many areas the profession had already been canvassed either personally or by circular, and that much organizing work had already been done. A list of all the practitioners believed to be resident

therein was prepared for each Division, and the names of those known to be already serving in the army or navy were indicated. This was done for England, Wales, Scotland, and Ireland, but not for the metropolitan area, where the matter has been dealt with by a special committee. The lists so prepared were sent to the honorary secretaries of the smaller Divisions, in the hope that from their personal knowledge they might be able to supply the information required. In the case of the larger Divisions the honorary secretaries were consulted as to whether it would be better to send the lists to them or to proceed at once to make individual applications through the central office. The response from the honorary secretaries exceeded expectations, and in almost all cases the lists were promptly returned and in a great deal of valuable information provided. Every assistance was rendered also by the Scottish Medical Service Emergency Committee.

After these lists had been checked every individual in England (excluding the metropolitan area), Wales, and Ireland, about whom information was not sufficiently complete, was approached directly by circular. The number of circulars sent out was 13,500; of these 9,600 were returned. The information given was very full, and the request in many cases elicited expressions of approbation. After the examination of the information so obtained a second appeal was issued to about one thousand persons.

From the information obtained a list has been prepared, showing for each area:

1. The number of men already on whole-time war service (total, 5,265).
2. The number of men of 50 years of age and over offering whole-time war service (total, 447).
3. The number of men from 40 to 49 offering whole-time war service (total, 436).
4. The number of men of 40 and under offering whole-time war service (total, 633).
5. The number of men of 40 and under not on whole-time war service, nor offering to undertake it (total, 6,555 up to date).

From these figures it will be seen that there are approximately 6,555 men of military age in England and Wales and Ireland not at present engaged in war service; of these the services of about one-third are at present required. Upwards of 900 men over military age are offering whole-time service, and it is felt that if they could be induced to take up work as locumtenents, as they are for the most part not wanted by the military authorities, they would be instrumental in setting free a number of men who are unable to go unless they can obtain substitutes, local help not being available; a beginning has been made in establishing a War Bureau for locumtenents, to furnish the names of those over military age willing to do such work.

By the courtesy of the General Registrar of the General Medical Council the Committee receives the names of all men newly admitted to the *Medical Register*, and a circular had been sent to all those registered in July. Of 71 replies received all but 20 of those eligible for service were serving or about to serve. An approximate list of those medical men of military age in the area has been supplied to honorary secretaries of Divisions and Local Emergency Committees, and the quota of medical officers each area is expected to provide indicated. It has also been asked that local committees should be established at once.

The general conclusion to be drawn at the present time was that the Committee's register showed that previous to the issue of the last circular many members of the profession did not appreciate the urgency of the position. The correspondence received showed also that there was need for widespread and general appeal to the public for their sincere co-operation in order to make it possible for those doctors who remain at home to carry out the work of the absentees.

THE DEMAND FOR A MIDWIVES BILL FOR SCOTLAND.

By a printer's error the name of A. W. Russell, M.A., M.B., Obstetric Physician, Royal Maternity Hospital, Glasgow, was accidentally omitted from the list of signatories to the Memorial to the Secretary for Scotland and the Lord President of the Privy Council published in our last issue.

LOCAL MEDICAL AND PANEL COMMITTEES.

BOLTON.

LOCAL MEDICAL AND PANEL COMMITTEE.

A MEETING of the above Committee was held on August 10th at the Central Hall, when Sir THOMAS FLITROFF was in the chair. The following elections were made:

Representatives on the Medical Service Subcommittee: Sir Thomas Flitroff, Drs. Mallett, Wright, and Jean Marshall.
Representatives on the Joint Service Subcommittee: Drs. O'Neill and Jean Marshall.
Local Medical and Panel Committee: Dr. Wright in place of the late Dr. Macle.

The Local Pharmacopoeia.—Ten stock mixtures were adopted for the use of practitioners in the area after October 1st, 1915.

Excessive Prescribing.—The report of the Subcommittee on the alleged excessive prescribing was read, and it was decided to caution certain doctors to exercise more care in the future in those directions indicated in the report.

NEWCASTLE-UPON-TYNE.

PANEL COMMITTEE.

The following scheme of medical referees adopted by the Newcastle-upon-Tyne Panel Committee will come into force on September 1st:

1. There shall be appointed by medical societies of each of the three districts in the city, or, failing the societies, by the Panel Committee for the time being, three practitioners (hereinafter called the "referees") for the purpose of examining cases referred to them in manner hereinafter mentioned and making the necessary reports thereon.
2. The Clerk to the Insurance Committee shall act as secretary in connexion with this scheme.
3. The referees shall meet at the office of the Insurance Committee, 26, Ellison Place, Newcastle-upon-Tyne, and patients shall be examined there. Patients living in the area of one district shall be examined by referees practising in another district.
4. If a panel practitioner desires one of his patients to be examined by the referees, he shall fill up the appropriate form (copies of which will be provided), giving the necessary details, and forward same to the secretary. The secretary will thereupon notify the insured person to attend at his office for the purpose of being examined by the referees, and he will also notify the referees.
5. If an approved society desires any of its members to be examined, they should forward particulars of same to the secretary. The secretary shall then communicate with the doctor in charge of the case, and the procedure outlined in the preceding paragraph shall be followed. The approved society shall pay a fee of £s. 6/1 for each person so examined. All fees received shall be placed into a separate account, and distributed at the end of the year among the referees.
6. The secretary shall send a copy of the report of the referees to the panel practitioners and society concerned, if the society initiated the proceedings.
7. Nothing herein contained shall be deemed to take away the duties and obligations of medical practitioners on the panel under the Medical Certification Rules.
8. This scheme shall come into operation on September 1st, 1915, and will remain in force until the national scheme proposed to be set up by the Government, shall come into operation.

STAFFORDSHIRE.

LOCAL MEDICAL AND PANEL COMMITTEE.

A MEETING of the Staffordshire Local Medical and Panel Committee was held at Stafford on August 10th.

Election of Officers.—The following officers were appointed:

Chairman: Dr. T. Ridley Bailey.
Treasurer: Dr. H. A. Bull.
Honorary Secretary: Dr. Lefevre.
Executive Committee: Drs. Mitchell Smith, Daly, Entzer, Shaw, Wolferson, Taylor, and Stockwell, together with the Chairman, Secretary, and Treasurer.
Representatives on Medical Service Subcommittee: Appointed by Panel Committee—Drs. T. Ridley Bailey, Daly, and Lefevre.
Appointed by Local Medical Committee:—Dr. W. Mitchell Smith.

Representatives on Pharmaceutical Joint Subcommittee: Drs. Taylor, Daly, Shaw, and Lefevre, with the Chairman *ex officio*.

Insurance Acts Committee.—The Committee congratulated the Chairman, Dr. T. Ridley Bailey, on his election by the conference of Local Medical and Panel Committees as one of the six representatives for the whole of Great Britain on the Insurance Acts Committee of the British Medical Association.

London (City of London) Sanitary Company.—To Lieutenants: J. O. W. Harrell, M.D., N. Greenwood, Cadet G. L. Matthews from University of London Contingent, Senior Division, O.T.C., E. H. Matthews.

London (City of London) General Hospital.—Lieutenants to be Captains: A. J. P. Smith, L. G. Crossman, M.B., M. W. K. Bird, A. W. Stott, and to remain seconded, Lieutenants to be Captains: C. E. Teles, L. Milton, H. Sharpe, K. E. Clarke.

London General Hospital.—Major W. A. Turner, M.D., is seconded.

Eastern General Hospital.—Lieutenants to be Captains: J. H. Owens, F. Roberts.

East Anglian Field Ambulance.—Major H. A. Rudyard, from Attached to Units other than Medical Units, to be Lieutenant-Colonel.

South Midland Field Ambulance.—W. G. McKenzie to be Lieutenant.

2nd South Midland Mounted Brigade Field Ambulance.—Lieutenant J. V. S. Dunn to be Captain.

West General Hospital.—E. Moir to be Captain, whose services will be available on mobilization.

1st Western General Hospital.—The seconding of Captain Keith W. Mossarrat, M.B., announced in the *London Gazette* of May 20th, is cancelled.

1st West Lancashire Field Ambulance.—Captain W. H. Broad, M.D., 6th Rifle Battalion, King's Liverpool Regiment, to be Captain, temporarily substituted for notification published in the *London Gazette* of July 19th.

East Lancashire Field Ambulance.—To be Lieutenants: E. I. Forward, A. W. Hayward, M.D.

West Indian Grenade Clearing Station.—Lieutenants to be Captains: R. G. Dixon, M.B., H. W. Symons, M.B., F. P. Gibson, M.B., H. T. Bates, M.B., J. W. Mahin, M.B., D. R. Cramb, M.B., G. P. P. Chapman, A. S. Babbington, M.B., C. M. Cozney, M.B.

3rd West Riding Field Ambulance.—Captain W. J. Gray, from Attached to Units other than Medical Units, to be Captain.

Yorkshire Mounted Brigade Field Ambulance.—Lieutenant W. H. N. White, M.B., to be Captain.

Northern General Hospital.—Lieutenants to be Captains: F. J. Natrass, M.B., S. Thompson, M.B. To be Lieutenant: F. E. Fisher, M.B.

Northernburgh Field Ambulance.—P. J. Sheehan to be Lieutenant.

London Field Ambulance.—Lieutenants to be Captains: R. A. Leonic, M.B., C. C. Philip, M.B., J. R. Menzies, M.B., W. H. Arundel, M.B.

London Mounted Brigade Field Ambulance.—Lieutenants to be Captains: A. R. Muir, M.B., H. Forrest, M.B., A. M. Young, M.B., E. N. Thomson, M.B.

East Lothian Field Ambulance.—H. T. Findlay, M.B., to be Lieutenant.

Highland Field Ambulance.—Major J. Robertson, M.D., to be temporary Lieutenant-Colonel.

1st Highland Field Ambulance.—Captain A. Kelso to be temporary Major, A. B. Whitton, M.B. (late Lieutenant-Colonel, 6th Battalion, Gordon Highlanders), to be Captain, temporary.

Highland Mounted Brigade Field Ambulance.—Lieutenants to be Captains: G. G. Middleton, M.B., E. A. Mackenzie, T. E. Roberts, M.D., M. Haller, from Edinburgh University Contingent, Senior Division, O.T.C., to be Lieutenant.

Attached to Units other than Medical Units.—Lieutenants to be Captains: Hugh A. McLean, M.B., A. Ambrose, M.B., E. S. Stork, M.B., W. A. Robertson, A. G. Van Someren, M.B., M. C. Anderson, R. D. Gavin, M.B., C. McKenna, M.B., G. H. Donnan, J. A. Thomson, M.B., A. N. S. Carmichael, M.B., E. R. Keen, H. F. L. Hugo, M.B., J. W. M. Jamieson, M.B., T. Ehdin, W. H. Dale, M.D., E. M. Martin, M.D., J. T. Decker, S. Rutherford, M.B., H. G. Bruce, M.B., J. M. Docherty, M.B., Captain T. E. Roberts, M.D., from the Highland Mounted Brigade Field Ambulance, to be Captain.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130 per annum.

LIVERPOOL INFIRMARY FOR CHILDREN.—(1) Two Resident House-Physicians; (2) one Resident House-Surgeon. Salary, £30 in each case for six months.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Resident Medical Officer. Salary, £250 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £120 per annum.

MIDDLEBROUGH: NORTH OSMESBY HOSPITAL.—House-Surgeon. Salary, £150 per annum.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Grosvenor Square, W.C.—Resident Medical Officer. Salary, £100 per annum.

NORFOLK WAR HOSPITAL, Thorpe, Norwich.—Vacancies on Resident Medical Staff. Pay, £1 per diem.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—District Resident Medical Officer. Salary, £50 per annum.

READING: ROYAL BERKSHIRE HOSPITAL.—Resident Civilian Assistant. Salary, £150 per annum if qualified, and £75 if unqualified.

SALISBURY GENERAL INFIRMARY.—Assistant House-Surgeon. Salary, £100 per annum.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—(1) House-Surgeon; (2) House-Physician. Salary, £200 and £150 per annum respectively.

VICTORIA HOSPITAL FOR CHILDREN, Tite Street, S.W.—(1) House-Physician; (2) Senior Resident Medical Officer. Salary, £200 per annum each.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

WEST HANTS AND EASTERN GENERAL HOSPITAL, Stratford.—(1) Resident Medical Officer; (2) House-Physicians and House-Surgeons. Salary for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Inilly-ford (co. Cork), Bankfoot (Forthshire), Tring (Hertfordshire).

To ensure notice in this column—which is compiled from our advertisements containing, where full particulars will be found, it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BALLANTYNE, A. J., M.D., Lecturer on Ophthalmic Medicine and Surgery, Anderson College of Medicine, Glasgow, vice Dr. A. Robertson, deceased.

ENRIGHT, G. H., L.R.C.P. and S.I., Certifying Factory Surgeon for the Sixmilecross, co. Clare.

FABIAN, A., M.D. Glasg., Certifying Factory Surgeon for the Blyth District, co. Northumberland.

GILBERTSON, H. M., M.R.C.S., L.R.C.P., District Medical Officer of the Hildon Union.

JAGO, E. B., M.B., C.M. Glasg., District Medical Officer of the Rotherham Union.

JONES, Wm. H., M.D. Lond., Certifying Factory Surgeon for the Bulth District, co. Brecknock and Radnor.

ROBERTSON, F., M.R.C.S., L.R.C.P., District Medical Officer of the Barton-upon-Irwell Union.

STROVEL, H. W. M., M.B., Ch.B. Aberd., Temporary Medical Referee under the Workmen's Compensation Act for County Court, Circuit No. 2, and to be attached more particularly to the West Harpley County Court.

WALTERS, C. Ferrier, F.R.C.S., Surgeon to the Bristol Royal Infirmary.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post following morning in order to ensure insertion in the current issue.

BIRTHS.

GUTHRIE.—On August 22nd, at Greta, Heswall, Cheshire, the wife of Thomas Guthrie, M.A., M.B., B.C. Cantab., F.R.C.S. Eng., of 78, Rodney Street, Liverpool, has a son.

HENRY. On the 26th August, at Argyle House, Halifax, Yorkshire, the wife of Lieutenant McWilliams Henry, F.R.C.S.E., R.A.M.C., of a son.

McKANE.—On August 27th, to the wife of Dr. Rudolph McKane, Gilpin House, Grimsby, a son.

MARRIAGE.

SHERA-DAYES.—On September 1st, at St. Mark's Church, Sheffield, by the Rev. E. B. Holland of Milnrow, Lancs., Arthur Geoffrey Shera, M.B. Cantab., etc., Lieutenant R.A.M.C., son of the late H. Arthur Shera, M.R.C.S., L.R.C.P., of Sheffield, to Annie L. Davies, adopted daughter of the late Mr. and Mrs. J. Davies, of Homeville, Eastbourne.

DEATHS.

DOUGLAS.—On the 26th August, at the Medical Superintendent's House, the Royal Albert Institution, Lancaster, Archibald Robertson Douglas, L.R.C.P., M.R.C.S., etc., aged 47.

JONES.—On August 30th, at Bryn Tŷrion, Church Walks, Llanidloes, Cardigan, John Matthew Jones, A.M.S., late A.D.M.S. Plymouth District. Invalided whilst on active service.

WELSH.—On the 25th August, suddenly, at Whitworth House, Whitworth, Alexander Welsh, M.D., C.M., aged 72.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice Issued under the heading "Advertisements—Important Notice re Advertisements" appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

ASHTON UNDERLYNE UNION.—Resident Assistant Medical Officer for the Workhouse. Salary, £250 per annum.

BIRMINGHAM AND MIDLANDS EYE HOSPITAL.—Junior House-Surgeon. Salary, £100 per annum and £5 laundry allowance.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £250 per annum.

BRISTOL GENERAL HOSPITAL.—(1) House-Physician; (2) Casualty House-Surgeon. Salary, £150 per annum each.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Junior Resident Officer. Salary, £100 per annum.

BRISTOL ROYAL INFIRMARY.—(1) Resident Obstetric and Ophthalmic House-Surgeon; salary, £120 per annum. (2) Dental House-Surgeon; salary, £120 per annum.

BUNTON: DEVONSHIRE HOSPITAL.—Assistant House-Physician. Salary, £100 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £140 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark.—(1) House-Physician; (2) House-Surgeon. Salary, £75 per annum each.

GLOUCEstershire JOINT COMMITTEE FOR TUBERCULOSIS.—Assistant Tuberculosis Medical Officer. Salary, £50 per annum.

GRIMSBY AND DISTRICT HOSPITAL.—House-Surgeon. Salary, £55 s. a week.

HASTINGS: EAST SUSSEX HOSPITAL.—House-Surgeon. Salary, £100 per annum.

INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTON DISPENSARY.—House-Surgeon. Salary, £150 per annum.

LABYATORIES OF PATHOLOGY AND PUBLIC HEALTH, New Cavendish Street.—Bacteriologist.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, SEPTEMBER 11TH, 1915.

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British Medical Association.

INSURANCE ACTS COMMITTEE.

THE DRUG TARIFF.

The following Memorandum on possible changes of Medical Benefit Regulations connected with the placing of the Drug Tariff on a commercial basis has been issued to Local Medical and Panel Committees by the Insurance Acts Committee of the British Medical Association:

INTRODUCTORY.

1. When the Deputation from the Insurance Acts Committee was received on July 9th (as reported in the B.M.J., July 31st, 1915, Supplement, pages 68-72) by the National Health Insurance Joint Committee, Mr. Charles Roberts, M.P., being in the Chair, for the purpose of placing before that body the decisions of the Conference of Representatives of Local Medical and Panel Committees, held in London, on June 16th, the Deputation was asked whether the Conference had considered the question of what alterations of the Regulations would be required in order to give effect to the Recommendations of the Departmental Committee on the Drug Tariff. The Deputation replied that a motion on the subject had been before the Conference, but had been postponed until after the Report of the Departmental Committee had been published. It was then pointed out on behalf of the Commissioners that the Report of the Departmental Committee might probably not appear until a date which would make adequate consideration of the necessary changes in Regulations by the Insurance Acts Committee of the Association and the Local Medical and Panel Committees of the country difficult, in view of the fact that any changes in the Drug Tariff would naturally come into operation on January 1st, 1916. The Deputation promised to take the matter into immediate consideration, and since then conferences have taken place between representatives of the Insurance Acts Committee and representatives of the Commissioners.

2. The Insurance Acts Committee is now in a position to place the matter in broad outline before the Local Medical and Panel Committees with a view to eliciting their opinions before the Commissioners commence drafting any new Regulations that may be required, and it is hoped that these Committees will at once take the following memorandum into consideration and favour the Insurance Acts Committee with their opinion on the points raised therein. The Deputation was informed by the Commissioners that the position is that, within wide limits, the way in which the new Regulations dealing with Drug Finance will be drafted is mainly a matter for insurance practitioners themselves to decide.

3. Before discussing the proposed changes it is important that the history of the matter should be clearly understood.

4. Shortly after the National Health Insurance Act came into full operation complaints were raised on behalf of insurance practitioners that the Drug Tariff was unsatisfactory, and these complaints steadily increased in volume and

intensity. The Insurance Acts Committee appointed a Sub-Committee which spent a great deal of time on the subject, and conferred several times with representatives of the Pharmaceutical Society of Great Britain. The complaints from doctors as to the inequity of the Tariff, and from pharmacists who found that their bills were being discounted, compelled the late Chairman of the National Health Insurance Joint Committee to appoint a Departmental Committee, the chief item in whose reference was to "consider what revision, if any, of prices was required to place the Tariff on a commercial basis and to submit a Tariff in accordance with their recommendations," and the British Medical Association was asked to nominate two members of the Departmental Committee. The Insurance Acts Committee presented to the Departmental Committee a Memorandum of Evidence drawing attention to the many anomalies of the present Tariff, and supported it orally by the evidence of three witnesses who had given special attention to the subject. The first three paragraphs of that memorandum were as follows:—

"1. The British Medical Association submits the following Memorandum of Evidence as a result of detailed examination of the present Drug Tariff and consultation with the Panel Committees of the country in regard to the matter. Many of the points dealt with in this Memorandum were suggested by such Committees in reply to a circular letter sent to all Panel Committees in November, 1914, in which they were specially asked for their remarks on the present Tariff and for suggestions for its improvement. This Memorandum has been drafted under the direction of a Sub-Committee consisting largely of representatives of those Panel Committees which have shown a special interest in this question.

2. Early in 1914 the Association came to the conclusion that steps ought to be taken for the radical revision of the present Tariff so that it should not only be put on a commercial basis, but should be governed by easily understood and rigidly applied principles. Action in this direction was, however, suspended, when it was known that the present Departmental Committee had been appointed.

3. For reasons into which it is unnecessary to enter, representatives of the Association were not consulted when the 1913 Tariff was formulated, but it is understood, from the report of the remarks made by Mr. Masterman, when he received a deputation on the subject of the Tariff on July 15th, 1914, that the original Tariff was elaborated by the Pharmaceutical Society on an experimental basis of a Tariff subject to a discount, and that in consequence of the protection afforded to the Drug Fund by the discounting clause the Tariff had not been examined closely either by the Commissioners or by the Insurance Committees. Doubtless it was based on previous pharmaceutical experience, but the Association has been unable to detect any clear guiding principle underlying the Tariff with this exception, namely, that there should be a charge for each ingredient according to its quantity and value, and an additional charge for the time and skill required for dispensing those ingredients on the prescription of the doctor. That is, the pharmacist sets out to obtain a trade profit on each of the articles he handles as a tradesman and additional remuneration for his professional services."

5. It is clear from the above that great dissatisfaction was exhibited by insurance practitioners as regards the present Tariff, and that from no quarter has pressure been more persistent for its revision. It is believed that within a few weeks the Departmental Committee will report, and it may safely be assumed that the chief result of its labours will be the introduction of a Tariff on a commercial basis, that is to say, a Tariff in which the prices laid down are such as to afford the lowest rate of remuneration that pharmacists could reasonably be expected to accept in the course of business. The Insurance Acts Committee is informed that in view of the absence of so many panel practitioners on Military service the Commissioners would be very reluctant to make any fundamental alterations in the Regulations without a general consensus of medical opinion in their favour. (See Appendix.)

EFFECTS OF A COMMERCIAL TARIFF.

6. The present Tariff as framed is subject to a discounting clause; the acceptance of the new Commercial Tariff by pharmacists, the Insurance Commissions, and doctors, is dependent on the proviso that the pharmacists' bills will be paid in full.

7. The total amount available for the purpose of Medical Benefit is 9s. per insured person. Of this amount a fixed minimum sum (at present 1s. 6d.) is set apart for the provision of drugs and appliances and an additional or floating 6d. is also available for the same purpose in case of need. Under these arrangements so long as the total cost of drugs and appliances does not exceed 2s. no difficulty arises, but hitherto when that amount has been exceeded in any area the pharmacists' bills have had to be discounted.

8. The Commissioners have stated definitely that the 9s. available for the purpose of medical benefit cannot be supplemented by any other moneys provided by the Government; consequently if the expenditure on drugs and appliances, taking the country as a whole, exceeds the 2s. and the pharmacists' bills are to be paid in full, an encroachment on the fund at present set apart for the remuneration of medical practitioners (i.e., 6s. 6d. + 6d. for Sanatorium Benefit) would be inevitable.

9. The question for the profession to decide is whether the advantages of the proposed Commercial Tariff outweigh this plain disadvantage.

10. The Insurance Acts Committee of the British Medical Association does not feel itself able to advise the abrogation of the principle that the Drug Fund should never encroach upon the Practitioners' Fund and has passed the following resolution:—

Minute 42 of Insurance Acts Committee of August 19th, 1915.

That while willing to consider the establishment of a commercial tariff and a re-arrangement of credits between insurance areas or of the methods of distribution to practitioners within each area, the Committee is not willing to do this except with a guarantee that any excess of the cost of drugs and appliances (taking the country as a whole) over an average of 2s. per insured person will not be met by any call upon the Practitioners' Fund.

This principle was plainly conceded in 1912 by the then Chancellor of the Exchequer during the negotiations with the Association when the promise was made that 7s. per insured person should be the basis of the doctors' remuneration for a period of three years, and that this sum of 7s. was not to be encroached upon on account of drugs was clearly set forth in his speech to the Nottingham miners on August 10th, 1913, as follows:—

"The doctors have the right to prescribe the drug which they think is best adapted for the patient. When they do so it does not come out of their remuneration, and the result is that the poor man who is insured can have as pure and potent medicine as the richest man in the land."

11. In order that the profession may be able to estimate how far the present Drug Fund is likely to meet the total cost of drugs under a Commercial Tariff, the Insurance Acts Committee submits the following figures which have been obtained from the English Commissioners:—

(i) Total Drug Fund for England in 1913	£920,000
Total payments to chemists	£808,342
Difference	£111,658

*The additional Grant-in-aid of £90,000 set apart as a Special Drug Fund is not available for this purpose, as it can only be applied by way of special grants towards the cost of Drugs where epidemics or other abnormal sickness conditions have caused an excessive demand upon the funds available for this purpose.

It must also be understood that no part of this Special Drug Fund will be available for the increased cost of drugs due to the War.

The difference represents the proportions of the floating 6d. paid to doctors in the areas where the drug bills were lower than 2s. per head and the unexpended balances in those areas where the drug bills were lower than 1s. 6d.

(ii) In England there are 126 areas. In 35 of these areas the chemists' bills were discounted to the amount of £54,663 in 1913.

The figures for 1914 are incomplete, but are probably less favourable; those for 1915 so far indicate a saving as compared with 1914.

(iii) The saving in the cost of drugs by a Commercial Tariff may safely be assumed to be not less than 12-15%. If 15% be the figure, it is estimated to be equivalent to 2½d. per insured person per annum, or a total sum of about £125,000.

12. In the majority of areas the cost of drugs has been between 1s. 6d. and 2s.; in some areas it has been lower, in fact as low as 10½d. per head. If prices are reduced and the demand for drugs is not increased the difference must represent an increase in medical remuneration in all those areas whose costs were between 1s. 6d. and 2s. per head, or only slightly over the latter amount. Any risk due to the abolition of discounting could only affect the areas in which the cost has exceeded 2s., and some at least of these cases must disappear if the tariff prices are reduced.

13. Moreover the present system in that unexpended balances are reserved to meet in the future increased cost of drugs in the areas in which they have accumulated. It is suggested by the Commissioners that, under new regulations introducing the Commercial Tariff, such unexpended balances might be pooled for the benefit of areas in which greater sickness incidence or other unavoidable cause, but not excessive prescribing, has caused a drain upon the Drug Fund. In no case would unexpended balances revert to the Exchequer, or prevent the doctors who are careful in prescribing from saving the floating 6d. for themselves; such balances would arise only from money saved on the minimum sum allocated for Drugs, whether the 1s. 6d. as at present or some other less amount agreed upon.

14. Another advantage of the new system would be the elimination of the Pharmaceutical Committee as complainant in cases of alleged over-prescribing. Panel Committees, particularly those which have had experience of the irksome and unpleasant duty of conducting enquiries under Regulation 40, will attach great weight to this consideration. Apart from the great decrease in such enquiries and the saving of considerable expense thereby which may be expected to occur when insurance practitioners generally have grasped the implications of the new system, Panel Committees would have no responsibility to the Pharmaceutical Committee for any kind of check which they exercise over doctors who have a tendency to extravagance. If the pharmacists are assured of their bills being paid in full they will no longer have any interest or *locus standi* in the question of economy in the use of drugs, and the duty of Panel Committees as regards this question will be simply to their constituents, and as technical advisers to the Insurance Committees.

15. The first question for the Local Medical and Panel Committees is, therefore, what will be their attitude towards the proposition that the cost of drugs and appliances must be entirely met from the total Medical Benefit Fund, whether the amount is greater or less than 2s. per insured person? Is the risk to the profession, involved in the abolition of discounting, balanced or more than balanced by the advantage resulting from the Tariff being fixed on a commercial basis?—that is to say, by a reduction in the drug bills of something like 15 per cent. or approximately £125,000.

16. The next question is whether, even on a reduced Tariff, there are areas in which, with due regard to economy, the cost of drugs cannot be kept lower than 2s. If there are no such areas, then clearly the profession stands to gain everywhere by the change. If there are such areas, the question must be considered whether there should be some adjustment of funds between one insurance area and another in order that the few areas in which on a reduced Tariff and with reasonable economy the cost cannot be kept below 2s. per head, shall not suffer from a cause which it would then be clear was entirely beyond their control, that is to say, from an excessive incidence of sickness, the burden of which on insurance principles should be borne by the country as a whole and not by the particular area.

ARRANGEMENTS FOR DISTRIBUTION AMONG INSURANCE AREAS OF THE AMOUNT AVAILABLE FOR THE COST OF DRUGS.

17. Assuming that with a Commercial Tariff and in normal circumstances (i.e., apart from epidemics and high prices due to the War) the cost of drugs and appliances for the whole country could with reasonable economy be met for the sum of

not more than 2s. per insured person per annum, can it be assumed that the cost of drugs in each separate area can be met without encroachment on the present minimum of medical remuneration? It is clear that if the amount available is adequate for the whole country it must also be adequate for each separate area, unless there are special circumstances in any particular area making the cost of drugs higher there than the average. Such differences could only be due to the varying number of insured persons in different areas, to excessive incidence of sickness, or to differences in the standard of prescribing. Differences of the last kind are within the control of the members of the panel and therefore should be dealt with, and the burden, if any, borne by them. Differences of the first and second kind are not within the control of the doctors and it remains for consideration whether such a burden should not be spread over the country as a whole. If there are in fact districts in which even after practising every reasonable economy the cost of drugs cannot be kept below, say 2s. 3d. per insured person per annum, doctors in those areas would be under a strong temptation to economise more than they ought to do if their area had no more than 2s. per insured person allotted to it for the payment of drugs, in order to prevent the reduction of their remuneration below what they regard as the minimum amount. If there are on the other hand areas in which the necessary demand for drugs is so low that with full regard for the needs of insured persons the cost is not more than, say 1s. or 1s. 3d. per insured person per annum, there would be very little inducement to practise that economy which it must be recognised is desirable for its own sake if such areas were allotted 2s. per head for drugs, and if saving below the minimum (at present 1s. 6d.) remained distributable therein.

18. If, therefore, such differences can be foretold, equity would seem to demand that there should be an increase in the total amount paid to the areas in which drug bills must be expected to be higher than the maximum, and a reduced payment to areas in which there was no reason, apart from extravagance, to expect drug bills to reach the minimum. In neither case would the distribution of the floating 6d. be affected.

19. The theoretically exact method of distributing the total drug fund according to sickness incidence would be to give each area more or less than 2s. per insured person according to the circumstances of the area. The Commissioners have stated that they have statistical data upon which such a differentiation might possibly be based. These data are mortality returns, reports of medical officers of health, etc., but it is not suggested that the distribution should in any way depend on past experience as regards expenditure on drugs.

20. Another method would be that the whole, or, if considered equitable, a part, of the amount which some areas may be able to save below 1s. 6d. should be placed to a central fund which would be available for the relief of areas which with due economy may be unable to work under 2s.

21. A third method would be that a certain sum, say 2d. per insured person, should be deducted from the credit of each area and placed to the credit of a central fund which would be available for grants in aid of areas in which expenses are in excess of 2s.

22. There might also be a possible combination of the second and third methods.

DISTRIBUTION OF DRUG FUND AMONG PRACTITIONERS IN EACH AREA.

23. Let it be assumed that the drug fund of each area is sufficient to meet, without injustice to the doctors of that area taken as a whole, the total drug bills of that area. It remains to consider the different kinds of arrangements, with their respective advantages and disadvantages, that may be made for distributing the fund among the practitioners in the area.

24. Alternative arrangements are:

(a) That each practitioner should be made responsible for the total cost of whose prescriptions above a minimum limit say of 1s. 3d. per insured person with a local indemnity fund of say 3d. per insured person out of which relief might be given to individual practitioners the cost of whose prescriptions is over 2s. per insured person on appeal to and at the discretion of the Panel Committee.

(b) An automatic surcharge of every practitioner, the total cost of whose prescriptions exceeds the maximum of 2s. per insured person, with power to the Panel Committee on appeal to grant a certificate of indemnity which shall entitle such practitioner to relief out of the Drug Fund of the area.

(c) Continuous scrutiny and surcharging on the present plan, except that the Pharmaceutical Committee would not be concerned therein.

It would be possible if thought desirable under (a) or (b) to continue the scrutiny and surcharge.

PROPER SUPPLY OF DRUGS TO INSURED PERSONS.

25. It is specially important that no system should be even suggested by the profession for adoption which could give rise to a suspicion that the rights of the insured persons to a proper supply of drugs were being over-ridden by a desire for gain on the part of the profession. It will therefore be necessary to fix for each area a minimum limit of money, any saving below which should not accrue to the doctors of the area.

REPLIES OF LOCAL MEDICAL AND PANEL COMMITTEES.

26. In order that the opinions of Local Medical and Panel Committees may be collected a list of questions is submitted, to which it is hoped that Local Medical and Panel Committees will return answers as soon as possible. In order that time may be given for consideration of the replies of Committees to this memorandum by the Insurance Acts Committee and their submission to the Commissioners, before the drafting of regulations to meet the introduction of the new tariff, answers must be received here **not later than September 30th**. It is important therefore that your Committee should be called together at an early date, and in order that the members may thoroughly understand the pros and cons of a very difficult question, sufficient copies of this memorandum to go round your Committee will be forwarded to you on request. Please state the number of copies required.

QUESTIONS.

1. Are you prepared to accept a Commercial Tariff on the lines laid down in this Memorandum as from January 1st, 1916?
2. If so, do you approve of the policy laid down in the resolution of the Insurance Acts Committee (see para. 10) and consider that some such guarantee is essential?
3. If you regard some such guarantee as essential are you (a) prepared to accept the facts and considerations set out in paragraphs 11, 12 and 13, as together constituting such guarantee, or
(b) What additional requirement do you regard as essential?
4. Are you in favour of (a) each Insurance area being credited with an amount for drugs and appliances on the same basis (as at present), or
(b) Do you prefer some form of differentiation between the different areas? (see para. 13).
5. If the latter, which method of differentiation do you prefer of those set out in paras. 19, 20 and 21?
6. Which method of those mentioned in paragraph 24 do you prefer for the distribution of the Drug Fund among Practitioners within each area?

..... *Honorary Secretary.*

Local Medical Panel Committee for

Date September , 1915.

APPENDIX.

LETTER FROM SIR ROBERT MORANT DATED 23RD AUGUST, 1915.

I understand that your Committee is to consider, at its meeting on Thursday next, the Memorandum on Drug Finance under the Insurance Act, which was drawn up after consultation with some of the members of the Committee a few weeks ago.* It is important that the purpose of the Memorandum should not be misunderstood and it has occurred to me that it might be desirable, in order to avoid any possibility of misunderstanding, that I should briefly explain the present position.

As was indicated in Memorandum 201 I.C. and in my letter to Dr. Cox of the 17th March, published in the BRITISH MEDICAL JOURNAL of March 20th, the Commissioners would,

* This memorandum was considered by the Insurance Acts Committee and formed the basis of the present document.

in the present exceptional circumstances, with so many members of the profession inaccessible, be most reluctant to make any substantial modifications of the terms of service of medical practitioners under the Insurance Act unless they could be assured that such modifications were "desirable in the view of all concerned." (Paragraph 5, Memorandum 201.) The present Memorandum must not therefore be taken as an exposition of a new scheme which the Commissioners are intending to embody in draft Regulations for the ensuing year; its object was merely to set out certain tentative ideas, arising out of the deliberations of the Tariff Committee and embodying the results of discussions between representatives of the Commissioners and of your Committee, with a view to their being more closely examined by your Committee from the point of view of their effect on the medical profession if carried out.

If your Committee welcome the proposals as being of advantage to the profession, and are prepared to recommend them to the Panel Committees, the Commissioners would be prepared to put them forward, in accordance with the usual procedure, with a view to their incorporation in new Regulations for 1916.

If, on the other hand, your Committee were to come to the conclusion—however mistaken such conclusion might be in the Commissioners' view—that the advantages of the new proposals to panel practitioners are more than outweighed, under present circumstances at any rate, by disadvantages, the Commissioners would have to consider whether the idea of making any change on these lines must not be abandoned, for the time being; and pending such consideration, your Committee would, of course, refrain from circulating any document to Panel Committees as representing the Commissioners' views as to the policy now to be adopted on the drug question.

THE PRESENT ATTITUDE OF THE MEDICAL PROFESSION TOWARDS THE INSURANCE ACT.

BEING THE PRESIDENTIAL ADDRESS DELIVERED AT THE ANNUAL
MEETING OF THE BIRMINGHAM BRANCH.

By J. ORTON, M.D., D.P.H., M.R.C.S., L.R.C.P.,
COVENTRY.

I HAVE taken for the subject of this address the present attitude of the profession towards the Insurance Act. It is only fair at the outset to express the great indebtedness of the whole profession to the arduous work done by the head quarters staff of the Association in London in the long struggle which ensued before the Act came into force. No doubt many men may still hold the view that the Association might have taken up a much stronger position and have prosecuted a much sterner campaign on behalf of the profession than was actually carried out. We must remember, however, that the British Medical Association, as a purely democratic body, stands for ourselves, and the interests we severally and individually hold, and personally I maintain that, as far as the Association could voice the opinion of the profession throughout the country, so long as that profession spoke with no uncertain voice, the Association did put up as good a fight as could possibly be expected against one of the strongest Governments of modern times. I would therefore claim that, as a result of the fight, the profession has obtained terms and conditions which were very, very different to those first proposed to it; and, although it has been said in many quarters that the profession ought not to have taken office under the Act, or to have agreed to the conditions of the Act at the eleventh hour as they did, still I consider that as many concessions were obtained as could reasonably be expected, and subsequent events up to the present time have undoubtedly proved that the acceptance of the Act was wise, both financially and ethically.

I have myself, since the passing of the Act, been Chairman of the Local Medical Committees for the County of Warwick and the City of Coventry, Chairman of the two Panel Committees for the same areas, and have been elected a member of both Insurance Committees. At one time I was a member of no less than fifteen or sixteen committees under the Act, so that I think I may claim to have had some little knowledge of its working as it has affected the profession during the last two years.

I should like briefly to consider two aspects of the whole

question: First, that the profession has always been looked upon as the custodian of the public health and well-being; secondly, the effect of the practical working of the Act upon the status and emoluments of the profession as a whole.

With regard to the first point, it cannot be denied that the Insurance Act must be looked upon as the first serious attempt in this country to combat phthisis, and in working the Act we have, therefore, undertaken to do our best in order to remedy an evil that has caused and is causing such ravages amongst the population.

The sanatorium benefit established under the Act, with the aid from the Treasury, both in regard to the erection, equipment, and maintenance of sanatoriums, and the provision and maintenance of tuberculosis dispensaries, cannot fail to give a great stimulus to all attempts to stamp out a disease which is infectious and preventable. It is absurd to suppose that the system adopted under the Act will stamp out the disease in any given term of years, and great modifications to the present administration of the sanatorium benefit will have to come about, unless bankruptcy is to overtake the majority of the authorities; but the measures now in vogue will undoubtedly lead to the detection of early cases and the isolation of chronic ones, and will educate the public opinion. They will teach infected persons how to guard against transmitting the infection to others, and they will thus reduce the numbers of consumptives, but not cure all—that is too much to be hoped for even with sanatorium, diet accessories to treatment, tuberculin, and other modes of treatment.

Again, venereal disease, which as a social evil has been ignored by the State, both in regard to its existence and its cure, is a condition which the Act, through the profession, is rightly attempting to cure. Under the old club system, a man who contracted venereal disease was not recognized as coming within the scope of medical treatment; as a consequence he drifted to quack medicines or treatment by correspondence. This led public opinion gradually to suppose that quack treatment—that is, treatment otherwise than by qualified medical men—was that to be sought for; disastrous consequences both to the sufferer and his offspring ensued.

It is still difficult to decide, taking for granted that each case of syphilitic disease is to be systematically and efficiently treated under the Act, whether the injection of salvarsan should be carried out at the expense of the country practitioner who is paid a 2s. capitation fee for all his drugs and appliances, or whether the patient should himself pay for such treatment; because, although it might be argued that a practitioner within two miles of a chemist should be able to prescribe any drug which he knows will effect a cure, if this be allowed, it follows that a doctor who dispenses for his own patients must also supply this and similar drugs.

To mention one further disease under this heading, I will take anaemia. Formerly, a girl suffering at the age of puberty from a marked anaemic condition was forced by stress of civilization, as a working girl, to pursue her work often for long hours and with insufficient nourishment—conditions which sow the seeds of phthisis and cause a poor state of development. The benefits of the Act allow such cases now to procure medical advice and medicines at an early stage, and, if necessary, rest, with some payment during disablement. Speaking generally in regard to insured persons, the benefits now enjoyed were formerly available only to the more thrifty and provident persons. Those who most needed medical surveillance did not trouble to make any provision for sickness or ill health. Such persons under the Act are now compelled to insure themselves against sickness.

Under the second heading—that of the effect of the practical working of the Act upon the status and emoluments of the profession as a whole—several things may be said. At the outset I would state that it is eminently desirable that every man who is a general practitioner should be upon the panel of his area. Personally, I consider this most important. It would be deplorable to conceive the profession split up into two classes—the so-called superior one of non-panel doctors and an inferior one of panel. Infinitely better would it be for a man to have a limited panel, and thus to be associated with the working of the Act and to have an interest in the personnel of his Panel and Local Medical Committees.

A great deal of work will have to be done by members of the profession on such committees if the profession is to have any voice in the future. Alterations in the regulations of the Act and in control and management are inevitable, and I would strongly urge upon every man not to become apathetic or lukewarm, but take interest in the election of men who will represent him on the various committees. No doubt the work is somewhat thankless, and in a busy practitioner's life to be avoided if possible, but if the profession wishes to be consulted in all matters appertaining to the working of the Act, such an interest is necessary; neglect will in time produce consequences which may prove hard for each individual of the profession.

Perhaps the most important committee which the medical men have to serve upon is what is usually termed the "Complaints Committee," or, to give it its right name, "The Medical Service Subcommittee." The medical men appointed to this committee, who constitute one-half of the whole committee, should be men carefully chosen who will attend conscientiously, and carry out their duties in an impartial and judicial manner. So far as my experience goes, in the two areas of which I have full knowledge, these committees, though much drenched by the profession before the Act came into force, have not proved so formidable either in regard to the number of complaints or the course of proceedings.

The relation of panel doctors to hospitals, which before the Act came into force was a factor viewed with grave concern, has not proved so great a difficulty as was expected. At the same time, panel practitioners should take all responsibility for minor surgery, dressing of wounds, etc., in accordance with their agreements under the Act. Accidents which have been treated at hospital for the first time should certainly be subsequently referred as out-patients to their panel doctors for subsequent dressing, unless there be some exceptional reason to the contrary. It must be remembered that, under a practitioner's agreement, he is bound to afford every treatment which can be undertaken by a practitioner of ordinary competence and skill, and this may entail the administration of an anaesthetic by a colleague for such a case as the reduction of a dislocation—treatment to which a patient has a right under the Act, unless a distinct arrangement be entered into with the patient beforehand for the services of a specialist.

Various other difficulties will, I believe, be cured by experience and the efflux of time, such as the limitation of numbers on a panel list, the matter of certificates, the provision of nurses, the administration of serums and oxygen.

As to the limitation of numbers, we have not, in the Warwickshire area, taken any definite steps in this direction. I am, however, personally of opinion that if a man has any private practice, 2,000 to 2,500 represents about the limit of the number of insured persons he can conscientiously be responsible for.

With regard to the enrolment of the profession, I think it must candidly be admitted that this has been all to the good of the profession under the Act, but, under this heading, I much fear that when the three years' trial is over, the profession will have to put up a strong and determined opposition to demands which will be made for the reduction of the capitation fee. The public as a whole have got the idea that the profession is too well paid for the services it renders. Governments too often but echo the public mind, and we must recollect that our profession is inadequately represented in Parliament. We shall have to resist attempts which will be made to prove that a State medical service will be as efficient and far less costly, and the profession should remember that such an attack can only be met by a strong binding together of all members of our profession, both consultants and general practitioners alike. A State medical service for the practitioner would most assuredly mean a State hospital service for the consultant, and the organization necessary to oppose both can, I feel convinced, only be effected by the Association which has represented us in the past so ably in all its negotiations with the Government.

I feel strongly that we ought to combine as a profession to adopt prospective candidates for election to the House of Commons. During the last fight we had to be content with representation by—I believe I am right in saying—

two members of that House, neither of whom could be said to voice the opinions of the general profession. When we reflect that labour, as well as the educational and legal professions in this country, are well represented, the latter, perhaps, too much so, it seems but another proof of the charge so often levelled against us—that doctors are not business men, and show little forethought in the management of their own interests. Surely it would be well worth our while to subscribe to a central fund to promote the election of medical candidates to Parliament. The question of a State medical service is one which the profession will have to deal with seriously in the future, though I consider that the numerical strength of men upon the register will preclude any great attempt to force this through for the present. Even in the ranks of our own profession men are found who strenuously push a campaign in its favour. Last year, during the Annual Meeting at Aberdeen, a large evening meeting was held to further the object, two medical men making vehement speeches in favour of it, and we may be sure that the policy will not be lost sight of. Arguments can be piled up which are plausible and convincing to many who hold that the medical man should be the servant of the community as much as the policeman or tramway conductor, ignoring the fact that personality is a more determining factor in the success or failure of a medical practitioner than qualifications, degrees, or any other attribute.

Another menace I regard is the opposition on the part of the large collecting insurance societies and companies. I regard as nothing short of a catastrophe the possibility of these obtaining a mastery over the machinery of the Insurance Acts. Such an attempt will most assuredly be made, both in and out of Parliament; and we must recollect that large vested interests are here involved. It is notorious that the calculations for sickness benefit were far too low, and many of the approved societies were hard hit, even to the extent of extinction. The scapegoat for these miscalculations has been the medical profession, and although perhaps little is heard, I fear that much is being prepared for an onslaught upon our emoluments and privileges when the time is deemed ripe. Compared to the alleged control of the club doctor by the old friendly societies, which was brought out so prominently during the Insurance Act fight, a control by the big insurance societies would be to substitute chastisement by scorpions for chastisement by whips.

Meetings of Branches and Divisions.

[The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the JOURNAL.]

BIRMINGHAM BRANCH:

NUNESTON AND TARNWORTH DIVISION.

The annual meeting of the above Division was held at Nuneston on June 25th.

Election of Officers and Committees.—The following were elected to serve for the ensuing year:

Chairman: Dr. Smart.

Vice-Chairman: Dr. Shaw.

Honorary Secretary: Dr. Price.

Representative of Division on the Branch Council: Dr. E. Nason.

Ethical Committee: Drs. Smart, Power, E. Nason, Joy, Wood, Richardson, Price.

Executive Committee: Dr. Smart (Chairman of the Division); Dr. Price (Honorary Secretary of the Division); Dr. Lowson (Representative on Panel Committee); Dr. E. Nason (Representative on Warwickshire Insurance Committee); Dr. Wood (Representative on Panel Committee); Drs. Joy, Power, Shaw, and such other members elected by the Division as the Division may determine.

OXFORD AND READING BRANCH:

OXFORD DIVISION.

A SPECIAL general meeting was held at the Radcliffe Infirmary, Oxford, on August 27th, which was very largely attended. Sir WILLIAM OSLER, who was in the chair, called on Major GALLOWAY, R.A.M.C.(T.F.), to explain the urgency of the appeal now being made for additional medical officers. Major GALLOWAY stated that the Army

Medical Department required many more medical men for service with the new armies. It was estimated, he said, that there were in the country 6,555 medical men under 40 who were not serving. If the Oxford district contributed its fair share, 13 more men would be required to join in addition to the 7 who have already joined. He explained the steps that had already been taken in many parts of the country to supply the men, and urged the necessity of at once forming a Local War Emergency Committee. After a short discussion—in which Major COLLIER, Lieutenant-Colonel PARKER, Dr. CARTER, Lieutenant BLOSSOM, and Dr. CADWELL took part—it was decided to ask the Executive Committee to at once form a War Emergency Committee to deal with the whole question.

THE LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

BOOKS NEEDED TO COMPLETE SERIES.

The Librarian will be glad to receive any of the following volumes, which are needed to complete series in the Library:

- Archiv für Dermatologie und Syphilis. Bd. 24 and 25 (1892 and 1893).
Archives générales de médecine. Third new series 7-8 (1839-40); 4th series, 10-17, 20-25, 1852-55; 1858-64, 1872-1897; 1846-55 inclusive; 1857-64 inclusive; 1871.
Archives of Ophthalmology. Vols. 1-3, 6, 7, 14, 15, 16 and 20.
Archives of Otolaryngology. Vols. 1-7, and 20-22.
Archives de Parasitologie. Vols. 1-3.
Archives de Pédiatrie. Vols. 1-16.
Asylum Journal of Mental Science. Vol. 1, 1854.
Biochemical Journal. Vols. 1-4.
British Dental Journal. Vols. 1-29.
Biometrika. Vols. 2-6.
St. Mary's Hospital Gazette. Vol. 4.
Sanitary Commissioner with the Government of India Reports, 1-24.

LOCAL MEDICAL AND PANEL COMMITTEES.

COUNTY OF FORFAR.

LOCAL MEDICAL COMMITTEE.

A MEETING of the County of Forfar Local Medical Committee was held within the Reference Room, Town Hall, Forfar, on August 4th.

Election of Chairman.—Dr. JOHNSTON (Montrose) was appointed interim Chairman during Dr. Hoile's absence on military service.

Postponement of Elections of Local Medical and Panel Committees.—A circular of date June 8th last from the British Medical Association was read, urging all Committees who desired to suspend elections during the war to make individual application at once to that effect to the Commissioners. It was decided to write to the Commissioners urging the suspension of elections during the period of the war.

PANEL COMMITTEE.

A meeting of the Panel Committee was held on the same day.

Election of Chairman.—Dr. JOHNSTON (Montrose) was appointed interim Chairman during Dr. Hoile's absence on military service.

Rural Areas.—A letter from the Scottish Insurance Commissioners was read, defining the area they have approved as a rural area for the purpose of Rule 8 for the giving of certificates to insured persons by medical practitioners.

Medical Referees.—In view of letters from the British Medical Association intimating that the Local Medical and Panel Subcommittee of the British Medical Association did not favour the part payment of the proposed medical referees out of the funds available under Section 33 (2) of the 1913 Act, and from the Scottish Insurance Commissioners, stating that they were not disposed to sanction the scheme, it was decided to do nothing further in the matter.

Postponement of Elections of Local Medical and Panel Committees.—It was decided to write to the Commissioners urging the suspension of elections during the period of the war.

Allocation.—It was agreed to apportion the balance remaining in the Fund according to the numbers on the doctors' lists, irrespective of whether such persons were represented by index or suspense slips in the Committee's register. The CLERK to the County Insurance Committee, having pointed out that the scheme under Regulation 24 decided upon by the Insurance Committee and approved by the Panel Committee was defective in so far as no arrangement was in operation for the treatment of an insured person until his allocation had been effected, the Clerk to the County Insurance Committee was instructed to notify each practitioner that he would be expected to accept the responsibility for the treatment of a case pending the person's allocation to another doctor on the panel.

EAST SUFFOLK.

PANEL COMMITTEE.

A MEETING of the East Suffolk Panel Committee was held at the White Hart Hotel, Saxmundham, on August 10th, when Dr. HERSHAM was in the chair.

Reinstatement of Insured Persons Discharged from the Army.—The Secretary was instructed to communicate with the Clerk of the Insurance Committee with a view to the adoption of the arrangements for the reinstatement of insured persons discharged from the army set out in the report of the deputation from the British Medical Association to the Insurance Joint Committee published in the SUPPLEMENT of July 31st, p. 70.

Local Pharmacopoeia.—The report of the Subcommittee appointed to consider the advisability of the adoption of a pharmacopoeia was referred back for further consideration.

Analysis of Prescriptions.—The report of the analysis of prescriptions for the first quarter of 1915 was considered, and it was resolved that a letter should be sent to each practitioner who had exceeded the average allowance for the quarter, showing in each case the particulars and cost of the scripts as set out in the analysis of the checker, and pointing out that he was liable to be surcharged the amount overpaid by him at the end of the year.

Practitioners' Lists.—A letter from the Clerk to the Insurance Committee was read with reference to the Panel Committee's request to be furnished with information as to the capitation fees credited to the practitioner on the panel in accordance with Clause 35 (1) of the Statutory Rules and Orders, 1914 (No. 5) for the year 1913, and for each quarter of the year 1914. The letter pointed out that the Statutory Rules and Orders, 1914 (No. 5), did not apply to 1913, and as regards 1914 and 1915 it was not practicable to furnish the information quarterly, owing to the fact that the war had necessitated deductions being made in the index and medical registers for each quarter affected since the date of enlistment. The Clerk, however, undertook to give such information as regards 1914 at the earliest possible date.

Conference of Local Medical and Panel Committees.—It was resolved that a sincere vote of thanks be accorded to Dr. Askin for his services to the Committee in attending the recent Conference of Representatives of Local Medical and Panel Committees. The Committee also expressed their sympathy with Dr. Askin in his recent accident.

INSURANCE NOTES.

SURREY FRIENDLY SOCIETIES COUNCIL.

AT a meeting of the Executive Council of the Surrey United Friendly Societies Council held at Guildford on August 7th, a discussion took place as to the provision made at the various doctors' surgeries throughout the county in respect of waiting and consulting rooms and the times fixed for attendance on insured persons. The secretary reported that in consequence of complaints received he had communicated with 130 branches asking for information on the matter and the returns, which affected nearly 200 doctors, in all parts of Surrey, could be regarded on the whole as satisfactory. During the last few months there had been a marked improvement in the character of the waiting room accommodation though there was still room for a further improvement in some cases. No serious complaints had been made as to the surgery hours of the doctors. In some cases doctors had had their premises enlarged and rebuilt so as to provide the necessary accommodation, and since March, a member stated, no cases had been heard of where persons had been kept waiting in the streets.

The meeting also considered the question of the fees to be paid for the medical attendance on both the old and the juvenile members of societies affiliated to the council. A resolution had been received from the Mitcham district of the Manchester

M.R., Surgeon-Major J. Nightingale, M.D., from West Riding Brigade, R.F.A. Licentiate to be Captain. G. Forgy, J. Jeffrey, M.B., G. Candler, H. F. Everett, J. R. Garrod, M.D., G. B. H. Jones, M.D., W. E. L. Elliott, M.D., C. A. Sampson, R. L. Guthrie, M.D., C. J. Fox, G. Hinton, M.D. To be Lieutenants: H. M. Rodger, W. H. Walsh Field Ambulance, A. B. Winter, M.D., F. Pring, W. P. Atkinson.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In ninety-six of the largest English towns 7,599 births and 4,274 deaths were registered during the week ended Saturday, August 28th. The annual rate of mortality in these towns, which had been 11.5, 11.5, and 11.4 per 1,000 in the three preceding weeks, rose to 12.3 per 1,000 in the week under notice. In London the death-rate was equal to 12.4, while in 5,6 in Southern, 6.1 in Lincoln, 6.2 in Gloucester, 6.4 in Hornsey and in Reading, and 6.5 in Acton, to 16.7 in Stockton, 17.2 in Great Yarmouth, 17.7 in Middleburgh, 17.8 in Bootle, 18.2 in Barrow, and 18.7 in South Shields. Males died a death-rate of 1.3 in Rhondda from diarrhoea and enteritis, which had been 2.2, 2.62, and 3.48 in the three preceding weeks, further rose to 4.98, and included 120 in London, 40 in Birmingham, 31 in Liverpool, 25 to Manchester, 25 in Hull, and 22 in Sheffield. The mortality from the remaining infective diseases showed no marked excess in any of the large towns, and no fatal case of small-pox was registered. During the week 4,983 cases of 53, or 1.2 per cent. of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number, 4 were recorded in Birmingham, 3 in London, and 2 each in Gillingham, Liverpool, Bolton, Preston, Gateshead, and Tynemouth. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,435, 2,415, and 2,367 at the end of the three preceding weeks, further fell to 2,360 on Saturday, August 28th. 315 new cases were admitted during the week, against 285, 279, and 225 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 1,034 births and 600 deaths were registered during the week ended Saturday, August 28th. The annual rate of mortality in these towns, which had been 13.7, 12.6, and 12.3 per 1,000 in the three preceding weeks, rose to 15.3 in the week under notice, and was 1.0 per 1,000 above the rate recorded in the ninety-six large English towns. Among the several towns the death-rate ranged from 8.2 in Clydebank, 8.8 in Motherwell, and 10.0 in Dundee, to 15.5 in Aberdeen, and 17.8 in Paisley. The mortality from the principal infective diseases averaged 1.7 per 1,000, and was highest in Aberdeen and Coatbridge. The 267 deaths from all causes in Glasgow included 12 from infantile diarrhoea, 9 from measles, 4 from whooping cough, 3 from scarlet fever, 2 from diphtheria, and 1 from enteric fever. Four deaths from measles were recorded in Edinburgh; from scarlet fever, 3 deaths in Aberdeen and 2 in Paisley; from whooping cough, 3 deaths in Aberdeen; from diphtheria, 3 deaths in Aberdeen and 2 in Edinburgh; and from infantile diarrhoea, 4 deaths in Dundee, 3 in Edinburgh, and 2 in Coatbridge.

HEALTH OF IRISH TOWNS.

During the week ended Saturday, August 21st, 539 births and 317 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 541 births and 339 deaths in the preceding period. These deaths represent a mortality of 13.6 per 1,000 of the aggregate population in the districts in question, as against 14.6 per 1,000 in the previous period. The mortality in Dublin Irish areas was therefore 2.2 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 23.2 per 1,000 of population. As regards mortality in Dublin, the rate in the Dublin registration area was 14.7 (as against an average of 14.2 for the previous four weeks), in Dublin city 15.3 (as against 14.7), in Belfast 13.6 (as against 13.4), in Cork 13.0 (as against 13.7), in Londonderry 22.2 (as against 19.5), in Limerick 8.1 (as against 18.3), and in Waterford 22.8 (as against 11.4). The zymotic death-rate was 2.1, as against 1.8 in the previous period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement column, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

ALTON, HANTS: LORD MAYOR TRELOAR CRIPPLES HOSPITAL.—Assistant Resident Medical Officer.
BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Junior House-Surgeon. Salary, £300 per annum and £5 per annum. A post of **BIRMINGHAM GENERAL DISPENSARY.**—Resident Medical Officer. Salary, £350 per annum.
BRISTOL ROYAL INFIRMARY.—(1) Resident Obstetric and Ophthalmic House-Surgeon; salary, £120 per annum. (2) Dental House-Surgeon; salary, £100 per annum.
BUXFON, DEVONSHIRE HOSPITAL.—Assistant House-Physician. Salary, £100 per annum.
CAMBRIDGESHIRE ASYLUM, Fullourn, near Cambridge.—Junior Assistant Medical Officer. Salary, £200, rising to £250 per annum.
CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £140 per annum.
DEWSBURY COUNTY BOROUGH.—Temporary Assistant School Medical Officer. Salary, £300 per annum.

DUMFRIES: CRICHTON ROYAL MENTAL HOSPITAL.—Temporary Assistant Physician during War. Salary, £300 per annum.
DUNDEE COMBINATION POOR-HOUSE AND HOSPITAL.—Resident Medical Officer. Salary, £225, rising to £300 per annum.
GLOUCESTERSHIRE JOINT COMMITTEE FOR TUBERCULOSIS.—Assistant Tuberculosis Medical Officer. Salary, £350 per annum.
GRIMSBY AND DISTRICT HOSPITAL.—House-Surgeon. Salary, £5 5s. a week.
HARROGATE INFIRMARY.—Resident House-Surgeon. Salary, £100.
INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—House-Surgeon. Salary, £150 per annum.
LABRATORIES OF PATHOLOGY AND PUBLIC HEALTH, New Cavendish Street.—Bacteriologist.
LANCASTER COUNTY ASYLUM.—Temporary Assistant Medical Officer. Salary, £6 6s. per week.
LEEDS PUBLIC DISPENSARY.—Resident Medical Officer (lady). Salary, £30 per annum.
LIVERPOOL INFIRMARY FOR CHILDREN.—(1) Two Resident House-Physicians; (2) one Resident House-Surgeon. Salary, £30 in each case for six months.
LIVERPOOL STANLEY HOSPITAL.—Resident House-Surgeon.
MANCHESTER: NORTHERN HOSPITAL FOR WOMEN AND CHILDREN.—House-Surgeon. Salary, £120 per annum.
MIDDLEBROUGH: NORTH ORMESBY HOSPITAL.—House-Surgeon. Salary, £150 per annum.
NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Resident Medical Officer. Salary, £100 per annum.
PARISH OF INVERAVON, Banffshire.—Medical Officer.
PARISH OF LIVERPOOL.—Head:—Resident Medical Officer. Salary at the rate of £300 per annum.
PARISH OF ST. MARYLEBONE.—Visiting Medical Officer to Workhouse. Salary, £255 per annum.
QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—District Resident Medical Officer. Salary, £60 per annum.
ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Resident Medical Officer to Military Block.
ROYAL SALOP INFIRMARY.—House-Physician. Salary at the rate of £120 per annum.
ST. ANDREW'S HOSPITAL, Dollis Hill, N.W.—Resident Medical Officer.
SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—(1) House-Surgeon; (2) House-Physician. Salary, £265 per annum respectively.
SWANSEA EDUCATION COMMITTEE.—Two Temporary Assistant School Medical Officers. Salary, £300 in each case.
TOXTETH PARK TOWNSHIP.—Assistant Resident Medical Officer. Salary, £250 per annum.
WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.
WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—(1) Resident Medical Officer; (2) House-Physicians and House-Surgeons. Salary for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.
WESTMINSTER GENERAL DISPENSARY.—Resident Medical Officer. Salary, £120 per annum.
WESTMORLAND SANATORIUM, Meathop, Grange-over-Sands.—Second Assistant to Medical Superintendent. Salary, £200 per annum.
WIMBORNE ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £150 per annum.
CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Rothes (Edin).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—if it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

FORBES, W. J., M.B., Ch.B., Certifying Factory Surgeon for the Knaresborough District, co. Yorks.
GARDNER, A. M.B., C.M., Certifying Factory Surgeon for the Dronfield District, co. Derby.
ROBINSON, H. G., M.B., Ch.B., Certifying Factory Surgeon for the South District, co. Cornwall.
THOMSON, RUBY, M.B., Ch.B., Edin., Chief Tuberculosis Officer for South Staffordshire (during war).
WELCH, R. C., M.B., C.M.Edin., temporary Deputy County Medical Officer of Health to the Bedfordshire County Council.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGE.

BRUSHFIELD-NUGENT.—On August 26th, 1915, at St. Peter's Church, Sowerby, Yorks, Dr. Archibald Nugent, second son of the late Dr. T. N. Nadault Brushfield, of Bullleigh Salterton, to Evelyn Dorothy Noel, fourth daughter of Mr. and Mrs. Nugent, of White-windows, Sowerby, and granddaughter of the late Sir Oliver Nugent, of the Island of Antigua.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, SEPTEMBER 18TH, 1915.

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British Medical Association.

SCOTTISH COMMITTEE.

A MEETING of the Scottish Committee of the British Medical Association was held in the Station Hotel, Perth, on September 10th. Dr. J. R. HAMILTON, Hawick, presided, and there were also present Dr. Cox, Medical Secretary; Dr. John Adams, Glasgow; Dr. Wishart Kerr, Glasgow; Dr. Lyell, Perth; Dr. Stevens, Edinburgh; Captain C. S. Young, Dundee; Dr. Michael Dewar, Edinburgh; Captain Moorhouse, Stirling; Dr. Grant Macpherson, Bothwell; Dr. Caskie, Glasgow; Dr. R. C. Buist, Dundee; and by invitation Dr. Norman Walker, Edinburgh; Dr. Mackay, Aberfeldy. Apologies were intimated from Dr. Martin Smith, Dundee; Dr. Balfour Graham, Leven; and Dr. Gordon, Aberdeen.

THE WAR EMERGENCY.

Medical Men and the Army.

Dr. NORMAN WALKER said it was exceedingly difficult to give figures, but in general terms, so far as the country districts of Scotland were concerned, the response had been admirable. From the large towns, excepting Dundee and Aberdeen, which had also done admirably, the response had not been so large in proportion. The reason was pretty evident—it was easier to arrange for the conduct of a practice in the country than in the town, and this kept men in the town back. The Emergency Committee at present had to deal with the problem of assuring the town practitioners that their private practice would, to some extent at least, be kept together for them. They had all sorts of suggestions and plans, and the one that commended itself most to the Committee was that every doctor in Scotland should place in his waiting-room a notice requesting patients, when their doctors were away, to mention the fact when they consulted another doctor. When everybody was doing exactly what he ought to do, the doctor would ask a new patient the question. Legislation and regulation did not bear on the people who did right; it had to be devised for those who did not; if this responsibility were put on every doctor in Scotland, whatever class of practice he might have, it would bring it home to the public in a way that nothing else could. Advertisement was considered, and the President of the General Medical Council was of opinion that it would be legitimate to go considerably further than in ordinary times, provided the advertisements were not in the name of any doctor, but in the name of the Emergency Committee. But all people did not read the newspapers, and

especially the advertisement columns, whereas, if the notice was constantly in the waiting-room, everybody's attention would be called to it. Although it was not considered judicious to give figures at present, he might say that the Committee had been encouraged by the response, and wanted as many as could possibly go. The War Office was co-operating in an extremely cordial way, utilizing the Emergency Committee in communicating with the profession in Scotland. The system had the very great advantage that men who had special qualifications were utilized. A man had to take a commission as temporary lieutenant in the first instance, but his qualifications were noted. The Committee was greatly indebted to the War Secretaries and to the Divisions for their invariable care and courtesy.

Dr. ADAMS said that the Committee would be delighted to receive practical suggestions from the point of view of the general practitioner.

Dr. CASKIE suggested that better would be a circular, or a request, or a demand even from the War Office—a personal appeal by the War Office to each member of the profession between 25 and 45.

Dr. COX, in reply to Dr. Moorhouse, said that, according to the most recent returns, 2,500 medical men were wanted before Christmas, and preferably men under 40. Previous to that Scotland had made up its mind to provide 400 as its proportion, but when the numbers were distributed the conclusion was that Scotland should provide 500 as its fair share.

Dr. ADAMS said that men of 45 and under would be engaged, not for six months as hitherto, but for one year, and they were taken on the assumption that they would go abroad if required.

The CHAIRMAN said they were all obliged to Dr. Walker. He hoped all present would take the hints they had got, and bring them up at early meetings.

Records of Practitioners on Active Service.

Dr. COX said that the present position was that the Insurance Acts Committee had resolved not to press this point.

Certificates in Chronic Cases.

In reply to Dr. FINDLAY, Dr. COX said that the decision of the question as to certificates in chronic cases lay with the societies, and not with the Insurance Commissioners. Most of the big societies had shown themselves reasonable in the matter. Friction was often due to some want of tact. When a case went on for weeks or months, a certificate every week was not necessary, and generally after explanation the society would agree to an interval of a fortnight or three weeks.

HIGHLANDS AND ISLANDS MEDICAL SERVICE.

The CHAIRMAN invited the meeting to consider the report of the Highlands and Islands Board, the effect of its conditions upon practitioners in the Highlands, and any other question arising out of the report. The feeling on the subject in the Highlands seemed to be rather acute. The Committee desired to learn the views of the Highland practitioners. The Association would always do its best for the Highlands or any other part professionally.

Dr. MACKAY (Aberfeldy) said that the scheme, framed by the Highlands and Islands Medical Service Board with the consent of the Treasury, providing for the general conditions under which medical practitioners would be eligible to participate in grants from the Highlands and Islands Medical Service Fund, was not suitable for the Highland district of Perthshire, which was quite different from those in the outlying districts, such as the Western Islands and many parts in the West of Scotland. The scheme seemed to imply that the Board wanted practically every medical man in the Highlands to have a minimum income. That was quite right. In the case of remote districts the Board's principle seemed to be that, having ascertained that a man got so much for his parish appointments and so much for insurance work, it would make up his income to at least £300 a year. The medical men in his part of Perthshire were quite differently situated; the incomes of all were over the minimum, and they did not want anything from the Highlands and Islands Board except what they worked for. He saw in paragraph 4 of the scheme that medical men were not to be paid the mileage grant for the current year. He did not see with what right or why the Board should withhold the grant for travelling for this year, any more than the two former years—1913 and 1914. At present the doctors had an agreement with the County Insurance Committee that they would attend the insurance patients at a certain rate, and they received 1s. per mile per annum for every patient outside the three-mile limit. That agreement held good to the end of this year, so he held that the Highlands and Islands Board had no right to tell them now, when three-fourths of the grant was already earned, that they were not to get anything for the current year. The Board ought to pay them as usual up till the end of 1915, and then, if it had any new arrangement to propose, the medical practitioners were at liberty to accept or reject it. Reading between the lines, it seemed that the Board was asking the medical practitioners to fill up a return stating what they received from other sources, such as insurance fees, parochial fees, and any other emoluments. He had pointed out to the secretary that in the parishes in the Highland district of Perthshire the paupers were very few, and that the doctors only got very small sums from the parish councils for attending those paupers. As a rule the paupers were not far distant, and the doctors could not count on anything from that source whereby they might lower the mileage rate. The Board did not tell them what it proposed to give per mile, but on the previous day he had a letter from the Secretary of the Highlands and Islands Medical Service Board, in which he said:

Dear Sir,—I beg to acknowledge the receipt of your letter of the 4th inst., enclosing statement by yourself and your colleagues in the Highland District of the county. I had an opportunity of submitting the statement to the members of the Board yesterday, and I was instructed to say that they find themselves in full agreement with most of the points set out in the statement.

In the case of yourself and your colleagues it is clear that the arrangement with the Board should take the form of a payment in respect of additional work, and any increase in travelling expenses involved in giving medical attention at modified fees to poor patients living at a distance. As regards the mileage grants, the subsidy which will be payable to the doctors in respect of the current year will make provision for the payment of a grant equivalent to the old mileage grant, and for such additional grant as may be arranged between the doctors and the Board in respect of any work undertaken for the Board.

The information asked for in Form 2, and particularly in Sections IV, V, and VI thereof, is required to enable the Board to determine whether, and if so to what extent, there are persons within the area of a particular practice to whom the Board's scheme should apply, and to serve as a basis for discussion of the subsidy payable to the doctor. If your colleagues would kindly fill up the form and return it at their early convenience, a representative of the Board will be ready to visit the district, and to discuss with them the terms of the scheme, and any arrangements that it may be proposed to make with them.

What the doctors wanted, Dr. Mackay said, was that their present agreement should hold good till the end of this year, and that they should get the mileage grant for 1915 as they had for 1914 and 1913. Then if the Highlands and Islands Medical Service Board put a scheme before them and told them what it wanted, they should consider the matter. His proposal was that the best thing to do would be to fix a certain sum per mile to cover the travelling and also the fee. They did not want to have their insurance work mixed up with the Highlands and Islands Board work. In reply to Dr. CASKIE, Dr. MACKAY said the agreement for 1915 with the County Insurance Committee was the same as for 1913 and 1914. The 1914 agreement was accepted for 1915, and stood till the end of December. He did not see why the Board should break up this agreement, or how it could.

Dr. NORMAN WALKER, member of the Board, said the Board felt convinced that this was a pure misunderstanding. He had better say, in reply to one of Dr. Mackay's points, that Perthshire was not always in the Highlands, so far as the Medical Board was concerned. By a very narrow majority in the House of Commons some parts of Perthshire were added. He desired, first of all, to clear up the question of mileage before he referred to any other matter. He was quite certain Dr. Mackay spoke in good faith when he made his statement, but as a matter of fact the mileage was not guaranteed for this year. The agreement with the Insurance Committee was simply carried on. When the Highlands and Islands Act was passed the sum of £10,000, allowed annually, was transferred to the Highlands and Islands Board. During last year (1914), by arrangement, because the scheme was not then sanctioned by the Treasury, the sum of £10,000 was handed over to the Insurance Committees to distribute on the same basis as in the previous year. But speaking as a representative of the Board, he wished to say it was absolutely and quite clearly laid down that this sum of £10,000 should pass to the Board. There was no idea of depriving the practitioners of the mileage for this year. There was no such idea in the mind of the Board. So far from that being the case, the subsidy would be considerably increased. Members of the Acting Business Committee of the Board, of which he was chairman, thought that if he could attend that meeting he might be useful in giving information and clearing up misunderstandings. The Highlands and Islands presented a very peculiar medical problem; the difficulties had been notorious for years. Recently he had unearthed a report on their condition in 1854 by a large committee of which Sir James Simpson was a member. A circular was issued, but nothing was done. There had been constant difficulties, dismissal of medical officers, etc. After the introduction of the Insurance Act it was plain that it would not run in the Highlands of Scotland. Crofters were not insured. They were their own employers. The Dewar Committee was instituted, and took evidence from 80 per cent. of the doctors. The outcome of the report of that committee was the Highlands and Islands Act. Taking the whole circumstances into consideration, the Committee suggested a sum of £32,000 per annum, excluding the £10,000 for mileage, as what was required. The Treasury accepted that amount. The Committee recommended that the Board, which would be concerned with all sorts of medical services—public health, education, and so on—should contain a representative of each of these departments. Accordingly Dr. Leslie Mackenzie represented the Local Government Board, Dr. McVail the Insurance Commissioners, Dr. Macpherson the Board of Control, and Dr. Robertson the Education Committee. Then to represent the medical profession Sir Donald MacAlister's name was added. Sir Donald had a very serious illness, and he (Dr. Norman Walker) was asked by the Secretary for Scotland if he were prepared to do the work of the Board in conjunction with the other members. There were thus five doctors on the Board, most of them at least being pretty experienced. The other members were Sir John Dewar and Lady Susan Gilmore. Five of eight members were medical men, and it might be taken that they were not biased against the members of the profession. The first step was the same as that taken by the committee of 1854, which issued schedules to the various doctors and boards in the Highlands. Most of them were returned and the replies were similar to those received in 1854. They showed that in many

districts of the Highlands the living the doctor made could not be called a living. His whole income was often under £150 a year, and while the expenses were comparatively small, the conditions were such that good medical men were not attracted. It was quite a common thing to find a salary of £100, £120, or more offered for Poor Law administration with only six, eight, or ten pappers in the parish. It was the only way to get a doctor there, but in some districts the doctor near a shooting lodge received a subsidy from the proprietor. In many cases that was quite an honourable thing, and worked perfectly well, though a subsidized doctor was not very desirable from a medical point of view. It was most depressing to see men return in some of the schedules sums like £14 as derived from private practice, and others very small sums indeed. Personally he was one of the first witnesses, and the Committee pressed him very hard as to what would be an adequate salary, but he refused to commit himself, and ultimately the Committee adopted the principle that where it thought a doctor was necessary, and where he did satisfactory work, he should be guaranteed a salary of £300 net after paying his travelling expenses, his drugs, and his house rent. Because of the peculiar condition of the people and the enormous distances the travelling expenses were guaranteed. Suppose a patient was twenty-five miles away from the doctor, what possible fee could the latter charge less than 25s.—a good deal more than his patient's entire weekly wage? The result was that there was extraordinarily little medical attendance in some districts, and a great part of the work was done in charity by the doctors. The object of the Board was that it should, so far as this £42,000 went, place those poor patients in the Highlands as nearly as possible in the condition of people of more settled districts, and they would use that money to bring the doctor to the door. The result of those inquiries went to show that a great deal of hardship existed when the patients were at a great distance. In one or two districts the Committee found a club practice. Speaking generally, the system adopted was that the patient, whether he lived one mile from the doctor or thirty miles, was to pay for a first visit a fee of 5s., and for subsequent visits 2s. 6d.; and the Board was to come in and pay the doctor's expenses of getting there. Nursing was another problem, and schemes were proposed which would have added another "0" to the grant if carried out. One county asked that seventeen hospitals should be built in it. The Board decided to visit those places, and made what had been very erroneously described as pleasure trips. He went with one of them to the Western Isles. Six o'clock was the latest he rose, and he was often up at four hearing the views of the local people and of the members of nursing associations. After obtaining all this information the Committee arrived at a basis for making and distributing grants. The object, he hoped he had made clear, was to abolish distance so far as the patient was concerned. There were two classes of doctor. There was the one in many of the Orkney and Shetland islands and in the north-west part of Scotland who had incomes very much under £300 a year. It was quite obvious, if the Board was to guarantee a sum of £300, they must know what else he was getting. Then came the other class, which he had felt it his business particularly to look after that he should not be hurt—the doctor whose income was sometimes a good deal over £300. So no particulars with regard to his income was asked except for his appointments. He was not asked what he made from private practice. One of the conditions laid down by the Treasury for the grant to be made year by year was that no existing source of income was to be diminished. The Local Government Board was responsible for payment of salaries of £100, £110, and £150 under the Poor Law, and would be very pleased to throw that expense on the Highlands and Islands Board. The Board asked all the doctors to state what income they received from the various sources of a public nature. There were, of course, many other matters. The Board was concerned in hospitals, ambulances, and nurses. The Ross-shire practitioners, after hearing at a meeting held at Dingwall the explanations by the representative of the Board, all agreed to fill up and send in the form. The agreement was not a binding agreement, but a draft for the suggestions of practitioners. When the draft form had been filled up and considered by the Board, special points, if any, would be considered. Then a representative of the Board would visit

each area, and each doctor would discuss with him the form he had drafted, and arrive at a final agreement. He had every confidence in the Board, which was reasonably composed. He would be very much surprised if, instead of the mileage being diminished under the new system, it was not very much increased. It was now mileage for visiting insured persons; in future it would be also mileage for visiting uninsured persons, who were more numerous. He ventured to think that the whole thing had been a misunderstanding, and that the Board's proposals should have the entire sympathy of the profession.

Dr. MACKAY said he thought Dr. Walker had gone a long way to prove what he had said—namely, that a scheme applicable to the West Highlands was not applicable to his district. When the bill was first presented the Highland district of Perthshire was included; then after debate it was excluded, and finally it was included. To show the absurdity of the whole thing, districts round Aberfeldy and Pitlochry were included, while Killin, which was a far more Highland district, Balquhider and round about Callander, were outside. The scheme was unfair. The doctors had been attending their insurance patients all the year according to their agreement with the county. He saw no reason why the mileage grant should not be paid up from the beginning of the year till now as in the past, and when this new scheme brought in by the Highlands and Islands Board came in force, let it be submitted further. But in the meantime the doctors ought to be paid the mileage grant till now or to the end of the year.

Dr. NORMAN WALKER said that instead of the mileage grant being diminished it was increased; but it was not called mileage. Mileage disappeared under that name, and now appeared under the name of subsidy. Dr. Mackay with his district must have a large mileage, therefore a large subsidy. If a man had a practice radius of about three miles he had a small mileage, but he would get his subsidy for attending the people. If this year's grant was confined to £10,000 for mileage, it would mean that a great part of it might have to go back to the Treasury. Last year that £10,000 was handed over to the Insurance Committees to distribute on the same basis as the old mileage grant. The Board was not cheating anybody; it would see that everybody got his fair share. Certain conditions were laid down which might seem hard. These did not refer to Aberfeldy, but there were conditions the Board had to lay down in places where there was no other doctor within twenty miles. It had to make it a condition of those guaranteed sums that a man must be willing to do all the medical work of the district. He would have to be ready to work Poor Law, insurance, appointments, light-houses, and all such things. It would upset the work if a man said, for example, he would not work the lighthouses, and another had to be brought from fifty miles away.

Dr. ADAMS appealed to any one who thought it over that if £10,000 was given before in the name of mileage, it followed logically, if £32,000 was given in addition, the doctors concerned were bound to be much better off. In reply to Dr. STEVENS, who observed that there were six schemes, Dr. ADAMS said that if £10,000 was allowed for mileage in addition to £10,000 already given, it stood to reason that the men must be better off, and the conditions under which a man making over £300 a year worked would be improved. The area over which he agreed to practise would be considered in each case by the Board, and a certain agreed upon subsidy allowed to him applicable to the area he covered; he was bound to be better off.

Dr. MACKAY thought Dr. Adams had not taken into consideration the extra amount of travelling to be done. His own practice extended ten miles on one side and thirty-two miles on the other.

Dr. ADAMS said that the financial conditions of practice were bound to be improved by this additional subsidy. Those of them who knew working people and their incomes could not believe that a doctor visiting such a person twenty miles away three times a week could be paid adequately for the work by a patient making 20s. a week. This subsidy, with the amount that lay between 2s. 6d. or 5s. and 25s. would make up to the doctor for mileage.

Dr. BUIST said that the matter was very clearly expressed in the circular: "The subsidy payable to the doctor will

be arranged on a footing that will cover the travelling expenses involved in attendance on insured persons (present mileage) as well as on all others entitled to receive medical attention under any arrangement between the doctor and the Board.

Dr. GRANT MACPHERSON pointed out that the clerical work would be tremendously increased. A large proportion of the doctors in the Highlands and Islands were at the war, and it would be difficult to arrange for the clerical work in connexion with their practice.

Dr. NORMAN WALKER said that there would be some clerical work, but the Board had to know how the money was being spent. The Treasury required to know, and returns indicating whether a patient was Poor Law, insured, or otherwise under arrangement had to be received. The scheme did not touch the better-to-do people, but it was necessary to know how much of the Board's subsidy was helping the poor. As to doctors who were away, two of the members of the Board were members of the War Emergency Committee, and they were taking care that in the arrangements for the conduct of his practice, when a man came back from the war his position was clear.

The CHAIRMAN: Is there any income limit?

Dr. WALKER: We have the phrase "persons in the crofter and cottar class." It may possibly be a matter of arrangement.

Dr. MACKAY thought that when the arrangements came into force something more definite must be done.

Dr. LYELL said that a great deal of the objection seemed to be in connexion with points in the agreement. First of all, the doctor was to be bound to visit systematically all persons within the area of his practice. He was to make systematic and regular visits to outlying patients. He was personally to attend midwifery cases, provide himself with a motor cycle, and so on. There were a number of points like that which bound a man down, but those whose incomes were over £300 a year naturally objected to fix themselves in that way for a subsidy the amount of which was not named. Was there, he asked, to be some system of inspection? Was the crofter to appeal to any inspector to vent his grievances, or how was this to be carried out in the event of the practitioner not having implemented his part of the agreement? Was there to be an underhand system of inspection in connexion with the work of the doctor, or how was the whole thing to be worked unless there was some such disagreeable and unpleasant form of inspection of a doctor's work?

Dr. NORMAN WALKER said that it was open to the practitioner to criticize when he filled up the draft agreement, "Visit systematically particular places." Men conducted their practices in different ways. Some men visited systematically a certain place on a certain day when it was convenient. If a man said he would visit a place every Wednesday if he got another £10 a year as subsidy, it was a matter of fair arrangement that he should do it if it was in the public interest. The question of discipline was a delicate subject. The Board might be trusted not to abuse its position in that matter.

Dr. LYELL said that two classes of practitioners were distinguished—those guaranteed £300 and those above that. Would those in the latter section be bound down in the same way to these obligations? Would not there be a different way of dealing with the two cases?

Dr. NORMAN WALKER said there was an individual agreement in each case.

Dr. BUIST asked if the difficulty was not the same as that when the Insurance Act was brought in. It seemed to him that it was putting an extreme legal interpretation on phrases intended to be interpreted in the ordinary way.

Dr. LYELL: Then he is to be under obligation to attend and visit all persons in the area of his practice.

Dr. STEVENS said that Clause 14 of the draft agreement seemed to put the doctor practically in the hands of any one member of the Board.

Dr. BUIST: Surely, again that is legal misinterpretation. It is to save the whole Board having to sign every letter as it goes on.

Dr. STEVENS said the scheme was intended to help the practitioners in the Highlands financially, but anything beyond the £10,000 for mileage seemed to be in an entirely nebulous state. The nursing scheme alone might take a large part of it. It seemed rather a pity that all this should be done while a fourth or a third of the men were at the front. They would not have any chance of

criticizing, but would have to go into it whether it was good or bad. He asked Dr. Mackenzie (Tain) two questions. His answer to them was as follows: "(1) The profession, locally or in any other way, has not been consulted as to the scheme as now submitted, nor has such a scheme been foreshadowed in any report issued by the Board. (2) The Board does state that their scheme is largely based upon the reports of local medicals and their own inquiries. This I do not believe, except in a very wide and general way. I do not think their scheme at all consistent with the evidence they obtained, except in a general way and in exceptional cases. If their scheme was consistent with these reports, why the widespread feeling of concern from all parts of the Highlands? Their scheme is wholly a one-sided business."

Dr. MACKAY said that men must have a certain amount of discretion as to visiting certain districts on certain days. He went down to Strathgait three days a week. Everybody knew it. But he also went as a rule every day. In the other direction he went two days a week. It would be absurd to ask a man to go twelve or fifteen miles to a certain place when there was not a patient to be seen.

Dr. ADAMS said that Dr. Norman Walker had emphasized the fact that of eight members of the Board five were members of the medical profession. With regard to the medical profession, what were the interests of those two members of the Board? Was it not the interest of Sir Donald MacAlister to see the work of the medical profession made as attractive as possible? As he wanted students, recruits, it would be his interest and duty to see that the medical men carrying out this scheme were looked after as well as possible, and Dr. Mackay and his colleagues might have every confidence in the Board looking after this matter, and might feel quite sure nothing would be done in any way likely to hurt or hinder the profession.

Dr. COX said that if the scheme was not put through soon the profession stood a chance of losing this £32,000. He considered the matter had not been rushed, and unless the profession in the Highlands was careful it stood a risk of losing the whole or part of the money.

Dr. NORMAN WALKER said that what would very probably happen would be that if the money was not utilized it would be put to capital for the building of hospitals, nurses' houses, etc., and the profession would stand to lose it. Really the rush had not been so great. The meetings were held in the summer and the early months of last year. It took a long time to get things through the Treasury.

The CHAIRMAN said he had just received a letter from Dr. Moir (Inverness) intimating that at a meeting of the medical practitioners of Ross and Cromarty held on September 8th in the Ross Memorial Hospital, Dingwall, to discuss the scheme of the Board with their representative, Dr. Cruickshank, many of the difficulties and obscurities in comprehending the scheme were removed, and there was a good deal of unanimity as to the benefits to be derived from the scheme as explained by Dr. Cruickshank. Modification of the wording of clauses 1, 12, and 14, felt to be of vital importance to medical men, was suggested to Dr. Cruickshank, who sympathized with the views expressed, and stated that he would draw the attention of the Board to them. The following resolutions were agreed upon unanimously by the meeting, which was representative of all parts of the county:

1. It was agreed to complete Form 2, and to send it as soon as possible to the secretary of the Board.
2. As Dr. Cruickshank pointed out that agreements would have to be made with individual medical men based upon the conditions under which he practised, it was unanimously agreed that it would be to the interests of the profession in the county, as a whole, to have a common consideration of the drafts of individual agreements, and that these be considered at a meeting of the general practitioners of the county to be summoned for that purpose before the agreements are actually signed. It was resolved, however, that at this meeting no statement of financial returns made to the Board by individual practitioners, nor what subsidies the Board had agreed to these individual practitioners, should be submitted.

Dr. WISHART KEER said that after hearing the various speakers it seemed to him that the doctors in the Highlands and Islands of Scotland would be infinitely better off in the future than in the past. If they were to get Government grants they could not remain absolutely free

agents, and the man who did not do his work would be brought to book.

Dr. ADAMS proposed:

The Scottish Committee, having considered the reports of the Board, and heard the statements of Dr. Mackay, Abercrombie, and Dr. Norman Walker, finds that the anxiety which the report has caused in certain districts is due to misapprehension of the import of the terms; that the insurance mileage grant is absorbed and supplemented by the subsidy of the Board, and that the conditions of practice are to be settled by individual agreements at the discretion of each practitioner.

Dr. DEWAR seconded.

Dr. LYELL said it had not been brought out why the Board approached men individually and why the accredited authorities of the profession were not consulted in regard to these agreements. He supposed the same tactics were taken up at this time as were taken in the case of the Insurance Act. Why did they not approach the local secretaries, the Scottish Committee, or the head office of the British Medical Association before sending out this scheme to individual practitioners and leaving them only a fortnight to decide? That point had to be settled, for a very important principle was involved.

Dr. WISHART KEIR said that the answer to that could only be in the difficulty of the Highlands and Islands having a corporate meeting of the members, and each one would be approached separately.

Dr. STEVENS moved:

That consideration be continued till a further meeting of the Committee, to enable further inquiry to be made into the conditions affecting service under the scheme.

It was, he said, a very large subject. The Scottish Committee had never had that important subject before it until that day. That was a curious circumstance, but no reflection upon the Committee. The Committee was now asked to give a pretty decisive opinion on this immense scheme, though no papers had been circulated among the members beforehand. In those circumstances he did not think the Committee ought to be expected to commit itself until the men in the Highlands had an opportunity of more thoroughly considering the matter. Although the men in Ross and Cromarty had apparently to some extent compromised matters, he did not think that the Scottish Committee should commit itself to approval or disapproval. No doubt there were valuable points in the whole of the six schemes. Increased money would probably come in some cases, but not in others. The whole matter was in an indefinite position.

Dr. LYELL seconded.

Dr. CASKIE wished to know if the Highland representatives were asking their advice in the matter. So far as the report of the Highlands and Islands Board was concerned, he had never seen it till that day and had not read it. But, as a matter of practical business, the difference between the two schemes was plain. The one involved £10,000, and the other £10,000 plus £32,000. It seemed to him that it became a personal matter altogether, and that it was a subject on which the Committee should come to a decision. It was a matter of money. If it was apparent that £32,000 or £42,000 was to be divided among "practitioners" of the Highlands and Islands of Scotland, it was not the duty of the Committee to recommend practitioners to take or refuse it; it should be left to themselves to say whether it was to their benefit.

Dr. LYELL objected that the whole idea of the Scottish Committee was that local practitioners might approach it with the view of getting some little guidance and advice on schemes which were exceedingly difficult. This was acknowledged by the Board to be an exceedingly difficult scheme, and he sympathized with those Highland practitioners who desired that the Committee should discuss the matter. He hoped they could rely on the Scottish Committee for friendly advice and counsel. He strongly supported the amendment.

Dr. BUIST expressed the hope that the meeting would not delay. The petitioners had represented that there was a certain anxiety that some were to be worse off than they were in the past, and had asked the Committee to consider the matter. It had now been considered, with quite sufficient information at its disposal to decide whether the anxiety was just. The Scottish Committee had taken some share in elaborating and developing the question, and every point had been discussed in the

BRITISH MEDICAL JOURNAL. As to indefiniteness, the first charge on the funds of this scheme was the remuneration of the practitioners and their expenses. One of these expenses was that attending insured persons and also the expenses involved in attending other persons. With a statement like that put down as a first charge on the scheme, there was no ground for entertaining the opinion that men were to be worse off than at present. To delay a decision would imply that the Scottish Committee thought there was ground for the anxiety entertained.

Dr. ADAMS asked what kind of friend would the Scottish Committee of the British Medical Association be considered to the poor practitioner in the Highlands, whose present income was from £180 to £250 a year, and who under this scheme was to be guaranteed by the Board a sum, free to himself after paying all expenses for the carrying on of his practice, of £300, if it delayed coming to a decision. The Act was passed primarily to provide medical attendance to people who at present did not get it. At the same time the encouragement was held out which that definite salary provided, and those whose income was less than £300 would think that the Committee had done them a very bad service if they threw any doubt as to the value of the Act as regarded that. What had the conditions under the Insurance Act proved to be? There was no more restriction practically on those who had worked the Act willingly and without prejudice in carrying on their work, than there was before. If men in the country were to be asked to take payment for a large amount of work they did at present without payment how could they be worse off?

On a division the motion was carried, two members only voting for the amendment.

MIDWIVES BILL FOR SCOTLAND.

The Committee resolved to write to the Secretary for Scotland asking for the support of the Government for the bill.

It was agreed formally to record the thanks of the Committee to Dr. Norman Walker and to Dr. Mackay for attending and assisting the Committee in the discussion of the report by the Highlands and Islands Board.

WAR EMERGENCY COMMITTEE.

A MEETING of the War Emergency Committee was held at the offices of the British Medical Association in London on Wednesday last (September 15th).

ENROLMENT.

The Executive Subcommittee reported that it had considered the resolution adopted by the full Committee on August 25th, setting out that the policy of the Committee should be to urge all medical practitioners who are under 40 years of age and physically fit to enrol themselves with the War Emergency Committee to come up for whole-time service whenever called upon to do so by the Committee. Two circulars were being sent to the secretaries of War Emergency Committees. Such committees, it was reported, had been appointed in 87 districts, covering approximately 83 Divisions of the Association; this left 87 Divisions of the Association which, so far as was known, were not yet covered by any War Emergency Committee.

The first leaflet was intended for circulation by War Emergency Committees to all practitioners in their area under 40 years of age. After setting out the policy quoted above and giving some indication of the numbers required, the leaflet went on to point out that there are two sources of supply of medical officers for the army—(1) the civil practitioners of this country, and (2) those of the colonies; but that the latter source has already been largely tapped. If both these sources failed, the country might be driven to avail itself of help tendered by practitioners from America. The circular continues as follows:

The number of men remaining in England, Wales, and Ireland under 40 from whom commissioned officers can be drawn is limited; out of every three men under 40, fit or unfit, at least one is required to serve in the army as a whole-time commissioned medical officer.

In the opinion of the Committee it is not the business of civilian practitioners to criticize at such a time as this the demand of the war authorities, still less to make such criticism the ground for refusing to volunteer. It is the duty of every

man to place himself at the disposal of those responsible for carrying the war to a successful conclusion.

Enrolment offers the best means for preventing men being called upon for service before the need for their taking on active duties has arisen. Further, with such a roll as is asked for, the Committee will be in the best position to judge when the time has arrived which renders it imperative for men to take service.

The War Emergency Committee went on in this circular to impress upon local committees the need for every medical man in their area, who is under 40 and physically fit, to volunteer at once or to enrol his name as willing to apply for a commission when told that it is his duty to do so. The selection for service amongst the men enrolled may be carried out by the Local Committee or by the Central Committee, as preferred by each medical man.

Attached to the circular is the following form, for use by practitioners of military age who cannot volunteer for immediate service, but who are willing to take a commission when told by the War Emergency Committee that it is their duty to do so:

FORM OF ENROLMENT FOR THOSE WHO CANNOT VOLUNTEER
FOR IMMEDIATE SERVICE.

I am willing to enrol my name with the War Emergency Committee, and to apply after..... for a commission in the R.A.M.C. when told by the Committee that it is my duty to do so.

I prefer that if the need arises for men to be called up for service from this locality, the selection shall be made by the (a) Central War Emergency Committee.

I propose to leave my practice in the hands of:

a. Neighbouring practitioners Drs.....
b. Locum Dr.....

c. A Bureau organized by colleagues.....

The difficulties connected with my leaving practice are:

Local conditions:

Personal difficulties:

Signature.....

Address.....

Date.....

This Form when completed should be returned to the Secretaries of the War Emergency Committee, 49, Strand, London, W.C.

* Please fill in the date after which practitioner is willing to accept a commission.

LOCAL ARRANGEMENTS FOR THE CONDUCT OF PRACTICES.

The Committee has also issued to local War Emergency Committees a circular containing suggestions as to arrangements for the carrying on by the local profession of the practices of practitioners who accept commissions. This circular points out that there are three methods by which the practice of a medical man on military service can be carried on—(a) neighbouring practitioners, (b) locumtenents, (c) a bureau organized by colleagues. In practices in which work is taken over by local men the main questions are: Division of fees; restoration of patients to absence on his return.

I. As regards fees the following is considered to be the best plan:

- Town practices, where mileage is not an important question. An equal division of remuneration between the absentee and his representative.
- Combined town and country practices. As a general rule probably a division in the proportion of three-eighths to the absentee and five-eighths to the man who does the work and pays the expenses is best.
- Country practices. Where the question of travelling expenses is important at least three-fourths should be allotted to the man who does the work.

II. As regard restoration of patients, the Committee considers that the following measures should be adopted:

- Draw up agreements between the practitioner going on service and his local colleagues in some such form as that adopted by the Mid-Cheshire Division of the British Medical Association, namely:

"I hereby promise on my word of honour that if any persons who are ordinarily patients of any medical man practising in this neighbourhood who is on active service with the Forces, consult me during his absence, I will attend them for him (on the terms arranged by the Local Committee) and will refuse to act as their medical attendant on my own behalf until at least one year from my colleague's return has elapsed. Also I will do all in my power to safeguard the absentee's interests with his patients, and to induce them to return to him when he resumes practice."

Signed.....

Date.....

- Urge those going on service to appoint a legal representative who may be consulted on their behalf during their absence.
- The Central Committee will be prepared to offer its services in arbitrating on any difficulty or dispute referred to it by the Local Committee.

III.

- Local Committees should impress upon all local public bodies the importance of setting free any medical men of military age in their employ, while keeping their appointments open to them on their return. Arrangements for carrying on public work by means of the older practitioners in the neighbourhood should be made wherever possible.
- Insurance Committees should be approached in every district, in order to discourage as far as possible the transfer of patients from a doctor absent on military duty.
- Panel Committees should be asked to arrange that no practitioner shall take over as a panel patient any insured person on the list of a doctor absent on military service, until twelve months after the latter's return.

HOSPITAL STAFFS.

Civil Hospitals.

The Subcommittee reported that in accordance with the instructions of the Committee it had issued a letter to the governing bodies of the hospitals, pointing out the urgency of relieving from their hospital duties those junior members of their resident and visiting staffs who were eligible for commissions in the R.A.M.C., and that the British Hospitals Association had been informed of the action taken. The letter informed the governing bodies that from particulars supplied by the Director-General of the Army Medical Service it appeared that more than a third of all the medical men of military age in this country were required for service within the next few months.

Military Hospitals.

It was reported, with regard to a letter addressed to the Director-General, requesting him to give instructions to D.D.M.S. and A.D.M.S. not to retain or accept for work in military hospitals at home medical practitioners of military age who were physically fit, but to encourage such practitioners to accept commissions in the R.A.M.C., that a reply had been received from Colonel Blenkinsop, Assistant Director-General, stating that the question of men of military age doing military work at home was under consideration, and that the War Office was discouraging younger men who were physically fit for active service from engaging for home service only.

AGE FOR TEMPORARY COMMISSIONS.

It was reported that a letter had also been received from Colonel Blenkinsop stating that the following policy will be adopted with regard to the engagement of medical men as temporarily commissioned officers in the R.A.M.C.:

- No man under 45 years of age will be employed unless he undertakes general service obligations for a year, and is found to be physically fit for duty at home and abroad.
- No man over 55 years of age will be accepted for home service.
- No man under 45 years of age will be re-engaged after the expiration of his first contract unless he offers for general service.

I am to say that it is hoped that these restrictions will facilitate the work of the War Emergency Committee in setting free men of military age and providing for the older practitioners to look after their interests during their absence.

It will be noticed that the age for the general service has been advanced by five years, and that the age for home service only has been reduced by the same period.

INSURANCE ACT.

Transfer of Insured Patients of Practitioners on
Military Duty.

A statement was submitted, prepared in response to a request for information with regard to the transfer of insured patients of practitioners on military duty. Paragraph 14 of the circular letter issued by the Insurance Acts Committee on February 8th to all Local Medical and Panel Committees (SUPPLEMENT, February 15th, 1915, p. 50) was quoted in full. It was therein suggested that "the most effective way in which insurance practitioners can show their support of their absent colleagues is to decline in any circumstances to accept transfers of patients of doctors on military duty until the expiration of 18CC

year after the absent doctors' return, and to attend their patients during their absence as deputies." The statement also recalled that the question came before the Conference of Representatives of Local Medical and Panel Committees on June 16th, 1915, when a resolution was passed requesting the Commissioners to withhold the right of an insured person to transfer from the list of any doctor who was absent on naval or military service for the period of the war, or until a reasonable time after his return. This was brought to the notice of the Insurance Commissioners on July 9th by a deputation, and the following is a report of the discussion which ensued:

It was stated on behalf of the Commissioners that they were anxious to meet the profession as regards the request contained in this resolution. It must be recognized, however, that exceptional cases might exist in which hardship might result from any universal prohibition which prevented insured persons from changing their doctor at the end of the year in all cases, and the Commissioners felt it necessary to make provision for such exceptional cases. They proposed, therefore, to make a regulation suspending the right of insured persons to change their doctor in the circumstances alluded to in the resolution unless they were able to make a special case for transfer which, after investigation by the Medical Service Subcommittee, was regarded by the Insurance Committee as affording sufficient ground for a transfer being allowed. Inquiry was made of the deputation as to what precise period they regarded as "a reasonable time" after the doctor's return; and a discussion ensued on this point. In conclusion, it was stated on behalf of the Commissioners that the question would receive their careful consideration, and that they would meet the views of the profession so far as might be found practicable without hardship to the insured population.

MEETING OF HAMPSHIRE PRACTITIONERS.

A MEETING of the medical practitioners of Hampshire, called jointly by the Chairman of the Winchester Division of the British Medical Association and the Chairman of the Panel Committee, was held at Winchester on Wednesday, September 8th. The Chairman of the Panel Committee, Dr. WILLIAMS-FREEMAN, presided, and after Major RUSSELL COMBE, representing the Central War Emergency Committee, had addressed the meeting, resolutions pledging those present to further the endeavours of the Central Committee and to safeguard the interests of absentees were passed *unanimously*. A committee representative of the districts of the county was appointed.

In the course of an interesting discussion it was stated that thirty men from the Hampshire panel had already joined the R.A.M.C., and that the difficulty of obtaining locumtenents in arduous and scattered country practices was very great, older men being often unfitted for the work. Many offers of part-time services were received, and the action of the War Office in employing R.A.M.C. officers to attend women and children at Aldershot, Fareham, and other places was severely commented on. Many of the military hospitals in the county could also, it was said, be wholly or largely staffed by civilians. A letter was read from the Chairman of the County Council stating that three of its junior medical officers had been given facilities to join the services, and that he felt confident that any further applications would receive favourable consideration.

Meetings of Branches and Divisions.

[The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the JOURNAL.]

BIRMINGHAM BRANCH:

DUDLEY DIVISION.

THE annual meeting of the Division was held at the Town Hall, Stourbridge, on September 2nd. Non-members as well as members had been invited to the meeting, and there were present Drs. W. Kirkpatrick (Chairman), T. E. Mitchell, L. Francis, H. W. Freer, E. T. McDonnell, G. Grindlay, H. W. Plant, G. J. Dudley, and L. A. Taylor (Secretary). The Chairman and Secretary were re-elected, and they were also appointed to be the members of the council of the Birmingham Branch for his Division. Dr. C. L. Hawkins (Bromsgrove) is the representative for the Bromsgrove and Dudley Divisions.

War Emergency.—A further circular letter and a letter from the War Emergency Committee of the Association concerning the supply of whole-time medical officers for military service were read, and it was stated that four more practitioners were needed from this district. One practitioner, a non-member, wrote saying that he intended to apply for military service, but should not be able to leave his present post for two or three months. It was decided to form a war emergency subcommittee of six members, consisting of Drs. J. G. Beasley, T. E. Mitchell, M. A. Messiter, G. J. Dudley, W. Kirkpatrick, and L. A. Taylor, and it was resolved unanimously:

That in the event of any practitioner leaving his practice and going on military service being unable to provide a locumtenent, his work shall be attended to by his neighbouring practitioners, and that the remuneration from his practice for insurance, private, or other work shall be equally divided between the practitioner actually attending the cases and the absent doctor; further, that the patients shall be returned to the doctor on his return, and that any practitioner attending such cases shall not take over any such patients during a period of twelve months after the doctor's return.

THE DRUG TARIFF.

REPORT OF DEPARTMENTAL COMMITTEE.

THE report of the Departmental Committee on the Drug Tariff, appointed by the Chairman of the Insurance Joint Committee last February, was issued on September 16th. The Committee was instructed to consider what margin of profit, apart from discounting, is yielded by the present drug tariff; what revision, if any, of prices is required to place that tariff on a commercial basis, and whether any extension or rearrangement of the list of priced drugs and mixtures is desirable. We intend to give an analysis of the report in an early issue, but meanwhile quote the Committee's summary of its conclusions, which is as follows:

IV. SUMMARY OF CONCLUSIONS.

56. Our conclusions may be summarized as follows:

- I. That the present tariff requires revision to place it on a commercial basis.
- II. That the tariff printed as Appendix V, providing for payment of—
 - (a) the cost price of the drugs, etc., supplied,
 - (b) a flat rate per prescription for establishment expenses, and
 - (c) a fee per prescription for any professional services, graded according to the nature of the prescription,
 should be adopted for the whole of Great Britain.
- III. That the present discounting clause should be abolished.
- IV. (a) That a general revision of the prices in the tariff should be undertaken annually, provision being made whereby prices of individual drugs can be revised during the year in exceptional cases.
 - (b) That during the war the present arrangement should be continued whereby the prices of certain drugs specially liable to war fluctuations are revised at frequent intervals.
 - (c) That any revision, whether of a general nature or otherwise, should be undertaken by the central bodies representative of the various interests involved.
 - (d) That any revision should be made uniformly applicable, so far as possible, to the whole of Great Britain.
- V. That the contracts of the chemists should include an obligation to supply a grade of drug costing them approximately the price allowed in the tariff.
- VI. That the pricing of prescriptions should be undertaken by Insurance Committees.

* National Insurance Acts. Report of the Departmental Committee appointed to consider the Drug Tariff under the National Insurance Acts. Vol. I. Report. (Cd. 802.) 3s. (net and not post free). To be purchased, either directly or through any bookseller, from Messrs. Eyre and Spottiswoode, East Harding Street, E.C.; or Messrs. Wynan and Sons, Ltd., 29, Brauns' Buildings, Fetter Lane, E.C.; and 51, St. Mary Street, Cardiff; or H.M. Stationery Office (Scottish Branch), 23, North Street, Edinburgh; or E. J. Conboy, Ltd., 116, Grafton Street, Dublin; or from the agencies in the British Colonies and Dependencies, New United States of America, the Continent of Europe, and abroad, of T. Fisher Uwin, London, W.C.

LOCAL MEDICAL AND PANEL COMMITTEES.

OXFORD.

PANEL COMMITTEE.

The first meeting of the Panel Committee for 1915-16 was held on August 26th.

Election of Officers.—The following officials were elected:

Chairman: Dr. Rivers-Wilson.

Vice-Chairman: Dr. Connell.

Honorary Secretary: Dr. Higgs.

Definition of "Incapable of Work."—The SECRETARY reported that he had asked the Commissioners for a definition of "incapable of work," and had been informed in reply that it was for the societies to decide when they would pay sick pay, but if the patient was not satisfied he had a right of appeal to the Commissioners, and as they would have to give the final decision they could not pre-empt by giving any definition of the term.

Analysis of Prescriptions.—The analysis of prescriptions for the last year showed that the average cost per capita was 3.77d.

Drug Fund.—The SECRETARY reported that he had had a dispute with the Finance Committee as to their method of dealing with the credit balance in the drug fund at the end of 1913, and as the Finance Committee persisted in their standpoint he had appealed to the Commissioners, who had decided in favour of the Panel Committee on every point, and had ordered the Finance Committee to rescind their resolution and carry out the decision now given. The Secretary also reported that the British Medical Association had supported him in this matter, and had offered to take the matter up, if necessary, with the Commissioners.

Separate Surgery Hours for Tuberculous Patients.—The SECRETARY read a letter from the Insurance Committee suggesting that the panel doctors should arrange separate surgery hours for tuberculous patients, on account of the risk of infection to other patients. The Secretary was instructed to reply that the Committee considered such a plan quite unnecessary, and that the suggestion must have been made in ignorance as to the nature and method of the infection in these cases.

Reinstatement of Insured Persons discharged from the Army.—It was decided to request the Insurance Committee to adopt the same method as adopted in Renfrewshire in dealing with discharged soldiers and sailors—namely, to reinstate them on their doctor's list with the same reservation as to the right of choice, when expressed.

Finance.—The accounts for the past year were passed, and it was decided to grant the Honorary Secretary an honorarium of £20 per annum.

BUCKINGHAMSHIRE.

LOCAL MEDICAL AND PANEL COMMITTEES.

A MEETING of the Local Medical and Panel Committees was held at Aylesbury on August 27th, when Dr. REYNOLDS presided, in the absence of the Chairman and Vice-Chairman.

Term of Office of Committees.—Letters from the Commissioners were read extending the term of office of the Local Medical and Panel Committees for one year. It was decided to take no steps to fill up any vacancies, as the Committee now numbered 21.

Finance.—The Finance Subcommittee reported that there was a balance of £98 in the bank, and recommended that no levy should be made at present. It also recommended that the Secretary be paid annually, in the month of September, the sum of 25 guineas as an honorarium.

Local Formularies.—Correspondence with the Pharmaceutical Committee was read concerning the list of formularies issued, in which the pharmacists expressed a desire to be consulted in the event of any alteration in the list being made.

Cost of Scrutiny.—It was reported that the pharmacists agreed to pay a third part of the cost of the scrutiny of prescriptions if the total cost did not exceed £60 a year.

"Rept. Mist."—The Secretary was instructed to write to all doctors who were still using the term "Rept. mist.," pointing out that it was not allowed, and they would be surcharged the copying fee. The middle copy of the triplicate

prescription could be given to patients to bring with them, when they came again, thus obviating the use of the term "Rept. mist."

Drug Fund.—It was reported that in 1913 the doctors received 4.72d. of the floating sixpence. Owing to the great delay in ascertaining enlistments, etc., it was at present impossible to say how 1914 would come out. The Committee agreed to 80 per cent. being paid in September.

Panel Patients of Doctors on Military Duty.—It was decided that the best plan for a doctor absent on military duty would be for him to make arrangements himself with his panel patients and his medical neighbours as to their treatment during his absence, and they would all remain on his list. The money due would be paid over to him, and on his return he could settle with the doctors who had done his work. Cases having occurred of medical men having new medical cards brought to them by persons on another doctor's list who had been away and been treated as temporary residents, and who thought that they could change their doctor on their return, it was decided to ask the Insurance Committee to exercise great care in granting new medical cards, or a doctor might thus inadvertently accept a patient of a colleague away on military duty. It was decided to take steps to secure an insertion in the local press of a notice asking patients to send for the doctor before 10 a.m.

The War Emergency.

A joint meeting was then held with the Executive Committee of the Buckinghamshire Division of the British Medical Association on the war emergency, when Drs. Kennish and Long attended.

Correspondence from the Central War Emergency Committee was read, showing that more doctors were required at once, and that the proportion expected from the Buckinghamshire Division was nine, although seventeen had already gone. The plan suggested of obtaining a signed promise from every medical man to do his best, accept their terms for at least six months after their engagements was agreed to. It was agreed also that arrangements should be made with neighbouring practitioners, so that they could be called in to do any cases of difficulty. The Committee would appoint three to act as arbitrators.

A list of medical men suitable for war duty was laid through, and it was decided to make a special appeal to eighteen.

LANCASHIRE COUNTY.

PANEL COMMITTEE.

A MEETING of the Lancashire County Panel Committee was held at Preston on July 21st, when Dr. H. F. OLDFIELD was in the chair.

Term of Office of Panel Committee.—It was reported that the Commissioners had, in accordance with the Committee's requests, dispensed with the necessity of holding an election, and had appointed the persons who were members of the Committee on August 14th, 1913, to be members for a further term of office which would expire on July 15th, 1916.

Payments to Panel Practitioners.—It was decided that the following resolution, passed at the meeting of practitioners held in Wigan on July 8th, be adopted, subject to the addition of the words, "provided that such a reduction, owing to the war conditions, is necessary":

That the Lancashire Insurance Committee, in making their monthly advances on account of medical benefit for the remaining portion of the year 1915, be invited to adhere to the rate of payment as laid down in the explanatory pamphlet accompanying the cheque, June 30th, 1915—namely, that in the future the monthly cheque be at the rate of 50 per cent on the names of the doctor's lists at the commencement of each quarter less voluntary levy where authorized, instead of varying the amount per head per month as heretofore.

Mileage Scheme.—It was resolved that the mileage scheme for 1914 be the same as that for 1913, and that the amended scheme drawn up by this Committee be adopted for 1915.

Excessive Prescribing.—The Committee decided to deal no further with individual prescriptions, but with the doctors who had exceeded the 2s. limit as shown by a scrutiny, which showed that only 120 doctors had failed to prescribe within the 2s. limit, leaving 856 practitioners who had worked within the limit. It was decided, therefore, that the 120 doctors above mentioned should be asked for an explanation.

STOKE-ON-TRENT,
PANEL COMMITTEE.

A MEETING of the newly elected Panel Committee was held on July 15th, when Dr. PHILLIPS was in the chair.

Election of Officers.—The following officers were elected:

Chairman: Dr. Phillips.
Vice-Chairman: Dr. Frendergast.
Secretary: Dr. Anderson.
Treasurer: Dr. Dawes.

Domiciliary Treatment.—A letter was read from the Clerk to the Stoke-on-Trent Insurance Committee complaining of the delay by doctors in sending in reports, etc., of patients under domiciliary treatment. It was felt that this was a matter to which attention should be given.

YORK.

PANEL COMMITTEE.

A MEETING of the York Panel Committee was held on August 6th.

Election of Officers for 1915-16.—The following officers were elected:

Chairman: Dr. W. A. Evelyn.
Honorary Treasurer: Dr. H. Foster.
Honorary Secretary: Dr. J. C. Lyth.

Report of Deputation from Insurance Acts Committee, British Medical Association, to Chairman of National Health Insurance Joint Committee.—In connexion with the Commissioners' comments on Minutes 64 and 62 of the Conference, a letter was read from the Clerk to the York Insurance Committee stating that his Committee was unable to carry out the suggestion of the York Panel Committee for the automatic replacement on doctors' lists of insured persons discharged from the army, because no notification of any description is received by the Insurance Committee of such discharge, unless or until the insured person applies for a fresh card. The HONORARY SECRETARY stated that he had asked the Clerk to inquire from the Renfrewshire Insurance Committee what procedure had been adopted there, and it was decided to await the reply.

Messrs. Rowntree's Cottage Hospital.—It was reported that employees of Messrs. Rowntree are sent by them to their cottage hospital at Scarborough, if considered advisable, without their necessarily being unfit for work, and that these were in the habit of getting their panel doctors to certify them as unfit for work and drawing sick benefit during their absence; also that the employees would go to a panel doctor at Scarborough while there to get further certificates, thereby depleting the Medical Benefit Fund. It was decided to issue a circular to all doctors on the York panel, pointing out that they should not certify any of these cases as unfit without careful consideration.

Pharmaceutical Committee's Expenses.—Letters were read from the Clerk to the York Insurance Committee, from the Secretary to the British Medical Association, and from the Secretary to the Insurance Commission to the Clerk of the Insurance Committee, all urging the inability of the chemists to pay this expense, and from which it was evident that the Panel Committee could not really prevent its being taken from the drug fund. Drs. Macdonald and Lyth were appointed to confer with the Pharmaceutical Committee's representative as to the best method of settlement, with full powers to conclude the matter as appeared best in the interests of the panel doctors.

Weekly Certificates.—It was decided that members should report to the Honorary Secretary the names of those approved societies which were still demanding a weekly certificate in all cases, in order, if possible, to secure that fortnightly certificates should be accepted in suitable cases.

Unallocated Insured Persons.—It was stated that the Insurance Commissioners had finally accepted the proposed arrangements suggested by the Panel Committee.

Addresses of Persons removed from York Area.—It was reported that the Clerk to the York Insurance Committee had agreed that it would be feasible to state the new address of an insured person who had removed into one of the neighboring areas, which he pointed out would serve the purpose of the Committee in enabling a York doctor, who wished, to take steps to secure that such person should be placed on his list in the new area.

WEST RIDING OF YORKSHIRE,
LOCAL MEDICAL AND PANEL COMMITTEE.

THE ninth meeting of the Local Medical and Panel Committee of the West Riding of Yorkshire was held at the County Hall, Wakefield, on July 30th, when Dr. R. MAX (Wakefield) was in the chair.

Suspension of Elections.—It was reported that the Commissioners had dispensed with the necessity of holding an election of the Panel and Local Medical Committees, and had continued the present Committee until July 15th, 1916. The officers of the Committee were reappointed.

Vacancies on the Committee.—Dr. H. J. Campbell, of 36, Manningham Lane, Bradford, was co-opted a member of the Committee in place of Dr. Bronner, resigned. Dr. William H. Smalles of Newtown House, Honley, was elected a member of the Committee to fill the vacancy caused by the death of his father, Dr. Thomas Smalles.

Vacancy on the Insurance Committee.—Dr. William Steven was appointed representative on the Insurance Committee to fill the vacancy created by the recent resignation of Dr. J. Russell (absent on military service).

A Private Formulary.—A letter was read from the Clerk (dated June 24th) enclosing copy correspondence with the Pharmaceutical Committee concerning the use of a private formulary by a panel doctor in prescribing for his patients. It was resolved that the doctor be requested to prescribe from the *British Pharmacopoeia* or the West Riding Formulary, or, as an alternative, to write out all his prescriptions in full.

Alleged Transfer of the Patients of Doctors absent on Military Service.—It was reported that over sixty patients of a practitioner absent on military service had been "allowed new choice" of doctor without his consent during his absence. Reference was made to the Clerk's statement (January 29th, 1915) that there had not been any wholesale transfers from the lists of doctors absent on military duty; and the Secretary was directed to investigate the index slips and to communicate with the local colleagues of the absent practitioner with a view to their allowing retransfer of the patients to his list.

CORRESPONDENCE.

PROPOSED COMMERCIAL TARIFF.

DR. MAJOR GREENWOOD (London, N.E.) writes: Now that the Memorandum of the Insurance Acts Committee is in the hands of panel practitioners may I urge upon all interested in panel practice to consider very carefully the proposals put before them?

No doubt a commercial tariff of the kind proposed would be advantageous to us, and if it could be obtained by a reasonable concession should not be refused. But, in my opinion, the price asked is altogether unreasonable. Unless we are willing to permit the practitioners' fund—namely, the 6s. 6d. which we were led to believe would be an irreducible minimum for our services—to be a security for the payment in full of the druggists, the latter refuse to accept that tariff. If this is the last word of the druggists, it only remains for us to "bear the ills we have" rather than take upon ourselves others that might prove overwhelming.

It is roundly stated that there is no risk of the present drug fund proving insufficient under the proposed tariff. If so, the druggist need not fear that his accounts will be discounted. If it is urged that it is necessary for disciplinary reasons to impress on practitioners the need of economy in prescribing, that the practitioners' fund should be exposed to some risk, I much prefer that individual practitioners proved guilty of improper prescribing should pay the penalty rather than that all the panel should be penalized. The various adjustments, whereby under the proposed scheme innocent practitioners might be safeguarded, are, in my opinion, impracticable, however plausible they may seem.

The drug question may not unlikely become very critical in the near future. Nearly all drugs are going up steadily. Even magnesium sulphate has increased in price nearly 300 per cent. It has been authoritatively stated that whatever the war prices of drugs, the cost will have to be defrayed by the drug fund. If, then, the practitioners' fund is to guarantee the drug fund, the liability we take upon ourselves must be obvious. Already

been 2,415, 2,367, and 2,350 at the end of the three preceding weeks, rose to 2,355 on Saturday, September 4th; 465 new cases were admitted during the week, against 279, 225, and 315 in the three preceding weeks.

In the ninety-six largest English towns 7,501 births and 4,865 deaths were registered during the week ended Saturday, September 11th. The annual rate of mortality in these towns, which had been 11.4, 12.3, and 12.1 per 1,000 in the three preceding weeks, rose to 14.0 per 1,000 in the week under notice. In London the death rate was also raised to 14.0, and in Scotland, among the nine or five other large towns it ranged from 5.7 in Eastbourne, 6.2 in Southend, 7.4 in Ilford, 7.5 in Blackpool, 7.7 in Enfield, and 7.8 in Willesden, to 19.7 in Halifax, 20.0 in Rotherham, 20.6 in South Shields, 22.8 in Boodle, 23.3 in Tynemouth, and 23.6 in Gateshead. Measles caused a death-rate of 1.2 in Blackburn, 1.8 in Bury, and 3.9 in Barnsley, and whooping-cough of 1.3 in Southampton and 1.4 in South Shields. The death of children (under 5 years) from diarrhoeal diseases, which had been 336, 494, and 593 in the three preceding weeks, further rose to 661, and included 176 in London, 48 in Birmingham, 42 in Liverpool, 31 in Sheffield, 26 in Manchester, and 25 in Leicester. The mortality from the remaining infective diseases showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The cases of 30, or 0.6 per cent., of the total deaths were not certified by a registered medical practitioner or by a coroner: of this number, 5 were registered in Liverpool, 4 in Birmingham, and 2 each in London, Stoke-on-Trent, St. Helens, and Sheffield. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,367, 2,360, and 2,355 at the end of the three preceding weeks, rose to 2,443 on Saturday, September 11th; 385 new cases were admitted during the week, against 225, 315, and 365 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 991 births and 550 deaths were registered during the week ended Saturday, September 4th. The annual rate of mortality in these towns, which had been 12.5, 12.3, and 13.3 per 1,000 in the three preceding weeks, fell to 12.2 in the week under notice, but was 0.1 per 1,000 above the rate in the ninety-six large English towns. Among the several towns the death-rate ranged from 5.1 in Kirkcaldy, 7.1 in Paisley, and 10.9 in Clydebank, to 16.5 in Glasgow, 16.7 in Falkirk, 17.6 in Perth. The mortality from the principal infective diseases averaged 1.8 per 1,000, and was highest in Perth and Hamilton. The 253 deaths from all causes in Glasgow included 16 from infantile diarrhoea, 5 from measles, 4 from scarlet fever, 1 from enteric fever, and 1 from whooping-cough. Six deaths from measles were recorded in Edinburgh, 2 in Paisley, and 2 in Leith; from enteric fever 2 deaths in Dundee; from scarlet fever, 4 deaths in Aberdeen; from diphtheria, 3 deaths in Edinburgh; and from infantile diarrhoea, 7 deaths in Dumfries.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, September 4th, 563 births and 338 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 539 births and 317 deaths in the preceding period. These deaths represent a mortality of 14.5 per 1,000 of the aggregate population in the district in question, as against 13.6 per 1,000 in the previous period. The mortality in these Irish areas was therefore 2.2 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate on the other hand, was equal to 94.2 per 1,000 of population, as against 94.2 for individual localities, that in the Dublin registration area was 16.8 (as against an average of 14.3 for the previous four weeks); in Dublin city, 19.0 (as against 17.7); in Belfast, 14.0 (as against 13.2); in Cork, 11.6 (as against 14.5); in Londonderry, 19.0 (as against 18.3); in Limerick, 19.0 (as against 14.5); and in Waterford, 19.0 (as against 15.2). The zymotic death-rate was 2.2, as against 2.1 in the previous period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice on Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

ALTON, HANTS: LORD MAYOR TRELLOAR CRIPPLES' HOSPITAL.—Assistant Resident Medical Officer.

BELGRADE HOSPITAL FOR CHILDREN, Clapham Road, S.W.—Resident Medical Officer (male or female). Salary, £100 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Junior House-Surgeon. Salary, £100 per annum, and 45 laundry allowance.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £50 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons; (3) Dental House-Surgeon. Salary, £120 per annum in each case.

BXTON: DEVONSHIRE HOSPITAL.—Assistant House-Physician. Salary, £100 per annum.

CAMBRIDGESHIRE ASYLUM, Fulbourn, near Cambridge.—Junior Assistant Medical Officer. Salary, £200, rising to £250 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £140 per annum.

CITY OF NORWICH.—Assistant School Medical Officer. Salary, £400 per annum.

CLOCKSURRY SANATORIUM.—Resident Medical Officer.

DUNDEE COMBINATION POOR-HOUSE AND HOSPITAL.—Resident Medical Officer. Salary, £225, rising to £300 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Clinical Assistants in Out-patient Departments.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—House-Surgeon (male).

GREAT YARMOUTH HOSPITAL.—House-Surgeon (male). Salary, £200 per annum.

HUDDESFIELD ROYAL INFIRMARY.—Assistant House-Surgeon (male or female). Salary, £100 per annum.

INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—House-Surgeon. Salary, £150 per annum.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130 per annum.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—Two Lady Resident Surgeons. Salary, £100 per annum.

LIVERPOOL STANLEY HOSPITAL.—Resident House-Surgeon.

LONDON HOMOEOPATHIC HOSPITAL, Great Ormond Street.—(1) House-Surgeon; (2) Two Resident Medical Officers.

LONDON TEMPERANCE HOSPITAL, Hamstead Road, N.W.—(1) Resident Medical Officer; (2) Assistant Resident Medical Officer. Salary for (1) £200 per annum, and for (2) £120 per annum.

MIDDLEBROUGH: NORTH ORMSBY HOSPITAL.—House-Surgeon. Salary, £120 per annum.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, W.C.—Resident Medical Officer. Salary, £100 per annum.

PARISH OF INVERAVON, Banffshire.—Medical Officer.

PARISH OF SOUTHAMPTON.—Resident Assistant Medical Officer (male or female). Salary, £250 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—District Resident Medical Officer. Salary, £60 per annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—Assistant Surgeon to Out-patient.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Pathologist and Director of Pathological Studies in the London (R.F.H.) School of Medicine for Women. Salary, £400 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.C.—Two Refraction Assistants. Salary, £50 per annum.

ROYAL SALOP INFIRMARY.—House-Physician. Salary at the rate of £120 per annum.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House-Physician (male or female). Salary, £150 per annum.

ST. ANDREW'S HOSPITAL, Dolis Hill, London, N.W.—Resident Medical Officer.

ST. MARY ISLINGTON INFIRMARY, Highgate Hill, N.—Resident Junior Assistant Medical Officer. Salary, £140 per annum.

SOUTHWARK UNION.—Temporary Assistant Medical Superintendent. Salary, £50 per annum.

SW. 16 PREGNANCY COMMITTEE.—Two Temporary Assistant School Medical Officers. Salary, £300 in each case.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—(1) Resident Medical Officer; (2) House-Physicians and House-Surgeons. Salary for (1) £200 per annum, and for (2) £120 and £100 per annum respectively.

WESTMINSTER GENERAL DISPENSARY.—Resident Medical Officer. Salary, £120 per annum.

WESTMOULAND SANATORIUM.—Methop, Grange-over-Sands.—Second Assistant to Medical Superintendent. Salary, £200 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £150 per annum.

WORCESTER COUNTY AND CITY ASYLUM, Powick.—Assistant Medical Officer. Salary, £250.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer (male or female). Salary, £150 per annum.

YORK COUNTY HOSPITAL.—Resident Medical Officer (male or female). Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Dalneington (Ayr), Hereford (Herefordshire).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Saturday 13th. Letters, to Jenny Foulkes, persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the Journal.

APPOINTMENTS.

BYRNE, E. C., L.R.C.P. and S.L., L.M., District Medical Officer of the Retiring Order.

EAMES, E. V., L.R.C.P. and S. Edin., L.M., L.R.F.P.S. Glasg., District Medical Officer of the Basford Union.

VERNOB, H. A., L.S.A., District Medical Officer of the Greenwich Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

BENNETT JONES.—On September 3rd, at 80A, Shell Road, Liverpool, the wife of W. J. Bennett Jones, M.D., of a daughter.

SCOTT.—On September 13th, at Lanes, to Jenny Foulkes, persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the Journal.

MARRIAGE.

SHARPLES—HALLACK.—On September 7th, at Hendon, London, Lieutenant Sydney Sharples, R.A.M.C.(F.), son of Dr. and Mrs. Sharples, Linstead, near Epsom, to Jenny Foulkes, daughter of the late J. B. Hallack, J.P., of Preston.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, SEPTEMBER 25th, 1915.

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THE WAR EMERGENCY.

ADDRESS BY MR. LITTLEWOOD OF LEEDS.

A STRIKING address was delivered by Lieutenant-Colonel H. Littlewood, R.A.M.C.(T.), consulting surgeon to the Leeds General Infirmary, and now administrator of the 2nd Northern General Hospital (Leeds), at a special meeting of the medical profession in the Wakefield area, to consider the action that should be taken locally to meet the demand for more medical men to serve with the army. The meeting, which was convened by Dr. W. Eardley (Honorary Secretary of the Wakefield, Pentraet, and Castleford Division of the British Medical Association), was held in the County Hall, Wakefield, on September 17th. In the absence of Dr. Hillman, on active service, Dr. E. Selby (Doncaster) took the chair. In opening the proceedings the chairman expressed the hope that the medical profession would be able to meet the requirements of the military authorities without any question or suspicion of compulsion. The present was, he considered, no time for criticism, and though it had happened that the services of some doctors who had left large and lucrative practices to take commissions seemed as yet to have been very little used by the military authorities, it might be assumed that the authorities knew their business, and it was not to be expected that men with no knowledge of military work could be sent to the front without some instruction in military requirements and military surgery.

Colonel Littlewood's Address.

Lieutenant-Colonel Littlewood, after a reference to the illness of Colonel Dobson, his predecessor as administrator of the 2nd Northern General Hospital, who had addressed a meeting of a similar character held in Wakefield last April, and after expressing the pleasure with which all would hear that Colonel Dobson was now making rapid progress towards recovery from the illness with which he was attacked two days after the meeting in April, continued as follows:

When I retired from practice in June, 1913, I resigned, amongst other things, my membership of the British Medical Association. In the past I have not been in sympathy with many things the Association has done. In this movement it has my entire sympathy and I will do all in my power to help.

A year ago many people believed the war would be over in a few months; now many of us will be satisfied if it is successfully over in a few years.

Mr. Asquith said on November 9th, 1914: "We shall never sheathe the sword, which we have not lightly drawn, until Belgium recovers in full measure all and more than all she has sacrificed; and until France is adequately secured against the menace of aggression, until the rights of the

smaller nationalities of Europe are placed on an unassailable foundation, and until the military domination of Prussia is wholly and finally destroyed. That is a great task worthy of a great nation." These noble words are the minimum for the Allies, and I am sure every one here realizes the gravity of the position and the stupendous task before them. It can only be accomplished by every man and woman in the British Empire doing their utmost—*Germania delenda est*.

What the Allies—and more particularly the British Empire—have to realize is that, if we are not successful, our fate will be infinitely worse than that of Belgium. They have been scourged with whips; we shall be scourged with scorpions. If the Germans once landed in this country, we should not waste our time discussing compulsory service—we should act, and be thankful if we had any one to lead us to drive them out; but how little chance we should have if we were not prepared!

Since the beginning of the war I have had large numbers of wounded men under my care—all brave and cheerful fellows. I cannot imagine how any one seeing them and hearing their stories could delay one moment in striving to do all in his power to defeat any chances of German domination.

It has been said that any number of cups of hot water cannot make one cup of boiling water. I am afraid a large number of people have not got to boiling point, and success can only be achieved when this has been attained. Whatever our hands find to do we must do it with all our might.

The medical profession has been said to be one of the greatest of trades unions. Up to a certain point this may be true, but fortunately we are bound together by great and noble traditions and high ideals, so there is no suspicion of limiting our output, and when we are called to act there is one dominating motive—to do our best—and more than that no man or woman can do. And this is what is required of the nation. At times our profession has been misled by agitators, but at the present anxious time no voice has been raised except to urge the members of the profession to put themselves unreservedly at the service of the empire. And this is what I am here to urge this afternoon.

The Director-General, Sir Alfred Keogh, says he wants 2,500 more men before Christmas. We are confident he knows what he is talking about, and we can assure him he shall have everything he asks for. How is this to be brought about? I think all men under 40, and all under 45 who are physically fit, should indicate their willingness to accept service wherever they may be sent; and those who are over age or for physical reasons are unable to serve abroad should help to carry on at home. There will be an enormous amount for them to do in looking after the civil population and the wounded soldiers who are sent to this country.

Here will be a great chance for those who stay at home—not only to do the work of those who have gone abroad,

but to safeguard their interests; so that those who are fortunate enough to return, when they do so, will find they have not to begin professional life over again.

A good deal of work has been done, and many valuable suggestions made, by the War Emergency Committee. Their paper, W. 3, contains useful suggestions, and the form adopted by the Mid-Cheshire Division sums up the best and most honourable line for those who stay at home. [The document W. 3, and the form adopted by the Mid-Cheshire Division, will be found in the first column of page 130 of the SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL of last week.]

Many members of the medical profession (and I should like to include the nursing profession) have already gone—both general practitioners and consultants and nurses—making great monetary and other sacrifices; their one thought and pride is to do their best for their country. Any man or woman in the British Empire who does not act in the same way is unworthy to be called a British citizen, and those who invite British subjects not to take this view of their great privilege are traitors, and should, by the common voice of the nation, be treated as such.

This meeting has been called to see how best you can help to supply the men Sir Alfred Keogh has asked for, so we will now proceed to the real business.

In the course of the subsequent discussion the question of the shortage of medical men to meet the needs of the civil population was raised, and, together with certain other matters, referred to the local War Emergency Committee. Colonel Littlewood remarked that the first and pressing need was for medical men for the wounded soldiers, and that for the present the civil population must take second place. The Chairman, in endorsing this view, said that the civil population must realize the true state of affairs, and not needlessly occupy a doctor's time. He considered that of the urgent calls a doctor received, barely 1 per cent. were really urgent.

The meeting concluded with a vote thanks to Lieutenant-Colonel Littlewood for his address.

In the circular convening the meeting it was stated that the number of doctors from the area already on active service was about forty.

RAWTENSTALL.

A MEETING of the medical profession was held at Rawten-stall on September 17th, under the chairmanship of Dr. F. B. Holmes, President of the Bury Division. It was attended by practitioners residing in Rawtenstall, and also by Dr. Johnson (representative of the Bury Division), Dr. Nuttall, Dr. Vine (Honorary Secretary of the Bury local War Emergency Committee), and Dr. Braithwaite (Honorary Secretary of the Division).

Dr. Holmes made a statement explaining the reason for holding the meeting, and the urgent need there was for more medical men for whole-time military service. This was supported and amplified by a short speech from Dr. Johnson. The Secretary read two letters from the Central War Emergency Committee on the matter. After some general discussion it was decided by a unanimous vote to form a local War Emergency Committee for Haslingden and Rawtenstall, to work in conjunction with that for Bury. Drs. J. B. Stewart (Haslingden), Edward (Rawtenstall), and Hindle (Haslingden), not a member of the British Medical Association, were elected to form this committee.

Meetings of Branches and Divisions.

PERTH BRANCH.

A MEETING of the Perth Branch was held at Perth on September 17th, when Dr. J. HUME, President, was in the chair.

Highlands and Islands Schemes.

THE SECRETARY stated that the Highlands and Islands Grant Act was dated August 15th, 1913, and almost exactly two years after, on August 15th of this year, and without any warning, there were issued to the practitioners in the Highland area an elaborate series of documents, consisting of six "schemes," a draft form of agreement, and a schedule, somewhat similar to that issued by the income tax authorities, asking for minute details of professional earnings, a fortnight only being allowed for decision on the whole matter. Naturally, a considerable amount of concern

was aroused in the minds of practitioners, and numerous letters had been written to the newspapers, and meetings held, with the view of clearing up the many difficulties contained in the Board's proposals. Amongst various objections raised were the facts that the acknowledged medical authorities and central bodies had not been consulted; that a most inopportune time had been chosen when so many medical men were absent on military duty; that intolerable conditions were imposed upon doctors in regard to the conduct of their practices; and that the provisions concerning remuneration were vague and confusing, and accompanied by no guarantees. The documents were now before the profession at large in the pages of the BRITISH MEDICAL JOURNAL. While no doubt the schemes in themselves were very laudable, and likely to benefit those concerned if properly administered, the methods adopted in bringing them before the profession, and the extraordinary conditions attached to the draft agreement, were matters of serious import. The subject had been brought up before the Branch owing to the fact that part of Perthshire came under the Board, and several members of the Branch were involved.

Dr. MACKEY stated that in the proposals two classes of practitioners were distinguished—those whose incomes were under £300, and those whose incomes were over £300. While the proposals of the Board might be suitable enough for the former class, they were quite inapplicable, in their present form, to the doctors in the Highland district of Perthshire, who were above the £300 limit, and did not require to have their whole incomes guaranteed by the Board. The most objectionable feature, however, was the proposal to withhold the mileage grant for the present year, which practitioners were entitled to receive under the National Insurance Act. Their agreements were with the Insurance Committees, and the mileage grant ought to be paid to the end of the current year, and if the Board had any new proposals to submit, practitioners would then be free to accept or reject them as they saw fit.

Dr. TROTTER said that from all he could learn the great majority of the Highland practitioners would greatly benefit by the schemes, and that it was as far as possible from the minds of the Board that there should be any deprivation or reduction of the mileage grant, which would probably be doubled under the new arrangements. If too many objections were raised, it might happen that Perthshire would be withdrawn from the schemes altogether. Difficulties connected with special districts or practices could be adjusted in the agreements, which were to be individually arranged with the Board. He therefore moved the following resolution, which was seconded by Dr. BURNER, and passed:

That the meeting generally approves of the Highlands and Islands schemes as such, and that the Branch will support the practitioners in the Highland district of Perthshire in any negotiations with the Board as regards their individual agreements.

After remarks by Drs. ANDERSON and COCHRAN, it was decided to call a special meeting of the Branch, to be held at Logierait Poorhouse on a date to be arranged by a representative of the Board, so that negotiations may be conducted with the knowledge and concurrence of the Branch, and not with individual doctors.

Belgian Refugees.—It was resolved that, while individual doctors would always endeavour that no real case of illness lacked the necessary attention, the profession as a whole could not give any undertaking as to medical attendance on Belgian refugees in the town.

Dependants of Soldiers and Sailors.—It was resolved that, while individual doctors would always be willing to attend free such cases as they found to be necessities, the profession could take no further collective responsibility in the matter.

Ambulance Lectures.—It was decided that practitioners should continue to charge for giving lectures.

A list of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian, at the house of the Association, 429, Strand, W.C. The regulations governing the loan of these publications are stated in the introduction to the list. The Library is open for consultation from 10 a.m. till 5 p.m. (on Saturdays till 2 p.m.).

THE DRUG TARIFF.

REPORT OF THE DEPARTMENTAL
COMMITTEE.

This Committee, as announced shortly in our columns last week, has just issued its report, which shows the result of an enormous amount of detailed investigation into the working of the present drug tariff and presents a carefully prepared scheme for its revision. The main lines of investigation were as follows:

(a) Investigations of prescriptions actually dispensed in 1913 and 1914 under the Insurance Acts in order to obtain the following data:

- (i) Actual cost price to chemists of drugs, etc., supplied.
- (ii) Tariff price.
- (iii) Dispensing fee.
- (iv) Medicament class.
- (v) Frequency with which individual drugs were ordered and frequency with which various quantities of the same drug were ordered.

(b) Investigations by a firm of accountants of chemists' businesses in order to ascertain the profit earned prior to inception of medical benefit under the National Insurance Act, 1911, and subsequently thereto.

(c) A dispensing test with a view to determining the ratios in which the several medicament classes stand to one another, having regard to the relative claims of each class upon the dispenser's skill and time.

The report begins with a description of the present financial and administrative arrangements for the supply of medicines and appliances; these are familiar to our readers. It is pointed out that the tariff prices are subject to the possibility of a discount, and the answer to any question as to the fairness of the present arrangement will depend not only on the degree of the practical risk involved in the liability to discount, but also on the extent, if any, to which the tariff prices may be abated without loss of reasonable profit to the chemists. Also it is clear that the Insurance Committee is not financially concerned to resist any upward tendency of prices, as its liability is strictly limited.

The Committee admits that, owing to the withdrawal of the medical profession from negotiations in the latter part of 1912, "the natural and not unreasonable consequence was that a tariff framed by the Standing Committee on Insurance of the Pharmaceutical Society was promulgated by the local bodies of pharmacists and adopted by Insurance Committees in all areas without any real investigation or scrutiny. Modifications in details have been subsequently made, mainly at the instance of local bodies, including those representing practitioners, but any such revision has of necessity left untouched the essential principles and framework of the original tariff."

The ingredient-price fixed by the present tariff comprises an allowance for "trade profit" or establishment charges which is proportionately greater in the case of small quantities than large. Moreover, the minimum price is one halfpenny, and all fractions are adjusted to a level halfpenny (generally upwards). These two adjustments have a material effect, as the value of the quantities ordered is frequently very small, and the Committee makes the following observations:

"On a review of nearly three years' working we are brought to the conclusion that the present tariff has faults of construction which are responsible for serious inequity to individual chemists. The tariff is pervaded by a system of balances and compensations upon which its authors relied to ensure the fairness of its ultimate yield. Thus anomalies in relative over-pricing in the case of par-

ticular drugs are set off against other anomalies of a contrary tendency; anomalies in the dispensing fee scale are balanced against the effects of certain features of the ingredient pricing method. This system of balances and compensations has proved in working to be unsatisfactory."

It is not to be expected that a document which requires for its justification a detailed knowledge of a series of empirical compromises will inspire confidence. The present system yields in practice to different chemists for their establishment charges sums differing very widely in amount, the variations being entirely independent of their actual establishment charges and dependent chiefly on the habits of prescribing of local practitioners. The allowance was found to vary from £5 15s. 1d. to £9 11s. per 1,000 prescriptions. The dispensing fees again vary very greatly according to the varying proportion of the different classes of medicaments, which varies strikingly, for instance, between England and Scotland.

The Committee therefore recommends a drastic revision of the tariff, so that the remuneration of the chemist should be based on simple and self-evident principles, and should consist of:

1. The actual cost of the drugs and appliances supplied. A good medium quality is to be specified in the tariff in regard to certain articles of which several grades are available, all fulfilling the B.P. standard, and the chemist's contract is to include an obligation to supply a grade of quality costing approximately the price allowed for in the tariff. In the specimen tariff appended the price is (with a distinct gain in convenience) calculated on a "tariff pound" of 7,000 grains for solids or 7,000 minims for liquids. By this device the specific gravity will not have to be further taken into account. Flat rates are altogether eliminated. The cost will be calculated to the nearest second decimal point of a penny with a minimum of 0.01d.

2. The dispensing fee has been calculated after careful experiments on the time required for dispensing the different medicament classes. The dispensing fee includes in all cases a fixed allowance of 0.8d. per prescription for establishment charges. A differentiation is made between mixtures, liniments, lotions, etc., which are extemporarily prepared (2.8d.), and those which are prepared or stocked in bulk (2.3d.). All solid or liquid drugs or preparations requiring no compounding or preparation by the chemist carry a fee of 1.8d. Appliances take no dispensing fee beyond the 0.8d. for establishment expenses.

The discounting clause is altogether abolished.

It is contemplated that the prices shall be revised annually, with a provision for more frequent revision in exceptional circumstances—for example, during the war. The revision is to be made by the central representatives of the various interests concerned for the whole of Great Britain. It is recommended that the pricing should be done by, and presumably at the expense of, the Insurance Committee, and not by the chemist.

A series of interesting appendices give the statistical data on which the Committee has formulated its report. One table shows that if the Committee's recommendations had come into force in 1913 the chemists' profits, without allowing for the greatly increased turnover, would have been at a slightly higher rate than they had previously obtained for the same type of work. This implies a reduction in receipts compared with the present scale, but against this has to be offset the abolition of discounting and the transfer of the pricing of prescriptions to the Insurance Committees.

Memoranda of dissent to certain paragraphs are appended. Mr. Woolcock, Secretary and Registrar to the Pharmaceutical Society of Great Britain, indicates his disagreement with the figure fixed for establishment charges. Mr. James P. Gilmore, a member of the Pharmaceutical Society of Great Britain, dissents from the conclusion II (b) and (c) providing for a flat rate per prescription for establishment expenses and a fee per prescription for any professional services graded according to the nature of the prescription, and to the dispensing scale published in the appendix. Dr. Tocher of Aberdeen also objects to fixing the establishment charges at 0.8d. per prescription. He regards it as a doubtful figure, because the data the Committee was able to collect were insufficient with respect to the number of pharmacists from whom particulars were collected.

National Insurance Acts. Report of the Departmental Committee appointed to consider the Drug Tariff under the National Insurance Acts. Vol. I: Report. (Cd. 8,652.) 3d. (net and not post free). To be purchased, either directly or through any bookseller, from Messrs. Eyre and Spottiswoode, East Harding Street, E.C.; or Messrs. Wynan and Sons, Ltd., 29, Beccan Buildings, Fetter Lane, E.C.; and 59, St. Mary Street, Cardiff; or H.M. Stationery Office (Scottish Branch), 23, North Street, Edinburgh; or E. Ponsonby, Ltd., 116, Grafton Street, Dublin; or from the agencies in the British Colonies and Dependencies, the United States of America, the Continent of Europe, and abroad, of T. Fisher & Co., London, W.C.

INSURANCE ACT.

CERTIFICATION OF SICKNESS BENEFITS IN
IRELAND.

THE COMMISSIONERS' SCHEME ACCEPTED.

A MEETING of the delegates of the Irish medical profession was held on September 17th at the Royal College of Surgeons, Dublin, to consider proposals from the Irish National Insurance Commission for certification of sickness benefits under the Insurance Act as applied to Ireland. Mr. R. J. JOHNSTONE, F.R.C.S. (Belfast), occupied the chair.

The letter received from Sir Joseph Glynn, Chairman of the Irish Insurance Commission, stated that with the approval of the Treasury the Commission was now in a position to offer the following capitation rates as a basis for the remuneration of practitioners for certifying alone:

A. In county boroughs and towns of 10,000 population and upwards one shilling and three pence per insured person.

B. In county areas where the density of the insured population, excluding towns of 10,000 and upwards, equals or exceeds 0.02 per acre, the sum of two shillings per insured person. This group includes the counties of Dublin, Down, Armagh, Antrim, Lond, Kildare, Wexford, Carlow, Londonderry, Wicklow, Tyrone, Meath, Queen's County, Monaghan, Cork, and Westmeath.

C. In county areas where the density of the insured population is less than 0.02 per acre the sum of two shillings and sixpence per insured person. This group includes the counties of Limerick, Tipperary (S.R.), Waterford, Kilkenny, King's County, Cavan, Tipperary (N.R.), Fermanagh, Longford, Clare, Donegal, Kerry, Leitrim, Roscommon, Sligo, Mayo, and Galway.

Sir Joseph Glynn's letter continued as follows:

"As a guide to what practitioners would receive under this scale the following illustrations may be of interest; but I should explain that in preparing them we had to go on the pre-war figures for the insured population, as we have not got any returns of the insured population since war began which would prove in any way reliable. Our insured population must have been somewhat reduced by enlistment, but to what extent we do not know. These changes, however, are only temporary, and after the war we may hope to see an increase in the numbers.

"Taking the figures we have got, the above rates in Dublin city (exclusive of Rathmines, Rathgar, and Pembroke) would mean a sum of £5,830 for the doctors who would join the pool. In Cork the sum would be £1,450, and in Belfast £8,715.

"In Group B, County Dublin (excluding the townships of Rathmines, Rathgar, and Pembroke) would receive £2,030, County Down (excluding Newry) £3,356, County Wexford (excluding Wexford town) £1,508, County Meath £1,216, and County Cork £3,764.

"In Group C, Tipperary (S.R.) (excluding Clonmel) would receive £1,248, Clare £1,318, Galway £1,228 (excluding Galway town).

"I give these figures as typical examples under pre-war conditions and cannot say to what extent they would be altered by enlistments. The reduction in the number of insured persons is, of course, accompanied by a reduction (not necessarily proportionate) in the amount of certification to be done. The figures given do not include exempt persons to whom a lower capitation-rate will be paid. The number is under 2,200 and the amount of certification which will be required will be small, as short illnesses do not count with this class, and the benefits given are strictly limited. The rate for this class will, however, be added to the above rates and to that extent will somewhat increase the figures quoted.

"We hope that the doctors will recognize that this offer is substantial and, when we consider the absolute necessity of economy in every branch of the public service owing to the strain imposed by the war, it is really generous."

The Chairman, Mr. JOHNSTONE, on behalf of the deputation appointed to interview Mr. C. Roberts, M.P., Chairman of the Joint Insurance Committee, which subsequently conferred with the Irish National Insurance Commissioners and representatives of the approved societies, gave an interesting account of the main points of the scheme of medical certification proposed under the Insurance Act in Ireland for acceptance by the profession. Under the new scheme the cardinal principle contended for by the profession, that the medical attendant should, in the first instance, certify for sickness benefit, is conceded—a con-

cession which has given very great satisfaction, as it was always held that the remuneration was quite a secondary consideration to the attainment of this principle. In about half the counties in Ireland, which include the more sparsely populated, practically the full demands of the doctors have been granted; in the remaining counties and county boroughs the remuneration, while a substantial advance on former offers, has fallen somewhat short of the demands of the profession. It was, however, recognized by the delegates that the midst of a great national crisis was not the proper time for the medical profession to continue the struggle, particularly as regards finances, with the Treasury.

In the circumstances the delegates decided to accept the offer made by Sir Joseph Glynn, Chairman of the Irish National Insurance Commission, with instructions to the Irish Medical Committee that the deputation appointed by it to meet the Commissioners was to press (1) for local option on the part of medical committees as regards the unit and method of distribution of the money allotted to each area for certification; and (2) that, considering the large amount contemplated to be deducted from the certification grants, at the expense of the general body of the profession, for the payment of referees, doctors of good professional standing, and who would command the respect and confidence of their colleagues, should be selected for these offices in the best interests of all concerned.

The proceedings of the delegates' meeting were brought to a conclusion by the adoption of a warm vote of thanks to the Chairman and the Irish Medical Committee for the satisfactory manner in which they had conducted the business of the profession for the past two years. The Chairman, Mr. Johnstone, on rising to reply, was most enthusiastically received by the entire meeting.

In the House of Commons, on September 21st, Mr. Charles Roberts, Chairman of the Joint Committee of Insurance Commissioners, said, in reply to Mr. J. P. Farrell (Longford), that the part-time appointments in respect to the scheme for certification of insured persons in Ireland were made on purely a temporary basis pending the settlement of a permanent scheme for certification, and were terminable by one month's notice on either side, and this fact was clearly indicated by the Irish Insurance Commissioners to all candidates for such appointments.

LOCAL MEDICAL AND PANEL
COMMITTEES.

WARWICKSHIRE.

PANEL COMMITTEE.

A MEETING of the Warwickshire Panel Committee was held at Coventry on September 1st. Dr. J. Orton (Coventry) was appointed Chairman; Dr. R. Latimer Greene (Stratford-on-Avon) Vice-Chairman; and Mr. W. P. Whitehead (Leamington) Acting Secretary during the absence of Dr. Arnold Morris on active service.

Voluntary Levy.—It was reported that the amount produced by the voluntary levy of 2d., to which all but fifteen had assented, was £181 16s.

"Covering."—A complaint made against a practitioner for refusing to supply certificates of incapacity to a patient who was being attended by a homoeopath was considered, and a letter from the General Medical Council was read. A resolution was adopted to the effect that the practitioner's action was in accordance with the certification rules, and the Chairman was asked to press this view upon the Medical Service Subcommittee.

Attendance on Discharged Soldiers.—Attention was drawn to cases in which on discharge wounded soldiers came under the care of a general practitioner, and it was reported that in one such case a claim on the War Office had been repudiated. It was resolved to ask the British Medical Association to take action with a view to securing that the provision made by the nation for men discharged when in need of medical and surgical treatment should include such treatment, or be such as to enable the men to obtain it otherwise than through charity.

LOCAL MEDICAL COMMITTEE.

At a meeting of the Warwickshire Local Medical Committee held on the same date, the same officers were

elected as for the Panel Committee, and it was reported that the Committee had been recognized by the Commissioners down to July 15th, 1916.

SHPROSHIRE. PANEL COMMITTEE.

A MEETING of the Shropshire Panel Committee was held at Shrewsbury on August 31st, when Dr. EXHAM was in the chair. Dr. Wedd, of Wellington, was co-opted to act for Dr. Mackie, absent on military service.

Resolutions forwarded to County Committee.—The following resolutions were passed, and the Honorary Secretary instructed to forward them to the County Insurance Committee:

1. That the County Committee be requested to withhold the right of an insured person to transfer from the list of any doctor absent on naval or military service for the period of the war or until a reasonable time after his return.
2. That the County Committee be requested not to remove an insured person from a doctor's list until the insured person has proved his actual removal by choosing another doctor in another area or district by means of the medical card.
3. That emergency dispensing be paid for at a flat rate.

COUNTY TYRONE.

LOCAL MEDICAL COMMITTEE.

A MEETING of the County Tyrone Local Medical Committee was held at the Tyrone County Hospital on September 3rd, when Dr. E. C. THOMPSON was in the chair.

Election of Dispensary Medical Officers in the Clogher Union.—The following resolution was unanimously passed:

That we, the Tyrone Medical Committee, condemn in the strongest possible manner the unpatriotic action of the majority of the Clogher Board of Guardians in appointing to the office of dispensary medical officer a young man qualified to serve his country at the front in the Royal Army Medical Corps, where every self-respecting man should be, and ignoring the long services of the other candidate, Dr. ROSS, who, already for many years permanently settled in the district, had proved his ability to discharge the duties of this office in addition to those of medical officer of the workhouse.

Poor Law Medical Officers' Fees and Holidays.—It was decided that the Secretary should communicate with the different clerks of unions in the county Tyrone, stating that the very moderate scale of fees already in force—namely, £3 5s. a week for district hospitals and £4 4s. a week for dispensary districts—would be rigidly adhered to.

Insurance Act.—The feeling of the meeting was against the proposed pooling system for certification, which meant that the doctor who managed to issue the largest number of certificates received the largest payments. A resolution was unanimously passed:

That the capitation and panel system be adhered to, under a proper scheme and adequate remuneration, and that no whole-time medical referees be appointed, but that the procedure under the Workmen's Compensation Act be adopted.

Amalgamation of the British and Irish Medical Associations.—It was unanimously resolved:

That the British and Irish Medical Associations be combined, and that the co. Tyrone be formed into a branch of the British Medical Association.

Resignation of the Honorary Secretary.—The resignation, through ill health, of Dr. DUNCAN was received with much regret, and the Committee expressed its profound sympathy with him and placed on record its high appreciation of his services to the Tyrone Medical Committee. Dr. TODD, Omagh, was unanimously elected to replace Dr. DUNCAN as Secretary.

CORRESPONDENCE.

THE PROPOSED COMMERCIAL TARIFF.

DR. J. H. TAYLOR (Salford) writes: Of all the documents issued by the Insurance Acts Committee, the memorandum dealing with a commercial tariff is perhaps the most remarkable, and, in many details, the most incomprehensible.

The Committee began by passing, on August 19th, a resolution to the effect that any excess cost for drugs over 2s. should not be a charge on the practitioners' fund, and it professes that it does not feel able to advise the abrogation of this. So far good; if there were one thing more than any other on which both the Government and the profession were agreed when the bill was passing through Parliament, it was the principle that the doctors should not have to suffer for prescribing the best possible medicines. The memorandum quotes one of a dozen similar statements of the then Chancellor, who laid the greatest possible stress on this principle, and yet immediately afterwards the Committee proceeds to furnish up a number of arguments, all depending on chances and guesses, for abandoning this principle. To me this is quite incomprehensible, except on the theory that, at present at any rate, the Committee is ready to swallow even its own words for the sake of peace.

The whole profession must feel sympathy with the chemists who have had to accept a discount on their bills, and I would show no mercy to doctors who may be guilty of wanton and extravagant prescribing. At the same time, practically all who are interested feel that the machinery of Regulation 40 is obnoxious all round, and needs radical alteration. But it appears to be hinted that unless we accept an unlimited liability in order to pay the chemists in full, Regulation 40 must be continued. In other words, we must accept an injustice in order that the chemists may get justice. I protest against being placed in any such dilemma. The chance of being surcharged under this regulation has made a large number of doctors afraid to prescribe as they ought to do and would like to do. This is so well known to the insured themselves that it has damaged the reputation of the medical service under the Act in a most disastrous way. Of course very few formal complaints can be made by the insured, as not one patient in a thousand knows what is in the medicines, but the impression is quite common, perfectly natural, and not altogether without some foundation in some areas, that the prescribing under the Act has to be done in a cheap and nasty way, and it is by no means rare for patients to hint that they would be glad to pay for proper medicines. This disastrous effect was exactly what Mr. Lloyd George and all of us especially wished to avoid, and it has been caused entirely by Regulation 40. As a member of a large Insurance Committee and of the Panel Committee, and as Chairman of the Salford Division of the British Medical Association, I have had abundant opportunity of seeing how Regulation 40 has worked, and have no hesitation in saying that it has done incalculable harm to the interests of the insured. It is badly conceived, cumbersome, very costly, unfair to the doctors, unfair to the chemists, and grossly damaging to the insured, and, with all that, it frequently fails in its object. The proposed scheme of a commercial tariff, which some of the chemists are already calling a "sweating tariff," with unlimited liability of the doctors, even after prescribing with the most conscientious care, so far from lessening, would aggravate the present condition.

We are told that the commercial tariff would reduce the drug bill by about 15 per cent. on the 1913 figures, and as 2s. was then sufficient, taking the country as a whole, we are assured that there would be no danger of encroaching on the practitioners' fund. But I altogether doubt the value of the figure 15 per cent. I am assured by a number of chemists that even when the war is over the high prices of many drugs will still continue indefinitely, and new drugs of the greatest importance, though costly, are constantly being put forward. In spite of any commercial tariff, there is the greatest danger that in the future the 2s. may become insufficient, even taking the country as a whole, and to ask us to take on unlimited liability is to ask us to trust to luck with the chances against us. By all means let the drug fund be centralized in any way so that areas where the fund is insufficient for proper prescribing may be assisted by other areas which have a surplus. Common sense would point to this, and it ought not to depend on, nor to wait for, any commercial tariff nor for any scheme of robbing the doctors to pay the chemists.

In Salford the plan was tried of crediting the practitioners' pool with the whole of the 9s. for medical benefit, and charging each individual practitioner with the cost of

Vital Statistics.

EPIDEMIC MORTALITY IN LONDON DURING THE SECOND QUARTER OF 1915.

[SPECIALLY REPORTED FOR THE "BRITISH MEDICAL JOURNAL."]

The accompanying diagram shows the mortality from each of the principal epidemic diseases during each week of the second quarter of the year, and the average mortality in the corresponding periods of the five preceding years, except in the case of diarrhoea and enteritis among children under 2 years of age, for which the average mortality figures are not available.

Enteric Fever.—The fatal cases of enteric fever, which had been 35, 32, and 37 in the three preceding quarters, declined last quarter to 24, and were slightly below the corrected average number in the corresponding period of the five preceding years. This disease showed the highest proportional mortality last quarter in Paddington, Hackney, Southwark, and Camberwell. The number of enteric fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 57, 63, and 46 at the end of the three preceding quarters, had declined to 23 at the end of last quarter; 124 new cases were admitted during the quarter, against 109, 126, and 113 in the three preceding quarters.

Small-pox.—No death from small-pox was registered last quarter, and no case of this disease was admitted into any of the Metropolitan Asylums Hospitals during the quarter.

Measles.—The deaths from measles, which had been 412, 473, and 1,120 in the three preceding quarters, declined to 945 last quarter, but were 437 above the corrected average number. This disease was proportionally most fatal last quarter in Fulham, Chelsea, Poplar, Hornsey, and Battersea.

Scarlet Fever.—The fatal cases of scarlet fever, which had been 73, 103, and 100 in the three preceding quarters, declined last quarter to 90, but were 42 in excess of the corrected average number. The greatest proportional mortality from this disease last quarter was recorded in Fulham, Islington, Stoke Newington, Finsbury, and Shoreditch. The Metropolitan Asylums Hospitals contained 2,411 scarlet fever patients at the end of last quarter, against 4,157, 4,131, and 2,514 at the end of the three preceding quarters; the number of new cases admitted during the quarter was 3,356, against 6,283, 7,340, and 3,958 in the three preceding quarters.

Whooping-cough.—The deaths from whooping-cough, which had been 226, 121, and 378 in the three preceding quarters, rose again last quarter to 417, and were 81 in excess of the corrected average number in the corresponding periods of the five preceding years. The highest death-rates from this disease last quarter were recorded in Fulham, Islington, Finsbury, Shoreditch, Hornsey, Battersea, and Deptford, and Greenwich.

Diphtheria.—The fatal cases of diphtheria, which had been 133, 214, and 199 in the three preceding quarters, declined last quarter to 136, but were 28 above the corrected average number. The greatest proportional mortality from this disease last quarter occurred in Holborn, Bethnal Green, Stepney, Poplar, and Southwark. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospital at the end of last quarter was 1,043, against 1,236, 1,306, and 1,562 at the end of the three preceding quarters; 1,719 new cases were admitted during the quarter, against 1,975, 2,728, and 2,023 in the three preceding quarters.

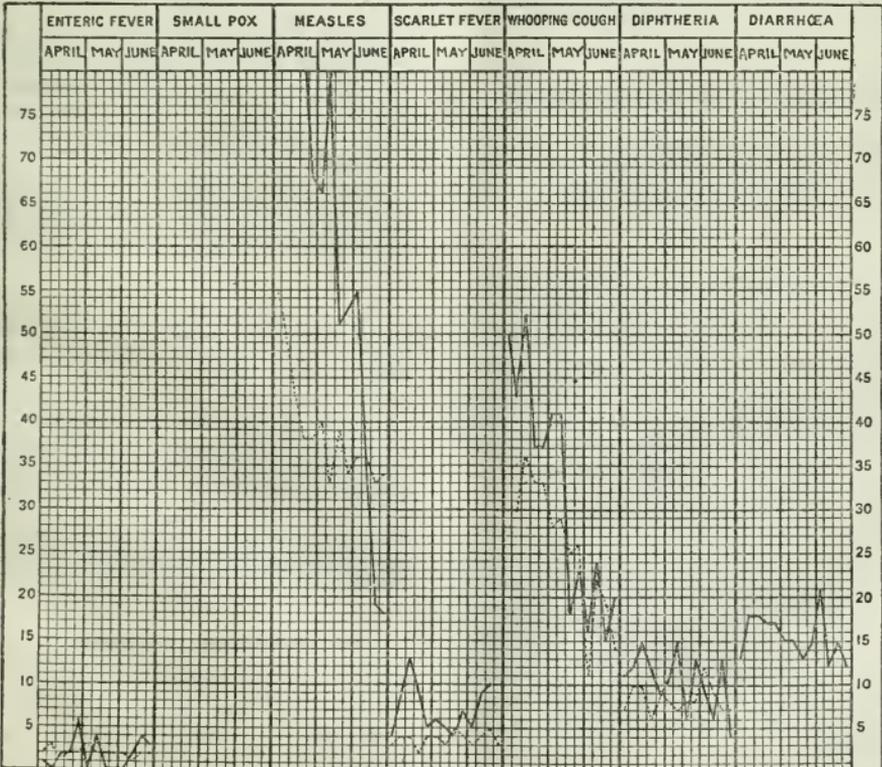
Diarrhoea.—The 201 deaths under this heading are those attributed to diarrhoea and enteritis among children under 2 years of age; measured in proportion to the births registered during the quarter, the mortality from this cause was greatest in Paddington, Kensington, the City of Westminster, Stoke Newington, Bethnal Green, and Poplar.

In conclusion, it may be stated that the aggregate mortality last quarter from these epidemic diseases, excluding diarrhoea, was 57.1 per cent. above the average.

HEALTH OF ENGLISH TOWNS.

In the ninety-six largest English towns 7,454 births and 4,785 deaths were registered during the week ended Saturday, September 18th. The annual rate of mortality in these towns, which had been 12.5, 12.1, and 14.0 per 1,000 in the three preceding weeks, fell to 13.8 per 1,000 in the week under notice. In London the death-rate was equal to 14.7, while among the ninety-five other large towns it ranged from 5.8 in Southampton, 5.9 in Tynemouth, 6.7 in Bourne-mouth, 6.8 in Darlington, 8.0 in Tottenham, and 8.5 in Beole, to 17.2 in Great Yarmouth and in Hull, 17.7 in Ipswich, 19.0 in Sheffield, 19.3 in Dewsbury, 20.3 in Bursley, and 23.2 in Gateshead. Measles caused a death-rate of 3.5 in Lincoln, and whooping-cough of 1.1 in Birkenhead and 2.2 in Edmonton. The deaths of children (under 2 years) from diarrhoea and enteritis, which had been 495, 595, and 664 in the three preceding weeks, fell to 638, and included 171 in London, 36 in Birmingham, 36 in Liverpool, 33 in Sheffield, 27 in Manchester, and 22 in Gateshead. The mortality from the remaining infective diseases showed no marked excess in any of the large towns, and no fatal case of small-pox.

DEATHS FROM EPIDEMIC DISEASES IN LONDON DURING THE SECOND QUARTER OF 1915.



NOTE.—The black lines show the recorded number of deaths from each disease during each week of the quarter. The dotted lines show the average number of deaths in the corresponding weeks of the five preceding years, 1909-14. Under the heading "Diarrhoea" are given the deaths from diarrhoea and enteritis among children under 2 years of age; the corrected average number of these deaths is not available.

registered during the week. The causes of 36, or 0.8 per cent. of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number, 11 were recorded in Birmingham, 4 in London, and 2 each in Liverpool, St. Helens, and South Shields. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,360, 2,365, and 2,443 at the end of the three preceding weeks, further rose to 2,550 on Saturday, September 18th; 429 new cases were admitted during the week, against 315, 365, and 385 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 955 births and 629 deaths were registered during the week ended Saturday, September 11th. The annual rate of mortality in these towns, which had been 13.3, 13.5, and 12.2 per 1,000 in the three preceding weeks, rose to 16.0 per 1,000 in the week under notice, and was equal to the death-rate recorded in the ninety-six large English towns. Among the several towns the death-rate ranged from 7.1 in Kilmarnock, 7.4 in Perth, and 8.4 in Leith, to 15.2 in Clydebank, 16.7 in Greenock, and 16.8 in Dundee and in Aberdeen. The mortality from the principal infective diseases averaged 2.0 per 1,000, and was highest in Aberdeen and Dundee. The 229 deaths from all causes in Glasgow included 29 from infantile diarrhoea, 5 from diphtheria, 5 from measles, 3 from scarlet fever, 2 from enteric fever, and 2 from whooping cough. Five deaths from measles were recorded in Edinburgh and 2 in Paisley; from enteric fever, 3 deaths in Dundee; from scarlet fever, 6 deaths in Aberdeen; from diphtheria, 5 deaths in Edinburgh and 2 in Aberdeen; and from infantile diarrhoea, 8 deaths in Dundee.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, September 4th, 586 births and 368 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 563 births and 388 deaths in the preceding period. These deaths represent a mortality of 15.8 per 1,000 of the aggregate population in the districts in question, as against 14.5 per 1,000 in the previous period. The mortality in these Irish areas was therefore 3.7 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 25.2 per 1,000 of population. As for mortality of individual localities, that in the Dublin registration area was 16.5 (as against an average of 15.1 for the previous four weeks), in Dublin city 18.3 (as against 16.0), in Belfast 15.4 (as against 12.9), in Cork 15.6 (as against 15.1), in Londonderry 29.1 (as against 19.0), in Belfast 19.8 (as against 13.6), and in Waterford 15.0 (as against 17.1). The zymotic death-rate was 2.8, as against 2.2 in the previous period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notices re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £350 per annum.

BRIGHTON: ROYAL SUSSEX COUNTY HOSPITAL.—(1) Senior House-Surgeon, (2) Junior House-Surgeon, (3) Assistant House-Surgeon. Salary for (1), £440, and for (2) and (3) £300 per annum, together with war bonus of £50 per annum in each case.

Bristol ROYAL INFIRMARY.—(1) House-Physician, (2) House-Surgeon, (3) Dental House-Surgeon. Salary, £420 per annum in each case.

CANTERBURY MENTAL HOSPITAL.—Licutenant Assistant Medical Officer. Salary, £75, a week.

CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £140 per annum.

CITY OF NORWICH.—Assistant School Medical Officer. Salary, £400 per annum.

DARLINGTON HOSPITAL AND DISPENSARY.—House-Surgeon. Salary, £160 per annum.

DUNDEE COMBINATION POOR HOUSE AND HOSPITAL.—Resident Medical Officer. Salary, £225, rising to £300 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Clinical Assistant in Out-patients.

GREAT YARMOUTH HOSPITAL.—House-Surgeon (male). Salary, £200 per annum.

HABROGATE INFIRMARY.—Resident House-Surgeon. Salary, £100 per annum.

HUNDESFIELD ROYAL INFIRMARY.—Assistant House-Surgeon (male or female). Salary, £100 per annum.

INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—House-Surgeon. Salary, £150 per annum.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—Two Lady Resident Surgeons. Salary, £120 per annum.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—(1) Resident Medical Officer, (2) Assistant Resident Medical Officer. Salary for (1) £200 per annum, and for (2) £120 per annum.

LONDON THROAT HOSPITAL, Great Portland Street, W.—Honorary Anaesthetist.

LEDS PUBLIC DISPENSARY.—Resident Medical Officer (lady). Salary, £130 per annum.

MANCHESTER ROYAL INFIRMARY.—(1) Honorary Pathologist, (2) Resident Surgical Officer; salary, £150 per annum and £75 per annum war bonus.

MIDDLESEX HOSPITAL MEDICAL SCHOOL.—Lecturer in Anatomy.

NEWCASTLE-UPON-TYNE POOR LAW INFIRMARY.—Assistant Medical Officer. Salary, £200 per annum.

PARISH OF TYNEMOUTH HOSPITAL.—Medical Officer.

PORTSMOUTH: ROYAL PORTSMOUTH HOSPITAL.—House-Surgeon. Salary, £150 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—District Resident Medical Officer. Salary, £60 per annum.

RHONDDA URBAN DISTRICT COUNCIL.—Temporary Assistant Medical Officer of Health and School Medical Officer. Salary, £50 per annum.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Examiner in Dental Surgery.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—(1) Pathologist and Director of Pathological Studies in the London (R.F.H.) School of Medicine for Women; salary, £400 per annum. (2) Resident Medical Officer (male) to the Military Block.

ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.C.—Two Refraction Assistants. Salary, £50 per annum.

ST. PAUL'S HOSPITAL FOR SKIN AND URINARY DISEASES, Red Lion Square, W.C.—Casualty Out-patient Surgeon.

SALFORD ROYAL HOSPITAL.—(1) Junior House-Surgeon, (2) Casualty House-Surgeon. Salary, £100 per annum each.

SHEFFIELD ROYAL INFIRMARY.—House-Surgeon. Salary, £100 per annum.

SOUTHWARK UNION.—Temporary Assistant Medical Superintendent. Salary, £300 per annum.

STORTHESS HALL ASYLUM, Kirkburton.—Licutenant. Salary, £60 per annum.

TOXTETH PARK TOWNSHIP.—Assistant Resident Medical Officer of the Poor Law Institution and Infirmary. Salary, £300 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

WEST DERBY UNION.—Temporary Assistant Resident Medical Officer at the Mill Road Infirmary, Liverpool. Salary, £300 per annum.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—(1) Resident Medical Officer, (2) House-Physician and House-Surgeons. Salary for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.

WESTMORLAND SANATORIUM, Meathop.—Second Assistant to the Medical Superintendent. Salary, £200 per annum.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—Resident House-Surgeon. Salary, £150 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £150 per annum.

WINSLEY SANATORIUM FOR CONSUMPTION, near Bath.—Assistant Resident Medical Officer. Salary, £250 per annum.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer (male or female). Salary, £150 per annum.

YORK COUNTY HOSPITAL.—Resident Medical Officer (male or female). Salary, £150 per annum.

CERTIFYING FACTORY SURGEON.—The Chief Inspector of Factories announces the following vacant appointment: Abouze (Aberdeenshire).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

SOLOMON, H. E.R.C.P. and S.Edin., L.F.P.S.Glas. District Medical Officer of the Leicester Parish.

WILLIAMS, H. O. M.B., B.S. Lond., Certifying Factory Surgeon for the Milford Haven District, co. Pembroke.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGE.

PORTER—ROBERTSON.—At Beechgrove United Free Church, Aberdeen, on September 16th, by the Very Rev. the Principal and Vicar-Chancellor of the University of Aberdeen, Lieutenant R. M. Porter, Indian Medical Service, to Elizabeth Garvie, daughter of A. B. Robertson, Esq., J.P., 6, Moray Place, Aberdeen.

DIARY OF THE ASSOCIATION.

Date. Meetings to be held.

OCTOBER.

6 Wed. London: War Emergency Committee, 2 p.m.
8 Fri. London: Central Ethical Committee, 2 p.m.
13 Wed. London: Medico-Political Committee.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, OCTOBER 2ND, 1915.

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THE RETURN TO MEDICAL BENEFIT OF SOLDIERS AND SAILORS.

THE enlistment of large numbers of insured persons has naturally caused insurance practitioners to feel a good deal of interest in the administrative steps to be taken on the return of these persons to civil life. When they enlist they are removed from the lists of the doctors, and during their period of service in the navy or army medical attendance and maintenance is found for them, and they fall out of all the National Insurance benefits, except maternity benefit. On their return they are entitled to select a doctor just as though they had newly entered into insurance. Now this right of fresh choice, unless guarded in some way, is certain to lead to confusion, judging from the experience every one concerned in the working of the Act has had of the extreme difficulty of getting many insured persons to take the trouble necessary to place their name on a doctor's list. The Insurance Acts Committee of the Association came to the conclusion in March, 1915, that some arrangement ought to be made to allow these returned soldiers and sailors to be replaced immediately on the lists of the doctors formerly selected by them, without prejudice to their right to change their doctors or to the right of the doctors to refuse to accept them again. The Conference of Local Medical and Panel Committees approved this suggestion and endorsed the procedure devised by the Renfrewshire Insurance Committee. Full particulars of this scheme are now available, and it will be seen that the procedure is simple and very convenient.

As the Commissioners informed the deputation from the Insurance Acts Committee that they would acquiesce in any suitable arrangements set up in any area to meet the difficulty, which they fully recognized, there can be no excuse for any Insurance Committee raising difficulties as we are informed some of them are doing.

The scheme, for the details of which we are indebted to Mr. E. D. Anderson, B.L., Deputy Clerk, Renfrewshire Insurance Committee, who was the author of it, is as follows:

John Smith, a member of an approved society, joins the army, and is on the list of Dr. Blank. His society sends an orange slip to the Insurance Committee announcing his enlistment. The ordinary white index slip is thereupon removed from the Committee's Register, and the orange slip substituted. Smith's name is removed from Dr. Blank's list, but Dr. Blank's name is noted on the orange slip. When Smith returns to civil life his society will send to the Committee another white index slip reinstating him in insurance, the orange slip will be destroyed, and the white slip substituted. At the same time a medical

card will be issued to Smith, bearing Dr. Blank's name. Along with the card Letter A will be sent, and to Dr. Blank Letter B will be sent along with a slip bearing Smith's name for insertion on the doctor's list.

RENFREWSHIRE INSURANCE COMMITTEE,
Letter A.

Dear Sir,

I enclose a medical card bearing the name of your former doctor. I have to explain that, although the card is issued for convenience in this form, you may, if you please, make selection of another practitioner than the one named.

If you do not desire to be restored to the list of your former doctor, you should take the medical card along with this letter to the doctor whom you wish to select. If he accepts you, he will sign the card at Part B, and send it to this office.

If you are satisfied to remain upon the list of your former doctor, you will simply retain this card. Nothing further is required.

Yours faithfully,

.....
Clerk.

RENFREWSHIRE INSURANCE COMMITTEE,
Letter B.

Dear Sir,

The enclosed slips represent insured persons now discharged from military service who were formerly upon your list, and are now restored to it automatically by virtue of the arrangement to this effect entered into between the Insurance Committee and the panel practitioners in this area.

The automatic restoration is without prejudice to your right to reject any of the restored persons if you so desire. If you wish to exercise your right of rejection in any case you should return to this office the slip marked "Rejected."

Yours faithfully,

.....
Clerk.

EXCESSIVE COST OF PRESCRIBING.

A CASE was heard recently, by direction of the Insurance Commissioners for England, in which Dr. X. appealed to them against the action of the Insurance Committee, which, exercising powers under Article 40 of the Insurance (Medical Benefit) Regulations (England), 1913, had deducted the sum of £77 6s. 10d. from the amount payable to Dr. X., the Committee being of opinion that an excessive demand upon the Drug Fund had arisen owing to orders given by Dr. X. having been extravagant in character or in quantity during a certain half-year. Dr. X. was represented by counsel, and the Insurance Committee by its clerk. Evidence was given by Dr. X., by the clerk to the Insurance Committee, and by the Honorary Secretary of the Panel Committee, and by the Chairman of the Medical Benefit Subcommittee.

It appeared that the Insurance Committee, the Panel Committee, and the Pharmaceutical Committee had caused the prescriptions given in the area to be checked and had found that the prescriptions of Dr. X. exceeded the average price of all doctors by 22.02d. per insured person for the half-year, showing on the basis of the number of prescriptions issued an excess of 16.14d. per prescription. At the instance of the Pharmaceutical Committee the matter was considered by the Panel Committee, which, after hearing Dr. X., had reported to the Insurance Committee that his prescriptions had been extravagant and unnecessary in frequency. Though no method had been laid down by any authority for estimating such excess, the Panel Committee expressed the opinion that 25 per cent. of the cost of the whole of Dr. X.'s prescriptions (£205 19s. 8d.) for the period named was an arbitrary but fair estimate. The Medical Benefit Subcommittee recommended the Insurance Committee to concur in the Panel Committee's view, and the Committee did so concur.

After the Commissioners had heard and reviewed the evidence, they expressed the opinion that the Insurance Committee was justified in holding that orders for drugs given by Dr. X. had been extravagant in character and in quantity, that an excessive demand on the Drug Fund had consequently arisen, and that the Committee was therefore justified in making a deduction from the amount payable to him. The decision went on to say that had evidence been given to satisfy the Commissioners that the amount of the excessive demand was as estimated, they might not have been disposed to revise the amount, being of opinion that, *ceteris paribus*, the deduction should bear some relation to the extent of the extravagance; but having regard to the fact that Dr. X.'s prescribing had shown a general profuseness very difficult to bring to a precise measurement in money, and to the consideration that the provision for a deduction was largely intended to act as a deterrent, the Commissioners reduced the amount of the deduction to £25.

Counsel for Dr. X. contended that the Insurance Committee had no power to delegate to its Subcommittee, the Medical (Benefit) Subcommittee, the consideration of the report of the Panel Committee, on the ground that the regulations of 1912 empowering it to appoint a subcommittee and to delegate to any subcommittee any of the powers and duties of the Committee could not extend to duties imposed upon an Insurance Committee by regulations subsequently issued. The Commissioners considered that there was no substance in this objection, since by virtue of Section 65 of the Act of 1911 all regulations made under that Act were to have effect as if enacted in that Act. All the regulations, therefore, must be read together, and the power of delegating duties to subcommittees extended to duties imposed on Insurance Committees by any regulations whenever made, unless a contrary intention was clearly expressed in the particular regulations imposing the duty in question.

DEBILITY AS A DIAGNOSIS.

THE OPINIONS OF TWO JUDGES, A FRIENDLY SOCIETY, AND THE COMMISSIONERS.

In commenting on the Memorandum on the new system of medical certification of incapacity of insured persons for work (Memo. 211/L.C.), issued by the Insurance Commissioners on December 11th, 1914, "for the information of medical practitioners and approved societies," it was said that in all probability many points other than those dealt with in our comments then published would present themselves when the system had been in operation for a time. Such a difficulty had in fact already arisen with regard to the use of the word "debility" in medical certificates.

In the memorandum, paragraph 50, the Commissioners express their opinion that "recognition of the fact that diagnosis of a patient's illness in the early stages cannot always be definite will not excuse or justify a doctor in using, then or at any stage, terms less precise than his knowledge of the case enables him to give." This expression of opinion was qualified by the statement that in exceptional cases the full diagnosis need not be given on the face of the certificate, such cases being those in which unjustifiable distress or injury would be caused by giving

the information either to the patient or other parties! Provision was made that in such circumstances the doctor, on the certificate handed to the patient, might describe the disease in less precise terms than his knowledge would enable him to use, but must send to the society notice on a special form that he had given such certificate, and to the Government referee, or, if there were no such person, to the Commissioners, on another form a precise statement of the true nature of the disease and his reasons for not stating it on his certificate.

The difficulty to which attention is now drawn has, however, nothing to do with these exceptional cases. It consists in the desire of some practitioners to use merely the term "debility"; upon this matter the memorandum says

If . . . first certificates only are considered, there can be but few cases in which a doctor is warranted in declaring a patient to be incapable of work, and yet is unable to ascertain some further facts as to the nature of the illness than are conveyed by such a vague term as "debility" standing alone. . . . For instance, a doctor can certainly be expected in such a case to state, where he so finds, "debility with anaemia," or "debility with high temperature," or "debility with dyspepsia," and similarly in other conditions.

A correspondent who recently raised the point with the Commissioners informs us that he has received a letter from them pointing out "that medical certificates are intended to give information to officials of approved societies and other persons who, without technical knowledge, have to decide whether the condition of an insured person is such as to entitle him to benefit, and who are accordingly justified in requiring as much precision as possible in the certificate." The Commissioners go on to decline to discuss questions which may in a particular case come before them in a judicial capacity, but refer the correspondent to Case xxiv in the Report of Decisions of Appeals under Section 67 of the Insurance Act, 1911.

Two parts of these reports have been published.¹ They have been issued, the Commissioners state, because it was thought desirable "that the decisions which have been given in the various cases which have arisen under Section 67 of the Act should be published *in extenso* for the information generally of societies and others interested in the administration of the Act." As the cases are "invariably heard in private and often involve questions of an intimate and delicate nature, the Commissioners were of opinion that the names of the parties and societies concerned, or any information which would enable them to be identified, ought not to be published." The decisions deal with a large number of questions, and come down to July 3rd, 1915.

In Case xxiv, which antedated the Memorandum 211/L.C., the doctor attending an insured woman had declined to respond to the request of the society that he should further define a certificate to the effect that she was incapable of work by reason of "debility." The society refused to pay sickness benefit, and the insured person obtained a judgement in the County Court against the society for 15s. 6d. The society appealed on the ground that the jurisdiction of the county court was ousted by Section 67 (1) of the Act and the society's "Disputes" Rule, and the Divisional Court allowed the appeal. One of the judges of the Divisional Court, in the course of his judgement, said:

If it appeared that the society, under the false guise of a decision that the evidence was insufficient, were really excluding a class of ailment which ought to be included, I think that upon well-known principles their action could be challenged. But have the society in this case done anything of that kind? I think they have not. They are to decide whether a person is suffering from a specific disease or bodily or mental disablement. They are to decide whether such and such information is sufficient to prove a specific disease or bodily or mental disablement. . . . In this case it is perfectly plain that whether they decided rightly or wrongly they decided a matter within their jurisdiction. . . . The question whether a state of ill health, as described, shows sickness coming within the Act and rules is the very thing left for them to decide.

This decided the legal question, but gave no help towards solving what may by courtesy be called "the scientific" question. The insured woman then went to the general delegates' meeting of the society, who dismissed her appeal, and she then appealed to the Commissioners, the case being heard by referees appointed by the Commissioners. The society treated the case as one raising a

¹ Part I. (Cd. 7810), price 4d.; Part II. (Cd. 8040), price 3d. To be obtained through any bookseller.

question of principle and did not suggest that the insured woman had put forward a dishonest claim. The referees found that the society was justified in the action it took and suggested that if the society felt that the principle for which it had contended was established, it might be willing to adopt a generous attitude towards the appellant; this suggestion was adopted. The referees did not make a final award, but gave the following reasons for holding that the society was justified in the course it originally took.

By Section 8 (1) (c) of the Act, an insured person who is rendered incapable of work by some specific disease or by bodily or mental disablement is entitled to sickness benefit. By Section 14 (2) societies may, with the consent of the Commissioners, make rules with regard (*inter alia*) to notices and proof of disease or disablement. Before a member can obtain benefit, therefore, he must give such notice and proof of his disease or disablement as the rules of his society require. In the present case the society's rules provide that a member must send to the local secretary a medical certificate or other sufficient evidence of incapacity and cause thereof. It is for the society to decide, as the judge of the Divisional Court (whose judgment has been referred to) probably be, whether the evidence tendered is in their judgment sufficient to prove a specific disease or bodily or mental disablement. They must, it need hardly be said, apply their minds to a consideration of this question in a reasonable way. If, for example, a medical certificate stated that the member was incapacitated because he was suffering from small-pox or because he had just been operated upon for appendicitis, it would probably be unreasonable to require further evidence. But where the cause of the incapacity is described in terms which, from the layman's point of view, may reasonably be regarded as ambiguous or wanting in precision, a society is in our opinion entitled, if not bound, to seek for further information in order that they may satisfy themselves that the title to benefit is a good one, and that the doctor operating in such circumstances to afford all the help in his power. The committee of a society does not profess to have expert medical knowledge; it must rely upon the assistance of those who have; but it has to make up its own mind and is under no obligation blindly to accept, as conclusive evidence of incapacity, a medical formula which it does not understand.

Here again we have the case decided on the legal point and it was after this that the Commissioners embarked on their attempt to deal with what we have called the scientific aspect of the matter, with the result to be found in Memo. 211 (I.C.) noted above.

It may be confessed that there seems here a mighty piper about a small matter. One can see the pedantic official making himself officious and a tired doctor irritated by pinpricks. A reasonable amount of tact would have saved the expenditure of the time of the courts and some public money. The Commissioners have not ventured to tell the officials of the friendly societies that they ought to accept the doctor's certificate that the insured person is incapacitated from work; they might have pointed out that, apart from any question of integrity, it is not to the interest of a doctor working under a contract with an Insurance Committee to add to the number of sick among the insured persons on his list. This would be the common-sense view; but at the same time it must be admitted that "debility" is not a satisfactory diagnosis. It is, as practical men know, sometimes the only diagnosis that can honestly be given; but there is, nevertheless, a lack of precision about it which the doctor who has to make it must lament as much as the Commissioners who have to adjudicate on it. A certain amount of sympathy cannot be denied also to the official who thought that debility was an effect and not a cause. He might, however, have reflected that this finding out of causes is a matter which has troubled mankind for a long time, and might have recalled—but perhaps he does not give his leisure to the Georgics—that the difficulty had wrung from Virgil the well-known exclamation:

Felix qui potuit rerum cognoscere causas!

Happy indeed is he who understands the causes of things, but if we set to work to analyse medical terminology in this meticulous fashion we shall only arrive at the foregone conclusion that medicine is not one of the exact sciences. Whether it will really be helped to become more exact by such authorized diagnoses as "debility with anaemia" or "with high temperature" we cannot now stay to consider, but clearly anaemia and high temperature are effects and not causes. So that we are brought back to the position from which we started—namely, that there is no way of going behind the doctor's certificate and preserving our common sense, and that there has been a

great potter about a very little thing. Somebody, however, said that life was made up of little things; this was before the war.

THE WAR EMERGENCY.

AN APPEAL TO THE PUBLIC.

The following letter, signed by the Chairman, by Sir William Osler, Sir Clifford Allbutt, the President of the Royal College of Physicians of London, Sir Rickman Godlee (ex-President of the Royal College of Surgeons of England), Sir Alexander Ogston (President of the British Medical Association), and other members of the War Emergency Committee, has been issued to the daily press and has been inserted in some newspapers:

Sir,

May we be allowed, through the medium of your columns, to call the attention of the public to the need for its sympathy and assistance in setting free medical practitioners for service with the Forces? The shortage of commissioned medical officers is a serious matter for our new armies; and this shortage can only be made good by releasing medical practitioners from civil life. These men are dependent on their practices for their livelihood. At the call of duty they go to assist in saving the lives and relieving the sufferings of their countrymen, and in so doing they risk not only death and injury but also the loss of their means of livelihood on their return.

While recognizing the right of every person to consult any doctor he chooses, we appeal to all British citizens not to give up their usual medical attendant on account of his temporary absence on military duty, and to insured persons we appeal not to apply for transfer. In all cases it should be regarded as an obligation and patriotic duty to safeguard in every possible manner the interest of the doctors who volunteer for active service. Every medical man who leaves his practice has either appointed a locum tenent to carry on his work, or has arranged with neighbouring practitioners to attend his patients while he is away.

We hope that patients will inform the practitioner they may consult that their own doctor is absent on military service, and that they intend to place themselves again under his care whenever the need arises after his return.

The medical men who remain are willingly attending the patients of those on service on the distinct understanding that they shall not be asked to continue to do so after the war. The public will assist these men greatly to fulfil this honourable understanding if it will observe the lines of conduct we have indicated.

The *Leicester Mail*, in commenting upon this letter, has the following observation:

"Every person has a right to consult any doctor he chooses, and I will accept no dictation," may be the hasty retort of some selfish or thoughtless person. The right is not denied, but there are some things which, though lawful, are not expedient. The present conditions are quite abnormal, and they involve moral responsibilities which no one now alive has ever previously been called upon to accept. The medical men who are remaining at home have willingly and notly shouldered the burden of extra work, on the distinct understanding that the arrangement is a temporary one and, as the British Medical Association says, the public will assist these men to fulfil this honourable understanding if they observe the lines of conduct here indicated. It is well to have this frank and full explanation of the situation, and we cannot doubt that the arrangement suggested will prove a workable one.

SALFORD WAR EMERGENCY COMMITTEE.

A meeting of the Executive Committee of the Salford Division of the British Medical Association was held last week, Dr. J. H. Taylor in the chair, to consider the formation of a Local War Emergency Committee. A number of practitioners who are not members of the Association were also invited to be present. It was stated that eight Salford practitioners were already away on active service, and that to fill up the number that Salford ought to supply in order to meet the demands of the war authorities at least eight more ought to enlist. A Local Emergency Committee was at once formed, and as it is already known that at least six practitioners have notified their intention to offer their services, there will be very little delay in

providing Salford's full proportion, and probably even more.

Manchester has already sent a large number of doctors to the war, some of whom have greatly distinguished themselves on the field, but if one out of every three medical men of military age is required, it will be necessary for about forty more to enlist. The difficulty of releasing so large a number from their work in the city will be considerable, but it, it is confidently believed, be surmounted, though it will entail no little sacrifice on both those who go and those who remain at home.

PROPOSED DUTY-FREE ALCOHOL IN HOSPITALS.

On June 24th the Medical Secretary of the British Medical Association addressed a letter to the Chancellor of the Exchequer criticizing the form of the clause proposed to be inserted by the Government in Finance (No. 2) Bill to authorize the use of duty-free spirits in hospitals in the preparation of tinctures, etc., and on June 28th the Association, acting with the Pharmaceutical Society of Great Britain, addressed a communication to certain members of Parliament, asking them to support the proposal that the clause should be dropped, and that the whole question of the use of duty-free alcohol in medicine should be referred to a special committee for consideration and report. The clause was withdrawn, and subsequently Mr. W. C. Bridgeman, M.P., one of the Lords of the Treasury who had introduced the clause, met a deputation from the British Medical Association and the Pharmaceutical Society. As the result of the discussion, Mr. Bridgeman agreed to draft an amended clause so as to give a grant based on the amount of alcohol used in medicine during the past year, and not, as was formerly proposed, on the actual amount consumed in any given year, to such hospitals as complied with certain requirements, and to submit the draft to the two associations for consideration and comment. A new subclause has now been agreed with Mr. Bridgeman, and Dr. Alfred Cox and Mr. W. J. Uglow Woolcock have notified those members of Parliament formerly approached on the subject that the opposition of the two associations they represent has been withdrawn. The draft now subclause is as follows:

(1) If the treasurer or other responsible officer of a public hospital shows to the satisfaction of the Treasury that any tinctures or other articles which contain spirits or in the preparation or manufacture of which spirits are used have within the twelve months preceding the thirty-first day of July nineteen hundred and fifteen been consumed for medical purposes in the hospital, the Treasury may, subject to such conditions and regulations as they may prescribe, pay to the treasurer or officer out of moneys provided by Parliament an allowance equal to the amount which is shown to their satisfaction to have been paid by way of duty in respect of the spirits contained in or used in the preparation or manufacture of those articles.

(2) The Treasury shall constitute an advisory committee for the purposes of this section, and may refer to the committee any application for payment under this section or any question arising as to any such payment.

(3) If any person for the purpose of obtaining any payment under the foregoing provisions knowingly makes any false statement or false representation he shall be liable on summary conviction to imprisonment, with or without hard labour, for a term not exceeding six months.

(4) For the purposes of this section the expression "public hospital" means a hospital supported by any public authority or wholly or partly out of any public or charitable funds or by voluntary contributions, but does not include any institution carried on for the purposes of gain.

INSURANCE COMMITTEES.

COUNTY OF LONDON.

Finance and Sanatorium Benefit.

At the meeting of the London Insurance Committee on September 23rd it was stated that its financial system was in some danger of breaking down, and, after discussion, it was resolved, on the motion of Mr. Handel Booth, that a deputation, headed by the chairman of the Committee, should wait upon the Insurance Commissioners to discuss the subject. An addendum that the same deputation should also seek out the Chancellor of the Exchequer,

whose budget proposals were expected to involve the Committee in an additional expenditure of £3,000 a year, was negative.

The matter which brought the financial question to a head was the deficit likely to arise in the sanatorium benefit fund by the end of the year. The commitments in respect of sanatorium benefit cannot immediately be reduced, but it was promised that the whole question of revising the expenditure would be brought up for consideration. It was agreed to augment the income available for sanatorium benefit on this occasion only by transferring £2,000 from the general purposes fund, thereby, however, seriously depleting the funds available for ordinary administration.

Dispensary Treatment of Tuberculosis.

The question of the arrangements to be made with the borough councils with regard to dispensary treatment of insured persons suffering from tuberculosis was referred back at the previous meeting, owing to the absence of information as to the grounds on which the Local Government Board had arrived at the figure (£9,300) stipulated as the Committee's contribution for this purpose. Mr. R. W. Maffrey, the chairman of the Sanatorium Benefit Subcommittee, now gave full details furnished by the board, and the amount was accepted as reasonable. Wherever possible, the arrangements with the borough councils come into operation on October 1st.

Number of Deposit Contributors.

Mr. James Skinner, chairman of the General Purposes Subcommittee, announced the number of deposit contributors in London in this and preceding years to be as follows:

July, 1915	60,099
July, 1914	64,874
July, 1913	73,744

There has thus been a decrease of 13,445 in two years.

LOCAL MEDICAL AND PANEL COMMITTEES.

LONDON.

PANEL COMMITTEE.

The Proposed Commercial Drug Tariff.

A LONG discussion took place at the meeting of the London Panel Committee on September 28th with regard to the changes in medical benefit regulations which would follow upon the placing of the drug tariff upon a commercial basis. The General Purposes Subcommittee reported that the anomalies of the present drug tariff were so extraordinary and unjust, and that the advantages of a commercial tariff were so great, that the profession should hesitate to take any action which might lead to a continuance of the present tariff. At the same time it would be ill-advised to abrogate the principle that no portion of the drug fund should ever be chargeable to the practitioners' fund. The report crystallized into the following recommendations:

(a) That the medical profession should oppose any proposed alteration in the Medical Benefit Regulations which may provide for the chemists' bills being paid in full, and for the Drug Fund being made a first charge upon the Medical Benefit Fund, without the provision of a special fund to meet any excess in the cost of drugs beyond 2s. per insured person.

(b) That, in view of the differences which exist in the incidence of sickness in various parts of the country, it is inequitable that each local Drug Fund should consist of 2s. per head of the insured population.

(c) That a differentiation in the amount of the Drug Funds of the various areas might well be secured by the award of special grants to necessitous areas from a Central Fund made up of the whole or a portion of the amounts by which the cost of drugs in any area may fall below 1s. 6d. per insured person.

(d) That control over any tendency towards excessive prescribing by practitioners should not be secured by an automatic surcharge of every practitioner, the total cost of whose prescriptions exceeds a fixed amount per insured person, with or without some form of relief in special cases, but by continuous scrutiny by the Panel Committee of the prescriptions issued, and by surcharge on the present basis of practitioners prescribing extravagantly, with the elimination, however, of the interest therein of the Pharmaceutical Committee.

Dr. H. G. Cowie moved an amendment that "practices" be substituted for "areas" in Recommendation (c). For a

practitioner with 1,000 insured persons on his list, the sum of £75 for drugs appeared quite reasonable; if the drug expenditure was in excess of this the practitioner should not necessarily be penalized, and even if it were in excess of £100, which would represent the full 2s. per head, while a case for inquiry as to surcharge might arise, the practitioner on showing that the money had been reasonably spent should be refunded from the central fund for anything above the £75 limit. Dr. Cowie supported the idea of a central fund, which, as it accumulated, he thought, might ultimately be used for extra benefits for the insured person, including perhaps dentistry, surgical appliances, and the advice of consultants. The amendment, after further discussion, was withdrawn by consent, and eventually the original recommendation was adopted by 32 votes to 2.

A report from the Pharmacy Subcommittee asked the Panel Committee to inquire into the charges on this score made against London practitioners, and suggested that periodically, perhaps once a quarter, each practitioner should be informed of the cost of the drugs he had ordered.

The Effect of the War on Insurance Practice.

It was stated that consequent upon the removal from their lists of men serving with His Majesty's Forces practitioners on the panel were only receiving 70 per cent. of the income to which ordinarily they would be entitled, while in many cases their work was equal in amount to that performed before the war. The removals, of course, represented some of the best lives, which were unlikely to have been any serious charge upon the services of practitioners for many years to come. It was agreed that the Chancellor of the Exchequer, the Chairman of the Joint Committee, the Insurance Commissioners, and the Insurance Committee should be made acquainted with the panel practitioners' point of view.

Subsequently the following resolution, moved by Dr. P. T. GOODMAN, was adopted:

That, inasmuch as the incomes of practitioners on the panel have been seriously depleted by the reductions in the amounts paid to them half-quarterly in advance, the Panel Committee regard the long delay in effecting a settlement in connexion with the 1914 accounts as most unsatisfactory and urge the Insurance Commissioners and the London Insurance Committee to expedite the payment of the money so long overdue; and that the Insurance Commissioners and the Insurance Committee be so informed.

COUNTY OF SURREY.

PANEL COMMITTEE.

The monthly meeting of the County of Surrey Panel Committee was held at Surbiton Cottage Hospital on September 17th, when Dr. LANKESTER was in the chair.

Expenses of Pharmaceutical Committee.—It was reported that the Insurance Commissioners had granted up to £80, plus the third share of the cost of checking prescriptions, as the expenses of the Pharmaceutical Committee to be deducted from the Drug Fund.

Nurses acting as Sick Visitors.—A letter was read from the British Medical Association, dated August 7th, stating that it had again drawn the attention of the Queen Victoria Jubilee Institute for Nurses to the undesirability of nurses acting as sick visitors.

"Own Arrangements."—In reply to an inquiry, it was decided that the County Committee was within its rights in not allowing an insured person to "make his own arrangements" with a practitioner on the panel.

Proposed Commercial Drug Tariff.—The memorandum by the Insurance Acts Committee (SUPPLEMENT, September 11th, p. 117) was considered and replies agreed upon.

LOCAL MEDICAL COMMITTEE.

The twenty-fifth meeting of the County of Surrey Local Medical Committee was held on the same day and with the same chairman.

Range of Medical Service.—The CHAIRMAN gave a report of the hearing before referees of a case which raised the question whether a practitioner on the panel was justified in making a charge for the excision of a portion of the lip of an insured person. The Committee, while of opinion that the practitioner should have performed the operation as part of medical benefit, considered that the removal of a malignant growth on the lip was not an operation to be undertaken by a practitioner "of ordinary competence and skill." A second case raised the point whether a practitioner on the panel was entitled to make a charge for the

estimation of refraction. The Committee informed the Insurance Committee that the examination was done, and had to be done, out of ordinary consulting-room hours, owing to the considerable time it took; that the great majority of practitioners were not competent to make such an examination; and that the patient in this case definitely consulted the practitioner with a view to his prescribing spectacles.

OXFORD.

PANEL COMMITTEE.

At a meeting on September 16th, when Dr. COUNSELL was in the chair, the drug tariff was discussed, and the SECRETARY reported the number of removals from each doctor's list due to enlistment. Great dissatisfaction was expressed that none of the money due towards the settlement for 1914 had yet been received, and that no information could be obtained in respect to this.

EAST SUFFOLK.

PANEL COMMITTEE.

Special Mileage Fund.—It was reported to a meeting of the East Suffolk Panel Committee at Saxmundham, on September 14th, when Dr. HELSHAM was in the chair, that the Insurance Joint Committee had increased to £220 the sum allocated to the East Suffolk Committee from the Special Mileage Fund for 1915. The Commissioners suggested that the committee should modify the terms of the mileage scheme in dividing the grant so that the rate of credit under Clause 3 might be increased relatively to that afforded under Clause 2. It was resolved to accept the increased grant, while regretting that the Commissioners had not granted in full the moderate claim that was put forward, and to adhere to the terms of the scheme in dividing the sum allocated.

Reinstatement of Persons discharged from the Army and Navy.—It was reported that the Insurance Committee had agreed to support the resolution of the Panel Committee with reference to the reinstatement of persons discharged from the army or navy on doctors' lists.

Proposed Commercial Drug Tariff.—The memorandum from the British Medical Association (SUPPLEMENT, September 11th, p. 117) with regard to the possible changes of Medical Benefit Regulations connected with the placing of the drug tariff on a commercial basis was considered and replies to the several questions prepared.

BIRMINGHAM.

PANEL COMMITTEE.

Excessive Prescribing.—At a meeting of the Committee on September 14th Dr. LYDALL presented the report of the Pharmacopoeia Subcommittee on the question of excessive prescribing during the year 1914. The report, among other things, drew special attention to the marked improvement noticeable in the figures for the first quarter of 1915, which gave promise of good results for this year.

Proposed Commercial Drug Tariff.—The Memorandum issued by the British Medical Association (SUPPLEMENT, September 11th, p. 117) was considered, and it was decided to advocate some revision of the drug tariff with automatic surcharging of those whose expenses exceeded 2s. per insured person, with continuous scrutiny of prescriptions.

WOLVERHAMPTON.

PANEL COMMITTEE.

A MEETING of the Wolverhampton Panel Committee was held on September 16th, when Dr. JOHNSON was in the chair.

Election of Officers.—The following officers for 1915-16 were unanimously elected:

Dr. T. C. CRAIG (Chairman), Dr. H. C. MAETLER (Honorary Secretary), Dr. J. A. WOLVERSON (Honorary Treasurer).

Finance.—The accounts, showing receipts of £60 16s. 8d., expenditure £23 6s. 6d., leaving a balance of £37 10s. 2d., were approved.

Proposed Commercial Drug Tariff.—The Memorandum of the British Medical Association on the possible changes in the Medical Benefit Regulations connected with the placing of the drug tariff on a commercial basis was discussed and the questions answered.

Checking of Prescriptions.—The report of the Wolverhampton Subcommittee of the Joint Checking Committee for the quarter ending March, 1915, was presented, showing

the average cost per script to be 7.72d. The individual averages ranged from 5.14d. to 13.7d. per script. The report was received, but since it had not been before the Joint Committee for its approval, it was not discussed.

DERBYSHIRE.

LOCAL MEDICAL AND PANEL COMMITTEES.

War Emergency.—At a meeting on September 2nd, when Dr. TOBIN was in the chair, the War Emergency arrangements were explained, and the Committee asked to help in obtaining signatures to the circulars which were being issued.

Payments to Panel Practitioners.—It was decided to send the following resolution to the Insurance Committee:

That this Committee is dissatisfied that the accounts for last year have not yet been settled, and protest against any further deductions being made from the money due, after taking the enlisted men from the panel lists.

At a meeting of the Derbyshire Panel Committee, held on September 23rd, when Dr. TOBIN was in the chair, it was decided to send the following resolution to the British Medical Association, the Insurance Committee, and the Commissioners:

That the Panel Committee strongly objects to the excessive deductions from the quarterly cheques, and, seeing that the payments for 1914 are still unpaid, therefore gives warning of the danger of a combined refusal of the doctors in the county of Derby to continue to work the Act.

NORTHAMPTONSHIRE.

PANEL COMMITTEE.

At a meeting held at Northampton on September 21st, when Dr. BAXTER was in the chair, it was reported that the Commissioners had continued the present membership of the Committee until July 15th, 1916, and had recognized the personnel of the Panel Committee as the Local Medical Committee for Northamptonshire until the same date.

Proposed Commercial Drug Tariff.—The Memorandum on the "Drug Tariff" issued to Local Medical and Panel Committees of the Insurance Acts Committee of the British Medical Association was considered, and it was decided to answer the first two questions in the affirmative, to dissent strongly from paragraph 13, and to agree to each insurance area being credited with an amount for drugs and appliances on the same basis, with continuous scrutiny and surcharging as at present.

SHROPSHIRE.

PANEL COMMITTEE.

A MEETING of the Shropshire Panel Committee was held at the Infirmary, Shrewsbury, on September 21st, when Dr. EXHAM was in the chair. The Memorandum of the Insurance Acts Committee (SUPPLEMENT, September 11th, p. 117), as to placing the drug tariff on a commercial basis, was considered and the questions answered.

BOLTON.

LOCAL MEDICAL AND PANEL COMMITTEE.

At a meeting held at the Bolton Infirmary on September 17th, when Sir THOMAS FLITCROFT was in the chair, it was decided not to accept the commercial tariff on the lines laid down in a memorandum from the Insurance Acts Committee on the possible changes of Medical Benefit Regulations connected with the placing of the drug tariff on a commercial basis, and the following resolutions were adopted:

That the Drug Fund be centralized, and that the areas where the fund is insufficient be assisted by those areas which have a surplus.

That the scrutiny of prescriptions be continued; and that the arrangement as in the Memorandum, par. 24 (b), be adopted.

WIGAN AND DISTRICT.

Proposed Commercial Drug Tariff.—A meeting of the panel practitioners of Wigan and Area 14 was held on September 14th to consider the proposed adoption of a commercial tariff for 1916. Dr. T. CAMPBELL (a member of the Insurance Acts Committee of the British Medical Association) gave a summary of the Association's memorandum on the question. The general opinion expressed during the ensuing discussion was that a revision of the present drug tariff was necessary on account of the high prices contained therein, but those present were not prepared to acquiesce in any arrangement whereby the fee due to practitioners for the attendance and treatment

of insured persons could be drawn upon to meet any excess in the cost of prescriptions, but considered that cases of extravagant prescribing should be dealt with under Section 40 of the Insurance Regulations, which empowered the Insurance Committee, on the recommendation of the Panel Committee, to surcharge any practitioner who prescribes excessively. It was ultimately resolved to agree to the adoption of a commercial tariff under the conditions that any excess of the cost of drugs and appliances over an average of 2s. per insured person would not be met by any call upon the Practitioners' Fund, and that that fund and the Drug Fund remained separate.

FIFESHIRE.

A COMBINED meeting of the Local Medical and Panel Committees was held at Kirkcaldy on September 16th, when there were present representative members from the Kirkcaldy and Dunfermline Panel Committees.

Drug Tariff.—The memorandum by the Insurance Acts Committee (SUPPLEMENT, September 11th, p. 117) on the drug tariff was carefully considered, and the unanimous feeling was that the commercial tariff described in this memorandum meant nothing else than making the Drug Fund a first charge on the Medical Benefit Fund, and so the unanimous answer to question 1 (M5) was in the negative. The following resolution was unanimously adopted:

That if any attempt is made in the Medical Benefit Regulations on the lines of M4 for 1916, or in any other way to make the Drug Fund a first charge on the Medical Benefit Fund, then the Panel Committees of the county of Fife will recommend practitioners to refuse to sign agreements and, if necessary, to leave the panel.

Cost of Checking Prescriptions.—It was agreed that panel practitioners bear a third share in the expenses of the checking bureau.

CORRESPONDENCE.

THE PROPOSED COMMERCIAL TARIFF.

DR. H. FALCONER OLDHAM (Moucecambe) writes: The replies of the Panel Committees to the memorandum of the Insurance Acts Committee will most probably have been returned by this. The final decision, however, will be made by that Committee.

To the Insurance Acts Committee I would appeal, and would, as a loyal supporter of the British Medical Association and as one who till quite recently has been able to take an active part in the direction of its policy, urge the Committee not to entertain any such disastrous step as that discussed in the memorandum in question.

The proposition that the Medical Benefit Fund is primarily chargeable with the provision of drugs and appliances, and that the medical practitioners can receive no remuneration for professional services until the chemists have been paid—the plain meaning of a "commercial tariff" on the lines of the memorandum—is in view of the Insurance Acts 1911-1913 questionably legal.

The suggestion that we might safely accept such a proposition and make money by allowing the consideration of the cost of treatment to influence our conduct rather than the consideration what that treatment should be is distinctly immoral.

Surely the wisest course would be to be content at present with a revision of the tariff prices so as to bring these more nearly into commercial relationship with the prices chemists pay for the drugs and appliances they provide. Wait till the Departmental Committee publishes its report on the drug tariff, and until we have the results of 1914 and 1915, as well as those of 1913, for comparison. Meantime the whole question of the drug tariff and its relation to the medical practitioner can be discussed in committee and in the JOURNAL and a considered opinion arrived at deliberately, and not rushed as is now suggested.

There is no immediate necessity for a final decision. Sir R. Morant's clear statement in his letter of August 23rd—

The Commissioners would in the present exceptional circumstances, with so many members of the profession inaccessible, be most reluctant to make any substantial modifications of the terms of medical practitioners under the Insurance Act unless they could feel assured that such modifications were "desirable in the view of all concerned"—

Highland Field Ambulance.—Captains to be temporary Majors: J. D. Fiddes, M.B., F.R.C.S.E. and J. H. Stapham, M.B., Licentiate. F. D. Chandler, M.B., to be Major (substituted for notice published in the *London Gazette* of August 4th).

Sanitary Service.—Major C. E. Humphreys to be Lieutenant-Colonel.

Attached to Units other than Medical Units.—Temporary Major A. A. Martin, M.D., from Home Counties Field Ambulance, to be Major, temporary. Lieutenants to be Captains: G. H. H. Mansfield, F. D. Lane, J. L. Green, M. H. Barton, G. A. Broadben, M.D., W. Dale, J. W. Scott, F. R. Arncliffe, M.B., R. E. T. Talbot, M.D., J. G. Cooke, M.B., W. E. Falconar, M.B., J. P. N. Casey, E. Copland, H. C. C. Hackney, N. C. Chavasse, M.B., J. E. Wood, G. S. Hall, M.B., F. H. C. Watson, M.B., S. Southall, J. H. Crane, M.D., J. S. Clarke, M.B., J. J. Porter, H. M. Soden, S. Scott, M.B., J. A. Stenhouse, M.B., J. A. J. Scott, M.B., J. A. Green, F. E. Carr, J. S. Ellis, M.B., R. W. Aldin, H. Cunningham, M.B., J. Walker, M.B., A. E. Delgado, M.B., J. O. Marklove, D. A. R. Haddon, M. B. Lieuenant W. M. Cox, from South Midland Casualty Clearing Station, to be Lieutenant.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In the ninety-six largest English towns 7,482 births and 4,700 deaths were registered during the week ended Saturday, September 25th. The annual rate of mortality in these towns, which had been 12.1, 14.0, and 13.8 per 1,000 in the three preceding weeks, fell to 13.5 per 1,000 in the week under notice. In London the death rate was equal to 14.0, while among the ninety-five other large towns it ranged from 5.2 in Lincoln, 5.8 in Ipswich, 5.9 in Swindon, 6.5 in Exeter, 7.0 in Leyton, and 7.4 in Ilford, to 21.5 in Aberdeen, 21.8 in Gateshead, 23.5 in Sunderland, 24.7 in Rotherham, 25.7 in Carlisle, and 26.1 in Barrow. Enteric fever caused a death-rate of 1.7 in Tynemouth, scarlet fever of 1.1 in Darlington, whooping-cough of 1.6 in West Hartlepool, and diphtheria of 1.5 in Southampton. The deaths of children (under 2 years) from diarrhoeal disease, which had been 293, 664, and 638 in the three preceding weeks, were 702, and included 183 in London, 58 in Liverpool, 47 in Birmingham, 35 in Sheffield, 29 in Manchester, and 20 in Leeds. The causes of 33, or 0.7 per cent, of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number, 8 were recorded in Birmingham, 6 in South Shields, 4 in Liverpool, 3 in Gateshead, and 2 in Boole. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,365, 2,445, and 2,550 at the end of the three preceding weeks, further rose to 2,656 on Saturday, September 25th; 372 new cases were admitted during the week, against 365, 385, and 429 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 556 births and 615 deaths were registered during the week ended Saturday, September 18th. The annual rate of mortality in these towns, which had been 13.3, 12.2, and 14.0 per 1,000 in the three preceding weeks, fell to 13.7 in the week under notice, and was 0.1 per 1,000 below the rate in the ninety-six large English towns. Among the several towns the death-rate ranged from 6.3 in Motherwell, 8.1 in Dumfries, and 8.2 in Clydebank, to 15.8 in Aberdeen, 17.1 in Ayr, and 17.7 in Greenock. The mortality from the principal infective diseases averaged 1.8 per 1,000, and was highest in Ayr and Paisley. The 229 deaths from all causes in Glasgow included 25 from infantile diarrhoea, 5 from scarlet fever, 4 from measles, 1 from whooping-cough, and 1 from diphtheria. Six deaths from measles were recorded in Edinburgh; 4 deaths from scarlet fever in Aberdeen and 2 in Paisley; from diphtheria, 4 deaths in Edinburgh and 2 in Paisley; from infantile diarrhoea, 6 deaths in Edinburgh and 3 in Aberdeen; and from typhus, 1 death in Paisley.

HEALTH OF IRISH TOWNS.

DURING the week ending Saturday, September 11th, 513 births and 389 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 586 births and 368 deaths in the preceding period. These deaths represent a mortality of 16.7 per 1,000 of the aggregate population in the districts in question, as against 15.8 per 1,000 in the previous period. The mortality in these Irish areas was therefore 2.7 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate in the other areas was equal to 22.1 per 1,000 of population. As for mortality of individual localities, that in the Dublin registration area was 18.4 (as against an average of 16.0 for the previous four weeks); in Dublin City, 18.2 (as against 17.5); in Belfast, 16.5 (as against 15.9); in Cork, 22.4 (as against 15.8); in Londonderry, 15.2 (as against 22.4); in Limerick, 13.5 (as against 14.2); and in Waterford, 13.5 (as against 19.0). The zymotic death-rate was 1.8, as against 2.8 in the previous period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BETHNAL GREEN INFIRMARY.—Assistant Medical Officer. Salary, £280 per annum.
BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £350 per annum.
BRISTOL ROYAL INFIRMARY.—(1) House-Physicians. (2) House-Surgeons. (3) Dental House-Surgeon. Salary, £120 per annum in each case.
CANTERBURY MENTAL HOSPITAL.—Locum-tenent Assistant Medical Officer. Salary, £7 7s. 6d. per week.
CARDIFF: KING EDWARD VII HOSPITAL.—House-Surgeon. Salary, £140 per annum.

DARLINGTON HOSPITAL AND DISPENSARY.—House-Surgeon. Salary, £120 per annum.
GREAT YARMOUTH HOSPITAL.—House-Surgeon. Salary, £200 per annum.
INVERNESS: NORTHERN INFIRMARY.—House-Surgeon. Salary, £150 per annum.
LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH, 38 New Cavendish Street, W.—Bacteriologist.
LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130 per annum.
LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—Two Lady Resident Surgeons. Salary, £120 per annum.
LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—(1) Assistant Resident Medical Officer; salary, £120 per annum. (2) Medical Registrar; honorarium, 40 guineas per annum.
PORTSMOUTH: ROYAL PORTSMOUTH HOSPITAL.—House-Surgeon. Salary, £150 per annum.
PURVEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.
QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, N.E.—House-Surgeon. Salary, £100 per annum.
ST. MARY, ISLINGTON, INFIRMARY.—Junior Assistant Medical Officer. Salary, £180 per annum.
SALFORD ROYAL HOSPITAL.—(1) Junior House-Surgeon. (2) Casualty House-Surgeon. Salary, £100 per annum each, and £5 per month *vis bonus*.
SHEFFIELD ROYAL INFIRMARY.—House-Surgeon. Salary, £100 per annum.
SOUTHAMPTON: FREE EYE HOSPITAL.—House-Surgeon. Salary, £100 per annum.
WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.
WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—(1) Resident Medical Officer. (2) House-Physicians and House-Surgeons. Salary for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.
WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £150 per annum.
WORCESTER GENERAL INFIRMARY.—Resident Medical Officer (male or female). Salary, £150 per annum.
CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Laurence Kirk, 6, St. Andrew's.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

KERR, J. M.B., Ch.B., Glasg., Honorary Assistant Surgeon to the Ashton Infirmary.
KEESLAKE, Mrs. Maude, L.M.S.S.A., Tuberculosis Officer for the County Borough of Northampton.
OGILVIE, W. M., M.B., Ch.B., Glasg., Medical Superintendent of the Ipswich Mental Hospital.
RICHMOND, G. M.B., Ch.B., Glasg., Medical Officer of W.arkhouse and Medical Superintendent of Infirmary of Ashton-under-Lyne Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 8s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

DEATH.

STUMBLE.—On Saturday, September 25th, at a nursing home, Henry Marty Stumbles, M.D., of 5, Wilbury Gardens, Hove, aged 42. No flowers, by request.

DIARY FOR THE WEEK.

FRIDAY.

EXHIBITION OF APPARATUS FOR TREATMENT OF FRACTURES IN WAR. 1, Waterloo Street.—To be opened, at 3 p.m., by Sir Alfred Keogh, K.C.B., D.G. Demonstration by Sir Almoth Wright, F.R.S. The exhibition will remain open on the following day and Monday, October 11th, from 10 a.m. to 10 p.m.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith, 8.30.—Opening meeting. Presidential address: Progress in Treatment.

ROYAL SOCIETY OF MEDICINE.—The Section of Obstetrics and Gynaecology will not meet until Thursday, December 9th.

DIARY OF THE ASSOCIATION.

Date. Meetings to be Held.

OCTOBER.

6 Wed. London: War Emergency Committee, 2 p.m.
7 Thur. London: Insurance Acts Committee.
8 Fri. London: Central Ethical Committee, 2 p.m.
12 Tues. London: Organization Committee, 2 p.m.
13 Wed. London: Medico-Political Committee.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, OCTOBER 9TH, 1915.

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INSURANCE.

OFFICIAL DOCUMENTS.

QUARTERLY LIST.*

THE JOURNAL publishes the documents issued by the Commissioners which are of general interest to insurance practitioners and available for the purpose, but there are some which are not placed on sale, and others which for various reasons cannot be published. The following is the Association's quarterly list of documents issued by the Commissioners concerning matters of interest to insurance practitioners. Information as to those documents mentioned which are neither on sale nor have been printed in the JOURNAL may be obtained on application to the Medical Secretary of the Association, 429, Strand. Those on sale may be purchased through any bookseller, where a number preceded by "Cd." is given. It is advisable to quote this when ordering.

JUNE, 1915.

Circular A.S. 639 (Scotland) states that, as difficulties had arisen in connexion with the use of the ordinary form (Form Med. 40) for the certification of inmates of institutions for the insane, a special form of certificate had been prepared for use in such cases, and encloses copy of new certificate. (829.)

Form Med. 406 (Scotland). Certificate above referred to. The nature of the incapacity does not need to be specified, the certificate evidently to be signed by the Superintendent or Medical Officer of the Asylum, and is to the effect that "So and so" is at present under care and treatment in that Asylum. (830.)

Circular 637 I.C. (Scotland) states that the Military Authorities, owing to the large number of soldiers on short terms of furlough who obtain extensions thereof on medical certificates given by insurance practitioners, desire that the necessity should be impressed upon practitioners for the closest scrutiny being exercised in cases of such soldiers coming before them, and of it being borne in mind that the Military Authorities are entitled to the benefit when the question of any soldier's fitness for duty is in doubt. (June 10th, 1915.) (817.)

JULY, 1915.

Memorandum No. 603 (Scotland). A circular on Model Scheme of Arrangements for Domiciliary Treatment. (July 31st, 1915.) (827.)

Form 603, a Model Scheme of Arrangements for Domiciliary Treatment of Tuberculosis accompanying foregoing. (July, 1915.) (828.)

Form 301 S.S./A.G.D. (England). To be filled up by all soldiers invalidated from the Army in order that the Commissioners may determine which of them are to

be treated for the purpose of Insurance Benefit as members of the Navy and Army Insurance Fund. (831.)

Form 146 I.C. (England), a leaflet issued by the English Commissioners in connexion with foregoing Form 301 S.S./A.G.D. as regards Medical Benefit of discharged soldiers who were insured during service. If members of an Approved Society they should, in addition to filling up above form, ask their society to arrange with the local Insurance Committee for their Medical Benefit without delay. If not members of an Approved Society and entitled to Medical Benefit, the Commissioners would arrange for the issue of a medical card, provided the above-mentioned Form 301 S.S./A.G.D. was filled up and sent them immediately. (832.)

Memo. No. 648 I.C. (Scotland), as to the necessity for practitioners exercising economy in use of drugs; (July 31st, 1915.) (835.)

AUGUST, 1915.

Circular 53 A.I.C. (Scotland), informing Insurance Committees that the arrangements for accelerating the provision of sanatorium treatment of disabled soldiers, as set forth in previous Circular 53 I.C., applied equally to seamen and marines. (August 25th, 1915.) (702.)

Reports of decisions on appeals and applications under Sections 67 of the 1911 Act and 27 of the 1913 Act issued by English Commissioners. [Cd. 8040.] Part II, price 3s. An instructive document containing much of interest to insurance practitioners and especially to members of Panel Committees.

SEPTEMBER, 1915.

Form Med. 33 (Scotland), approving certain rural areas in Scotland with a view to the application thereto of the provisions of Rule 8 of the Medical Certification Rules. Practitioners in the approved areas will now be permitted, in the case of patients residing more than 2 miles from their residence, instead of having to see the patient again, to give a Special Final Certificate in those cases where, although the insured patient is not fit to resume work immediately, he will be fit to resume not more than three days after the examination. (836.)

LOCAL MEDICAL AND PANEL COMMITTEES.

LIVERPOOL.

Proposed Commercial Drug Tariff.—A meeting of the Panel Committee was held at the Medical Institution on September 17th, when Mr. F. CHARLES LARKIN was in the chair. The memorandum from the British Medical Association (SUPPLEMENT, September 11th, p. 117) on possible changes of medical benefit regulations connected with the placing of the drug tariff on a commercial

* For previous lists see SUPPLEMENTS to JOURNAL of February 15th, 1915, and June 12th, 1915.

basis was considered, and the following resolution was unanimously adopted:

"That inasmuch as the practitioners' fund was guaranteed to be used solely as a remuneration for professional services, the Liverpool Panel Committee is of opinion that the profession should refuse to agree to any portion of it being diverted from this purpose and used as a fund for the purchase of materials.

The various items of the memorandum were considered in detail, and replies were given to the questions submitted.

NOTTINGHAM.

Proposed Commercial Drug Tariff.—A meeting of the Panel Committee was held at Nottingham on September 28th, when Dr. A. FULTON was in the chair. The memorandum issued by the British Medical Association (SUPPLEMENT, September 11th, p. 117) was considered, and it was agreed to accept a commercial tariff on the lines laid down in the memorandum, subject to the following reservations:

1. That the whole of the 1s. 6d. be pooled throughout the country.
2. That additional liabilities in the way of drugs and appliances be not imposed without the consent of the profession.
3. That the profession be not subjected to liability in respect of increase due to the war in prices of drugs and appliances.
4. That consideration by way of additional financial allowance be made in respect of the inclusion of soldiers and others who, as due to the war, are permanently disabled or are rendered chronic invalids, or are lowered in standard of health.
5. That a continuous analysis be made by the respective Insurance Committees, and that local reports be issued by them monthly, so that practitioners in each area may be made at all times aware of the average cost per person and per script of all persons on their respective panels.

WILTSHIRE.

A MEETING of the Panel Committee was held at Trowbridge on September 22nd, when Dr. J. T. GORDON was in the chair.

Proposed Commercial Drug Tariff.—The Memorandum issued by the British Medical Association (SUPPLEMENT, September 11th, p. 117) was considered, and replies agreed to.

Tracing Removals.—The CLERK made a statement with reference to the number of accepted persons whose addresses could not be traced, and asked the medical men to assist him in his work, as, until the names were placed upon the register, no payment was made to the medical fund for them. The Clerk was thanked, many members testifying to the cordial relations existing between the office and the medical profession.

MONMOUTHSHIRE.

A MEETING of the Local Medical and Panel Committees was held on September 14th, when Dr. J. D. O'SULLIVAN was in the chair.

Proposed Commercial Drug Tariff.—The Circular M.4 (1915-16) (SUPPLEMENT, September 11th, page 117), sent out by the British Medical Association, was considered; it was decided to answer the first and second questions in the negative, and with regard to the sixth to express a preference for an automatic surcharge of every practitioner the total cost of whose prescriptions exceeded the maximum of 2s. per insured person, with power to the Panel Committee on appeal to grant a certificate of indemnity entitling such practitioner to relief out of the Drug Fund of the area. A report was presented showing the expenditure of each panel doctor on prescribed drugs for the year 1914. From it it appeared that seven panel doctors, attending between 7,000 and 8,000 panel patients, had spent £1,143 in excess of the maximum 2s. per insured person. The matter was referred to the Drug Subcommittee for report with a view to those cases in which there had been such an undue expenditure being recommended for surcharge.

PERTH AND PERTHSHIRE.

At a meeting of the Local Medical and Panel Committees on September 17th, a letter was read from the Commissioners to the Clerks of Insurance Committees with regard to "persons who, in an emergency, outside of office hours or on Sundays, may find it necessary to apply direct to a practitioner," and suggesting that in such an event "it should be arranged that the practitioner will either agree to take the person on his list, or will give the treatment

immediately required until he has arranged with another practitioner to accept the person, or communicate with the Clerk, notice of any arrangement arrived at being made to the Clerk in due course." It was decided not to approve of any clause binding panel practitioners to the procedure above suggested, as it would be liable to serious abuse, and lead to the exploitation of the services of practitioners, owing to the carelessness of patients in not having already chosen a doctor.

KIRKCALDY.

At a meeting of the Local Medical Committee on August 31st, when Dr. CURROE was in the chair, the following list of medical comforts was drawn up: Milk and cream, eggs, butter, meat extract, whisky, brandy, or medicated wines.

CORRESPONDENCE.

THE PROPOSED COMMERCIAL TARIFF.

DR. JAMES HARRISON, M.D. (Chairman, Medical Benefit Subcommittee, Tynemouth Insurance Committee) writes: Naturally in face of the present national emergency the medical profession is somewhat apathetic regarding its own interests, but the question of the suggested introduction of the new commercial tariff into the regulations for 1916 is one of vital importance, and should, even at the present time, be thoroughly discussed in your columns. Dr. Taylor, of Salford, did right in drawing attention to this matter in the JOURNAL of September 25th.

The position is this: 2s. is the maximum amount allowed in the drug fund per assured person. In more than a quarter of the insurance areas in the country this amount is insufficient, and so far as these areas are concerned the drug fund is bankrupt, and cannot pay its way. Its deficiency amounts to over £50,000, and this amount has been discounted from the bills of the unfortunate chemists who work the Act in these districts. In the great majority of the 126 areas in England which have not exceeded the 2s. the amount has been perilously near that sum. Evidently, then, the maximum of 2s. is none too much for drug allowance.

With a view of arresting this annual deficiency of £50,000 it is coolly suggested that the medical profession should shoulder this colossal burden, and agree to pay the chemists any deficiencies which may occur in future. We are told that the 15 per cent. reduction to be made in chemists' tariffs will safeguard us from any deduction in the amounts paid to us for the treatment of the insured population. Those of us who have a knowledge of the administrative as well as the medical aspect of the case, are very sceptical upon this point. After the war, the balance of the Act will be radically changed. Many good sound lives, removed from our lists, will unfortunately never return. Others will return as broken men requiring the closest attention which will be ungrudgingly given them, but which will cause increased demands upon the drug fund. The period of trade depression which follows all great wars will, as it always does, cause an increased sick rate. Prices of drugs must keep high for a long time to come, and for us to assume such responsibility on the slender margin which the 2s. a head allows, would be absolute folly on our part, and should not be entertained for a moment. The multitudinous alterations in the Regulations of the Act are already beginning to make the 7s. a head per assured person on our lists shrink considerably before it reaches our pockets, and further attenuation is certain if we foolishly permit any of these suggested alterations of medical benefit to follow on the introduction of the proposed commercial tariff for 1916.

DR. FERDINAND REES (Wigan) writes: I should like to say a few things to our members.

1. We must not allow our 7s. minimum to be interfered with in any way.
2. We must not take away from the Government the responsibility for providing sufficient money to pay the chemists adequately.
3. The prescribing by doctors at the present time is rapidly sinking below the level of the old club practice.
4. There will soon be great dissatisfaction with the medical benefits.
5. Advanced reformers, especially among the Labour Party, will after the war be clamouring for increased medical benefits, and it would be suicidal for the profession to

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In the ninety-six largest English towns 7,209 births and 4,872 deaths were registered during the week ending Saturday, October 2nd. The annual rate of mortality in these towns, which had been 14.0, 13.8, and 13.5 per 1,000 in the three preceding weeks, rose to 14.0 per 1,000 in the week under notice. In London the death-rate was 14.6, while among the ninety-five other large towns it ranged from 5.2 in Hford and 5.4 in Bath, 6.6 in Leyton, 7.2 in Wallasey, 7.5 in Ipswich, and 7.9 in Bournemouth, to 18.2 in Birkenhead, 18.8 in Sunderland, 19.2 in Gateshead, 20.8 in Rotherham, and 21.3 in Bristol. Males died at the rate of 1.2 in Stockport, 1.7 in Hastings, 1.9 in Barnsley, and 2.6 in Bury; scarlet fever 1.2 in Derby and 1.4 in Warrington; and whooping-cough 1.2 in Leyton. The deaths of children (under 2 years) from diarrhoea and enteritis, which had been 64, 63, and 76 in the three preceding weeks, rose to 808, and included 209 in London, 45 in Liverpool, 43 in Manchester and in Sheffield, 39 in Birmingham, and 30 in West Ham. The mortality from enteric fever and diphtheria showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The causes of 27 or more deaths were ascertained, and of this number 7 were recorded in Liverpool, 3 in Birmingham, and 2 each in Blackpool, Sunderland, South Shields, and Gateshead. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,443, 2,590, and 2,656 at the end of the three preceding weeks, further rose to 2,78 on Saturday, October 2nd; 382 new cases were admitted during the week, against 385, 429, and 372 in the three preceding weeks.

HEALTH OF IRISH TOWNS.

DURING the week ending Saturday, September 18th, 538 births and 330 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 512 births and 389 deaths in the preceding period. These deaths represent a mortality of 16.8 per 1,000 of the aggregate population in the districts in question, as against 16.7 per 1,000 in the previous period, and the mortality in these Irish areas was 1.09 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 23.1 per 1,000 of population. As for mortality of individual localities, that in the Dublin registration area was 20.1 (as against an average of 16.5 for the previous four weeks), in Dublin city 20.8 (as against 18.2), in Belfast 14.6 (as against 14.8), in Cork 22.4 (as against 17.1), in Londonderry 13.9 (as against 12.9), in Limerick 10.8 (as against 13.9), and in Waterford 9.5 (as against 13.3). The zymotic death-rate was 2.6, as against 1.8 in the previous period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BETHNAL GREEN INFIRMARY.—Assistant Medical Officer. Salary, £280 per annum.

BIRMINGHAM FIRST SOUTHERN GENERAL HOSPITAL.—Resident Medical Officers.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians. (2) House-Surgeons. (3) Dental House-Surgeon. Salary, £120 per annum in each case.

CAMBRIDGESHIRE ASYLUM, Fulbourn.—Junior Assistant Medical Officer. Salary, £200 per annum, rising to £250.

DORCHESTER: COUNTY ASYLUM.—Second Assistant Medical Officer. Salary, £500, rising to £560.

EXETER: ROYAL DEVON AND EXETER HOSPITAL.—Assistant House-Surgeon. Salary, £150 per annum.

GREAT YARMOUTH HOSPITAL.—House-Surgeon (male). Salary, £200 per annum.

HAMMERSMITH PARISH.—Second Assistant Medical Officer for the Infirmary and Workhouse. Salary, £170 per annum, rising to £192.

IPSWICH MENTAL HOSPITAL.—Locum-tenent. Salary, 65 6s. a week.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH, 38, New Cavendish Street, W.—Bacteriologist.

LEIDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £150 per annum.

LONDON HOMOEOPATHIC HOSPITAL, Great Ormond Street, W.C.—Resident Medical and Surgical Officer. Salary at the rate of £80 per annum.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Medical Registrar. Honorarium, 40 guineas per annum.

MANCHESTER CORPORATION.—Medical Officer to hold Consultations and Infant Clinics at the Maternity and Child Welfare Centres. Salary, £350 per annum.

PORTSMOUTH: ROYAL PORTSMOUTH HOSPITAL.—House-Surgeon. Salary, £150 per annum.

PUNNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, N.E.—House-Surgeon. Salary, £100 per annum.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Male and Female House-Physician and House-Surgeon.

ROYAL HOSPITAL FOR DISINFECTS OF THE CHEST, City Road, W.C.—Resident Medical Officer.

SHEFFIELD ROYAL INFIRMARY.—House-Surgeon. Salary, £100 per annum.

SHETLAND: WHALSAY PARISH.—Medical Practitioner. Guaranteed Income £50 by the Highlands and Islands (Medical Services) Board.

SOUTHAMPTON: FREE EXE HOSPITAL.—House-Surgeon. Salary, £100 per annum.

SOUTHAMPTON: ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House-Surgeon. Salary, £120 per annum.

STAFFORDSHIRE, WOLVERHAMPTON, AND DUDLEY JOINT COMMITTEE FOR TUBERCULOSIS.—Resident Medical Officer (male) for Moxley Sanatorium. Salary, £560 per annum.

TRURO AUXILIARY NAVAL HOSPITAL.—Resident Assistant Medical Officer. Salary, £150 per annum.

WARWICKSHIRE AND COVENTRY JOINT COMMITTEE FOR TUBERCULOSIS.—Tuberculosis Medical Officer. Salary, £500 per annum.

WELSH METROPOLITAN WAR HOSPITAL, Whitechurch.—Resident Physician.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant House-Surgeon. Salary, £120 per annum.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—(1) Resident Medical Officer. (2) House-Physicians and House-Surgeons. Salary for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.

WEST MIDLAND ASYLUM, Menston.—Temporary Assistant Medical Officer.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £150 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House-Surgeon. Salary, £150 per annum.

WORCESTER COUNTY AND CITY ASYLUM.—Second Assistant Medical Officer. Salary, £275 per annum.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer (male or female). Salary, £150 per annum.

WREKHAM INFIRMARY.—Resident House-Surgeon. Salary, £120 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: **Gloucester (Queen's County).**

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

CODD, H. R., M.R.C.S.Eng.—District Medical Officer of the Promo Union.

FENTON, James, M.D., Birmingham.—Medical Officer and School Medical Officer for the Borough of Shrewsbury.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

PARKER-HARRISON.—On September 26th at Shawmut, Windlesham Road, Brighton, the wife of Walter Parker-Harrison, Surgeon, R.N.V.R., of a daughter.

DEATHS.

BALLEY.—On Monday, October 4th, at Oakleigh, Skipton, Fred Bailey, M.R.C.S., Ch.B., Assistant Medical Officer, Askeaton Asylum, Bridgend, South Wales, aged 51.

COFFE.—On the 4th inst., suddenly, after a short illness, at 2, Calogon Court Gardens, Cadogan Place, S.W., Surgeon-General Sir Charles MacDonagh Coffe, K.C.B., J.P., F.R.C.S., L.R.C.P., F.I.D., late Army Medical Staff, and 11th P.A.O. Hussars. Aged 73. R.I.P. No flowers by request.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W., 8 p.m.—Annual Meeting, 8.30 p.m., Presidential Address by Dr. William Fester. Mr. J. T. J. Morrison (Birmingham) will relate his experiences in Serbia in 1914-15.

WEDNESDAY.

HUNTERIAN SOCIETY, at Royal Society of Medicine, 1, Wimpole Street, W.—First Hunterian Society Lecture: Bright's Disease in some of its Clinical Aspects, by Dr. S. A. J. West.

FRIDAY.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, W., 8.30 p.m.—Presidential Address by Dr. F. M. Sandwith: Pellagra considered from the point of view of a Disease of Insufficient Nutrition.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	OCTOBER.
8 Fri.	London: Central Ethical Committee, 2 p.m.
12 Tues.	London: Organization Committee, 2 p.m.
13 Wed.	London: Medico-Political Committee, 2 p.m.
20 Wed.	London: War Emergency Committee.

LONDON: SATURDAY, OCTOBER 16TH, 1915.

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THE WAR EMERGENCY.

MEETING OF THE COMMITTEE FOR ENGLAND AND WALES.

THE memorandum published in the BRITISH MEDICAL JOURNAL of October 9th, p. 539, was received by the Committee. The memorandum, it will be remembered, was forwarded by the Directors-General Army Medical Service, and expressed the regret of Surgeon-Generals Sir G. H. Makins, and Sir Anthony A. Bowly, and Colonels Sir J. Rose Bradford, F. F. Burghard, Sir W. P. Herringham, and Cathbert Wallace that recent *Gazettes* contained the names of many medical men who had resigned their temporary commissions in the Royal Army Medical Corps, and pointed out the necessity for maintaining the staff of medical officers at full strength. It was reported that, of 172 Divisions in England and Wales, 137 had appointed local committees; as in two instances the area had been subdivided and two committees appointed, the number of local committees was 139. A report also made on the result of the appeal made to medical men of military age and capacity showed that much remained to be done before the demands of the War Office were met.

A deputation from the Insurance Commission attended to express its view with regard to the steps that had been or should be taken to protect the interests of the civil population in respect to medical attendance. The deputation consisted of Mr. C. H. Roberts, M.P. (chairman), Sir Robert Morant (vice-chairman), and Dr. J. Smith Whitaker (member of the Joint Committee of Insurance Commissioners), and Mr. J. Anderson (secretary of the English Commission). The members of the deputation laid their views before the Committee, which promised to give careful consideration to them. The reference to the Committee is to organize the profession in such a way as to enable the Government to use every medical practitioner fit to serve the country in such a manner as to turn his qualifications to the best possible use. This, it was pointed out to the deputation, included the safeguarding of the interests of the civil population.

The Executive Subcommittee reported that it had considered the third report of the Select Committee on Naval and Military Services (Pensions and Grants) (JOURNAL, September 18th, p. 437), and that the special attention of the Director-General had been drawn to paragraph 10 of that report, stating that the "proposals relate primarily to officers holding combatant commissions in the navy and army." It was understood that the matter would engage his personal attention.

The Committee also recommended that representations should be made to the Army Medical Department as to the urgent necessity of investigating every case in which a medical officer was unwilling, or unable, to renew his services at the expiration of his year's engagement, with the purpose of retaining all efficient officers in military

medical service. Major Galloway reported that he had been informed by the War Office that officers re-engaging for a second term of service were entitled to a gratuity in respect of such second term, but not to any further allowance for kit.

IRELAND.

Dispensary Medical Officers.

A good example has been set in the case of Dr. H. R. Irvine, dispensary medical officer for districts in Belfast and Castlereagh, who has obtained leave from the guardians, and offered his services to the military authorities.

On the other hand, the Clones Board of Guardians has refused the application of Dr. S. A. D'Arcy, medical officer of Rosslea dispensary district, for one year's leave of absence in order to place his services at the disposal of the War Office. He had made arrangements with a substitute, which would have involved no cost to the guardians. Although the clerk pointed out that the average number of red ticket cases attended by Dr. D'Arcy was only two a month, the guardians considered that the substitute should reside in the district, and for this reason refused the application.

* Various letters on the subject of the War Emergency will be found in the correspondence column of the JOURNAL, p. 587.

INSURANCE.

INSURANCE ACTS COMMITTEE.

A MEETING of the Insurance Acts Committee was held at the office of the British Medical Association on Thursday, October 7th, when Dr. J. A. MACDONALD, LL.D., was in the chair. The other members present were:—*England and Wales:* Dr. T. Ridley Bailey (Bilston), Mr. H. B. Brackenbury (London), Dr. T. Campbell (Wigan), Dr. Olive Claydon (Oldham), Dr. J. Divine (Hull), Lieutenant E. R. Fothergill (Hove), Dr. Major Greenwood (London), Dr. P. V. Fry (Sowerby Bridge), Professor A. Bostock Hill (Birmingham), Dr. W. A. Hollis (Brighton), Dr. I. W. Johnson (Bury), Mr. P. Napier Jones (Crowthorn), Dr. B. A. Richmond (London), Mr. Harding H. Tomkins (Leyton), Dr. W. E. Crawford Treasure (Cardiff), Dr. T. Jenner Verrall (Bath), *Scotland:* Dr. John Adams (Glasgow), Dr. J. R. Drever (Glasgow), *Ireland:* Dr. J. S. Darling (Lurgan). *Ex officio:* Mr. E. B. Turner (Chairman of Representative Meetings), Dr. Edwin Rayner (Stockport), Treasurer. On the nomination of the Society of Medical Officers of Health, the Committee appointed Professor A. Bostock Hill (Birmingham) to be a member of the Committee for the ensuing session.

Suspension from Medical Benefit.

It was decided to suggest to Panel Committees that the medical representatives on the Local Insurance Committees should bring to the notice of such Committees the desirability of pressure being brought to bear upon approved societies to notify as early as possible all cases of insured persons who become ineligible for medical benefit.

Munition Workers.

The Committee agreed to make representations to the Insurance Commissioners suggesting that they should advise Insurance Committees that in those areas in which large bodies of the insured population were moved in connexion with the working of the Munitions Act, they should be treated as temporary residents until they had spent three months in the new area.

Drug Tariff.

It was decided to send a communication to the Insurance Commissioners stating that "the British Medical Association welcomed the report of the Departmental Committee on the drug tariff in so far as it (a) justifies the contention of the Association that the present drug tariff was full of the most extraordinary anomalies, and resulted in great injustice; (b) it recommended the adoption of the main principles for which the Association contended; and (c) it suggested that these principles should be carried out, in the main, by methods which were identical with, or consistent with, those put forward by the Association." The Association was willing, under proper conditions, to accept a commercial tariff on the lines laid down in the Departmental Committee's report, provided such arrangements were made by regulation or otherwise as should ensure that there should be no reduction below the minimum which was promised by the Chancellor of the Exchequer in 1912, as the assured basis of payment for doctors' services—namely, 7s. per insured person per annum. With regard to matters of detail, the replies the Committee had obtained from Local Medical and Panel Committees provided abundant opportunities for discussion if and when the Committee was assured that the one outstanding principle emphasized in all the answers would be conceded—namely, that the profession should be guaranteed that the 7s. would not be encroached upon.

The Executive Subcommittee was authorized to hold a conference with the Commissioners should they so request, and as the result of subsequent correspondence it was arranged that the conference should take place on October 14th.

It was resolved to continue the arrangement for the monthly pricing of the drugs in the supplementary drug tariff at present carried out by Dr. Richmond and Captain Lilley in conjunction with the Medical Secretary and the technical adviser of the Committee.

Signing of Medical Certificates.

With reference to a resolution passed by a local insurance committee requiring all medical certificates to be signed in the presence of the insured person, the Committee expressed the opinion that such a resolution would be *ultra vires*, and should be ignored by the local profession. The Committee decided to communicate this opinion to the Insurance Commissioners.

Payments to Medical Practitioners.

The Committee decided to make renewed representations to the Insurance Commissioners with regard to the excessive deductions from the quarterly cheques of medical practitioners, and to the present unsatisfactory position with regard to payments made to insurance practitioners.

Scottish Central Bureau for Checking Prescriptions.

In reply to a communication from the Scottish Committee, it was decided to advise Scottish Panel Committees to hold their hands for a while as regards contributing towards the cost of the Scottish central bureau until it was able to furnish results showing that its work would be of considerable advantage to the drug fund, and that if any Scottish panel committee contributed to the expense of the bureau the contribution should be one quarter of the total, one quarter being found by the Pharmaceutical Committee and the remainder by the Insurance Committee.

PROPOSED AMALGAMATION OF INSURANCE
COMMISSIONERS.

The *Scotsman* states that it is generally understood that one of the recommendations of the Retrenchment Committee in regard to the National Insurance Act is the amalgamation of the Scottish and Welsh Insurance Commissioners with the English Insurance Commission. The grounds for the proposal are that the change would contribute to efficiency and economy. According to the *Scotsman*, it has been generally conceded that the administration of the Act in Scotland has been more efficient than in any other part of the United Kingdom. The approved societies are mainly interested in the proposal from the point of view of the accessibility of the controlling authority. The Scottish Commission has readily given assistance in matters of difficulty, and has discussed in a friendly and helpful way questions of administration which have arisen from time to time. Edinburgh is very convenient of access, and it is objected that the removal of Scottish business to London would not only be inconvenient, but would entail much expense in journeys to and fro. For the decision of many questions a knowledge of local conditions and Scottish difficulties is essential. It is pointed out also that the abolition of the Scottish Commission would not imply any appreciable diminution of the present staff. Societies have a right to a separate Scottish triennial valuation, which might be taken away if the Scottish fund were amalgamated with that of England and Wales. A number of provisions in the original Act were introduced with a view to meeting special circumstances and special cases, but in many instances experience has shown that the complexity thereby set up has been out of all proportion to any convenience or benefit secured by these provisions. It was recently announced that there was a probability of the appointment of a committee of inquiry, which would consider the elimination of such provisions. It is understood that definite proposals in this direction will be submitted to an early meeting of the Edinburgh, Leith, and District Friendly Societies' Council. They include the suggestions that there should be two classes only of contributors, namely, men and women, with one right of benefit for all male and one for all female contributors, and the abolition of varying rights of contributors such as those relating to low wages, that (a) the sickness benefit of members without dependants, in sanatoriums, should be placed on the same footing as that of similar members in hospitals; (b) that benefits of members who die in hospitals should be paid to their relatives; and (c) that the question of payments to dependants should be placed on a more definite basis, and that a more exact method of dealing between societies and Insurance Committees should be adopted.

At a meeting of the Edinburgh Insurance Committee on October 7th a resolution protesting against the abolition of the Scottish Insurance Commission was adopted unanimously, and the Administrative Subcommittee was given power to bring before the Prime Minister, the Chancellor of the Exchequer, the "Minister for Insurance," members of Parliament, and others, the paramount necessity for retaining in Scotland the special administration of National Insurance.

THE FUTURE OF THE INSURANCE SYSTEM.

Mr. Charles Roberts on the Need for Economy.

At a recent meeting of the North Riding Insurance Committee, Mr. Charles Roberts, M.P., Chairman of the Joint Committee of Insurance Commissioners, was present by invitation of one of the members, and delivered a short address. He said that had the times been ordinary two subjects might have been engaging the attention of Insurance Committees: the one was the possibility of extending the Act, especially in reference to medical and sanatorium benefit, and the other had regard to problems met with in the ordinary course of administration. Those engaged in special work, such as the treatment of tuberculosis, had, a year or two ago, hoped for further opportunities, but a great change had come. Any extension of work under the Act must entail increased financial grants, and with a war expenditure of three and a half millions a day it was idle to think of any possibility of extension which involved additional expense; it would be as futile as unpatriotic

to ask the Treasury for any extra grant at the present time. Still considerable revenues were at disposal, and the best use must be made of them by the practice of the strictest economy. He appealed to all Insurance Committees to practise economy with goodwill, for if they did not he felt sure that the Retrenchment Committee would impose that unpleasant duty upon them. In the first place, he thought that London could save them from being snowed up by the huge quantity of literature that had fallen upon committees in the early days. He did not suggest that his predecessors had done more than necessary work, but when the initial difficulties had been got over he thought that it was right to diminish, as far as possible, the rain of circulars in regard to the administration of the Act, so that only what was indispensable should be sent out. He knew that committees had suffered under the complexity of the present system, and he hoped that something would shortly be done to reduce within manageable compass the regulations which had had to be issued. A revision of the index register system could not now be undertaken, principally for the reason that it would mean the employment of an extra staff, but he hoped that something would be done in reference to the chemists as a result of the conference with the British Medical Association and the Pharmaceutical Society. He paid a high tribute to the patriotism which the medical profession was exhibiting in the national crisis, and when a request came from that quarter he was inclined to look at it with the utmost sympathy, but he did not think it would be wise to make an application for an increase of the mileage grant.

TREATMENT OF INSURANCE PATIENTS DISCHARGED FROM THE ARMY.

New provisional regulations, dated September 30th, 1915, have been made by the Insurance Joint Committee, acting with the Insurance Commissioners, to deal with the case of soldiers returning to civil life. The regulations may be cited as the National Health Insurance (Medical Benefit) Regulations, 1915, and are to be read as one with the Medical Benefit Regulations, 1913 (referred to as the "principal Regulations") and 1914. The Regulations are as follows:

1. An insured person whose name is included in the list of a practitioner on the panel who is on the 30th day of November, 1915, absent on military service shall not be entitled to select another practitioner or method of treatment at the end of the medical year ending on the 31st day of December, 1915, unless, in addition to giving notice to the Committee in the manner and within the period required by paragraph (1) of Article 30 of the principal Regulations, he satisfies the Medical Service Subcommittee of the Committee that he has reasonable grounds for desiring to be removed from the list of the absent practitioner, and paragraphs (1) and (3) of Article 30 shall be modified accordingly.

2. The expression "practitioner who is absent on military service" means any practitioner on the panel who, by reason of his serving with the naval or military forces of the Crown, is unable to practise, whether under his agreement with the Committee or otherwise, within the area in which he has undertaken treatment.

3. Nothing herein contained shall affect the right of an insured person under Articles 25 and 45 of the principal Regulations to be transferred to the list of another practitioner on the panel subject to the conditions contained in those Regulations.

The new Regulations, which can be purchased (price 1d.), also contain a paragraph regulating the amount to be deducted from the payment to an institution in respect to the provision of treatment for insured members should an institution in any quarter cease to provide such treatment.

LOCAL MEDICAL AND PANEL COMMITTEES.

SOUTHAMPTON.

A MEETING of the Southampton Panel Committee was held at the offices of the Southampton Insurance Committee on September 29th.

Stock Mixtures.—A letter was read from the Commissioners with regard to the stock mixtures suggested for use in Southampton, stating that No. 1, Mist. alba, and No. 2, Mist. ferri aper., could be stocked without deterioration, and were agreed to, but that the other four suggested would deteriorate and therefore could not be allowed.

Expenses of Delegates.—It was agreed that delegates on business connected with the Committee should be paid

first class travelling expenses—2 guineas a day and 1 guinea for each night that they were away.

Interpretation of "Confinement."—After consultation between the Insurance Committee and the Local Medical and Panel Committees, it was agreed that the term "confinement" should mean attendance at the birth and for fourteen days after.

Proposed Commercial Drug Tariff.—The new suggested scheme for a commercial drug tariff (SUPPLEMENT, September 11th, p. 117) was rejected, as in the opinion of the Committee it was inequitable and unlikely to promote economy.

BIRMINGHAM.

At a meeting of the Panel Committee on October 5th, it was reported that several panel practitioners had been interviewed with regard to alleged over-prescribing since the last meeting with a promise of good results. A report as to the result of the checking and analysis of prescriptions for the early part of the year was referred to the Pharmacopoeia Subcommittee for consideration.

COUNTY OF HEREFORD.

Attendance on Insured Persons.—At a meeting of the Local Medical and Panel Committee on September 27th it was decided to adopt the suggestion of the Commissioners that Clause 3 of the Arrangements agreed to by the Committee and the Insurance Committee under Articles 21 (4) and 35 (1) of the Medical Benefit Regulations, 1913, should read as follows: "A practitioner shall not be under any obligation to afford treatment to an insured person if he is not satisfied that the applicant is in fact an insured person entitled to medical benefit."

Pricing of Prescriptions.—A letter was read from the Insurance Committee stating that the Commissioners had approved the adoption of a flat rate of 9d. for pricing prescriptions dispensed by panel practitioners in respect of temporary residents and holders of travellers' vouchers for the current year, and this rate was agreed to.

Payments to Panel Practitioners.—In view of the fact that it has been repeatedly stated that panel practitioners are paid quarterly according to the number of persons for whom they held "index" cards on the first day of the quarter, it was resolved to advise all panel practitioners to count their "index" cards on the first day of the next quarter and compare the number held with the number upon which they are paid at the end of the quarter. (An index card is that received from the Insurance Committee's offices acknowledging that a person has been duly placed on a doctor's list.)

Proposed Commercial Drug Tariff.—It was decided to support the acceptance of a tariff on a commercial basis. The Committee was in favour of each Insurance Committee being credited in respect of drugs and appliances on the same basis as at present (2s. per insured person per annum), of there being an automatic surcharge of every practitioner the total cost of whose prescriptions exceeded the maximum of 2s. per insured person, with power to the Panel Committee on appeal to grant certificates of indemnity entitling such practitioner to relief out of the Drug Fund of the area, and of there being a continuous scrutiny and surcharging as at present provided, except that the Pharmaceutical Committee would not be concerned therein.

LANCASHIRE.

A MEETING of the County of Lancashire Panel Committee was held in the County Offices, Preston, on September 15th, when Dr. H. F. OLDHAM was in the chair.

Deductions from Doctors' Lists.—A communication was read from the Commissioners with regard to transfers during the year. It was to the effect that the consent is required, not only of the practitioner upon whose list the insured person has been placed, but also of the practitioner to whom the insured person desires to transfer, and that in these circumstances it would appear that the practitioners themselves can prevent such transfers during the year without the issue of new regulations dealing with the matter. As regards the right conferred on insured persons by Article 30 (1) of the Medical Benefit Regulations to change their doctor at the end of the year, on giving the notice specified in the regulations, it did not appear to the Commissioners that insured

persons would desire to avail themselves of the right merely because the doctors they had previously chosen were on active service. The Commissioners added that they would be prepared to meet the convenience of practitioners so far as possible by means of any simplification of the existing arrangements, or by the adoption of any special machinery which may appear desirable.

Rules for the Administration of Medical Benefit.—It was decided to ask the Insurance Committee that a rule should be printed on the medical cards to the effect that "an insured person shall not call upon the services of the practitioner on Sundays except in cases of serious emergencies"; also that such a rule be inserted in the rules for the administration of medical benefit for 1916.

Proposed Commercial Drug Tariff.—The memorandum issued by the British Medical Association (SUPPLEMENT, September 11th, p. 117) was considered, and it was decided to ask members of the Panel Committee to call meetings of their respective areas with a view to obtaining the opinion of the profession with regard to this question, and informing them that, whilst prepared to accept a commercial tariff in the light of the resolution passed by the Insurance Acts Committee (contained in paragraph 10 of A. 4) the Committee considered that the information at hand was insufficient, and that the time was inopportune for the consideration of this question.

LINDSEY.

A MEETING of the Local Medical and Panel Committee was held at Lincoln on October 1st, when Dr. F. J. WALKER was in the chair. Payment of the expenses (£15 7s. 10d.) of the Pharmaceutical Committee for the six months ending July 15th was sanctioned, and the clerks were asked to deduct 3d. per insured person from the medical fund to pay the expenses of the Panel Committee. With regard to the proposed commercial tariff it was decided not to recommend any change in the Drug Fund, as the time was inopportune and there was not sufficient data to work upon.

YORK.

At a meeting of the Panel Committee on September 21st, the HONORARY SECRETARY reported that he had looked into the matter with reference to persons admitted to a cottage hospital being seen by the honorary medical officers who received payment for them as temporary residents, and that in view of this undue depletion of the medical benefit fund he had asked the Clerk of the Insurance Committee to inquire into the matter, and, if necessary, to bring it before the Commissioners.

It was decided to allow the whole amount of the expenses of the Pharmaceutical Committee to be paid out of the Drug Fund.

The HONORARY SECRETARY expressed the opinion that the plan of the Renfrewshire Insurance Committee in relying on receiving the notification of discharge from the army of insured persons was unsatisfactory, and he had arranged that the question should be brought to the notice of the Insurance Acts Committee.

In consequence of the receipt of a letter from Dr. Cox advising that it was worth while to secure recognition of the Local Medical and Panel Committee, it was decided to take steps to that effect by circularizing all the medical practitioners resident in the York area, stating the personnel of the Panel Committee and the nature of the proposed scheme, whereby these should be identical with the Local Medical Committee, and asking them, if they had any objection to this scheme, to state it by a certain date. Failing the receipt of any such objection, the Honorary Secretary was instructed to state the result of the inquiry to the Commission.

The Committee was emphatically of the opinion that it would be most unwise to introduce a commercial tariff on the lines suggested until the drug market shall have settled down from the present most unstable condition due to the war.

WEST RIDING OF YORKSHIRE.

At the meeting of the Local Medical and Panel Committees at Wakefield on September 10th the memorandum of the British Medical Association as to the proposed commercial drug tariff was referred to the general subcommittee with an instruction to reply. A letter was read from the Clerk of the Insurance Committee addressed to

a practitioner in regard to three enclosed intermediate certificates given by the practitioner to an insured person, upon which the approved society had withheld payment of sick benefit on the ground that the practitioner had not clearly specified the name of the complaint from which the insured was suffering. The Secretary was directed to inform the Clerk that, in the opinion of the Committee, the terminology made use of by the doctor is precise and the information conveyed in the certificates is adequate to establish the fact of the patient's incapacity.

EDINBURGH.

A MEETING of the Burgh of Edinburgh Panel Committee was held on September 28th, when Dr. DEWAR occupied the chair.

Proposed Commercial Drug Tariff.—The memorandum issued by the British Medical Association (SUPPLEMENT, September 11th, p. 117) was considered. The Committee, by the casting vote of the Chairman, expressed its willingness to accept the commercial tariff provided that the matters concerned in questions 1, 2, and 3 were read as a whole. With regard to guarantees, the Committee was prepared to accept the recommendations provided that the individual practitioners whose prescriptions were shown to be the cause of the deficit were surcharged, and that where excess could be shown to be due to war prices the practitioners' fund did not pay such excess.

Providing Substitutes during Temporary Absence.—It was resolved to inform the Insurance Committee that as responsibility for the treatment of insured persons had been undertaken by contract with the Committee, there was no need for any further guarantee.

Share of Expenses of Central Bureau.—The resolutions of March 31st, April 14th, and May 8th, 1914, supported by the resolutions of an insurance practitioners' meeting held on December 17th, 1914, that no contribution be made to the administrative expenses of a central bureau, were confirmed.

PERTH.

A SPECIAL meeting of the Local Medical and Panel Committees of the Burgh of Perth was held on October 3rd to discuss the recent payments to account to panel practitioners by the Burgh Insurance Committee at the rate of only 1s. per insured person. The Clerk to that Committee explained that certain amounts were credited quarterly to practitioners in accordance with the number of insured persons on their lists, after deductions for enlistments, etc., but that it was impossible to pay the whole of these amounts at the time, as sufficient money had always to be kept back to meet such contingencies as deaths, changes of address, duplications, etc. This would, however, be made up for at the end of the year when the books were balanced and the final payments adjusted, and there was every probability that the next quarter's payments would be again at the former rate of 1s. 3d. per insured person. It was resolved:

That this meeting strongly protest against the serious deduction made from the provisional credits of the Medical Benefit Fund for the current quarter, amounting to 27 per cent. as compared with 1913. From information given by the approved societies to the Insurance Committee the deduction for enlistments should not have exceeded 10 per cent., there being a large preponderance of female labour in Perth. Under the circumstances the panel practitioners of the burgh will take into serious consideration whether it will be worth their while to renew their contracts for the succeeding year.

Meetings of Branches and Divisions.

[The proceedings of the Divisions and Branches of the Association relating to Scientific and Clinical Medicine, when reported by the Honorary Secretaries, are published in the body of the JOURNAL.]

BRITISH GUIANA BRANCH.

At a meeting of the British Guiana Branch, held at the Public Hospital, Georgetown, on August 28th, Dr. ROSE read a paper on the histology of filarial lymphatic glands. Clinical notes on a case of tetanus treated by carbolic injections, and on a case of diphtheria with complications were also read.

MEMBERS ELECTED TO THE BRITISH MEDICAL ASSOCIATION

(JANUARY 15TH, 1915, TO AUGUST 31ST, 1915.)

(FIRST LIST.)

BY THE COUNCIL.

Beattie, William Forbes, Surgeon R.N., M.B. Catuthers, Victoria, Theodore, Captain R.A.M.C., M.B., F.R.C.S. Edin.
 James, Joseph Francis, Captain I.M.S., M.B., Ch.B., Edin.
 Kulkajay, Krishnaji Vishnoo, Major I.M.S., L.M.S.C. Bombay, L.R.C.P. & S. Edin.
 L'Amendes, Douglas Victor, Staff Surgeon R.N., L.S.A.
 Mukherji, Saiyendra Nath, F.R.C.S. Edin., Wellington Square, Calcutta
 Praymester, Shilav Ardisher B., Lieut. I.M.S., L.M.S.C. Bombay
 Pheasant, Ernest Cyril, Captain R.A.M.C., M.B., B.Ch., B.A.O. (I.C.D.)
 Ryan, Martin Owen, Surgeon R.N., M.R.C.S., L.R.C.P.
 Robinson, Francis Aidan, Captain R.A.M.C., M.B., B.S.
 Walker, Charles Derwent, M.B., Ch.B. Edin., Casilla 24 Carahue, Chile

BY BRANCH COUNCILS.

Aberdeen Branch.

Fyfe, T. H., M.B., Ferryhill, Aberdeen
 Mitchell, Alexander, M.B., 70, High Street, Old Aberdeen
 Robertson, Alexander, M.B., Stonehaven
 Saunders, B. T., Lieutenant, R.A.M.C., City Fever Hospital, Aberdeen
 Stear, F. G., M.B., Medilick
 Stewart, P. W., M.B., View Terrace, Aberdeen Troup, Arthur G., M.D., Aberdeen

Assam Branch.

Smith, H. S., Esq., Golaghat
 Vaidya, J. B., Lieutenant, I.M.S., Dibrugarh
 Young, T. C. McCombie, Major, I.M.S., Shillong

Bath and Bristol Branch.

Pearman, J. H., M.D., 9, Whiteladies Road, Clifton
 Grant, R., Esq., Chipping Sodbury
 Fife, H. G., M.D., 31, Westbury Road, Bristol

Birmingham Branch.

Cook, Giles H., M.B., The Homestead, Oak Tree Lane, Selly Oak, Birmingham
 Russell, G. A., Esq., Round - Green, Oldbury

Bombay Branch.

As Sena, D. J., Esq., Malvan, Ratnagiri
 Kumbhar, S. K., Esq., Somersett Street, Camp, Karachi
 Patel Ramani Lal, V., Esq., Koyhi Pole, Baroda
 Williams, N. S., M.D., Abu Road, Rajputana

Border Branch, South Africa.

Kelly, G. B., Esq., Kougha

British Guiana Branch.

Ryan, F. G., Esq., Public Hospital, Georgetown
 Sherriff, L. R., M.D., 259, Middle Street, Georgetown

Cambridge and Huntingdon Branch.

Fisher, Frederick Thomas, Esq., Soham

Cape of Good Hope (W.P.) Branch.

Maherley, John, Esq., Lower Faarl

Ceylon Branch.

Sarasindie, H., Esq., Udugama
 Perincoz, J. L., Esq., "Lyttelton," Wellawake, Colombo
 Tenningsen, H. U., Esq., Mandapam, S. India
 P. F. R., Esq., Main Street, Negombo
 Perera, D. W., Esq., Kith Hessa, Deans Road, Colombo
 Sanyappab, S., Esq., Malhotra

Dorset and West Hants Branch.

Elliott, R. A. G., M.B., Herrison, Dorchester
 Fordmorth, Telford, M.D., The Knoll, Salisbury

Dundee Branch.

Barrow, P. E. B., M.B., Royal Infirmary, Dundee
 Burgess, G. C., M.D., New Road, Forfar
 Craichyd, A. M., M.B., 20, Whitehall Street, Dundee
 David, Mary L., M.B., 9, Erskine Terrace, Maryfield, Dundee
 Inglis, Florence E., M.B., Royal Infirmary, Dundee
 Robertson, J. C., M.D., Royal Infirmary, Dundee

East Anglian Branch.

Allen, John, M.B., Norwich
 Batt, John D., Esq., Ampion Hall, Bury St. Edmunds

Edinburgh Branch.

Aikman, C. W., M.B., Ebor House, Hawick
 Barclay, Rachel Mary, M.A., M.B., Ch.B., 15, Rankellor Street, Edinburgh
 Cowe, Archibald, M.D., Lieutenant R.A.M.C., Ashville, Penicuik
 Fraser, William, M.B., 26, Brighton Place, Portobello
 Fry, A., Surgeon, M.B., Lieutenant R.A.M.C., 57, George Square, Edinburgh
 Guthrie, Douglas J., M.D., 8, Strathern Road, Edinburgh
 Herzfeld, Gertrude Marian Amalie, M.B., Ch.B., Royal Hospital for Sick Children, Edinburgh
 Johnston, W. H., M.B., Lieutenant R.A.M.C., 17, Seton Place, Edinburgh
 Vijver, G. T. Van der, M.B., Lieutenant R.A.M.C., 5, Rosslyn Terrace, Edinburgh
 Walker, A. S., M.D., The School Office, Leith

Fife Branch.

Bhair, E. J., M.B., Lieutenant R.A.M.C., St. Andrews

Glasgow and West of Scotland Branch.

Barrett, D. J., M.B., 155, Greenhead Street, Leighton
 Brown, Margaret J., M.B., 300, Cathcart Road, Glasgow
 Carruthers, Thomas, M.B., Barholm, Kilmarchan
 Morrin, J. Grant, Esq., Charlotte, Tennyson Drive, Parkhead, Glasgow
 Quinley, J. F., M.B., Rostrevor, Clincarthill, Rutherglen

Gloucestershire Branch.

Nicol, William, M.B., 19, Clarence Street, Gloucester

Hong Kong and China Branch.

Crisp, G. R., Lieut.-Col., R.A.M.C., Military Hospital, Hong Kong
 Lee, S. F., M.B., 8, Gleanealy Road, Hong Kong
 O'Brien, P. M., M.B., 58, Peel Street, Hong Kong
 Paterson, R. J. E., M.B., Ko Tong, near Canton
 Wilson, E. B., M.B., Hwainingfo, Honan
 Thacker, W. S., M.D., Union Medical College, Peking

Kent Branch.

Lees, Charlie, Esq., 21, Boyne Park, Tunbridge Wells
 Martin, L. C., Esq., 17, Park Road, Southborough
 Montgomery, P. J., M.B., The Limes, Hawley Street, Margate
 Satchwell, H. J., F.R.C.S., Queenborough

Lancashire and Cheshire Branch.

Atkins, T. R. W., Lieutenant R.A.M.C., Riverside, New Ferry
 Banks, E. C., Esq., Home Lea, Erinnington Road, Stockport
 Batty, R. J., M.B., Heathfield, Blackburn
 Boyd, J. McA., M.B., Drumcroon, Wigan
 Caidness, H. P., M.B., Royal Infirmary, Oldham
 Dalhimer, Frank, M.B., Dymock Terrace, Ormskirk
 Fildes, Geoffrey, M.B., Hill House, Netherley
 Good, John, Esq., Blackrod, near Chorley

Gow, John, M.B., Barnes Convalescent Hospital, Chesham
 Harris, J. T., M.B., Heres Lane, Tinperley
 H. J., M.B., 23, Chorley Old Road, Bolton
 M. Brown, J. S., M.D., 84, Rusholme Road, C-on-m., Manchester
 Moore, J. Jackson, Esq., 40, Rodney Street, Liverpool
 Moore, John Thomas, Esq., 116, Stanley Road, Liverpool
 Morrison, J. Tertius, F.R.C.S., Dept. of Pathology, Royal Southern Hospital, Liverpool
 Pitt, Oswald, Esq., Booth Hall Infirmary, Blackley, Manchester
 Power, F. G., M.B., 69, Church Street, St. Helens
 Stevenson, Frank M.B., Walsden, Todmorden
 Unsworth, J. W., M.B., Hilton House, Blackrod, near Chorley
 Waugh, Alexander, M.B., Glendyne, Prenton Hill, Birkenhead
 White, Leonard, Esq., Rock Bank, Mossley, near Manchester
 Wright, A. M. St. Johns, Esq., 104, Shaw Street, Liverpool
 Wright, S. Nicolin, M.B., 4, Cavendish Road, Blundellsand

Malta and Mediterranean Branch.

Sanut, Professor S., M.D., Valetta

Metropolitan Counties Branch.

Birmingham, C. L., M.D., Hampden House, Phoenix Street, N.W.
 de Wyt, W. H., M.D., 11, Dalmeyn Avenue, Camden Road, N.
 Dickson, J. R., M.B., c/o Messrs. Alston, Arbutnot, and Co., London House, Crutched Friars, E.C.
 English, E. A. W., M.B., 6, Harvist Road, Kilburn, N.W.
 Hebbert, R. F., M.B., Captain I.M.S., c/o Messrs. H. S. King and Co., 9, Pall Mall, S.W.
 Jones, David Thomas, Esq., West London Hospital, Hammersmith Road, W.
 Laird, W. J., A., Lieutenant R.A.M.C. (S.R.), 27, Wood Street, Woolwich
 Lee, Leonard Newton, Lieutenant R.A.M.C., c/o A. C. Lee, Esq., Waltham Abbey
 Leighton, F. A., M.D., Mottingham, Eltham, S.E.
 Linehan, T. P., M.B., 22, Clanciarde Gardens, Keanington, W.
 Link, O. A., M.B., 24, Mansfield Road, Inford Lock, Wilmam, Esq., 45, Church Road, Willesden, N.W.
 Mullen, Georgina F., L.M.S.S.A., 2a, Dawson Place, Bayswater, W.
 Marlin, Thomas, M.D., Crantchester, Clarendon Road, Watford
 Oelli, Robert, M.D., Queen's Road, Hertford
 O'Neill, W. H., M.B., The Glade, Harrow Weald
 Rao, Dhanavata Sannal Ramachandra, M.B., 31, Fitzroy Square, W.
 Sheppard, Albert, Esq., 51, Tulse Hill, S.W.
 Smith, C. L., M.B., 17, Castle Street, Hertford
 Swain, J. S., L.R.C.P. and S.I., L.M., Major R.A.M.C., 32, Ford Lane, Inford
 Whigwell, Arthur John, Lieutenant R.A.M.C., Chigwell Hall, Chigwell
 Whigly, Louis, M.B., Weston House, Forest Gate, E.
 Westlake, Sara L., M.B., 3, Ullswater Road, Southgate, N.
 Wilson, George Frederick, Esq., 243, Romford Road, Forest Gate, E.
 Zarebi, Smerka, L.M.S.S.A. Lond., 303, Whitechapel Road, E.

Midland Branch.

Binn, C. C. H., M.B., 34, Humberstone Road, Leamington
 Candlish, W. J., M.B., 228, Coventry Road, Bullwell
 Crawford, Alex. D., M.B., Healdwood, Stately, Mansfield
 Evans, T. R., M.D., Fairfield Mount, Chesterfield
 Lakin, Charles, Esq., 72, London Road, Leicester

Munster Branch.

Ahern, M. J., Esq., Brossa
 O'Sullivan, H. J., M.B., Eyecourt, Crookstown

Oxford and Reading Branch.

Wright, Gaskoin, Esq., Redholme, Thama

Association Notices.

ELECTION OF MEMBERS OF COUNCIL, 1916-17, BY BRANCHES OUTSIDE THE UNITED KINGDOM.

NOTICE is hereby given that in accordance with By-law 49 nominations of candidates for election as members of Council by the grouped Branches outside the United Kingdom for a period not exceeding three years as prescribed by By-law 52 (2) must be forwarded in writing so as to reach me on or before February 15th, 1916.

Nomination papers may be signed by not less than three members of any Branch comprised in the group, and must be in the form prescribed below or in a form to the like effect.

Election will be by voting papers, which will contain the names of all duly nominated candidates, and will be issued from the head office in London to each member of every Branch comprised in the group.

By order of the Council,
GUY ELLISTON,
Financial Secretary and Business Manager.

429, Strand, London, W.C.
October 16th, 1915.

NOMINATION FORM.

BY NOT LESS THAN THREE MEMBERS OF THE GROUPED BRANCHES.

We, the undersigned, hereby nominate

.....
of.....

[Full name and address must be given]

as a candidate for election by the (here state the names of the Branches in the group) Branches as a member of the Council of the Association.

Names and addresses of nominators, and Branches to which they belong.

Signature and Address.....	Branch.....
.....
.....
Date....., 19.....	

This form should be forwarded to the Financial Secretary and Business Manager, 429, Strand, London, W.C. so as to be received not later than February 15th, 1916.

Not later than the second week in June, 1916, a notice of the result of the election will be published in the JOURNAL.

N.B.—The foregoing notice is not intended to apply to the African grouped Branches, the New South Wales and Queensland grouped Branches, or the New Zealand Branch, which have appointed their respective Members of Council for a period of three years under By-law 52 (2).

By-laws 49 and 52 (2) are as follows:

BY-LAW 49.

Mode of Election by Groups not in the United Kingdom.

49. (1) The election of seven members of Council by the groups of Branches not in the United Kingdom shall be conducted in the manner prescribed by this By-law.

(2) All nominations of candidates shall be in writing sent to the Association so as to be received at the head office on or before such day, not being later than the 15th of February in each year, as shall be specified for the purpose by a notice published in the JOURNAL during the second or third week of October in the preceding year, and no nomination paper received after the day so specified shall be valid.

(3) The said notice shall prescribe a form in which the nominations are to be made, and the nominations shall be made in the form so prescribed, or in a form to the like effect. Nomination papers may be signed by not less than three members of any Branch comprised in the group.

(4) As soon as may be after the 15th day of February in each year:

(a) In the case of any group for which one candidate only has been duly nominated, there shall be published in the JOURNAL a notice that such candidate has been elected as member for that group; and

(b) In the case of any group for which more candidates than one have been duly nominated, a voting paper shall be sent by post from the head office to each member of every Branch comprised in that group.

(5) Every voting paper shall contain a statement that the same must be returned to the Association so as to be received at the head office on or before a specified day (not being later than the succeeding 15th of May), and no voting paper received after the day so specified shall be counted.

(6) Not later than the second week in the succeeding month of June, a notice of the result of the elections shall be published in the JOURNAL.

BY-LAW 52 (2) and (3).

Term of Office of Members of Council.

52. (2) Each member of Council elected by a Branch or Group not in the United Kingdom or elected to represent the Royal Navy Medical Service, the Army Medical Service, or the Indian Medical Service, shall hold office for such period not exceeding three years as the electing body may determine and at the expiration of such period shall be eligible for re-election provided that no such member shall be re-elected so as to make his period of continuous service as the Representative on the Council of one and the same Branch or Group exceed six years.

(3) Each of the terms of office mentioned in this By-law shall be calculated from the close of an Annual Representative Meeting.

GROUPING OF BRANCHES NOT IN THE UNITED KINGDOM FOR REPRESENTATION ON COUNCIL OF ASSOCIATION, 1916-17.

(Branches bracketed are grouped.)

	Member of Council to be elected.
South Australian
Tasmanian
Victorian
Western Australian
New South Wales
Queensland
New Zealand
Barbados
Bermuda
British Guiana
Halifax, Nova Scotia
Jamaica
Leeward Islands
Montreal
St. John, New Brunswick
Saskatchewan
Toronto
Trinidad and Tobago
Assam
Baluchistan
Bombay
Burma
Ceylon
Hyderabad and Central Provinces
Punjab
South Indian and Madras
Hong Kong and China
Malaya
Border, South Africa
Cape of Good Hope (Eastern)
Cape of Good Hope (Western)
East Africa and Uganda
Egyptian
Gibraltar
Griqualand West
Malta and Mediterranean
Natal Coastal
Natal Inland
Orange Free State
Pretoria
Rhodesian
Witwatersrand

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Staff Surgeon R. S. Benson, M.B., to the *Essex*, temporary; Surgeon G. F. Syms to the *Pembroke*, additional. Temporary Surgeons E. M. Thompson to the *Victory*, additional; F. J. F. Barrington, M.B., A. B. Hamilton, M.B., to the *Frigate*, additional; for Plymouth Hospital: P. U. Mawer to the *Pembroke*, for R.N. Barracks, vice Judson; C. O. H. Jones to the *Dunwich*, vice MacEwan; D. K. Adams to the *Superseuse*, vice Gerrard; T. J. Harrigan, M.B., to the *Pembroke*, additional; for Chatham Hospital: G. M. Johnson, M.B., to the *Victory*, additional; for Haslar Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon W. J. Gerrard, M.B., to the *Pembroke*, additional, for temporary. Surgeon Probationers C. L. Cottle to the *Tiger*, vice Kane; W. M. Mitchell to the *Zeiger*, vice Ward; for C. Mitchell to the *Express*, vice Ross. To be Surgeon Probationers: J. Donald, P. C. Livingstone, and D. M. Watson. To be Dental Surgeon: A. G. D. Priddan, and appointed to the *Cyclops*, additional.

ARMY MEDICAL SERVICE.

Colonel H. J. Barratt, on completion of four years' service in his rank, is retained on the active list under the provisions of Article 120, Royal Warrant for Pay and Promotion, and to be supernumerary.

rate of mortality in these towns, 2,586 had been 14.0, 13.7, and 14.3 per 1,000 in the three preceding weeks, was again 14.3 in the week under notice, and was 0 per 1,000 above that recorded in the ninety-six largest English towns. Among the several towns the death-rate ranged from 8.2 in Colchester, 8.4 in Letch, and 8.8 in Perth, to 15.3 in Kirkcaldy, 15.6 in Dundee, and 16.5 in Coatbridge. The mortality from the principal infective diseases averaged 1.8 per 1,000, and was highest in Falkirk and Cambridge. The 38 deaths from all causes in Glasgow included 16 from infantile diarrhoea, 7 from measles, 4 from scarlet fever, 2 from diphtheria, and 1 from whooping-cough. Two deaths from enteric fever were recorded in Dundee; from scarlet fever, 4 deaths in Aberdeen, and from infantile diarrhoea, 3 deaths in Dundee.

HEALTH OF IRISH TOWNS

During the week ending Saturday, September 26th, 533 births and 381 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 528 births and 390 deaths in the preceding period. These deaths represent a mortality of 16.4 per 1,000 of the aggregate population in the districts in question, as against 18.8 per 1,000 in the previous period. The mortality in these Irish towns was therefore 2.9 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate in the urban districts was equal to 22.9 per 1,000 of population. As for mortality of individual localities, that in the Dublin registration area was 19.6 (as against an average of 17.9 for the previous four weeks), in Dublin city 22.56 (as against 21.4), in Dublin suburbs 15.09 (as against 15.07), in Cork 19.7 (as against 18.0) in Londonderry 20.2 (as against 19.3), in Limerick 13.5 (as against 14.6) and in Waterford 9.5 (as against 15.2). The zymotic death-rate was 2.8 as against 2.6 in the previous period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice see Index to advertisements. Important Notice re Appointments appearing in our advertisement columns giving particulars of vacancies as to which inquiries should be made before applying.

VACANCIES.

BRIGHTON COUNTY BOROUGH.—Resident Medical Officer at the Isolation Hospital. Salary, £250 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians. (2) House-Surgeons. (3) Dental House-Surgeon. Salary, £120 per annum in each case.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Senior House-Surgeon. Salary, £200 per annum.

DOHCHESTER COUNTY ASYLUM.—Assistant Medical Officer. Salary, £320 per annum, rising to £400.

EXETER ROYAL DEVON AND EXETER HOSPITAL.—Assistant House-Surgeon. Salary, £150 per annum.

HARROGATE INFIRMARY.—Resident House-Surgeon.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, Grove End Road, S.W.—Medical Officer (male). Salary, £300 per annum.

ISLE OF MAN ASYLUM.—Assistant Medical Officer. Salary, £200 per annum, rising to £350.

IPSWICH EAST SUFFOLK AND IPSWICH HOSPITAL.—Second House-Surgeon (male).

LEEDS FIFTH DISPENSARY.—Lad Resident Medical Officer. Salary, £120 per annum.

LIVERPOOL STANLEY HOSPITAL.—House-Surgeon.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant Resident Medical Officer. Remuneration, £120 per annum.

MANCHESTER CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary, £100 per annum.

NEWCASTLE-UPON-TYNE ROYAL VICTORIA INFIRMARY.—(1) Four House-Physicians; (2) Four House-Surgeons; (3) Accident Room House-Surgeon; (4) House-Surgeon to Aural and Ophthalmic Department; (5) House-Surgeon to Skin and Gynaecological Department; (6) House-Surgeon to Out-patient Dressing Department.

NEW HOSPITAL FOR WOMEN, Euston Road, N.W.—(1) Temporary Assistant Surgeon; (2) Obstetric Assistant; (3) Resident Medical Officer at Home of Recovery, New Barnet.

PADDINGTON GREEN CHILDREN'S HOSPITAL, W.—(1) House-Physician; (2) House-Surgeon. Salary, £30 per annum each.

PITTSMOUTH ROYAL SOUTHSMOOTH HOSPITAL.—House-Surgeon. Salary, £150 per annum.

PUTNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

ROCHDALE UNION INFIRMARY.—Temporary Assistant Resident Medical Officer.

ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.C.—Senior House-Surgeon. Salary, £100 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Surgeon. Salary, £150 per annum.

SHEFFIELD WHALSAY PARISH.—Medical Practitioner. Guaranteed income £300 by the Highways and Islands (Medical Service) Board.

SOUTHAMPTON FREE EYE HOSPITAL.—House-Surgeon. Salary, £100 per annum.

SOUTHAMPTON ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House-Surgeon. Salary, £30 per annum.

TURRO AUXILIARY NAVAL HOSPITAL.—Resident Assistant Medical Officer. Salary, £150 per annum.

WARINGTON INFIRMARY AND DISPENSARY, Junior House-Surgeon. Salary, £20 per annum.

WARRINGTON LORD HENRY WAR HOSPITAL.—Resident Surgeons. Pay, £1 per diem.

WELSH METROPOLITAN WAR HOSPITAL, Whitechurch.—(1) Resident Physician. (2) Junior Surgeon.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Wellbeck Street, W.—Honorary Ophthalmic Surgeon.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—(1) Resident Medical Officer. (2) House-Physicians and House-Surgeons. Salary for (1) £160 per annum, and for (2) £120 and £100 per annum respectively.

WIGAN ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—(1) Resident Surgical Dresser; salary, £28 a week. (2) Lady House-Surgeon; salary, £150 per annum.

WILLESDEN URBAN DISTRICT COUNCIL.—Assistant Medical Officer of Health and Assistant School Medical Officer. Salary, £93 8s. per week.

WORCESTER COUNTY AND CITY ASYLUM.—Second Assistant Medical Officer. Salary, £275 per annum.

WORRESTER GENERAL INFIRMARY.—Resident Medical Officer (male or female). Salary, £150 per annum.

MEDICAL REFEREES.—The Home Secretary announces a vacancy as Medical Referee under the Workmen's Compensation Act, 1906, for the Birmingham County Court in Circuit No. 21. Applications to the Private Secretary, Home Office, S.W., by November 3rd.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

HUGHES, W. H., M.B., M.C., Edin.—Certifying Factory Surgeon for the Ashton-under-Lyne District, co. Lancaster.

NEWINGTON, C. W. H., M.R.C.S., L.R.C.P.—Certifying Factory Surgeon for the Edinburgh District.

EDINBURGH ROYAL INFIRMARY.—The following appointments have been made: J. G. Cattauch, F.R.C.P.E., Temporary Assistant Physician. Resident Physicians: W. T. Paterson, M.B., Ch.B., Professor Graham; R. N. Phesse, M.B., Ch.B., to Dr. Graham Brown; H. J. C. Gibson, M.A., M.B., Ch.B., to Dr. Fleming; Ernest O. A. Singer (final year student), to Dr. F. D. Boyd (for one month only); Thomas C. Bowie (third year student), to Dr. Harry Rastoy; Edward W. Kirk, M.B., Ch.B., to Mr. Cathcart; J. W. Matthews, M.B., Ch.B., to Mr. Hodson; J. W. Potter, M.B., Ch.B., to Mr. Wallace; T. F. Corbick, John Dick, and R. L. Ingleby (final year students), at the Surgical Out-patient Department, A. Keith Gibson (final year student), to Dr. A. H. F. Barbour (three months only). Non-Resident House-Surgeons: Miss Mary D. Rankine, M.B., Ch.B., to Dr. J. V. Peterson; M. B. Barton, M.B., Ch.B., to Dr. J. Malcolm Farquharson, Clinical Assistant; Harold Chaffer, M.R.C.P. and S., to Dr. Logan Turner (three months only).

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 8s., which sum should be forwarded in Post Office Orders or Money orders. The notice will appear on the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

FRIDHAM.—On October 9th, at Chesterfield, Stanhope Road, Darlington, the wife of F. C. Fridham, F.R.C.S.E., of a daughter.

MARRIAGE.

AUSTIN-WILSON.—On September 14th, at Christ Church, Travancore, Travancore, by Rev. W. Johnston, Dean of Travancore, Thomas Austin, I.C.S., son of Rev. Thomas Austin, M.A., R.N., retired Chaplaincy, Bodmin, Cornwall, to Cristina Wilson, M.B., Ch.B., Medical Officer in charge Government Hospital for Women and Children, Travancore, and adopted daughter of George Wilson, Esq., Broomhill Road, Aberdeen.

DEATHS.

BRINTON.—Killed in action in France on October 8th, Lieutenant Edward H. P. Brinton, R.A.M.C., attached to the 4th Battalion Grenadier Guards, younger son of Sir Lauder Brinton, Bt., M.D., F.R.S., aged 25.

CAST.—On October 7th, at White Cross, Lincoln, William John Cast, M.B., Ch.B., M.R.C.S., L.R.C.P., L.S.A., aged 59 years, R.I.P. The funeral at St. Peter's-in-Eastgate Church on Saturday, October 9th, at 10.30 a.m.

DIARY FOR THE WEEK.

MONDAY.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C. 5 p.m.—Demonstration by Mr. Shattock, Ricketts, Cretinism, etc.

TUESDAY.

ROYAL SOCIETY OF MEDICINE.
SECTION OF MEDICINE, OBSTETRICS AND PEDIATRICS, 4.30 p.m.—Discussion on Treatment of Cerebro-spinal Meningitis, opened by Professor Sir William Osler, Bt., M.D., F.R.S. Members of other Sections are invited to be present.

WEDNESDAY.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C. 5.30 p.m.—Mr. J. F. Colyer: Injuries and Diseases of the Teeth of the Anterior Abcess.

THURSDAY.

ROYAL SOCIETY OF MEDICINE.
SECTION OF DERMATOLOGY 4.30 p.m.—Cases.

DIARY OF THE ASSOCIATION.

Date. Meetings to be held.

OCTOBER.

20 Wed. London: War Emergency Committee, 2 p.m.

LONDON: SATURDAY, OCTOBER 23RD, 1915.

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INSURANCE.

DEDUCTIONS FROM ACCOUNTS.

QUESTIONS IN PARLIAMENT.

SIR PHILIP MAGNUS asked the Chairman of the Joint Committee of Insurance Commissioners, on October 14th, whether the payment of the balance due to medical practitioners from insurance committees could be accelerated. Mr. Dixon asked the reasons which justified the deductions insisted upon by the Insurance Commissioners (England) in Circular I.C./L. 124, of one-third of the quarterly accounts of panel practitioners, chemists, and institutions after services had been rendered and an agreement entered into with each party, why there had been no advance on account nor adjustment of the deductions of 10 per cent. made in the accounts of doctors, chemists, and institutions for the year 1914, and if the Government would instruct the Commissioners to deal with the reductions owing to enlistments upon a less arbitrary and more generous basis by a temporary increase of the Treasury grant, if necessary, considering that the medical profession had undertaken the free treatment of soldiers' wives and families and other dependants, and had lost the most healthy portion of their panel. Mr. C. Roberts, in reply, referred to the answer given by him to Mr. Hancock on July 27th, and added that every effort was being made to overcome the difficulty arising out of the war, to which reference was there made. In his answer on the date mentioned, which was reported in the BRITISH MEDICAL JOURNAL of July 31st, p. 189, Mr. Roberts said that the final settlement for 1914 had been unavoidably delayed by certain difficulties arising out of the present state of war. The balance due would be ascertained and paid as soon as practicable. In the case of the chemists, who might otherwise have suffered hardship, steps were taken in April last to effect an emergency settlement, which was now in progress. He did not admit that the deductions owing to enlistments were made upon an arbitrary and ungenerous basis, and could not contemplate the suggestion that a further sum should be provided by the Exchequer.

WHERE THE SHOE PINCHES.

A TEMPORARY LIEUTENANT'S WIFE writes: Before finally deciding to take a temporary commission my husband and I counted the cost, and although we knew by past experience (my husband having been a civil surgeon in the South African campaign) that the private practice would vanish with his personality, there were still the appointments left, a large share of which was represented by a fairly large panel. Believing in the bait which was held out to medical men to induce them to go on the panel, namely, "the State are always the safest payers," we agreed to face the loss of the private practice (a no small thing in these days of increased cost of living, and children to feed, clothe, and educate), and do that which seemed plainly our duty—my husband applied for a temporary commission, got it, and in due time went to France.

Now, every Saturday morning I pay the locumtenent seven guineas (and keep a good table for him all through the week) and the chauffeur 35s. (it is quite impossible to work this practice without a conveyance); there is also the

wages of the two maidservants, the maintenance of the household, the children's school bills, their clothes, rent, rates, upkeep of car, firing, lighting, and so on *ad infinitum*, all of which are cash-down transactions.

Now let us turn to the Insurance Committee and see how they have helped and encouraged in this great national emergency.

For the quarter ending December 30th, 1914, they kept back 50 per cent. of the money due to us, for the quarter ending June 30th last 20 per cent., for the quarter ending June 30th 35 per cent. The foregoing percentages are still retained in spite of many letters to the Insurance Committee asking for a settlement, and I fully expect the same thing will happen for the quarter ending September 30th. Their excuse is that "it takes time to find out what men have joined the forces from each doctor's panel." I dare say it does, but a system or method which cannot "find out" by now is no method or system, but a chaotic muddle. I know pretty well every man who has gone from this district, and I know that it nothing near like warrants the deduction made; in fact, I have sent in fresh acceptances to more than balance those gone. Patriotism is a very fine thing, but it will not pay our bills. Thanks to the Insurance Committee, I am paying my hills now by dipping into our savings. Could not the British Medical Association endeavour to make the Insurance Committee see that they also have a duty to perform—namely, to pay for services faithfully rendered as per the agreement signed and stamped?

ENTER THE MONEY-LENDER.

It was generally said and believed at the time when the Insurance Act was coming into force that it would have many effects which nobody could then foresee. Among the high lights in the rosy picture drawn by its friends of its effect upon the income of doctors was not included, so far as we recollect, the encouragement of money-lenders. A correspondent, however, sends us a neatly typewritten letter he received last week, which would appear to have been widely distributed in London. The writer of this letter states that, being aware that the Insurance Commissioners have reduced the amount payable to panel doctors, he is making a speciality of substantial advances to doctors on very reasonable terms. He does not charge money-lenders' rates, and invites a call or 'phone from the doctor addressed, should he be in temporary need of financial assistance. Milton imagined a place of which the denizens

feel by turns the bitter change
From beds of raging fire to starve in ice
. . . and there to pine
Immovable, infixed, and frozen round
Periods of time.

On the whole, it will probably be found a lesser evil to be infixed and frozen round by an Insurance Committee for a period of time than to enter the fiery furnace of the money-lender.

PROPOSED AMALGAMATION OF INSURANCE COMMISSIONS.

THE proposal, which, as was mentioned last week, is attributed to the Retrenchment Committee, for the amalgamation of the Scottish and Welsh Insurance Commissioners

with the English Insurance Commission, is exciting much opposition in Scotland.

At a meeting of the Edinburgh and Leith Division held on October 15th, Dr. W. Stewart, chairman of the Division, presiding, a circular was read from the Scottish Committee stating that it was understood that the Parliamentary Retrenchment Committee had suggested that the Scottish Insurance Commission should be abolished. The Division unanimously passed resolutions "to oppose strongly the transference of the Scottish Insurance Commission to London," and "that the amalgamation of several small Insurance Commissions into one Central Commission must be deprecated chiefly on the ground of loss of local interest in the administration of medical benefit." The Senior Secretary was instructed to send copies of these resolutions to local members of Parliament and others.

At the monthly meeting of the Leith Burgh Insurance Committee a resolution was adopted, submitted from the meeting of the chairman, vice-chairman, conveners of subcommittees, and representatives of the doctors and chemists, declaring that the proposed amalgamation should be opposed on the ground that experience had justified the wisdom of the constitution of a separate commission for Scotland, and that administration from a centralized office in London would lead to loss of efficiency prejudicial to insured persons, without any adequate compensation in economy.

The Executive Committee of the Scottish Association of Insurance Committees is to consider the proposal at a meeting at Dundee on October 30th. Judging from the reference to the matter in its report the Committee is opposed to the suggestion. It is urged that the abolition of the Scottish Commission would not result in any substantial saving, for even if all the members of the Commission were displaced, the staff—both indoor and outdoor—would not be diminished in number, as was clear from the fact that the cost of the Scottish staff was in proportion to population, and, having regard to the extent and character of the area administered, no higher than in England, and less than half that in Ireland. The Midlothian Insurance Committee has adopted unanimously a resolution maintaining that in the interest of the insured population of Scotland and of efficiency and economy of administration, the Scottish Insurance Commissioners should be continued with unimpaired powers, and protesting against any attempt to reopen the question settled by the compromise of 1913.

The General Council of Panel Chemists (Scotland), at a meeting on October 15th, approved the decision of the Pharmaceutical Standing Committee (Scotland) to offer an uncompromising opposition to what it described as the retrograde proposal for the abolition of the Scottish Commission and the centralization of the insurance administration in London.

The Edinburgh district of the Ancient Order of Foresters at its forty-fifth annual meeting adopted a resolution stating that it viewed with alarm the proposed transfer of the Scottish Commission to London, and calling upon the Scottish members of Parliament to resist such transfer as being detrimental to the best interests of Scotland. Meanwhile the unofficial Liberal members of Parliament, at a meeting in the House of Commons on October 14th, adopted the following resolution:

That in view of the widespread belief in Scotland that a proposal for the abolition of the Scottish Insurance Commission is in contemplation, the Scottish unofficial Liberal members are glad to know that such a proposal has not been considered by the Committee on retrenchment of public expenditure. In the event of any such proposal being made from any quarter, they will feel bound to meet it with strenuous opposition.

LIMITATION OF RIGHT OF TRANSFER OF INSURED PATIENTS OF A PRACTITIONER ABSENT ON MILITARY SERVICE.

THERE was an error in the title and introduction to the copy of the Medical Benefit Regulations, 1915 (SUPPLEMENT, October 16th, p. 159), in which it was inadvertently stated that they applied to soldiers returning to civil life. As will have been seen from the text, they refer to the insured patients of doctors on active service. They require that an insured person whose name is on the list of a practitioner on the panel on November 30th, 1915, such

practitioner being absent on military service, shall not be entitled to select another practitioner at the end of the medical year, December 31st, 1915, unless he satisfies the Medical Service Subcommittee that he has reasonable grounds for desiring to be removed from the list of the absent practitioner. A practitioner absent on military service is defined as meaning any practitioner on the panel who by reason of his serving with the naval or military forces of the Crown is unable to practise, whether under his agreement with the Committee or otherwise, within the area in which he has undertaken treatment.

THE PROPOSED COMMERCIAL DRUG TARIFF.

OPPOSITION BY SCOTTISH CHEMISTS.

At a largely attended meeting of the General Council of Panel Chemists (Scotland) at the Pharmaceutical Society's House, Edinburgh, on October 15th, resolutions were adopted refusing to undertake pharmaceutical service under the Insurance Acts on the terms of the drug tariff as framed by the Departmental Committee, on the ground that it was financially unsound and that its application to about 5,000 consecutive insurance prescriptions indicated a reduction of about 20 per cent. on present drug tariff rates. While not objecting to the general principles that the remuneration should be based on the cost price of material, with allowance for establishment charges and a dispensing fee, the opinion was expressed that the proposed average amount, namely, 0.8d., was quite inadequate in existing war conditions: in view of the limited time available, Scottish panel chemists were recommended to continue the existing arrangements, with satisfactory adjustment of prices, for 1916.

INSURANCE ACT IN PARLIAMENT.

WELSH INSURANCE COMMISSION.

MR. ELLIS DAVIES asked on October 14th whether it was contemplated to abolish the Welsh Insurance Commission, and, if so, on what grounds, and on whose suggestion was the decision of Parliament to be reversed. Mr. C. Roberts, Chairman of the Joint Committee of Insurance Commissioners, said he had nothing to add to the reply given by the Prime Minister on September 29th, when it was stated that the organization of the department as a whole was under consideration by the Retrenchment Committee; no statement could be made until the report of the Committee has been received.

SMALL PANELS.

On October 19th Mr. CURRIE asked whether cases existed in England and Scotland of panel doctors whose panel consisted of less than half a dozen persons; what total remuneration was payable to such doctors; whether his attention had been drawn to the case of a panel doctor in Edinburgh who received £76 14s. 2d. sterling for the solitary patient on his panel who required no medical attendance whatever from one end of the year to the other; whether the amount paid to this doctor was in any way subject to the control or discretion of the Commissioners in Scotland, or whether under the Act they had no option but to sanction the payment. Mr. C. Roberts said that such cases as were referred to in the first part of the question no doubt existed, though he had no precise information on the point. The remuneration of a doctor under the capitation system was governed by the terms of his agreement with the Insurance Committee, and included not only his liability in respect of the persons actually on his list, but also the responsibility which he undertook in common with other doctors on the panel for giving treatment to persons who had not selected a doctor for themselves. The payment made in the specific case referred to under the agreement entered into at the beginning of the year covered this liability.

LOCAL MEDICAL AND PANEL COMMITTEES.

RENFREWSHIRE.

At a meeting of the Renfrewshire Panel Committee on September 22nd it was decided to ask the Insurance Committee (1) to continue for 1915 the arrangement for 1914 whereby the whole of the Practitioners' Fund was divided among practitioners in proportion to the number of insured persons upon their lists at the commencement of each quarter; and (2) to see that no permanent reduction was made from the payments due to practitioners in

respect of any failure to submit records for 1914 due to their absence on active service.

With regard to the proposed commercial drug tariff, it was decided to oppose any alteration which would expose the Practitioners' Fund to the risk of being charged to any extent with the cost of drugs.

LANARKSHIRE.

At a meeting of the Local Medical and Panel Committees for the county of Lanark on September 22nd, a scheme for the distribution of the balance of the Medical Fund, and for arrangements for enabling insured persons to be assigned to practitioners on the line of last year's resolution was approved, and it was resolved to recommend the Commissioners that the scheme for recompensing doctors for attending temporary residents should have regard to and meet the expenses of any mileage involved.

The Secretary of the Insurance Committee reported that payment for the quarter of 1s. 4d. for medical attendance and 3/6d. for medicine would be made, but that as the deduction of 5,000 for enlistments was believed to be inadequate the final accounting would yet fall to be made.

With regard to discharged soldiers, it was suggested that when restored to a doctor's list an intimation should be placed on the medical card to the effect that the holder had been restored, and would remain on the doctor's list unless intimation of objection was received within a week.

WEST RIDING OF YORKSHIRE.

A meeting of the Local Medical Committee and Panel Committee was held on October 8th, when a resolution was adopted expressing the opinion that the Drug Tariff ought to be revised, but that the 7s. derived from the Medical Benefit Fund and belonging to the doctors must not under any circumstances be encroached upon in the payment of the pharmacists' accounts.

During the temporary absence of Dr. Eardley on military service, the secretarial work will be carried on by his deputy, Mr. Cyril R. Townsend, A.C.A., Carlisle Chambers, Goole.

THE WAR EMERGENCY.

SOUTH ESSEX DIVISION.

DR. JOHN WALKER, Honorary Secretary of the South Essex Division and Local War Emergency Committee, has compiled a statement showing the response of the profession in the district to the appeal of the army:

South Essex Division:

Total number of members and non-members	114
Members and non-members who have joined	49
Number over military age	23
Women	2
Rejected for physical reasons	1
Doctors who have left the Division	3
	85
	31

Of the 31 thus shown to be possibly eligible 3 do not practice, 1 is the medical officer of health whom the Local Government Board decline to set free, and 1 is a woman. This appears to leave 26, and in two instances the doctors have allowed their partners to go, so that they may be said to be represented by them in the army.

Dr. Walker also gives separately the statistics for the County Borough of Southend-on-Sea as follows:

County Borough of Southend-on-Sea:

Total number of men in practice	47
Doctors who have joined	13
Doctors over military age	15
	31
Of these 16 left—	16
One is M.O.H.	1
Two have sent their partners	2
	3
	13

Thus leaving 13 possibles.

EDINBURGH AND LEITH DIVISION.

A MEETING of the Edinburgh and Leith Division was held on October 15th, when Dr. W. STEWART, Chairman of the Division, presided.

Dr. STEVENS, the Secretary of the Edinburgh and Leith Medical War Committee, gave an account of the work done for medical recruiting, and mentioned that the number apportioned to this Division by the Scottish Medical Service Emergency Committee had been provided, including the August and September contingents, and that there was every probability of obtaining the

final contingent for October. The Senior Secretary and Treasurer was given general powers to deal with the expenses of the Edinburgh and Leith Medical Emergency and the Edinburgh and Leith Medical War Committees. It was agreed to call an early meeting of the Edinburgh and Leith Medical Emergency Committee to consider grievances arising from the gratuitous treatment of dependants of men serving with the colours, and to make representations to the Soldiers' and Sailors' Families Association.

Meetings of Branches and Divisions.

ABERDEEN BRANCH.

The annual meeting of the Branch was held on October 15th, when Sir ALEXANDER OGGSTON, K.C.V.O., President, occupied the chair. The report of the Branch Council for the previous year, which was read and approved, gave a summary of the various meetings held during the year which were mainly connected with war emergency work and the formation of a Bureau Committee and a Local War Committee. The Treasurer's report, having been circulated, was taken as read and approved.

It was decided that owing to present war conditions the office-bearers be re-elected for another year as follows:

- President: Sir Alexander Oggston, K.C.V.O., M.D.
- President-elect: L. B. Beddie, M.B., Fraserburgh.
- Vice-Presidents: John Gordon, M.D., Aberdeen, and C. C. Greig, M.B., Fyvie.
- Honorary Secretaries: Thomas Fraser, M.B., and F. K. Smith, M.B., Aberdeen.
- Honorary Treasurer: J. R. Levack, M.B., Aberdeen.
- Representatives on Council of Association: John Gordon, M.D., Aberdeen, and J. Munro Moir, M.D., Inverness.
- Branch Council: L. B. Beddie, M.B., A. T. Gordon Beveridge, M.D., R. Bruce, M.D., J. F. McIntosh, M.B., R. Rannie, M.B., G. Sinclair, M.D., J. F. Robertson, M.D., George Williamson, M.B., and J. D. Wyness, M.D.

The revised ethical rules governing procedure of a Branch were considered, and the meeting unanimously agreed to adopt them.

Dr. GORDON gave a short report of the work of the Bureau Committee, and pointed out how great an advantage it had been in Aberdeen during the last five months.

Association Notices.

STAFFORDSHIRE BRANCH.—Dr. Harold Hartley, Honorary General Secretary, Basford, Stoke-on-Trent, gives notice that the first general meeting of the session will be held at the North Stafford Hotel, Stoke-on-Trent, on Thursday, November 18th. The President, Dr. F. M. Rowland, will take the chair at 4 p.m. Business.—Resolution: That the Staffordshire Branch hereby adopts the revised rules governing procedure in ethical matters of a Branch composed of several Divisions as approved by the Annual Representative Meeting, 1915, without modification and in substitution for any ethical rules now in use by the said Branch. Exhibition of living Cases. Papers:—W. Mitchell Smith: Alimentary Hygiene in Children. G. A. Carter: Nose Bleeding. S. McMurray and E. E. Young: A Case of Intra-cranial New Growth simulating Miness' Nystagmus. Exhibition of pathological specimens, etc. Dinner at 6.15 p.m. Charge, 5s.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeon O. Rees, M.D., to the *Dominion*, vice Cocke; G. J. E. Cocke to the *Kowarfal*, vice Rees; F. A. Lappe to the *Defence*, vice Durston; J. C. Durston to the *Colleen*, additional, for Hanborough and Dockyard; C. B. Fairbank to the *Centurion*, vice Gill; H. H. Gill to the *Triad*, additional, for disposal; G. G. Borrett to the *Embrose*, additional, for disposal; F. J. Mahon to the *Achilles*, vice Borrett. Staff Surgeons: R. Schofield, M.B., to the *Southampton*, vice McCoy; A. McCoy to the *Hedra*, vice Fairbank; G. H. Vickery, M.B., to the *Victa*, additional, for disposal. Temporary Surgeons: A. T. McDonald to the *Warrior*, vice Scott; A. D. E. Bayliss, M.D., to the *Pembroke*, additional, for disposal. To be temporary Surgeons: A. C. Barker, M.B., H. C. C. Veltch, A. R. S. Varden, G. Lingo, M.B.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationer E. P. Smith to the *Oak*.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

Temporary Major H. H. Guest relinquishes his commission. Captain B. A. Odum from seconded list is restored to the establishment. The name of temporary Captain Edward Emrys-Roberts is as now stated, and not as stated in the *London Gazette* of April 12th. To be temporary Captains: C. E. Lee, M.D., J. G. Sims, M.B., R. H.

Strong, M.B., J. Whigham, M.B., A. H. Carter, M.D., T. G. Lusk, M.B., late Captain, R.A.M.C.T.F., J. A. Arkwright, M.D.

Temporary Lieutenants to be temporary Captains: F. A. Gatson, M.D., R. P. N. H. Martyn Clarke, W. P. K. Cole, D. Lowth, M.D. To be temporary Lieutenants: H. W. Fiegon, M.D., A. H. Coleman, M.B., A. R. Hobbs, M.D., P. Rendall, M.D., D. J. McEoin, M.D., A. G. Faulds, M.B., G. Coats, C. Robertson, M.B., A. G. Bisset, M.B., E. G. Evans, E. Brock, M.B., F. B. Snell, M.B., E. A. Pywell, A. L. Robinson, H. A. Butt, C. B. Cervis, M.D., A. C. Falkiner, M.B., E. M. Polson, M.B., R. Felton, M.D., N. McFarlane, M.B., M. Fager, E. Young, H. H. Stokes, M.B., V. M. Fisher, M.B., W. Milneick, D. P. Macdonald, M.B., R. A. Awenis, M.B., S. R. Lane, M.D., G. L. Parsons, F. Dillon, M.B., J. A. Brown, M.D., H. M. Robertson, M.B., J. Gardner, M.R., J. Mouries, M.B., A. Pennington, M.B., S. A. McGivney, M.R., E. F. M. M. D. W. L. Crowe, M.D., W. C. Downs, M.B., W. H. Anderson, M.D., W. A. Clayton, M.B., M. Gavin, F.R.C.S.F., F. L. Brown, M.D., W. E. Bracey, D. R. Campbell, M.D., A. MacLure, M.B., E. G. D. Milson, H. W. Nott, W. J. Soussville, M.D., J. F. Biacchini, M.D., W. G. Macdonald, M.B., J. G. Kerr, J. F. E. Heury, J. MacP. Lang, M.B., G. W. Riddell, M.B., F. N. Brown, A. Budd, M.B., N. F. Lock, M.B., F. R. C. S. H. Young, M.B., T. E. Malvany, L. R. Thomson, M.P., R. A. Cheddie, M.B., K. W. L. Sharp, A. F. G. Kerr, M.D., G. D. McQueen, G. E. Bruce, M.B., J. G. Scattellain, A. C. West, M.B., R. C. MacQueen, M.B., F. R. C. S. J. S. G. Mielme, M.B., E. H. Sheehan, M.B., A. B. MacLenn, M.B., F. G. Hopkins, M.D., B. C. Scott, W. H. Hayner, N. Gowman, D. Dunlop, M.B., G. B. Hanna, D. Welsh, P. McDougall, M.B.

The name of temporary Lieutenant James Philip is as now described, and not as stated in the *London Gazette* of September 20th.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BOURNEMOUTH: ROYAL NATIONAL SANATORIUM FOR CONSUMPTION AND TUBERCULOSIS (RESIDENT)—Resident Medical Officer and Clinical Tuberculosis Officer. Salary, £300 per annum, rising to £400, with additional £130 for the latter post.

BRISTOL: ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Junior Resident Officer as House-Physician. Salary, £150 per annum.

BRISTOL: ROYAL INFIRMARY.—(1) House-Physicians. (2) House-Surgeons. (3) Dental House-Surgeon. Salary, £120 per annum in each case.

BURNLEY: VICTORIA HOSPITAL.—House-Surgeon. Salary, £135 per annum.

DEWSBURY EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary, £300 per annum.

DUDLEY: GTEEST HOSPITAL.—Senior Resident Medical Officer. Salary, £150 per annum.

GLAMORGAN COUNTY ASYLUM, Bridgend.—Assistant Medical Officer. Salary, £250 per annum.

GLASGOW UNIVERSITY.—Additional Examiner in (1) Medical Jurisprudence and Public Health, (2) Public Health Laboratory Work; (3) Vital Statistics, Sanitary Law, etc.; (4) Midwifery.

HAMMERSMITH PARI-H.—Second Assistant Medical Officer for Infirmary and Workhouse. Salary, £170 per annum, increasing to £190.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—(1) Assistant Resident Medical Officer; salary, £100 per annum. (2) House-Physician for six months; honorarium, 30 guineas.

HOSPITAL FOR WOMEN, Soho Square, W.—Resident Medical Officer. Salary, £80 per annum.

KING EDWARD VII WELSH NATIONAL MEMORIAL ASSOCIATION.—(1) Assistant Resident Medical Officer at Glam Ely Tuberculosis Hospital; (2) Assistant Tuberculosis Physician at Highfield Tuberculosis Hospital. Salary in each case, £250 per annum.

LEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £120 per annum.

MANCHESTER CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary, £100 per annum and bonus of £3 per month during the war.

NEWCASTLE-UON-TYNE PARISH.—Resident Assistant Medical Officer for the Infirmary. Salary, £250 per annum, rising to £300.

NEWCASTLE-UON-TYNE: ROYAL VICTORIA INFIRMARY.—(1) Four House-Physicians; (2) Four House-Surgeons; (3) Accident Room House-Surgeon; (4) House-Surgeon to Antral and Ophthalmic Department; (5) House-Surgeon to Sialivary and Otolaryngological Department; (6) House-Surgeon to Out-patient Dressing Department.

NEW HOSPITAL FOR WOMEN, Ruston Road, N.W.—(1) Temporary Assistant Surgeon; (2) Obstetric Physician; (3) Resident Medical Officer at House of Recovery, New Barnet.

PUTNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) House-Surgeon; salary, £100 per annum. (2) Temporary Surgeon in charge of Ear, Nose, and Throat Department; honorarium, £25 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.C.—Senior House-Surgeon. Salary, £100 per annum.

SAMARITAN FREE HOSPITAL, Marylebone Road, N.W.—Two Anaesthetists. Honorarium, 15s per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Surgeon. Salary, £150 per annum.

SHEFFIELD: WALSAY PARISH.—Medical Practitioner. Guaranteed income £300 by the Highlands and Islands (Medical Service) Board.

STREWSBURY: ROYAL SALUBR INFIRMARY.—House-Physician. Salary, £120 per annum.

SOUTHAMPTON COUNTY BOROUGH.—Assistant Medical Officer of Health. Salary, £300 per annum.

SOUTHAMPTON: FREE EYE HOSPITAL.—House-Surgeon. Salary, £200 per annum.

SOUTHAMPTON: ROYAL SOUTH HANTS and SOUTHAMPTON HOSPITAL.—Junior House-Surgeon. Salary, £120 per annum.

SUNDERLAND: MONKWEARMOUTH and SOUTHWICK HOSPITAL.—House-Surgeon. Salary, £150 per annum.

SUNDERLAND: ROYAL INFIRMARY CHILDREN'S HOSPITAL.—Resident Medical Officer (female).

WARRINGTON INFIRMARY and DISPENSARY.—Junior House-Surgeon. Salary, £120 per annum.

WARRINGTON: LORD DERBY WAR HOSPITAL.—Resident Surgeons and Physicians. Pay, £1 per diem.

WELSH METROPOLITAN WAR HOSPITAL, Whitechurch.—Junior Surgeon.

WESTMORLAND SANATORIUM, Methop.—Second Assistant. Salary, £200 per annum.

WEST HAM and EASTERN GENERAL HOSPITAL, Stratford.—House-Physicians and House-Surgeons. Salary, £120 and £100 per annum respectively.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY and DISPENSARY.—Lady House-Surgeon. Salary, £150 per annum.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer. Salary, £150 per annum.

YORK COUNTY HOSPITAL.—Resident Medical Officer. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Ballulugh (Bath).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

SMALLES, W. H., M.D. Lond., District Medical Officer of the Huddersfield Union.

WILSON, T. N., M.B., C.M. Edin., Certifying Factory Surgeon for the Market Bosworth District, co. Leicester.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Friday morning in order to ensure insertion in the current issue.

MARRIAGES.

DAIST—PEARSE.—At Christ Church, Dunston (by special licence), on October 16th, by the Rev. J. W. D. McIntosh (vicar), Captain Edgar Balse, M.B., B.S., R.A.M.C.T.F., son of Dr. Balse, Wellington Gunners, The Buffs, and a member of the Royal New Zealand, and the late W. S. Pearse, Esq., Canterbury, New Zealand.

FISHER—EPPS.—On the 18th instant, at the Church of St. Jude-on-the-Hill, Hammersmith Garden Suburb, by the Rev. Walter Bancroft, M.A., Robert Hamiltonson Williams Fisher, M.A., D.P.H., eldest son of Dr. Thomas Fisher, J.P., of Great Eccleston, Lancs., to Frances Nina Epps, second daughter of the late Dr. Washington Epps, of Queen Anne Street.

LAPAGE—MACDONALD.—On September 1st, at St. Chrysostom's, Victoria Park, Manchester, by the Rev. M. J. Fausome, assisted by the Rev. H. A. Ramsome (uncles of the bride), and the Rev. E. F. Muir (rector), Charles Pugh, eldest son of Dr. and Mrs. Lapage, of Nantwich, to Hilda, only daughter of the late Dr. Macdonald, of Kirkoswald, Cumberland, and of Mrs. Macdonald, Eversley, Victoria Park, Manchester.

DEATHS.

FLOWER.—At 21, Warriston Crescent, Edinburgh, on the 14th inst., Alexander M. Flower, M.B., C.M., youngest son of the late James Stewart Flower, M.D.

GRANT.—Killed in action on October 11th, George Leonard Grant, B.A., M.R.C.S., L.R.C.P., temporary Captain R.A.M.C., only son of Dr. and Mrs. Leonard J. Grant, New Southgate, aged 25.

PROCTER.—On October 17th, at the Croft, Great Bookham, Surrey, William James Procter, beloved husband of Lal Procter, of Addison's disease. No flowers, by request.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—Discussion on Gun-shot Wounds of the Peripheral Nerves will be introduced.—The Medical Aspect by Dr. Wilfred Harris and the Surgical by Mr. Wilfred Trotter, to be followed by Sir F. Eve, Dr. F. Buzzard, Mr. J. Swan, and Mr. H. Robt.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C. 5 p.m.—Demonstration by Mr. Stabcock: Foreign Bodies.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W. 9 p.m.—President's Address by Dr. W. H. Kelton: Diseases of the Throat, Nose, and Ear, and their Treatment in Hunter's Time.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C. 5.30 p.m.—Mr. J. F. Colyer: Irregularities of the Teeth in Man.

THURSDAY.

ROYAL SOCIETY OF MEDICINE, 11, Chandos Street, W. 8.30 p.m.—Presidential Address by Dr. James Taylor: The Ophthalmological Observations of Hughlings Jackson and their Bearing on Nervous and other Diseases.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, OCTOBER 30TH, 1915.

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INSURANCE.

INSURANCE ACTS COMMITTEE.

A MEETING of the Insurance Acts Committee was held at the office of the British Medical Association on Tuesday, October 19th, when Dr. J. A. MACDONALD, LL.D., was in the chair. The other members present were:—*England and Wales:* Dr. T. Ridley Bailey (Bilston), Mr. H. B. Brackenbury (London), Dr. T. Campbell (Wigan), Major A. C. Farquharson (Newcastle-upon-Tyne), Dr. P. V. Fry (Sowerby Bridge), Dr. Major Greenwood (London), Mr. R. Harding (New Radnor), Dr. W. Ainslie Hollis (Brighton), Mr. P. Napier Jones (Crowthorne), Dr. B. A. Richmond (London), Mr. H. H. Tomkins (Leyton), Dr. W. B. Crawford Treasure (Cardiff). *Scotland:* Dr. John Adams (Glasgow), Dr. J. Hunter (Coarstorphine). *Et officio:* Mr. E. B. Turner (Chairman of Representative Meetings). [The name of Mr. R. Harding was accidentally omitted in the list of persons present at the meeting of the Committee on October 7th, reported in the SUPPLEMENT of October 16th.]

Drug Tariff.

The Committee, having considered a memorandum as to the proposals put before the Executive Subcommittee at the interview with the Commissioners on October 14th with respect to possible changes in the regulations affecting the drug tariff, it was resolved to address a communication to the National Health Insurance (Joint) Committee in the following terms:

(a) That the Committee expresses its approval of the method suggested by the Commissioners for the purpose of meeting the new position created by the proposed arrangements in connection upon the Drug Tariff, and will advise Local Medical and Panel Committees to accept the proposed arrangements;

(b) That the Committee will do all in its power to render effective the existing safeguards against extravagant prescribing, as embodied in Article 40 of the Regulations, subject to the elimination of the functions of the Pharmaceutical Committee in the matter;

(c) That the Committee's approval of the proposed arrangements is dependent on the understanding that no extra cost will be thrown upon the Panel Committees in connexion with the carrying out of the new administrative details;

(d) That the Commissioners be asked to inform the Committee as soon as possible as to the constitution and functions of the "some other body or authority" referred to in paragraph 10 (iii) of the Memorandum;

(e) That the Commissioners be requested to amend Article 40 of the Regulations so as to provide that there might be an automatic liability to surcharge every practitioner, the total cost of whose prescriptions exceeds the maximum of 2s. per insured person, with power to the Panel Committee, on appeal, to grant a certificate of indemnity which shall entitle such practitioner to relief.

The following reply has since been received from the Commissioners:

National Health Insurance Commission (England),
Buckingham Gate, London, S.W.

27th October, 1915.

Sir,—I am directed by the National Health Insurance Commission (England) to state that they have taken due note of the resolutions of the Insurance Acts Committee of the Association set forth in your letter of October 23th, and believe that the amending Regulations to be issued immediately will be found to be in practical accord with the views of the Committee expressed in those resolutions.

With reference to the resolution marked (c), the Commissioners are satisfied that it will be possible for Panel Committees to carry out the duties resting upon them under Article 40 in its amended form without incurring greater expenses than those entailed by the effective discharge of their functions under the present Article.

On a closely related subject on which it is understood that there is some anxiety on the part of Panel Committees, the Commissioners desire me to assure you that they have every reason to anticipate that under the arrangements to be made for the pricing, arithmetical analysis, and sorting of prescriptions such information as it has previously been the duty of the Pharmaceutical Committees to place before the Panel Committees in connexion with any representations under Article 40 will continue to be made available to Panel Committees in at least as convenient a form as heretofore.—I am, Sir, your obedient servant,

(Signed) JOHN ANDERSON.

The Secretary,
British Medical Association,
429, Strand, W.C.

LOCAL MEDICAL AND PANEL COMMITTEES.

SOMERSET.

At a meeting of the Local Medical and Panel Committees held at Weston-super-Mare on September 30th a resolution was adopted expressing willingness to accept a commercial tariff, provided that the Commissioners gave a guarantee that the promise of the Government contained in the Memorandum as to medical benefit, Section 2, Clause 10 (SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL, December 7th, 1912, p. 622), should be adhered to. It was also agreed that each insurance area should be credited with an amount for drugs and appliances as at present, but that if the Commissioners considered some change essential, a part, or the whole of the amount, which some areas might be able to save below 1s. 6d., should be placed to a central fund, to be available for areas which were unable with due economy to work under 2s., but that the medical practitioners who did their own dispensing should continue to receive the 2s. as before.

INSURANCE NOTES.

PROPOSED AMALGAMATION OF INSURANCE COMMISSIONS.

Dumfries and Galloway.

At a meeting of the Dumfries and Galloway Division of the Border Counties Branch of the British Medical Association the principal business was the consideration of the proposal for the amalgamation of the Scottish Insurance Commission with the English. The meeting expressed itself in favour of the proposed change, the reasons being the unsatisfactory administration of the Insurance Act and resultant chaos, the advisability of appointing whole-time clerks to Insurance Committees, and the irregularity of payments to medical men.

Dundee.

The proposed amalgamation of the Scottish Insurance Commission with the English was warmly debated at the quarterly meeting of the Dundee Insurance Committee on October 20th. The resolution to oppose the abolition was carried by 26 to 6, but only after several speakers had taken the opposite view, mainly on the ground that the

Scottish Commissioners could not introduce any reform without consulting the London authorities.

SALFORD INSURANCE COMMITTEE.

After numerous delays, some of which were quite unavoidable, the Salford Insurance Committee has decided, *nonne contradicente*, to accept the report of the Panel Committee, which recommended that no surcharge should be made on any of the sixteen doctors who were alleged to have been guilty of excessive prescribing during the year 1913, and these doctors will now be paid moneys that had been kept back from them till the question was settled. The first report of the Panel Committee the Insurance Committee considered did not afford sufficient information on which to base any decision, and it was referred back, but the Panel Committee simply repeated its recommendation. The report was then referred to the Commissioners by the Insurance Committee, with a request that the Commissioners should say whether they considered the report was adequate. In view of the reply of the Commissioners to the effect that the report was not adequate, the Panel Committee again considered the question, and in July last sent in a more detailed report. The Insurance Committee was still in doubt, and again referred it to the Commissioners, whose reply pointed out that the question was entirely one for the Insurance Committee to decide, with the result that the Committee has now decided to make no surcharge in any of the cases. In 1913 the chemists in Salford only received about 66 per cent. of their accounts, but the Insurance Committee has now been informed that a grant will be made out of the special fund at the disposal of the Commissioners for the purpose which will bring the total to 85 per cent., so that the chemists will only suffer a reduction of 15 per cent. on their accounts for that year. For the year 1914 they will receive their accounts in full.

INSURANCE ACT IN PARLIAMENT.

PROPOSALS FOR RETRENCHMENT.

SIR J. D. RIES asked, on October 26th, what steps, if any, were being taken to reduce the cost to the State of the National Insurance Act. Mr. Charles Roberts, Chairman of the Joint Committee of Insurance Commissioners, said that a number of administrative changes, which it was hoped would result in substantial savings, had been carried out in the department since the outbreak of war. Proposals for further economies, the majority of which could only be effected by legislation, had been submitted to the Committee on Public Retrenchment, and were under their consideration. He was unable to say whether the necessary legislation would be introduced, and in reply to Mr. Hogge, who asked whether any alteration in the Scottish Commission was involved, Mr. Roberts said that he could make no statement about proposals which had been submitted to the Retrenchment Committee.

Meetings of Branches and Divisions.

CAMBRIDGE AND HUNTINGDON BRANCH:

ISLE OF ELY DIVISION.

The annual general meeting of the Isle of Ely Division was held at March on October 12th, when Dr. C. H. GIBSON was in the chair.

Election of Officers.—The following officers for 1915-16 were appointed:

Chairman: Dr. H. Clapham.

Vice-Chairman: Dr. C. H. Harding.

Secretary: Dr. A. C. S. Walters.

Executive Committee: Drs. R. H. Barrett, F. H. Beckett, H. Clapham, H. F. Carl, C. H. Gunson, A. Hamilton, C. H. Harding, P. A. Hendley, C. W. Howe, G. H. Lucas, F. G. Martiu, F. M. Mawby, F. E. W. Rogers, M. Tylor, C. E. Stephens, J. J. Waddelow, A. C. S. Walters.

Financial Statement.—The balance sheet for the year ending December 31st, 1914, showing a deficit of 14s. 8½d., was passed.

War Emergency.—A letter was read from the Central Medical War Committee asking the Division to use its best endeavour to find three more men to take commissions in the R.A.M.C. A local committee was appointed, with Dr. A. C. S. Walters (March) as honorary secretary.

DORSET AND WEST HANTS BRANCH.

The autumn meeting of the Branch was held at Bournemouth on October 20th, Dr. VINCENT MILNER, Vice-President, in the chair, when a vote of sympathy with the Honorary Secretary, Dr. Fowler, was passed by the members standing.

Election of Officers.—The following were elected officers of the Branch for the year 1916-17:

President: Dr. W. H. L. Marriner.

Vice-Presidents: Dr. U. Grey-Edwards and Dr. J. Miller.

Honorary Secretaries: Dr. F. Fowler and Mr. P. A. Ross.

Scientific Proceedings.—Dr. BRASCOE, of Alton, introduced by Dr. MANORÉ, showed some coloured photographs of a case of compound fracture of the tibia which had been united by Arbuthnot Lane's method. He shortly explained the nature of the colouring process, ordinary methylene blue being the material used. Dr. NORMAN FLOWER, of Yeovil, read a paper on gastrostaxis, which was discussed by the CHAIRMAN, Dr. MANORÉ, Mr. BELDEN, Dr. MOORHEAD, Dr. HYLIA GREVES, and Dr. MIDDLTON.

Ethical Rules.—At a special meeting of the Branch, held at the same place on the same day, Dr. VINCENT MILNER, Vice-President, in the chair, the new code of ethical rules approved by the Annual Representative Meeting held July, 1915, was adopted unanimously.

YORKSHIRE BRANCH:

WAKEFIELD, PONTEFRAC, AND CASTLEFORD DIVISION.

At a meeting of the Division held at Clayton Hospital, Wakefield, on October 12th, when Dr. MAY was in the chair in the absence of the chairman, Dr. Hillman, on military service, and of the vice-chairman, Dr. Selby of Doncaster. The revised ethical rules approved by the Annual Representative Meeting were adopted in substitution for those already in use. Dr. Lister (Sandal) was appointed Acting Honorary Secretary for Dr. Eardley, who has received a temporary commission in the R.A.M.C.

Association Notices.

STAFFORDSHIRE BRANCH.—Dr. Harold Hartley, Honorary General Secretary, Basford, Stoke-on-Trent, gives notice that the first general meeting of the session will be held at the North Stafford Hotel, Stoke-on-Trent, on Thursday, November 18th. The President, Dr. F. M. Rowland, will take the chair at 4 p.m. **Business.**—**Resolution:** That the Staffordshire Branch hereby adopts the revised rules governing procedure in ethical matters of a Branch composed of several Divisions as approved by the Annual Representative Meeting, 1915, without modification and in substitution for any ethical rules now in use by the said Branch. Exhibition of living cases. Papers:—W. Mitchell Smith: Alimentary Hygiene in Children. G. A. Carter: Nose Bleeding. S. McInurray and E. E. Young: A Case of Intracranial New Growth simulating Miners' Nystagmus. Exhibition of pathological specimens, etc. Dinner at 6.15 p.m. Charge, 5s.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In the ninety-six largest English towns 7 419 births and 4 845 deaths were registered during the week ended Saturday, October 16th. The annual rate of mortality in these towns, which had been 15.5, 16.0, and 14.9 per 1,000 in the three preceding weeks, fell to 15.9 per 1,000 in the week under notice. In London the death-rate was equal to 14.6, while among the ninety-five other large towns it ranged from 3.8 in Oxford, 4.5 in Bath, 5.9 in Ealing, 6.1 in Wimbledon, and 6.4 in Hove; to 19.2 in West Ham, 19.3 in Isleworth, 20.6 in Beote, 21.4 in Gateshead, and 23.2 in Stockport. The deaths of children (under 2 years) from diarrhoea and enteritis, which had been 765, 826, and 717 in the three preceding weeks, further fell to 508, and included 166 in London, 37 in Liverpool, 27 in Birmingham, 17 in Manchester and in Sheffield, and 16 in West Ham. Measles caused a death-rate of 1.2 in Stockport and 2.1 in Gloucester. The mortality from the remaining infective diseases showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The causes of 38, or 0.5 per cent., of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number 8 were recorded in Liverpool, 7 in Birmingham, 3 in Gateshead, 2 in Leicester, and 2 in Stockport. The number of certified fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,656, 2,758, and 2,933 at the end of the three preceding weeks, had further increased to 3,014 on Saturday, October 16th; 453 new cases were admitted during the week, against 372, 382, and 468 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 953 births and 733 deaths were registered during the week ended Saturday, October 16th. The annual

Lieutenants to be Captains: J. G. Hill, M.B., J. P. Race. To be Lieutenants: J. F. Sisson, M.B.

West Lancashire Field Ambulance.—Captain G. B. Robinson, M.D., from Attached to Units other than Medical Units, to be Captain. Lieutenants to be Captains: S. S. Slaughter, J. H. Mather, L. S. Gaskell, M.B., P. S. Fletcher, M.B.

West Lancashire Casualty Clearing Station.—Lieutenants to be Captains: W. B. Medley, M.B., H. D. Levick, M.B., F. R. C. S. *East Lancashire Casualty Clearing Station*.—(Captains C. H. Crawshaw, M.B., and T. P. Kilner, M.B., from Western General Hospital, to be Captains. Lieutenant E. A. Williams, from Western General Hospital, to be Lieutenant. Lieutenant W. Grove relinquishes his commission on account of ill health.

East Lancashire Field Ambulance.—Lieutenants to be Captains: E. R. Cooper, M.B., W. Clegg-Newton, F. K. Tomlinson, M.B., W. Calverley, M.B.

Lowland Field Ambulance.—J. W. G. H. Riddell, late Second Lieutenant Lowland Brigade, R.F.A., to be Lieutenant (subs intitled for notice published in the *London Gazette* of August 17th) E. R. Armstrong, M.B., to be Lieutenant. Lieutenant W. Grove relinquishes his commission on account of ill health.

Lowland Casualty Clearing Station.—Lieutenants to be Captains: A. Rankin, M.B., S. Robertson, M.B., S. A. McPher, M.B., F. R. C. S. *Lowland Mounted Brigade Field Ambulance*.—Lieutenants to be Captains: J. R. Herbertson, M.B., S. S. Meighan, M.B., T. C. Houston, M.B.

Scottish Horse Mounted Brigade Field Ambulance.—Lieutenant J. E. Lascelles to be Captain.

Highland Field Ambulance.—Lieutenant D. H. Scott, M.B., to be Captain. C. G. Skinner to be Lieutenant.

Sanitary Service.—Captain R. D. Corbett, appointed Sanitary Officer, East Lancashire Division (substituted for notice published in the *London Gazette* of December 22nd, 1914).

Attached to Units other than Medical Units.—Captains to be Majors: J. Little, M.D., and W. E. Roe, Capt. Capt. M. Wilks, M.D., from the South Midland Field Ambulance, to be Captain. Lieutenants to be Captains: J. G. F. Hosker, R. G. McD. Ladell, M.B., C. F. Searle, M.B., F. C. Kempson, M.B., A. J. Granger, M.B., J. M. Heron, M.D., G. E. Pearson, G. Patton, M.B., E. E. Birtlow, M.B., F. R. C. S., J. B. Baird, A. Jubb, M.D., L. C. Bruce, M.D., W. A. L. Jackson, M.B., I. D. Stubbs, H. F. Comyn, M.B., J. K. Brownless, S. Shephard, J. S. Townley, M.B., N. G. E. Salmon, M.B., C. G. Bennett, M.B., D. E. Evans, L. Wood, M.D., G. W. C. Hollist, J. Macquarrie, M.B., T. To be Lieutenants: A. E. Evans, M.B., B. G. Ewing, M.B., F. R. H. Javerick, M.D., F. T. Roper.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BIRMINGHAM UNIVERSITY.—Senior Demonstrator in Anatomy.
BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—House-Physician. Salary, £150 per annum.
BRISTOL ROYAL INFIRMARY.—(1) House-Physicians. (2) House-Surgeons. (3) Dental House-Surgeons. Salary, £120 per annum in each case.

BURNLEY: VICTORIA HOSPITAL.—House-Surgeon. Salary, £125 per annum.
CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Assistant Resident Medical Officer. Salary, £150 per annum.

COLCHESTER: ESSEX COUNTY HOSPITAL.—Resident Officer.
DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Lady Resident Medical Officer. Salary, £50 per annum.

DEWBURY EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary, £300 per annum.
DUDLEY: GUEST HOSPITAL.—Senior Resident Medical Officer. Salary, £150 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—House-Surgeon. Salary, £200 per annum.

GLAMORGAN COUNTY ASYLUM, Bridgend.—Assistant Medical Officer. Salary, £250 per annum.

KING EDWARD VII WELSH NATIONAL MEMORIAL ASSOCIATION.—(1) Assistant Resident Medical Officer at Glan Ely Tuberculosis Hospital; (2) Assistant Tuberculosis Physician at Highfield Tuberculosis Hospital. Salary in each case, £250 per annum.

LEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £150 per annum.

LIVERPOOL PARISH.—Resident Assistant Medical Officer for the Brownlow Hill Institution. Salary, £300 per annum.

LONDON COUNTY COUNCIL.—Temporary Principal Assistant to take charge of London Ambulance Service.

MANCHESTER CHILDREN'S HOSPITAL.—Resident Medical Officer. Salary, £100 per annum and £5 per month war bonus.

MANCHESTER ROYAL EYE HOSPITAL.—Junior House-Surgeon. Salary, £100 per annum, with £50 war bonus.

MANSFIELD AND DISTRICT HOSPITAL.—Resident House-Surgeon (male). Salary, £200 per annum.

NORWICH CITY.—Assistant Medical Officer of Health. Salary, £252 per annum.

PITNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—Assistant Resident Medical Officer. Salary, £60 per annum, rising to £80 on promotion to Senior.

ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.C.—Senior House-Surgeon. Salary, £100 per annum.

SOUTH SANDS: WALSLEY PALACE.—Medical Practitioner. Guaranteed income £300 by the Highlands and Islands (Medical Service) Board.

SHEREWSBURY DISPENSARY.—Medical Officer.

SHEREWSBURY: ROYAL SALOP INFIRMARY.—House-Physician. Salary, £120 per annum.

SOUTHAMPTON: FREE EYE HOSPITAL.—House-Surgeon. Salary, £400 per annum.

SWINDON BOROUGH.—(1) Medical Officer of Health. (2) Assistant Medical Officer of Health. Salary, £550 and £300 per annum respectively.

WESTERN DISPENSARY, Rochester Row, W.—Vacancy on Attending Medical Staff.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—House-Physicians and House-Surgeons. Salary, £120 and £100 per annum respectively.

WESTHORLAND SANATORIUM, Meathop.—Second Assistant. Salary, £200 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Lady House-Surgeon. Salary, £150 per annum.

WORCESTER GENERAL INFIRMARY.—Resident Medical Officer. Salary, £150 per annum.

YORK COUNTY HOSPITAL.—Resident Medical Officer. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Braemar (Aberdeen), Hackney (London), Kidderminster (Worcester).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested in various vacancies to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

FISHER, F. T., M.R.C.S., District Medical Officer of the Newmarket Union.

LOCIE, J. W., M.B., C.M. Glasg., Certifying Factory Surgeon for the Robbes District, Co. Elgin.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGE.

DAVIS—HUNTER.—On October 12th, at St. Michael's Parish Church, Linsithgow, by the Rev. R. Coupar, minister of the parish, assisted by the Rev. Peter Dunn Dalmeny and the Rev. Douglas Bruce, Cozzy, Captain H. Greenhalgh Davis, R.A.M.C., attached 4th South Lancashire Regiment, to Gwendolyn Gleanidun Hunter, M.B., Ch.B. Edin., eldest daughter of Dr. and Mrs. Hunter, Linsithgow, Scotland.

DEATH.

BONNY.—At Manchester, on the 15th October, following an operation, Dr. Arthur E. Bonn, late of Sidney Sussex College, Cambridge, aged 55.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W., 8.30 p.m.—Adjourned discussion on Gunshot Wounds of the Peripheral Nerves, to be continued by Sir Frederic Eve, Dr. Faroukh Buzzard, Dr. F. Mott, Mr. Jocelyn Swan, Mr. F. E. Roth, and Dr. S. A. E. Wilson.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W. 5, p.m.—Demonstration by Mr. Shattock:—Actinomyces; Leprosy.

TUESDAY.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W., 5 p.m.—Bradshaw Lecture, by Dr. Mitchell Clarke: Nervous Affections of the Sixth and Seventh Decades of Life.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W., 9 p.m.—President's Address, Dr. W. H. Kelton: Diseases of the Throat, Nose and Ear, and their Treatment in Hunter's Time; to be followed by a discussion.

ROYAL SOCIETY OF MEDICINE:
SECTION OF OPHTHALMOLOGY.—8 p.m., Cases. 8.30 p.m., Papers.—Dr. C. W. Daniels: Eye Lesions as a Point of Importance in directing Suspicion to possible Trypanosome Infection. Mr. Sidney Stephenson: A Fallacy in the Diagnosis of Glaucoma Retinæ. Dr. A. H. Thompson: Late Results of the Operative Treatment of High Myopia.

THURSDAY.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W., 5 p.m.—First FitzPatrick Lecture, by Dr. W. H. B. Rivers: Medicine, Magic, and Religion.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
SECTION OF LARYNGOLOGY.—4 p.m., Cases and Specimens.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
10 Wed.	London: Central Medical War Committee, 2 p.m.
18 Thur.	Staffordshire Branch, Stoke-on-Trent, 4 p.m.; Dinner, 6.15 p.m.

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INSURANCE.

INQUIRIES BY THE INSURANCE COMMISSIONERS INTO CHARGES AGAINST PRACTITIONERS.

CAMBRIDGE.

WE have received from the Insurance Commission, England, a communication dated October 15th, stating with regard to the inquiry held at Cambridge on August 30th, upon representations made by the Cambridgeshire Insurance Committee with reference to Dr. Robert Elwell Naish, of 125, Newmarket Road, Cambridge, that the Commissioners, being satisfied that the continuance of Dr. Naish on the list would be prejudicial to the efficiency of the medical service of the insured, have, in pursuance of the provisions of Section 15 (2) (b) of the National Insurance Act, 1911, and of the regulations made thereunder, removed his name from the list.

The communication from the Insurance Commission was accompanied by a report of the Inquiry Committee, which concludes as follows:

The following inferences of fact may in the opinion of the Committee be drawn:

(a) That Dr. Naish in breach of his contract with the Insurance Committee did not supply drugs or appliances to insured persons to whom he had agreed to supply them, and with knowledge of his omission received the payment from the Insurance Committee as if he had duly fulfilled his contract.

(b) That Dr. Naish habitually allowed insured persons to be attended at his surgery by an unqualified person, and authorized that person to prescribe medicines and to sign certificates of incapacity for work in his (Dr. Naish's) name, in cases where he (Dr. Naish) had not himself seen the patient.

LIVERPOOL.

WE have received a communication, dated October 21st, from the Insurance Commission, England, stating, with regard to the inquiry held in Liverpool on May 18th, 1915, with reference to Dr. J. D. McFeely, that the Commissioners upon consideration of the report of the Inquiry Committee, have decided not to remove his name from the list.

The Commissioners communicated their decision to the Liverpool Insurance Committee in a letter a copy of which they forwarded to us on October 21st. As it deals with matters of principle, it seems well to reproduce it in full:

National Health Insurance Commission (England),
Buckingham Gate, London, S.W.,
20th July, 1915.

Sir,

I am directed by the National Health Insurance Commission (England) to state that they have had under their consideration the report of the Inquiry Committee constituted under Part VI of the Medical Benefit Regulations to inquire into the representation made by the

Liverpool Insurance Committee with respect to the continuance on the panel of Dr. J. D. McFeely.

I am to inform you that on a full review of the facts stated, and subject to what is further set out below, the Commissioners are not satisfied that the continuance of Dr. McFeely upon the panel would be prejudicial to the efficiency of the medical service of the insured, and they have decided therefore not to order his name to be removed from the panel.

In communicating this decision, however, the Commissioners desire to make clear that this decision has regard to evidence which was given by Dr. McFeely before the Committee of Inquiry but had been withheld by him from the Insurance Committee, and that in the opinion of the Commissioners the Insurance Committee were fully justified on the facts at that time before them, in making the representation which they made to the Commissioners.

Further, the Commissioners are of opinion that the facts ascertained by the Inquiry Committee, while not collectively establishing a sufficient case for the removal of Dr. McFeely from the panel, nevertheless show that he committed a grave error of judgement, resulting in a serious disregard of the welfare of the patient for whose medical care he had accepted responsibility. It is clear that, through Dr. McFeely's persistent refusal to give direction as to the treatment of the case, the patient, whose injured finger was in such a condition that at the end of five weeks it required amputation, was throughout the greater part of that period without medical supervision, although he presented himself regularly to Dr. McFeely and received from him prescriptions and certificates, these being given without any attempt by Dr. McFeely to ascertain the condition of the wound. It is further clear that Dr. McFeely, while thus refusing to direct the treatment himself, took no effective steps to secure that the patient was placed under the care of another practitioner, and that he was aware at the same time that the patient was under no medical care.

In justification of this course of action Dr. McFeely represented that he was guided by what he stated to be the principles of medical ethics, and that, if he were at fault under his agreement with the Committee, it would only be because the obligations of that agreement are, as he would appear to suggest, incompatible with due observance of those rules of professional conduct which are generally accepted by the medical profession. Having regard to the importance of the defence thus offered, as affecting the professional position of all practitioners who enter into agreements with Insurance Committees for the treatment of insured persons, the Commissioners think it well to state that, on a careful review of the evidence given in the present case, it appears to afford no foundation for the suggestion that the obligations of a panel practitioner under his agreement are incompatible with the proper discharge of those duties towards his professional brethren and towards the community which are connoted by the term "medical ethics." Doubtless the procedure which may be appropriate for compliance with the principles of medical ethics, under the special conditions of practice

under the Insurance Act, must differ in points of detail from the procedure which would be appropriate under other conditions, just as, in the varying conditions of medical practice apart from insurance, different forms of procedure are doubtless suitable in different sets of circumstances.

In the present case Dr. McFeely appears to have been actuated by the desire to free himself from responsibility for the further treatment of a patient who, while under his care, had obtained treatment without his knowledge from another practitioner. It is recognized by the Commission, as it is also recognized not only by members of the medical profession but by all who have given due consideration to the subject, that the duties of a medical practitioner in the treatment of his patient cannot be satisfactorily performed unless, so long as he is held responsible, the medical direction of the case is left entirely with him, and any advice or treatment from other practitioners obtained under his advice or in co-operation with him. Any other procedure would not only be unjust to the doctor but may be highly prejudicial to the patient; and there will be no disposition to question not only the right but the duty of a doctor, when improper interference with his treatment has occurred, to take suitable steps, consistent with his duty to his patient, to free himself from the false position of continuing to accept a nominal responsibility for treatment of which he has not a corresponding control. If the case is one, such as may often occur in private practice, in which the relation of doctor and patient is terminable at a moment's notice, without injustice to either, it will be possible for the doctor to withdraw immediately from the case. Even, however, in private practice conditions of urgency or difficulty in obtaining other advice, or other circumstances, must often be such as to preclude a doctor, alike in professional and in lay opinion, from withdrawing at short notice; and wherever, whether in private practice, in practice under the Insurance Act, or under the conditions of tenure of appointments of various kinds, the doctor has entered into special obligations, the procedure adopted must obviously be consistent with the discharge of those obligations; clearly nothing less than this would be consonant with the ethics of any profession.

Now a panel practitioner has entered into an agreement under which he takes on himself the obligation to give treatment to any patient whom he has accepted on his list unless and until the relation thus created between them is terminated in any of the ways defined in the agreement. One of these ways is that the Insurance Committee may, on the application of the doctor, and if satisfied as to the propriety of so doing, transfer the patient to the care of another practitioner. Other provisions of a disciplinary character are also open to the Committee under the Medical Benefit Rules if they are satisfied that a patient has behaved improperly towards his doctor. It appears to the Commissioners that these provisions afforded Dr. McFeely full and sufficient opportunity for relieving himself of the responsibility for the further treatment of the patient in question, if he considered that it was his duty as a medical practitioner, in view of all the circumstances, to seek relief from that responsibility. In fact, however, Dr. McFeely, while refusing to treat the case, omitted to take any such steps as were open to him to relieve himself of the responsibility, and simultaneously to secure that the patient should receive at other hands the medical care to which he was entitled. It is not clear to the Commissioners on what ground it can be suggested that medical or other ethics required Dr. McFeely to act in this manner, or that any principle of medical ethics would have been contravened by the observance of his obligations to his patient under his agreement. On the contrary, it would seem clear that medical, no less than other ethics, imposed on him the plain duty of fulfilling his professional obligations to the man so long as the latter was his patient.

On a review of the facts as a whole, the Commissioners consider that Dr. McFeely failed on this occasion in his plain duty to his patient, committing thereby a serious breach of his agreement and of the terms of service by which the Eschequer grant to the Insurance Committee is conditioned. In pursuance therefore of the duty laid upon them by the conditions of that grant, the Commissioners have decided, in respect of this breach, to withhold from the grant payable to the Liverpool Insurance Committee the sum of £20, which it will be open to the Committee under the terms of their agreement with Dr. McFeely to deduct from the remuneration payable to him.

I am, Sir,

Your obedient servant,

(Signed) JOHN ANDERSON.

The Clerk,
Liverpool Insurance Committee.

The Insurance Committee for the city of Liverpool in publishing the above letter added thereto a schedule which reads as follows:

SCHEDULE.

Case of Dr. Joseph Daniel McFeely.

The following relevant facts appear to the Committee to have been established at the inquiry:

Dr. McFeely is a medical practitioner who has been about eleven years in practice in Liverpool. He was formerly in practice in Ireland, and was at one time Coroner for the County of Donegal and a member of the Council and the Court of Examiners of the Royal College of Surgeons in Ireland, and the holder of several surgical appointments in Irish hospitals. He is on the Liverpool panel, and is now 58 years old.

Dr. McFeely had accepted as a panel patient an insured person named Joseph Edward Fletcher Hartley, a pawnbroker's assistant, and a member of the National Pawnbrokers' Assistants' Approved Society. Hartley was employed by Mr. R. W. Perkins, a pawnbroker, of 97, West Derby Road, Liverpool. On Good Friday, the 10th April, 1914, Hartley cut the first finger of his left hand with his penknife, while trying to cut a piece of chocolate. Hartley did not see a doctor till Monday, 20th April, 1914, when he went to see Dr. McFeely. Dr. McFeely painted the finger with iodine, in order, as he explained, to prepare it for opening and to determine where would be the most suitable place to open it. Hartley went away, and a day or two later he went back to Dr. McFeely, who lanced the finger. Hartley continued to attend the doctor each day, and on the morning of the 30th April, after leaving Dr. McFeely's surgery, he went to the shop where he was employed. Hartley fainted in the shop, and his employer sent him to the out-patient department of the Liverpool Royal Infirmary. At the Infirmary, Hartley was attended by Dr. Arthur Henry Turner, at that time the Senior House-Surgeon. The finger was in a bad septic condition, and much swollen. Hartley was asked if he had been sent by a doctor, and replied that he had not. Dr. Turner thought the case should have immediate attention, and administered an anæsthetic and opened the finger in two places and scraped the bone and applied a fomentation. Hartley was then directed to attend his panel doctor. On the following day Hartley went in the evening to Dr. McFeely's surgery and asked him to dress his finger. Hartley did not tell Dr. McFeely that he had fainted in the shop, but he did tell him that his employer had sent him to the Royal Infirmary, and that he had had his finger treated there. Dr. McFeely then said: "If that is so, I will have nothing more to do with it." Hartley returned to the Royal Infirmary to have the finger dressed, and again saw Dr. Turner. Dr. Turner declined to treat him, and Hartley was instructed to go back to Dr. McFeely. On the 2nd May Hartley went to the Queen Victoria District Nurse, and the finger was treated every day for about three weeks with bandages and fomentations by the staff of that institution. During this period, Dr. McFeely gave certain prescriptions to Hartley to enable him to obtain dressings, and he also gave him certificates of incapacity so that he might draw sickness benefit, but Dr. McFeely refused to look at the finger. On the 21st May, Hartley again went to the Royal Infirmary with a nurse from the district, and the finger was examined, which was in a worse condition than when he first saw it. Dr. Turner opened the finger a second time, and scraped the bone, and Hartley was told to return on the 25th May. Hartley returned on the 25th May, when Dr. Turner found the finger still in a serious septic condition. Shortly afterwards, on the 2nd June, it was arranged by the Liverpool Insurance Committee that Hartley should be, and he was in fact, transferred from Dr. McFeely's panel, and was accepted as a patient by Dr. John Robert Henry Dubourg. Dr. Dubourg advised Hartley to see Mr. Jeans, one of the Honorary Surgeons at the Royal Infirmary, and on the 8th June Dr. Dubourg attended at the Infirmary with Hartley. After a consultation with Mr. Jeans, Dr. Dubourg amputated the finger.

On 28th May the Liverpool Insurance Committee received a complaint from Hartley, through the Secretary of his Approved Society. A copy of the complaint was forwarded to Dr. McFeely, who sent the following reply: "My answer to this is: This boy attended me from 19th April and was dressed daily. On or about the 30th he was absent for two days. On his return I informed me he had seen another doctor. I declined to have anything more to do with his finger, as he took the case out of my hands. I also informed him I declined to be dresser for the Royal Infirmary or any other institution or person." On 17th June the matter came before the Medical Service Sub-Committee, when it was adjourned. At a further meeting of the Sub-Committee, which was fixed for the 14th October, and Dr. McFeely was asked to attend. This he declined to do, stating in a letter to the Clerk of the Committee, written on or about the 8th October, that the question was one of medical ethics, and adding that neither the provisions of the Insurance Act nor the opinion of the Medical Service Sub-Committee would interfere with his private practice, either before or thereafter. The Medical Service Sub-Committee, at their meeting on the 14th October, found that Dr. McFeely was guilty of negligence in not affording the medical treatment necessary, and had showed discourtesy in refusing to appear before the Sub-Committee, and recommended that representation should be made to the Insurance Commissioners that the continuance on the panel of Dr. McFeely would be prejudicial to the efficiency of the medical service of insured persons. This recommendation was adopted by the Insurance

Committee, and communicated to Dr. McFeely. After some correspondence, Dr. McFeely's solicitors, on the 10th February, 1915, wrote to the Clerk to the Insurance Committee stating that Dr. McFeely only acted in accordance with the usages of the medical profession in refusing to dress the finger after an operation performed by another man for which Dr. McFeely was not responsible, that he regarded the case as having been taken out of his hands, that they were instructed by Dr. McFeely to express his sincere regret that he did not wait upon the Committee, as he perceived that his failure to do so was open to misconstruction, and to state that he would in future strictly observe his agreement and the regulations incorporated therewith; he added that Dr. McFeely hoped that the Committee would accept this explanation and expression of regret, and would withdraw the representation to the Insurance Commissioners. This letter was laid before the Medical Service Sub-Committee, who reported to the Insurance Committee suggesting that no action should be taken. The letter itself was not, apparently, laid before the Insurance Committee.

INSURANCE ACTS COMMITTEE.

DRUG TARIFF.

The following letter from the Insurance Acts Committee has been sent to the Secretaries of Local Medical and Panel Committees in England, Scotland, and Wales:

28th October, 1915.

Dear Sir,

Proposed Changes in the Regulations affecting the Drug Tariff.

1. You have already been informed in our circular letter of September 7th of the proposals made by the Commissioners for alterations in the Regulations consequent upon the publication of the Report of the Departmental Committee on the Drug Tariff. The Insurance Acts Committee gave very careful consideration to the replies of the Local Medical and Panel Committees to the circular letter, and these showed that Local Medical and Panel Committees were practically unanimous in their opposition to any proposals which entailed the risk of a reduction in the remuneration of practitioners below the minimum which was promised by the Chancellor of the Exchequer in 1912—namely, 7s. per insured person per annum.

2. The Commissioners were informed of the result of this consultation of the Committees and they thereupon asked the Insurance Acts Committee to meet them in Conference on October 14th to consider the whole subject. At this meeting certain proposals were made by the Commissioners which were afterwards embodied in their Memorandum which is appended to this letter, and I am instructed to urge that your Committee should study this Memorandum very carefully. Your attention is specially directed to paragraph 10, which summarizes the proposals of the Commissioners for meeting the deadlock caused by the refusal of the chemists to continue to submit to the risk of disapproval, and the refusal of the doctors to consent to any arrangement whereby the drug bills should be made a first charge on the 9s. per head allowed for medical benefit.

3. It will be seen

(1) That the Government will guarantee (a) the doctors' minimum of 7s., and (b) the payment in full (on a commercial tariff) of the chemists' bills. The Government expects to cover this risk by the saving which it is believed will follow from the lowering of the total cost of drugs owing to the adoption of the Commercial Tariff.

(2) That the chance of the doctors in any area getting the whole part of the "floating 6d." remains exactly as at present. Prescriptions will in future require to be priced under both the present and the new tariff the former for the purpose of calculating the proportion of the Drug Fund that is to go into the Practitioners' Fund, and the latter for the purpose of paying the chemists. The additional administrative work involved will be paid for by the Commissioners.

For full particulars of the scheme I must refer you to the Memorandum of the Commissioners, but the Insurance Acts Committee has convinced itself both by a study of the Memorandum and by discussion with the Commissioners that the proposals do not in any way prejudice the position of the doctors, and that they constitute a very fair solution of an exceedingly difficult problem, namely, how to reconcile the conflicting claims of doctors and chemists.

4. It will be noted that in paragraph 11 of the Commissioners' Memorandum it is indicated that the Commissioners could not ask the Government to undertake the risk of the arrangement unless they could be assured on behalf of the profession that doctors would do all that lies in their power "to render effective the existing safeguards against extravagant prescribing as embodied in Article 40, subject to the elimination . . . of the functions

of Pharmaceutical Committees in this matter." This seemed to the Insurance Acts Committee to be a reasonable and necessary precaution. Under the present system it is to the interest of the Pharmaceutical Committee to see that the attention of the Panel Committee is drawn to cases of suspected extravagance in prescribing. But under the new system the Pharmaceutical Committee will no longer have any financial interest in preventing extravagance. Therefore unless the Government were assured by some responsible body that the remaining safeguards of the Drug Fund would be rigidly enforced the risk which it has undertaken might be a very serious one. The Insurance Acts Committee has forwarded to the Commissioners the following resolution on this question:

That the Committee will do all in its power to render effective the existing safeguards against extravagant prescribing as embodied in Article 40 of the Regulations, subject to the elimination of the Pharmaceutical Committee in the matter.

It will be realized that in giving this undertaking the Committee believed that it could rely upon the Local Medical and Panel Committees to back it up.

5. The Committee desires to point out most earnestly that the interests as well as the honour of the profession are involved in this undertaking. In the first place, experience shows that Panel Committees, by careful attention to the methods and standard of prescribing in their areas, can do much to protect the Drug Fund from abuse. In many areas they have secured to the local panel a considerable proportion of even the whole of the floating 6d. without in any way raising on the rights of insured persons to a proper supply of drugs and appliances. There is no reason why this should not be done in many other areas. Further, under the new arrangement any sums obtained from the surcharging of doctors proved to have been guilty of extravagant prescribing will go not to the chemists, as before, but into the Practitioners' Fund of the area.

6. But quite apart from the natural desire to secure if possible a share of the floating 6d. we are bound to look ahead to what may happen when the whole of the system comes under review, and it is evident that the best interests of the profession are bound up in proving that representative bodies of the profession like Panel Committees can be trusted to carry out efficiently duties which can only be properly carried out by some professional body. If as the result of the working of the promised compromise it should turn out that Panel Committees generally have not taken seriously the responsibility thrown on them under the Regulations, of preventing any abuse of the local Drug Fund, it is probable that the duties of the Panel Committee in this connexion, irksome as they are, may be replaced by some other arrangement which would be even less acceptable to the profession. For it is quite certain that no Government could allow a system of Drug Finance to be perpetuated which was proved to be wasteful.

7. We are informed by the Commissioners that Panel Committees can rely upon receiving in the future statistics as regards the prescribing in their areas at least as good as they have received in the past under the most efficient local arrangements. Thus the Panel Committee will receive periodically full information as to the cost and character of the prescribing in the area. But instead of such information coming from the Pharmaceutical Committee in the form of complaints against particular practitioners, it will be presented simply as information on which the Panel Committee must take appropriate action. Such action might or might not involve proceedings against individuals under Regulation 40, but it would necessarily involve some process of investigation into the general nature of the prescribing in the area so as to satisfy the Committee that there was or was not ground for further action.

8. It will be noted that in paragraph 10 (iii) of the Commissioners' Memorandum reference is made "to some other body or authority" which will be charged with the functions hitherto discharged by the Pharmaceutical Committees. The Insurance Acts Committee has asked the Commissioners what this "some other body or authority" will be, and gathers that it will probably be the Insurance Committee or a combination of Insurance Committees which will, however, not occupy the position of complainant as the Pharmaceutical Committee at present does, but will simply present to the Panel Committee the material on which it can proceed with its work of investigation and general supervision.

9. The Insurance Acts Committee's approval of the proposed new arrangement was subject to the understanding

that no extra cost would be thrown upon the Panel Committees in connexion with the carrying out of the new administrative details, and as regards this, satisfactory assurances have been received.

10. The new scheme, which is of course only intended to be a stop-gap during the war, was placed by the Commissioners before a meeting of the Advisory Committee composed of the medical members and those members appointed to represent Insurance Committees, and it is understood received general approval as a temporary measure. The Regulations embodying the proposed arrangements have not yet been issued, but will be carefully considered by the Insurance Acts Committee as soon as they appear, and a further communication will be sent to the Local Medical and Panel Committees if there seems to be any new point arising on which comment should be made. In the meantime the Committee trusts that Local Medical and Panel Committees generally will approve the compromise arrived at with the Commissioners, not only because of the inherent reasonableness of the arrangements, but also because the Insurance Acts Committee, after most careful consideration of the answers of the Local Medical and Panel Committees to its previous communication, has assured the Commissioners that it believes the proposed arrangement will meet with general approval.

I am, yours faithfully,

ALFRED COX,

Medical Secretary.

To Secretaries of Panel Committees,
in England, Scotland, and Wales.

APPENDIX.

MEMORANDUM FROM NATIONAL HEALTH INSURANCE (JOINT) COMMITTEE AS TO PROPOSALS WITH RESPECT TO THE POSSIBLE CHANGES OF THE REGULATIONS AFFECTING THE DRUG TARIFF.

Memorandum.

1. The time has now arrived for considering the arrangements to be made for the administration of medical benefit next year in the light of the situation created by the Report of the Departmental Committee upon the Drug Tariff.

2. That Report, in recommending certain rates of remuneration to chemists as commercial, has necessarily had important consequences as regards the present structure of the drug supply finance. If the new rates of payment are commercial, no chemist obviously can be expected to accept less; and payment of bills in full is therefore a logical and inevitable condition of commercial prices. The present financial arrangements, however, as settled for the three years, 1913-15, do not provide for payment of chemists in full. As these arrangements are based upon the principle of the distribution of a single fund among both doctors and chemists, the fact that the doctors have a prior claim upon that fund to the extent of a minimum 7s. (apart from surcharges) in each area has necessarily involved a corresponding maximum limit to the amount available in respect of chemists' bills, viz., 2s. It becomes necessary therefore, in order to secure the advantages offered by the system of commercial pricing, to provide for payment in full by abolishing the maximum limit of 2s. which at present operates in each area.

3. Under the present financial arrangements whereby the whole of the medical funds of the area are distributed among doctors or chemists, the abolition of the maximum limit of 2s. upon the chemists' share of the pool necessarily implies the corresponding abolition of the doctors' minimum limit of 7s. The effect of these changes would be that, in lieu of the doctors' minimum of 7s. being guaranteed, as at present, and the chemists taking the risk of being discounted, the doctors would be called upon to guarantee to the chemists payment in full at commercial prices for the medicines which they prescribe for insured persons.

4. Such an arrangement has been the subject of careful consideration by the Joint Committee, and of discussion between them and the British Medical Association. The Joint Committee arrived at the conclusion, as they have previously intimated to the British Medical Association, not only that such a system was sound in principle and administratively convenient but that, having regard to the substantial reduction of prices afforded by the commercial tariff, and the greater care and economy in prescribing which was bound to result from the incidence of the charges for drugs, the risk of any encroachment upon the minimum 7s. was theoretical except in the case of sheer extravagance, against the consequences of which the doctor's 7s. had never, of course, been guaranteed.

5. The British Medical Association in virtue of the relations which they had recently established with Panel Committees issued a circular to those Committees in which the nature of the problem and of its possible solutions was analytically examined,

and a series of questions asked in order to elicit the attitude of each Panel Committee towards the proposals outlined above, or any alternative suggestions. The Joint Committee are now informed by the British Medical Association that the replies received are practically unanimous in their rejection of any proposal for the abolition of the minimum of 7s.

6. These events have placed the Joint Committee in a somewhat difficult position. They are still convinced that the proposal submitted to the Panel Committees was one which practitioners might reasonably have been expected to accept if not to welcome. They recognise however that the present circumstances do not lend themselves to the necessary full discussion of any such proposals and in view of the definite opinion which has been expressed by the Panel Committees the Joint Committee have come to the conclusion that they would not be justified in now pressing their proposal upon an unwilling profession, if any alternative solution of the present difficulty would be likely to meet with general acceptance.

7. As the doctors, by insisting upon the minimum of 7s., have declined to take upon themselves the responsibility involved in conceding to chemists that assurance of payment in full which is the essential condition of commercial prices, they cannot reasonably, and, as the Joint Committee understand, they do not expect to secure for themselves the benefit of the reduction in prices under a new commercial tariff. The conclusion arrived at by the Panel Committees has thus rendered abortive the original proposal designed to secure the introduction of the commercial tariff at the beginning of 1916; and the obvious course, in the special circumstances of urgency, would have been to postpone the introduction of a commercial tariff and the further consideration of its financial basis, and to continue for the present all the existing arrangements with doctors and chemists intact, not only as regards the tariff prices, but also as regards the guaranteed minimum of 7s., together with its inevitable consequences of the discounting of chemists' bills.

8. But against this, grave difficulties of another kind present themselves. It is a matter of common knowledge that ever since the commencement of medical benefit great and increasing dissatisfaction has been evinced by the pharmaceutical profession at the discounting clause. The growing pressure against its retention was suspended upon the appointment of the Departmental Committee, and the recommendations of that Committee in favour of the abolition of discounting were hailed by the whole body of pharmacists as one reform which is indispensable to any continuance of the service of pharmacists upon the Insurance Panel. Moreover, the very recommendations of the Departmental Committee as to prices have reinforced the objections of pharmacists by enabling them to demonstrate that a continuance of the present arrangement is bound to result in the chemists in many areas receiving a lower rate of remuneration than that pronounced by the Departmental Committee to be commercial, and in many other chemists being subjected to a serious risk of similar treatment.

9. It was without surprise therefore that the Joint Committee recently received an intimation from the Pharmaceutical Society of Great Britain reaffirming the position of the Pharmaceutical profession in the matter of discounting, and emphasising the settled intention of pharmacists not to continue service any longer under any system in which discounting found a place. But the attitude in this respect of pharmacists, in conjunction with the similar attitude of the medical profession as already explained, has created a position of considerable gravity. The medical profession demand that their minimum remuneration shall be a prior charge upon the medical fund of the area; the pharmaceutical profession demand, on the other hand, that their remuneration shall have priority. The position thus arising appears to constitute a complete deadlock, and has placed the Joint Committee, in view of their desire to proceed, so far as possible, with the general consent of both parties, in a position of extreme difficulty. At other times and in other circumstances, the obvious duty of the Joint Committee would have been, after carefully balancing the considerations on the one side and the other, to decide upon the merits of the conflicting claims of the two professions, and to determine accordingly the arrangements for 1916. But short of action which would necessitate the abatement or withdrawal of the demands of one profession or the other, there appears to be one course only which will afford a solution of the deadlock; and it is this course which, with great reluctance, the Joint Committee now put forward for consideration.

10. The deadlock consists, as has been seen, in the fact that both the doctors and the chemists are demanding guarantees the responsibility for which neither side are willing to undertake. Clearly these conflicting claims can only be reconciled by some third party who is willing to give guarantees to both doctors and chemists. If the Government on full consideration could see its way to step into the breach and give the

requisite guarantees to both parties the following might be the arrangements:—

(i.) The doctors could be guaranteed their minimum of 7s. the present arrangement continuing whereby any part of the "floating" sixpence remaining after deduction of the cost of chemists' accounts, calculated on the basis of the existing tariff, is added to the minimum 7s. up to a maximum 7s. 6d.

(ii.) By pooling the balances of the drug fund in each area, remaining after deduction of any sum accruing to the doctors of that area as their share of the "floating" sixpence under (i.) above, the Joint Committee would accumulate a Central Fund out of which they would guarantee the payment of the chemists' bills in full under a new commercial tariff, the Government taking the risk of the total fund so accumulated proving insufficient for this purpose.

(iii.) Under such arrangements, since the chemists would no longer be affected by the results of any extravagance on the part of doctors in their prescribing, the local Pharmaceutical Committees would cease to discharge the functions hitherto fulfilled by them under Article 40 of the Regulations, and some other body or authority would be charged with those functions.

(iv.) It would also follow logically that any sums recovered from individual doctors by the process of surcharging should be paid in every case into the practitioners' fund of the area.

11. The Joint Committee desire to make it clear that they are not at present in a position to offer the arrangements roughly outlined above to the profession for their acceptance. They are prepared to submit to the Government that, in the exceptional circumstances, these arrangements, with the financial liabilities which they involve, should be adopted for the ensuing year. They feel, however, that they cannot in any event hope for an affirmative decision from the Government unless they can be assured on behalf of the profession that doctors, who would thus be continued through 1916 in their present position, will do all that lies in their power to render effective the existing safeguards against extravagant prescribing as embodied in Article 40 subject to the elimination as indicated above of the functions of Pharmaceutical Committees in this matter.

12. The Joint Committee take this opportunity of stating that they have now been informed by the Treasury that Parliament will be asked to vote for the year 1916 the Exchequer Grant of 2s. 6d. per insured person which has hitherto been included in the Annual Estimates under the promise given in 1914 for a period of three years.

National Health Insurance Joint Committee,
16th October, 1915.

The Committee has also addressed the following letter to the National Health Insurance (Joint) Committee:

November 1st, 1915.

Sir,

The Insurance Acts Committee has received from several Panel Committees the following resolution, or one on similar lines:—

That the Panel Committee strongly objects to the excessive deductions from the quarterly cheques, and seeing that the payments for 1914 are still unpaid therefore gives warning of the danger of combined refusal of the doctors in the county of to continue to work the Act.

The feeling of dissatisfaction conveyed by the above resolution is very widespread, as shown by a constant stream of letters from individual panel practitioners and secretaries of Panel Committees, and the Insurance Acts Committee would most earnestly press upon the attention of the Commissioners the desirability if possible of some reassurance as to the financial position both as regards arrears and future payments being given to panel practitioners before they are invited to say whether they will renew their agreements for 1916 or not.

It is evident that practitioners are not satisfied that the deductions made during the present year from the usual advances have been made on a basis which can be justified. The deduction of 30 per cent. that has been made in many areas, presumably mainly on account of recruiting, appears to be extravagant to those on the spot who have a good general notion of the rates of recruiting. Even if all the recruits obtained during the past year had been insured persons (which, of course, they were not) a 30 per cent. deduction seems to our correspondents to be indefensible.

Many panel practitioners have entered into financial commitments on the strength of the payments due to them by Insurance Committees, and the greatly reduced

income they are now receiving from this source is a very serious matter for some of them. It is freely asserted that the reduction in the payments is far in excess of any reduction in the work that is being called for by panel patients, and, in view of the fact that so many good lives have been withdrawn from the doctors' lists, even if the full amount per quarter were being paid for every insured person actually resident in an area, the relation of the payment to the work done would be greatly to the disadvantage of the doctor as compared with normal times.

On all these grounds, and more particularly because of its knowledge of a strong undercurrent of serious (and the Committee believes justifiable) discontent, the Committee would urge the great desirability, indeed necessity, of some statement being made at the present time which will allay apprehensions that panel doctors have formed as regards the future, owing to their experience during the past eighteen months. The Committee would suggest that, if possible, some statement should be made that doctors need not fear that their periodical advances will fall in 1916 below some definite rate per insured person on their lists. It is also very important that prompt steps should be taken to make a settlement for 1914.

I am, Sir, your obedient Servant,
ALFRED COX,
Medical Secretary.

The Secretary,
National Health Insurance (Joint) Committee,
Buckingham Gate, London, S.W.

IRELAND.

PAYMENT OF SICKNESS BENEFITS UNDER THE INSURANCE ACT.

THE master reported to the North Dublin Union, in reply to a letter from the Secretary of the Transport Union Approved Insurance Society, that the approved societies in Ireland had not carried out Subsection C of Section 12 (1) of the Insurance Act by making arrangements with the Dublin hospitals for the maintenance and treatment of sick insured. Section 12 (1) of the Insurance Act provides:

No payment shall be made on account of sickness disabling or materially benefit to or in respect of any person during any period when the person to or in respect of whom the benefit is payable is an inmate of any workhouse, hospital, asylum, convalescent home, or infirmary supported by any public authority or out of any public funds or by a charity or voluntary contributions.

In Subsection C workhouses, including their hospitals, were omitted from the list of institutions with which approved societies could make arrangements for the medical treatment of their sick members. The guardians complain that the approved societies have failed to make arrangements for the treatment of their sick in the city hospitals, and, contrary to the provisions of the Insurance Act, have paid sickness benefits to insured persons while undergoing treatment in the workhouse hospitals, and that consequently these institutions are overcrowded by insured persons, who, while receiving their full sickness benefits, contribute nothing to maintenance and medical treatment. The guardians recommend that the approved societies which make illegal payments of sickness benefits to their insured members while in the workhouses should be surcharged, in the hope that when insured persons found that they could not be paid their sickness benefits they would not be so ready to enter the workhouses.

ADMINISTRATION OF SANATORIUM BENEFIT.

At a recent meeting of the Dublin County Council a letter was read from the Secretary of the County Dublin Insurance Committee stating there was a grave discrepancy between the figures supplied by the Insurance Committee's estimate and that of the Insurance Commissioners for the administration of sanatorium benefit, and suggesting that a system could be devised whereby each Insurance Committee would be informed by the Insurance Commission at the commencement of each year of the approximate amount on which it could safely base its expenditure for that year. The Chairman warmly supported the suggestion, and stated that at the present time nobody was in a position to know whether the Committee had a balance to credit or whether it was in debt; in these circumstances he could not sign the recommendation of the medical officer for extended treatment for thirty patients, as it would make the Committee responsible for a sum of £150, and he did not know whether there were funds to meet such an expenditure. It was decided to

appoint a deputation, consisting of the Chairman and three other members of the council, to interview the Insurance Commissioners.

INSURANCE COMMITTEES.

LONDON.

Sanatorium Benefit and Finance.—At the meeting of the London Insurance Committee on October 28th, the principal matter debated was the report of the deputation recently appointed to interview the Insurance Commission on the finances of London insurance, which, as reported at the previous meeting (*BRITISH MEDICAL JOURNAL, SUPPLEMENT, October 2nd, 1915*), are in danger of breaking down. So far as the income of the Committee for institutional and other forms of treatment except "domiciliary" was concerned, the opinion of the deputation was that the sum available (9d. a head per annum) was insufficient; and it was further pointed out that whatever might be said as to the legal right of insured persons to sanatorium treatment, such persons were undoubtedly under the impression that they had a claim to this treatment if their medical practitioner advised it. On this point the view of the Commission was to the effect that many cases which under the system hitherto obtaining had been recommended for treatment in sanatoriums would in future be treated at dispensaries; and, furthermore, that "chronic" cases would probably have to stand aside as regards admission to sanatoriums, and be referred to the Poor Law or public health authorities in order to admit of treatment being afforded to "early" cases, in whom permanent benefit was probable. On the whole subject the Chairman of the Insurance Joint Committee (Mr. Charles Roberts, M.P.) said that it would be futile to go to the Treasury under existing circumstances for a grant of further funds. The Committee had a limited income, and must accordingly cut down or adjust its expenditure both on benefits and administration. On the motion to receive the report, some discussion took place upon the propriety of having previously issued it to the press, and Dr. Lauriston Shaw expressed the opinion that it would have been well had a statement been formulated representing a mutual agreement before anything was published. Mr. Handel Booth, M.P., warmly contested Dr. Shaw's position, and referred to the dismay and horror with which he read, in the deputation's report, the statement of the Commission with regard to placing chronic cases of tuberculosis under the Poor Law authorities. That statement did not appear in the Commission's report, and he could not understand any member of the medical profession being a party to suppressing it. The sanatorium benefit was one of the things most advertised when the Act was passed. Anybody who could make the suggestion contained in the report had failed to grasp the first principles of National Insurance. He appealed to the medical profession not to lend themselves to manoeuvring of this description. The people did not come in under the Act in order to go on the Poor Law. Dr. B. A. Richmond said that although the Act provided sanatorium benefit, that term did not necessarily mean residence in a sanatorium in every case and for any period, and Dr. Shaw explained that his own desire in suggesting an agreed report was to tie the Commission down upon certain understood facts and principles. An amendment that the report be taken back and an endeavour made to secure an agreed report was lost, and ultimately it was decided that the deputation should again be authorized to interview the Commission.

Payments to Panel Practitioners.—On the recommendation that, for the last quarter of 1915, payment be made to the practitioners at the rate of 1s. 2d. for each capitation fee, in two instalments of 8d. and 6d., an amendment by the representatives of the Panel Committee that the instalments be 10d. and 4d., in view of the fact that the second instalment would not be paid until January, was negatived.

LOCAL MEDICAL AND PANEL COMMITTEES.

LONDON.

Payment to Practitioners.—At the meeting of the Panel Committee for the County of London on October 26th some discussion arose on the question of advance payments to practitioners. The Panel Service Subcommittee recommended concurrence in the proposal of the Insurance

Committee to make to each panel practitioner during the fourth quarter of 1915 two payments in advance of the amount due to him at the rate of 8d. and 6d. in respect of each capitation fee. Dr. A. SALTER objected, on the ground that, according to his information, the funds available to the Insurance Committee for distribution would justify a larger payment. He agreed that large numbers of insured persons had been removed owing to enlistment, but, on the other hand, large numbers also had come on to the panel, including a great many women entering industrial occupations for the first time. He demanded a first payment of 10d., instead of 8d., if only because this would be forthcoming before Christmas, when practitioners, like other people, had special financial obligations. He moved an amendment embodying this demand; this was seconded by Dr. A. WELPLY, and carried by a large majority.

Alleged Excessive Ordering of Drugs.—Five practitioners were invited to attend the meeting of the Committee (four of whom accepted the invitation) to answer charges relating to the excessive ordering of drugs. Before the cases were brought forward, however, Dr. SALTER moved that the entire report of the Pharmacy Subcommittee dealing with these cases be referred back on the ground that the charges in question were fifteen or eighteen months old, and that it was grossly unfair to ask a practitioner to justify prescriptions bearing so remote a date. Moreover, when the prescriptions were written eighteen months ago, the Panel Committee had given no idea as to the quantities or items considered reasonable and sufficient. The voting on Dr. Salter's amendment resulted in 23 in its favour and 23 against, and by the casting vote of the chairman it was decided that the report should not be referred back. The investigation of the cases then proceeded. In most cases excess in quantity was alleged, but there were also instances of the use of proprietary names. In every case the explanation of the practitioner was accepted as sufficient.

At a special meeting on November 2nd some private and confidential figures were given as to the funds available for distribution by the Insurance Committee; but the Finance and General Purposes Subcommittee recommended that before reconsidering the question of concurrence the Panel Committee should request the Insurance Committee to furnish the figures necessary to enable a judgement to be formed. Dr. COWIE moved an amendment concurring in the Insurance Committee's proposal, but requesting that in future when concurrence was asked as to advance payments, all information pertaining to the registers and Medical Benefit Fund on which estimates were based should be submitted to the Panel Committee. Refusal to concur would mean distress to many practitioners owing to postponed payments. Dr. MAJOR GREENWOOD seconded the amendment. Dr. SALTER supported the original recommendation, and strongly opposed the policy of acquiescing in every demand or imposition the Insurance Committee chose to make. The situation could only be met by determined resistance on the part of the doctors. Dr. PARINSON also supported the recommendation. Dr. LAURISTON SHAW pleaded for a policy of mutual forbearance; and Dr. Cowie's amendment was carried by 36 votes to 11.

Medical Benefit Regulations, 1916.—The draft regulations issued by the Insurance Commissioners were then considered, and the Chairman (Dr. CARDALE) said that the first, relating to the commercial drug tariff, might be said to have the consent of the medical profession, through the British Medical Association; but in respect to the other two provisions there had been no consent, nor even consultation. These were (1) the provision enabling the Insurance Committee, after consultation with the Panel Committee, to require practitioners not to order drugs or appliances in such a form as to necessitate a reference back on the part of the chemist to a previous order; and (2) the addition to the medical certification rules that all certificates should be written indelibly, and the practitioner's signature written by his own hand. The recommendation of the subcommittee expressed the view that no regulation of the Commissioners affecting terms and conditions of service should be considered *intra vires* until the consent of the profession had been obtained. Dr. SALTER moved the inclusion of words, affirming that the proposed new regulations constituted a serious breach of faith on the part of the Commission, having regard to the

pledge that no contentions alterations were to be initiated or contemplated during the war. Dr. Pring seconded, but the amendment, however, was lost, and the recommendation of the subcommittee agreed to. The Committee also approved the action of the subcommittee in circularizing the practitioners, strongly advising them to make no communication in writing to the Insurance Committee as to whether they accepted or rejected the altered forms of service.

Revision of Drug Tariff.—A recommendation was carried unanimously expressing the opinion that the British Medical Association should seek for certain modifications to be made in the existing tariff prior to its use as the basis for determining the amount to be transferred from the Drug Fund to the Practitioners' Fund.

SURREY.

At a meeting of the County of Surrey Panel Committee held on October 15th it was reported that the Surrey United Friendly Societies Council and the county representatives of the Prudential Insurance Society had agreed, in the case of chronic patients, to recognize monthly instead of weekly medical certificates. The report of the Special Finance Subcommittee recommending the Panel Committee to apply to have its expenses paid out of the Medical Benefit Fund was approved.

EAST SUFFOLK.

A MEETING of the Panel Committee was held on October 12th.

Election of Chairman.—Dr. T. C. Askin (Alderton) was elected Chairman of the Committee, in the place of Dr. H. P. Helsham, resigned.

Proposed Pharmacopoeia.—The proof was approved, and it was decided that the pharmacopoeia be printed, and that a copy be sent to each practitioner on the panel.

Own Arrangements.—The scale of fees in the fifth schedule of the Medical Benefit Regulations was adopted.

Mileage Grant for 1915.—It was reported that the basis of payment in respect of the special mileage grant, 1915, to each panel practitioner who submitted a return was 8.456d. in the shilling.

Certificates.—It was decided to communicate with the Commissioners and with the East Suffolk Insurance Committee expressing disapproval of the decision of that Committee on September 15th to inform a doctor that in future he should fill up and sign all certificates in the presence of the insured member.

ISLE OF ELY.

At a meeting of the Panel Committee held on October 12th a statement was read by the Clerk of the Insurance Committee detailing the steps taken to bring about a settlement of the balance of the 1915 accounts due to practitioners and chemists. The figures produced by the Clerk were investigated and accepted as satisfactory.

The proposed scheme for placing the drug tariff on a commercial basis was rejected, the Committee being of opinion that the practitioners' 7s. must on no account be endangered by a deficit in the drug fund.

EXETER.

At a meeting of the Panel Committee held on October 29th the Committee expressed the opinion that the Memorandum from the Insurance (Joint) Committee as to proposals with respect to possible changes of the regulations affecting the drug tariff was a fair compromise between the rival claims of the doctors and chemists.

INSURANCE NOTES.

MEDICAL BENEFIT REGULATIONS.

THE Joint Committee of Insurance Commissioners has issued draft regulations, dated October 27th, with regard to the revision of the drug tariff discussed in the communication of the Insurance Acts Committee to the Committees in England, Scotland, and Wales, and also in the letter to the Joint Committee of Insurance Commissioners, published at page 177. The regulations may be cited as the National Health Insurance (Medical Benefit) Regulations (England and Wales), 1916 (price 1d.) The draft regulations are accompanied by a Memorandum 217.1.C., addressed to Insurance Committees in England, setting out the procedure as to revision for 1916 of arrangements with practitioners on the panel and with chemists and other persons for the supply of drugs and appliances, together with a draft circular letter for transmission by Insurance Committees to practitioners.

PROPOSED AMALGAMATION OF INSURANCE COMMISSIONS.

Aberdeen.

The proposed amalgamation of the Scottish Insurance Commission with the English was discussed at the last meeting of the Aberdeen Burgh Insurance Committee, when the Finance Committee presented a report to the effect that the expenses of administration for all the countries was excessive, and that steps should be taken to reduce the costs within reasonable limits. Dr. John Gordon said that the chief economies that could be made by greater centralization would be in respect of the salaries of the officials and the cost of the central administrations. The central administration in England cost ls. 7-10d., in Scotland ls. 4d., per insured person; the salaries in England cost 59-10d., and in Scotland 83-10d. Adding these two items together, the cost in England was ls. 6d. and a fraction, and in Scotland 2s. and a fraction, or 6d. more per insured person. As the insured persons in Scotland numbered a million and a half, the 6d. meant a total of about £37,500 per annum in Scotland. If this 6d. could be saved by some method of unification, there would still be ls. 6d. per insured person for a reduced administration and salary bill in a Scottish office in Edinburgh. The Retrenchment Committee had not formulated any scheme. Proposals for retrenchment would be welcomed, but no matter what changes such economies might entail, the Government would always keep an office in Edinburgh with very considerable powers. That might be taken for granted. Such a proposition as was indicated in a resolution to be submitted at the meeting of the Scottish Association of Insurance Committees at Dundee on Saturday—namely, "That in Scotland we should be controlled by a body without knowledge of our laws and institutions"—was unthinkable. He saw no advantage in dealing with a resolution which was not based on any known facts, and he thought that it would be to choose the higher patriotism to suggest a constructive proposal, and ask for careful consideration of how economies could be practised in the administration of an Act which had admittedly been most expensive in its working.

INSURANCE ACT IN PARLIAMENT.

OVERDUE BALANCES (PAYMENTS TO PANEL DOCTORS).

SIR PHILIP MAGNUS asked the Chairman of the Joint Committee of Insurance Commissioners on October 27th whether, having regard to the reduced advanced payments to panel doctors consequent upon the depletion of the lists by virtue of the number of insured persons who had enlisted, the gratuitous treatment of necessitous dependants, and the burdens thrown upon doctors in meeting military requirements, he could see his way to accelerate the payment of balances due to medical practitioners for services rendered in the year 1914; and whether he could name a date when these overdue balances were likely to be paid. Mr. Roberts said that the special difficulties arising out of the state of war which attended the final settlement of medical practitioners' accounts for 1914 had been fully explained to representatives of those practitioners. The Insurance Commissioners were using their best endeavours to expedite the settlement by all the means within their power. Sir P. Magnus: Cannot the hon. gentleman give approximately any date when these claims will be settled? Mr. Roberts: I do not like to bind myself down to a date even approximately, but I can assure the hon. gentleman that I will do my best.

Association Notices.

STAFFORDSHIRE BRANCH.—Dr. Harold Hartley, Honorary General Secretary, Basford, Stoke-on-Trent, gives notice that the first general meeting of the session will be held at the North Stafford Hotel, Stoke-on-Trent, on Thursday, November 18th. The President, Dr. F. M. Rowland, will take the chair at 4 p.m. Business.—Resolution: That the Staffordshire Branch hereby adopts the revised rules governing procedure in ethical matters of a Branch composed of several Divisions as approved by the Annual Representative Meeting, 1915, without modification and in substitution for any ethical rules now in use by the said Branch. Exhibition of living cases. Papers.—W. Mitchell Smith: Alimentary Hygiene in Children. G. A. Carter: Nose Bleeding. S. McMurray and E. E. Young: A Case of Intracranial New Growth simulating Minera's Nystagmus. Exhibition of pathological specimens, etc. Dinner at 6.15 p.m. Charge, 5s.

GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

WINTER SESSION, 1915.

Tuesday, November 2nd, 1915.

Sir DONALD MACALESTER, K.C.B., President,
in the Chair.

THE one-hundred and second session of the General Council of Medical Education and Registration began at the offices of the Council, 299, Oxford Street, W., on Tuesday, November 2nd, 1915, at 2 p.m.

PRESIDENT'S ADDRESS.

GENTLEMEN.—The President and Treasurers, acting under your instructions, have arranged that this meeting of the Council shall take place at an earlier date than usual. We hope that by next month the new building in Hallam Street may be ready for your partial occupation. It is necessary that the officers of the Council should after this week be free from other duty, in order that the transfer of our archives may be carried out with the least possible interruption to the public work of the Registration Office. Some difficulties, arising from the present industrial conditions, have delayed the completion of the building, but these are being surmounted by the efforts of our architect and builders. We are assured that the staff will be able to move into the new offices before the date now arranged for the surrender of the old. It may therefore be assumed that the present is our last session in these premises. They are associated with memories of over half a century of public service, but they have ceased to be sufficient for our growing activities, and most of us will part from them without grave regret.

The Registrar, Major King, is still on service. He is in command of a battalion of his regiment now in England, but we look for his attendance here during a part of the session.

No change has actually taken place in our membership since last June. We have, however, received intimation that our valued colleague, Sir Thomas Fraser, is about to retire after ten years' service as representative of the University of Edinburgh. As Chairman of the Pharmacopœia Committee, I may be allowed to say how greatly that body has been strengthened by the fact that it included him among its pharmacologists. He will carry with him the gratifying knowledge that the merits of the new *Pharmacopœia*, in whose preparation he bore a responsible part, are acknowledged at home and abroad, and that its adoption throughout the Empire is assured. It has already attained a circulation of some 25,000 copies.

Sir Thomas Fraser's place will be taken by Dr. Harvey Littlejohn, Dean of the Edinburgh Faculty of Medicine. We hope to welcome him at our next meeting. Dr. Sandby's term of office has expired, and for the moment he is not a member of the Council; but he has been duly nominated for reappointment, and will, I understand, rejoin us to-morrow.

ARRANGEMENTS FOR ELECTIONS.

A recent emergency Act of Parliament has made provision for postponing certain elections to public bodies which would otherwise fall to be held within the next year. The need for economy, and the absence on service of many electors, have made a measure of this nature desirable at the present time. In the case of the General Medical Council these two considerations apply with special force. The Executive Committee has accordingly called the attention of the Lord President to the fact that, in the ordinary course, two single elections at least would have to be held before the next general election of direct representatives at the end of the year 1916. It will be remembered that in the bill for amending our election procedure which was approved by the Council and passed the House of Lords, it was provided, among other things, that the sitting members should continue in office till the end of 1916, in order that thereonforth the elections of direct representatives should recur regularly at intervals of five years. This particular improvement can in the present instance be effected by an Order

of the Privy Council, as the public department concerned with the regulation of our elections. An Order dealing with the subject was issued on October 27th. It applies the Act in such a way that, even in the case of unexpected vacancies, no isolated election need be held in 1916. The Council and its branches will thus be saved the expense, and the registered medical practitioners of the United Kingdom the distraction, of such elections during the coming year. Under the arrangement set forth in the Order, the next term of office of each of the six direct representatives will begin with the year 1917; and, unless casual vacancies occur thereafter, the succeeding general elections will be brought into line once more. We are much indebted to the Lord President and the Privy Council for the consideration they have given to the Council's special difficulties arising from the unamended provisions of the Medical Act (1886).

THE WAR, THE PROFESSION, AND THE PATIENT.

The medical problems of the war continue to press on the thoughts and energies of the profession. As more men and still more answer the call of the King to take arms in the new forces, more and more surgeons are required for military service. We have it on the highest authority that, within the next few months, every qualified man of suitable age who is fit for the work of an officer in the Medical Corps will be needed. Civil practice in many of its branches must yield place to practice with the troops and in the military hospitals. The Medical War Committees in Scotland and England, which have undertaken the organization of the profession to this end, are making progress with their difficult but imperative task. They are calling on the younger practitioners throughout the country to give up their practice and prospects for war service. They are calling on the practitioners who remain behind to undertake increased labour and responsibility, that the civil population may not go unattended. They look to these civil practitioners to further and to guard, as an honourable trust, the interests of their brethren in the field. They look to the public to lighten the sacrifices and the burdens, which all practitioners must endure in these days, both by loyalty to the absent, and by consideration for those who meantime take their place. The Insurance Commissioners have recognized that certain reasonable claims made in peace times, such as that for a "free choice of doctor," can no longer be pressed; and that in the common interest of all some of the customary privileges of the insured must be restricted. When the actual situation is better realized, the public outside the insurance scheme will no doubt be ready to make similar allowances. I am informed that in the rural districts the position is better understood than in the towns; and that the proportion of country practitioners who have been set free for military service is higher than that from the large centres of population.

Safeguarding the Interests of Brother Practitioners.

It has been suggested to me that, owing to the somewhat loose attachment of the town patient to his medical man, the latter has an uneasy apprehension that if he goes into the army his patients may be alienated, and his practice absorbed by his neighbours, and that he is thereby deterred from offering himself as a volunteer. If there is any ground for this apprehension, the local Medical War Committees are endeavouring to remove it by promoting equitable agreements between practitioners who remain on civil duty and their colleagues on active service, with a view to the conservation of their respective interests. It is on every ground desirable that an arrangement of this kind should be generally adopted. The failure of any practitioner to observe it, in letter and in spirit, would certainly be "regarded as dishonourable by his professional brethren of good repute and competence." It would, therefore, according to the dictum of the Lords Justices of the Queen's Bench, form a proper subject of inquiry by this Council. But I am fain to believe that our corporate sense of obligation to those who now enter His Majesty's service, for the national defence, will be an all-sufficient safeguard of what they have committed to the trust of their fellow practitioners. The country calls for the unselfish co-operation of all ranks and classes in the common task. The profession to which we are proud to belong has given abundant proofs that it will not be found wanting in duty or in self-denial.

Canada.

As to the future supply of persons duly qualified to fill our depleted ranks, the prospects are dubious. From the British Dominions and from other countries about 240 practitioners have this year been registered in the *Colonial List* and the *Foreign List*. Orders in Council have applied the Medical Act (1886) to Ontario and Saskatchewan; and communications are daily expected from the three Western Provinces of Canada in which that Act is not yet operative, that will enable us to establish reciprocity with them. There is reason to think that, when the arrangements with the Dominion are complete, a consummation which we devoutly wish to hasten, the number of Canadian practitioners on the *Medical Register* will be considerably increased. The new men will be as heartily welcome as those who have already come to our aid from Eastern Canada, Australasia, and South Africa. But in case my words should reach any intending applicants for registration who are still in Canada, I would impress upon them the necessity of ensuring that they not only hold a recognized diploma from their provincial university or college, but are legally entitled to practise in the province itself. This last is required, as a condition of reciprocity, both by Canadian and Imperial law. The neglect of the condition has in some cases caused delay in registration, which the Registrar regrets but cannot avoid.

Medical Students.

Though the War Office authorities recognize that the withdrawal from professional instruction of large numbers of medical students, of the first three years, will have a serious effect on the future, they have deemed it inadvisable to discourage any junior student who chooses to offer himself for combatant service. There is accordingly much uncertainty among junior students as to their immediate duty. They are naturally eager to serve with their comrades in the army, but they are told that no considerable proportion of them should give up their preparation for qualified service by and by. The individual student is thus at a loss to decide between apparently conflicting claims. It is much to be desired that the army authorities should give clearer guidance on this perplexing question. I hope to have the support of the Council in the efforts I am making to procure a definite pronouncement which will set the question at rest. Many young men, who were registered as students before the war began, are meanwhile leaving the medical schools to accept commissions or to enlist in the ranks. The result is that the prospective shortage of 250 qualified practitioners per annum, which I mentioned in my last address as probable during the coming years, will almost certainly be exceeded. Women students continue to increase in number, and members of other professions are entering on the study of medicine; but the numbers of these do not make up for the loss of students already registered, who have sacrificed the prospect of early qualification in order to join the King's forces.

Probationers R.N.

In one branch of the service, to which my attention was directed by members of the Council and others, it appears likely that some economy of medical students may be effected by suitable arrangements. Our fleets include many minor vessels which are attendant on or auxiliary to certain larger units. The larger ship carries a proper surgical staff and equipment. It is thought necessary that on the auxiliary vessel a surgical "probationer" should be stationed, capable of rendering "first aid" to the injured until they can be transferred to the parent ship. For this work medical students, who have completed their physiological and anatomical studies, and have been instructed in surgical dressing, are preferred. They have joined in considerable numbers, and have approved themselves to the Admiralty as capable of valuable service of a temporary and provisional character. But it is recognized that they will be still more valuable when fully qualified for commissioned service, and that the interruption of their studies ought not to be unduly prolonged. The Medical Director-General authorizes me to make it known that any "probationer" who, after (say) six months' service, desires to present himself for a professional examination, or to resume his studies with a view to qualification, will be granted leave of absence, or be demobilized, at his own request. A less senior student

may then be appointed "probationer" in his place for a similar period of service, and at its expiry he can return to his studies in like manner. By such a rotation of service a succession of students might continue to be employed in war work that is relevant to their future profession, and the qualification of none would be unduly delayed. The requirement of the licensing bodies, that every student should act for six months as "surgical dresser," may be deemed to be fulfilled by corresponding service as a surgical "probationer."

Training of Midwives.

The absence on military duty of medical men in family practice, particularly in the country districts, will almost certainly lead to the fuller employment of certificated midwives. It is the more important that the training of these women should be adequate for the work they will be called to undertake. The Central Midwives Board for England has framed new rules providing for an extension of the course of instruction proscribed for its certificate. The rules have been transmitted by the Privy Council for the opinion of the English Branch Council, in accordance with the statute, and will be duly considered by it during the present session.

In Scotland there is as yet no corresponding statute. No official certificate of fitness can be obtained by midwives in Scotland, and no central or local supervising authority regulates their practice. A woman trained in Scotland may obtain the Central Board's certificate by examination in England, but when she returns to practise in Scotland she ceases to be under the English Board's rules and supervision. The Council has urged the importance of legislation that will apply to Scotland the principles of the English Midwives Act, and it has carefully considered and approved a bill for the purpose which has for some time been before Parliament. The need for the bill was apparent from the fact that the ratio of maternal deaths to registered births in Scotland is half as large again as it is in England. The conditions created by the war, more especially in the Highland and rural districts, have made the need more apparent than before. Strong representations have been made to the Government by leading members of the profession, in favour of proceeding with the Scottish bill in the current session of Parliament, on the ground that an emergency exists which ought to be provided for without delay. When, as your President, I was consulted on the subject by the authorities, I reminded them of the declarations on the Scottish bill which were communicated to the Lord President by this Council. I did not hesitate to express my conviction, based on some knowledge of the Highlands and Islands Medical Service, that the claim for urgency was well founded, and my belief that the Council would welcome the speedy passing of the bill into law.

DISCIPLINARY CASES.

A case which will come before you for inquiry, at the instance of the Central Midwives Board, raises an important question concerning the responsibilities of practitioners in relation to women whose certificates as midwives have been withdrawn. Most of the facts of the case have been ascertained in another court; it will remain for the Council to pronounce on their professional bearing. The other penal cases arise from repeated convictions for misdemeanour, and will involve no prolonged judicial investigation on your part.

Instances have come to the knowledge of the Registrar in which persons whose names have on account of misconduct been erased from the *Register* have migrated to other parts of the empire, and have there succeeded in obtaining registration in virtue of qualifications they no longer possessed. It has been the regular practice of the Council to forward, through the Colonial Office, copies of the *Erasure List* for confidential use by Government officers of the Overseas Dominions. It appears that, owing to administrative and other changes, the List did not in all cases reach the medical registration authorities concerned, and that these were therefore unaware of the action taken by this Council. The Acting Registrar, in consultation with the Colonial Office, has now succeeded in making arrangements which will ensure that all the registration authorities of the empire shall be regularly notified of your judicial decisions regarding the removal of names from the *Register*. A necessary check upon

fraudulent misrepresentations will thus be placed at the disposal of our medical colleagues beyond the seas.

DENTAL EDUCATION AND EXAMINATION.

The preoccupations occasioned by the war have probably prevented some of the licensing and teaching bodies from giving full attention to the important question of dental education and examination, raised last year by Dr. Newsholme. The returns asked for by your authority are still incomplete in some respects. Such as they are, they have been transmitted to your Standing Committee for consideration and report at this session.

THE APOTHECARIES' HALL, DUBLIN.

The deliverance of the Council regarding the course of study and examinations required for the qualification of licentiates of the Apothecaries' Hall, Dublin, made in terms of Section 20 of the Medical Act (1858), was duly communicated to that body by your direction. A reply has been received which I have referred to the Examination Committee for its information. The Committee may, if it thinks fit, prepare a report on the reply; or it may advise that the reply should be laid before the Council for immediate consideration. In either case copies will be placed in the hands of all the members of the Council.

FINANCE.

In conclusion, I note with satisfaction that the financial position of the Council and its branches, notwithstanding the times of stress through which we are passing, appears to be sound. Your treasurers and the Finance Committee, with the help of the solicitor, have had some anxious and delicate negotiations to carry through, in reference to the investments and other property of the Council, and to the funds for the erection of the new building. But the difficulties have been surmounted, thanks largely to skilful administration on the part of your trustees and treasurers, with the result that we have been able to bear a share of the national burden by making a substantial contribution to the recent war loan. To attain this result, certain readjustments of our assets and liabilities have been made. These will be explained to you *in camera*. They necessitate a very careful husbandry of our resources for some time to come; but in view of the public exigencies, I feel sure that members will cheerfully acquiesce in the limitations imposed by "war-time economy."

INSTRUCTION IN MEDICAL ETHICS.

Dr. McVAIL moved:

That it be remitted to the Education Committee to report to the next meeting of Council on the education of medical students in the ethical relationships of medical practitioners to the State, to their patients, and to each other.

Dr. McVail said that the subject of the education of medical students in medical ethics was obviously within the sphere of the General Medical Council, and his reason for bringing it before the Council at that moment was his experience of the importance of the teaching of medical ethics in the Public Health Service, and more recently under the Insurance Act. Its importance was growing. When notification of infectious disease was first introduced the profession were brought into relation with the State more closely than ever before. When the notification was made compulsory in all areas throughout the country, the relation of the doctor to the State became still closer. Notification of infectious disease cost the community a large amount of money. Its purpose was the prevention of infectious disease. It was manifestly important that notification should be so used and the money should be so spent as to achieve the best possible results. These results depended on the action, on the one hand, of the notifying practitioner, and on the other, of the officers of the Public Health Service. Promptitude and accuracy of notification were of the first importance with regard to the prevention of disease. When a teacher had before him a group of students, he had to recognize that some of them would become general practitioners, others would become medical officers of health, or officers of public institutions, including hospitals for the prevention of infectious disease. It was desirable that teachers should point out to students, whether in one capacity or the other, that they had a duty towards the State. In the case of the general practitioner it was promptitude and accuracy. In the case of the medical officer of health or officer to a hospital for infectious disease the duty was so

to deal with his professional brother who had made the notification that the practitioner should receive no harm from an occasional error. In his own experience he had found that a practitioner in his anxiety to prevent the spread of infection had notified, no doubt somewhat prematurely, a case of infectious disease, or had notified a case of illness as being of an infectious character, and the case turned out not to be as notified; the patient was sent home incontinently, and that brought discredit on the practitioner who in all good faith had been trying to help the public authority. That same doctor some time afterwards sent at one time by one post notification of several cases of enteric fever in one house. He was asked why he had not notified the first case earlier. He replied that he was going to take very good care not to notify any case until absolutely certain; he would rather risk disease than have his reputation attacked as it had been previously when he had been somewhat early in his notification. That was one instance among others he might quote. Sometimes there was a question as to the fitness of a patient to be removed to hospital. In that case the M.O.H. and the general practitioner should be brought into proper relationship. The general practitioner might have been partly influenced by the desire that the patient should stay at home and not be taken to hospital, and not have taken into full consideration the influence of the spread of disease if the case remained. There, if possible, the M.O.H. should in a town meet the general practitioner, or in the country should try to get in touch with him. In Scotland the medical officer of health had a right of entry to any house where there was reason to suspect the existence of infectious disease. In that case it was also important that both the M.O.H. and the general practitioner should be brought into contact so that no ill feeling might exist between them. Those were only details, and the importance of them depended partly on whether the medical officer was a whole-time or part-time official. When tuberculosis became notifiable, first pulmonary tuberculosis and then all forms, there was a manifest increase in the closeness of the relation of the doctor to the State. The doctor of a sanatorium had recently deplored to him the fact that nearly 75 per cent. of the cases notified in the particular area were notified after the disease was advanced. It was very important that teachers should impress on medical students the desirability, in the interests of the public welfare, of early notification. But even there it was conceivable that a little difficulty might arise, for the practitioner had to think of his patient's personal welfare besides the welfare of the public, and it might be an ethical question of some delicacy whether he was bound to notify at once. That was not for discussion now, but it was a point on which there should be education. It might be a question of the interest of the patient *versus* the public interest. Under the Insurance Act there had been a further extension of the contact between the practitioner and the State. The question of certification had seemed so important to the General Medical Council that in its wisdom it had added to its notices by calling attention to certification under the Insurance Act, and that was a matter *vis à vis*, not properly dealt with, might bring the individual under the cognizance of the Council. Here again a practitioner might be in a difficulty. He had to protect the funds of the approved society (of which he was not an official on the one hand, and he had to think of the relation of the doctor and patient on the other. Those were obvious cases. Sir Clifford Allbutt, in an introduction to an encyclopædia of medicine, had dealt with the indiscriminate use of drugs in this country, and the view indicated was that there was far too much drugging; that applied alike to the insured and uninsured population. Whether Sir Clifford Allbutt thought it was a question of medical ethics with regard to what medical men should do to limit the desires of the patient in the matter of the consumption of drugs was not clear; but obviously there was room for a good deal of difference looking to the comparatively small quantity of drugs used in Scotland as against those used in England. The General Medical Council had an interest in the whole subject, because it was very important that penal cases should be diminished, and if by education of students this could be brought about the Council would be doing a good turn to its successors in office. Generally it would be of importance, looking to the constantly increasing

duties of the general practitioner, in some way or other the desirability of acquiring business habits could be inculcated into his mind. Those were his reasons for the moving of the recommendation. What was suggested was that the Education Committee should find out in the first place what were the facts. What kind of education was being given on the subject in the different schools of medicine in the country? What was the scope of the education, and by whom was it being given, by the holder of what chair, by what lecturers? Having found the facts the Education Committee might consider whether the education should be compulsory or optional. His own feeling was that it should be compulsory, but that was subject to what the Education Committee might report. If that were so the question would further arise, Should it be the function of one chair or lectureship or divided among several lectureships? So far as the State was concerned it appeared that the subject had a natural relationship to the chair of medical jurisprudence, and where it happened, as in some teaching schools, that medical and public health students were taught by the same man, the relation of the subject to the chair was even closer. The question would arise, How much education, in an already overcrowded curriculum, should be given to the subject? That was a matter on which the Education Committee might advise the Council. From a considerable experience of examination in medical jurisprudence and public health he thought that in jurisprudence something less might be done in toxicology, as analysis of the contents of the stomach in suspected cases of poisoning was really outside the future work of the ordinary practitioner.

Dr. VERELL, as one of the direct representatives on the Council, representing a large number of practitioners doing general practice for the most part, had great pleasure in seconding the motion. In the form the motion was put before the Council it proposed nothing more than to establish a *prima facie* case for inquiry to be conducted by the Education Committee. He did not think there would be any one in England in consulting practice, general practice, or any other form of practice, who did not feel that few were able to decide in difficult cases without instruction what was the right course to adopt towards their patients, their brothers, and themselves. Many sources of friction would be avoided if some general standard could be attained by instruction such as was suggested, and if, on the other hand, patients could understand that there were some general principles by which the profession generally and all its members were prepared to abide, and although they could not control the acts of their patients it should be understood that any departure from those principles were not departures that the Council would be prepared to support.

On the motion of Dr. MACKAY, seconded by Dr. MACDONALD, the discussion of the motion was adjourned.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In the ninety-six largest English towns 7,404 births and 4,616 deaths were registered during the week ended Saturday, October 23rd. The annual rate of mortality in these towns, which had been 14.9, 14.9, and 15.9 per 1,000 in the three preceding weeks, fell to 14.0 per 1,000 for the week under notice. In London the death-rate was equal to 13.8, while among the ninety-five other large towns it ranged from 6.1 in Wimbledon, 6.2 in Leyton, 6.6 in Edmonton, 7.4 in Hain, 7.5 in Ipswich, and 7.6 in Lincoln, to 17.5 in Bury, 18.5 in Abingdon, 19.0 in Liverpool, 19.1 in Sunderland, 20.2 in Stockton-on-Tees, and 21.0 in Blackpool. Measles cause 1 death-rate of 2.9 in Barnsey and diphtheria of 1.5 in Coventry. The deaths of children under 2 years from diarrhoeal diseases and the London Fever Hospital, which had been 2,758, 2,333, and 3,014 at the end of the three preceding weeks, and further risen to 3,110 on Saturday, October 23rd; 462 new cases were admitted during the week, against 382, 468, and 453 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 1,060 births and 708 deaths were registered during the week ended Saturday, October 23rd. The annual rate of mortality in these towns, which had been 14.3, 16.3, and 15.5 per 1,000 in the three preceding weeks, rose to 15.7 in the week under notice, and was 2.4 per 1,000 above that recorded in the ninety-six large English towns. Among the several towns the death-rate ranged from 5.0 in Motherwell, 8.9 in Kirkcaldy, and 10.3 in Perth, to

19.9 in Clydebank, 24.5 in Hamilton, and 24.7 in Greenock. The mortality from the principal infectious diseases averaged 1.8 per 1,000, and was highest in Hamilton and Greenock. The 323 deaths from all causes in Glasgow included 14 from infantile diarrhoea, 8 from scarlet fever, 4 from measles, 4 from diphtheria, and 2 from enteric fever. Five deaths from measles were recorded in Edinburgh, 5 in Greenock, 5 in Hamilton, and 2 in Ayr; from scarlet fever 7 deaths in Aberdeen; from whooping-cough 2 deaths in Aberdeen; from diphtheria 2 deaths in Dundee; and from infantile diarrhoea 5 deaths in Greenock and 4 in Dundee.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, October 9th, 517 births and 375 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 659 births and 426 deaths in the preceding period. These deaths represent a mortality of 16.0 per 1,000 of the aggregate population in the districts in question, as against 18.3 per 1,000 in the previous period. The mortality in these Irish towns was therefore 1.1 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 22.2 per 1,000 of population, as for mortality of individual localities, that in the Dublin registration area was 18.7 (as against 19.6 for the previous four weeks), in Dublin city 20.5 (as against 21.2), in Belfast 16.3 (as against 14.6), in Cork 19.0 (as against 20.5), in Londonderry 17.7 (as against 15.9), in Limerick 8.1 (as against 14.3), and in Waterford 5.7 (as against 14.7). The zymotic death-rate was 2.5, as against 3.2 in the previous period.

During the week ending Saturday, October 16th, 609 births and 345 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 517 births and 375 deaths in the preceding period. These deaths represent a mortality of 14.8 per 1,000 of the aggregate population in the districts in question, as against 16.0 per 1,000 in the previous period. The mortality in these Irish towns was therefore 0.9 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth rate, on the other hand, was equal to 26.2 per 1,000 of population, as for mortality of individual localities, that in the Dublin registration area was 18.5 (as against an average of 19.7 for the previous four weeks), in Dublin city 19.7 (as against 21.5), in Belfast 12.6 (as against 14.6), in Cork 11.6 (as against 19.7), in Londonderry 21.5 (as against 16.4), in Limerick 16.2 (as against 17.1), and in Waterford 17.1 (as against 12.8). The zymotic death-rate was 1.8, as against 2.5 in the preceding period.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Staff Surgeon R. L. Jones to the *Flyde*, additional, for disposal. Temporary Surgeon P. R. Murphy, M.B., to the *Albatross*, A. C. Veitch, A. C. Barker, M.B., A. R. S. Warder, H. E. B. Finlayson, G. G. Menbury, M.D., T. Gwynne Jones, S. L. Baker, and E. I. Caldwell-Smith to the *Victory*, additional, for Haslar Hospital; R. W. Brander, M.B., to the *Columbine*, D. M. G. St. John, M.B., to the *Albatross*, M. J. G. St. John, M.B., to the *Defence*, vice Milligan; W. H. Steel, M.B., to the *Penbroek*, additional, for Chatham Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationer G. Burton to the *Melina*. To be Surgeon Probationers: J. H. L. Shapiro, H. S. Flewiler, B. Donovan.

ARMY MEDICAL SERVICE.

Colonel H. O. Trevor, on completion of four years' service in his rank, is retained on the active list under the provisions of Article 120 Royal Warrant for the Army Medical Service, and to be supernumerary.

ROYAL ARMY MEDICAL CORPS.

Major F. S. Irvine, M.B., to be temporary Lieutenant Colonel whilst Commandant of the Training Establishment.
Temporary Major G. E. Miles to be temporary Lieutenant Colonel.
Captain R. E. Kelly, M.D., F.R.C.S., R.A.M.C.(T), to be temporary Major.
Major T. Mackenzie, M.D., the King's (Liverpool Regiment) (T.F.), to be temporary Major.

Surgeon P. G. S. Hayes, Reserve of Officers, to be temporary Major whilst in command of a field ambulance.
Temporary Lieutenant R. T. McKenzie, M.D., to be temporary Major.
W. M. Flack, M.B., is granted temporarily the honorary rank of Captain.

To be temporary Captains: B. H. Slater, M.B., F.R.C.S., G. D. Laing, M.D., H. Upcott, F.R.C.S., temporary Lieutenant J. A. Longie, M.B., F.R.C.S.E.

To be temporary Honorary Lieutenants to be temporary honorary Captains whilst serving with No. 1 British Red Cross (Duchess of Westminster's) Hospital: J. S. Burn, D. M. Stone, J. Erlank.
Temporary honorary Captain W. S. Armstrong, from the Australian Voluntary Hospital, to be temporary Captain.

Temporary Lieutenants to be temporary Captains: E. J. Wyler, M.D., N. P. Boulton, M.B., S. P. Stoker, M.B., P. C. Link, M.B., E. E. Holden, W. C. Horton, M.B., F. R. C.S.E., J. Wilson, M.B., F.R.C.S.E., W. B. Smith, M.B., R. W. Fussell, M.B., H. T. H. Wilkins, M.B., Melholland, M.D., J. B. Heygate, R. C. Verley, M.B., J. Gully, G. D.R., Carr, D. H. Hadden, M.B.

To be temporary Lieutenants: D. Meek, M.B., A. H. Bentoni, M.D., F. R. C. S. E., J. J. W. Jones, M.B., A. F. Hewes, M.B., V. Shipton, M.B., T. Woodman, M.D., G. J. Marsh, F. L. Sessions, O. Pitt, I. N. Fraser, M.B., A. M. Drennan, W. B. J. Templeton, A. Snow, Macphail, M.B., E. Wright, M.B., Svensson, M.B., H. B. Macleod, M.B., G. Stenhouse, M. B., H. Richmond, M.B., M. Turbhill, M.B., J. H. Iles, M.B., W. Landsborough, M.B., H. Barr, M.B., T. B. Dakin, W. F. Gibb, H. C. Addison, J. H. Legge, M.B., G. M. Murray, M.B., W. A. Macdonald, W. Astin, M.B., W. E. Dinwood, W. B. Flewiler, M. B. Brown, M.B., G. Gilliland, M.B., G. S. Neilson, M.B., M. A. Naismith, M.B., J. W. Miller, M.B., G. C. Sisson, M.B., R. D. Hodge, M.B., W. Hamilton, M.B., F. C. Merrall, M.B., A. Muir, M.B., T. Macphail, M.B., W. B. Mackenzie, M.B., M. B. G. St. John, M.D., Buchanan, M.D., W. L. Partridge, T. H. Gandy, M.B., H. B. Smith, R. C. McMillan, M.B., S. S. Devere, M.B., W. J. Greshy, J. Boyd, F. R. C. S. E., G. A. Barres, M.D., W. J. Rutherford, M.D., Temporary Second Lieutenant C. H. H. Jackson, M.B., M. B. G. St. John, Fenwick, M.B., J. C. Poulden, M.D., J. A. Jones, M.B., F.R.C.S.E., G. Henderson, M.B., F. J. Morris, M.B., H. D. Wyatt, A. C. Norman, M.D., F. R. Barwell, B. E. A. Bell, M.B., C. L. S. James, F. J. A. Keane, M.D., P. W. Stocks, E. Caudwell, B. Brew, M.B., E. A. Anderson, M.B.,

H. Mitchell, M.B., W. F. Wilson, M.D., W. L. Scott, M.D., G. Bateman, M.B., W. E. C. Masoun, W. F. Moore, M.D.
 Lieutenant J. C. Micklethorp, M.B., from the Prince of Wales's Volunteers (South Lancashire Regiment), Special Reserve, to be temporary Lieutenant substituted for the notification published in the *London Gazette* of July 13th.
 Temporary Honorary Lieutenants to be Lieutenants: G. C. Wellis-Cole, G. D. East, H. J. Bower.
 G. S. Marshall to be temporary honorary Lieutenant substituted for the notice regarding this officer published in the *London Gazette* of September 8th.
 The notifications regarding temporary Lieutenants J. I. Johnson and C. Mckerrow published in the *London Gazette* of September 20th and October 5th respectively are cancelled.
 To be temporary honorary Lieutenants: E. G. Barker, G. W. Juggins, F. K. Marriott, G. E. Spicer, G. M. Vevers.

INDIAN MEDICAL SERVICE.

The services of Major W. C. Rosa, M.B., are placed at the disposal of the Government of Bihar and Orissa for employment in the Sanitary Department.

Lieutenant-Colonel W. H. B. Robinson is appointed to be temporary Colonel whilst Deputy Director, Medical Services, in Egypt, with effect from January 16th, 1915.

Colonel T. G. Basson, I.M.S., to be Deputy Director of Medical Service, vice Colonel H. Hensley, I.M.S.

Major E. J. Morgan, M.B., has been permitted to retire from the service, with effect from October 1st.

Lieutenant P. J. Walsh, M.B., was killed in action in France on September 20th, 1915.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenant T. D. Inch, M.B., to be Captain (substituted for notice published in the *London Gazette* of September 9th).

Lieutenants on probation continued in their rank: R. F. Walker, M.B., J. P. Scobie, M.B., B. B. M. M.B., A. L. Mackenzie, M.B., W. W. Blair, M.B., to be Lieutenants on probation.

Lieutenant D. Mackie to be Captain, with seniority next below J. Taylor substituted for notification published in the *London Gazette* of July 26th.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Lieutenant (City of London General Hospital)—E. C. Hughes, F.R.C.S., to be Captain, whose services will be available on mobilization.

Home Counties Field Ambulance.—To be Captains: Lieutenant H. T. N. Merrick, M.B., Lieutenant (temporary Captain) C. Killick, M.D., F.R.C.S.

North Midland Field Ambulance.—T. E. A. Carr, M.B. (late temporary Lieutenant, R.A.M.C.), to be Lieutenant.

South Western Mounted Brigade Field Ambulance.—Lieutenant W. A. Miller to be Captain.

Wessex Field Ambulance.—Lieutenant E. H. Schofield, M.B., to be Captain.

West Lancashire Field Ambulance.—Major C. H. Lindsay, M.B., to be temporary Lieutenant-Colonel.

East Lancashire Field Ambulance.—Lieutenants to be Captains: W. L. Cokeroy, J. Cowan.

West Riding Cavalry Clearing Station.—Major J. Mackinnon to be temporary Lieutenant-Colonel. Lieutenant P. McEwan, M.B., F.R.C.S.E., to be Captain.

West Riding Field Ambulance.—Major J. Mackinnon to be temporary Lieutenant-Colonel.

Scottish General Hospital.—Lieutenants to be Captains: H. J. A. Longmore, M.B., D. W. Berry, M.B., C. M. Nicol, M.D.

Attached to Units other than Medical Units.—Major A. C. Hartley, M.B., is seconded. Lieutenants to be Captains: W. D. Frew, D. C. Treiman, M.B. To be Lieutenants: W. C. D. Hills.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements)—Important Notice re Appointments appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians. (2) House-Surgeons. (3) Dental House-Surgeon. Salary, £120 per annum in each case.

MURLEY: VICTORIA HOSPITAL.—House-Surgeon. Salary, £135 per annum.

CHESTER ROYAL INFIRMARY.—House-Surgeon. Salary, £125 per annum.

BEYSHIDE HOSPITAL FOR SICK CHILDREN. Lady Resident Medical Officer. Salary, £150 per annum.

DUDLEY: GUEST HOSPITAL.—(1) Senior Resident Medical Officer; salary, £150 per annum. (2) Assistant House-Surgeon; salary, £120 per annum.

FOLKSTONE ROYAL VICTORIA HOSPITAL.—House-Surgeon. Salary, £200 per annum.

GREAT YARMOUTH HOSPITAL.—House-Surgeon (male). Salary, £200 per annum.

GREENHITHE: INGRESS ABBEY MILITARY HOSPITAL.—House-Surgeon. Salary, £200 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—(1) Assistant Resident Medical Officer; salary, £100 per annum. (2) House-Physician; honorarium, 30 guineas for 12 months.

HOSPITAL FOR WOMEN, 50 Square, W. Resident Medical Officer. Salary at the rate of £80 per annum.

KIRKHAMBECK PARISH.—Medical Officer. Salary, £40 per annum.

LEAMINGTON SPA: WARNEFORD GENERAL HOSPITAL.—Resident Medical Officer. Salary, £300 per annum.

LUDDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130 per annum.

LONDON COUNTY COUNCIL.—Assistant Organizers of Children's Care Work. Salary, £100 per annum, rising to £130.

LONDON EYER HOSPITAL, 10, Dorset Street, W.—Assistant Resident Medical Officer. Salary, £200 per annum.

NORTHUMBRELAND COUNTY ASYLUM, Morpeth.—Junior Assistant Medical Officer (female). Salary, £250 per annum.

QUEEN CHARLOTTE'S LIVING-IN HOSPITAL, Marylebone Road, N.W.—Assistant Resident Medical Officer. Salary, £50 per annum, rising to £80 on promotion to senior.

SHETLAND: WHALSAY PARISH.—Medical Practitioner. Guaranteed income £300 by the Highlands and Islands (Medical Service) Board.

SHREWSBURY DISPENSARY.—Medical Officer.

SOUTHAMPTON: FREE EYE HOSPITAL. House-Surgeon Salary, £100 per annum.

SUNDERLAND: MONKWEARMOUTH AND SOUTHWICK HOSPITAL. House-Surgeon. Salary, £150 per annum.

VICTORIA EYER HOSPITAL, 10, Dorset Street, S.W.—(1) Senior Resident Medical Officer. (2) House-Physician. Salary, £250 and £200 per annum respectively.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—House-Physicians and House-Surgeons. Salary, £120 and £100 per annum respectively.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Lady House-Surgeon. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Todmorden (York), West Riding.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

COHEN, Eveline R., M.B., Ch.B., Edin., temporary Resident Medical Officer to the Brighton Borough Sanatorium.

KENNETT, T. M.B., Certifying Factory Surgeon for the Ballyfeard District, Co. Cork.

MACMAHON, Grant, M.B., Ch.B., Aberd., Chief Medical Officer to the Great Eastern Railway Company, and Medical Officer to the Employers' Liability Assurance Corporation, Limited.

MCRAGHAN, D. F., M.B., Ch.B., R.C.I., Certifying Factory Surgeon for the Letterkenny District, Co. Donegal.

NASH, R. E., M.B., B.C., Cantab., Honorary Physician to the Sheffield Royal Hospital, vice Dr. Burgess, resigned.

NEAVE, T. J., B.C., R.C.P. & S.I., Certifying Factory Surgeon for the Monmouth District, Queen's County.

O'KEEFE, C. E., L.R.C.P. & S.I., Certifying Factory Surgeon for the Trip District, Co. Herts.

SAYED, F. H., M.R.C.S., J.R.C.P., Resident Medical Officer of the Molesey Sanatorium of the Staffordshire, Wolverhampton, and Dudley Joint Tuberculosis Committee.

SCOTT, W. Macgregor, L.A.H. (Irel.), L.M., Certifying Medical Officer to the Lancashire Asylum Board under the Mental Deficiency Act, 1912, vice William Whitford, M.D., resigned.

SIBBALD, T. R. S., M.D. Edin., Certifying Factory Surgeon for the Bankfoot District, Co. Perth.

SPENCER, C. S., I.M.S.S.A., District Medical Officer of the Ashton-under-Lyne Union.

EDINBURGH ROYAL INFIRMARY.—The following appointments have been made: Resident Physicians; John McGarrity, M.B., Ch.B., to Professor Russell; A. Fraser Campbell, M.B., Ch.B., to Sir R. W. Philip; Resident Surgeons; Edward J. Clark, M.B., Ch.B., to Dr. A. H. F. Harbour; C. F. Macdonald, M.B., Ch.B., to Professor Thomson; A. J. M'IVOR (final year student), to Mr. Dowden; R. B. Eadie, M.B., Ch.B., to Mr. Miles; Miss Mary M. M'Turpie, M.B., Ch.B., non-resident House-Surgeon to Dr. Sym.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

DEATH.

THORP.—On October 22nd, 1915, at Dolroyd, Todmorden, Charles William Thorp, M.D., F.R.C.S., J.P., aged 75 years.

DIARY FOR THE WEEK.

TUESDAY.

MEDICO-LEGAL SOCIETY, 11, Chandos Street, W., 5 p.m.—After some opening remarks by the President, Professor Harvey Littlejohn, a discussion on "Drunk" in the eyes of the law will be opened by Dr. F. Smith.

ROYAL COLLEGE OF PHYSICIANS, Fall Meeting East, S.W., 5 p.m.—Second FitzPatrick Lecture by Dr. W. H. R. Rivers: Medicine, Magic, and Religion.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W.—Paper: Dr. Russell Wells: Clinical Electro-cardiography.

DIARY OF THE ASSOCIATION.

Date. Meetings to be Held.

NOVEMBER.

10 Wed. London: Central Medical War Committee, 2 p.m.

13 Thur. Staffordshire Branch, Stoke-on-Trent, 4 p.m.; Dinner, £15 p.m.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, NOVEMBER 13TH, 1915.

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GENERAL COUNCIL

OF

MEDICAL EDUCATION AND REGISTRATION.

WINTER SESSION, 1915.

Sir DONALD MACALISTER, K.C.B., President,
in the Chair.

INSTRUCTION IN MEDICAL ETHICS.

The discussion on Dr. McVail's motion (SUPPLEMENT, November 6th, p. 182) to instruct the Education Committee to report on the education of medical students in the ethical relationships of medical practitioners to the State, to their patients, and to each other, was resumed on November 4th.

Dr. MACKAY said that he thought the medical man's duties to the State were well defined, and in every medical school in the country it was explained to the students in the classes of medical jurisprudence and public health. The motion seemed to look at the ethical side of the relation of the medical man to the State in general as a special kind of citizen, and then to his fellow practitioners and to his patients. The moral relations of the medical man were hardly susceptible of special treatment. The principles of ethical or moral behaviour were as old as the days of the New Testament, and those principles depended upon kindness of heart and gentlemanly feeling, which was summed up in the words "Do unto others as you would they should do to you." Many of the public were already inclined to believe that medical etiquette was a system of rules comparable to trade union rules, designed for the purpose of enabling the medical man to make as much as he possibly could out of the public, and any step which would show that special classes were required to teach medical men morality would be strengthening that view. Unhappily there were many medical men who did not live up to the standard of medical etiquette, and for many reasons, not confined to the medical profession, here and there were found citizens who had fallen away from the ideal that should lie before them. If the Council thought it would be an advantage to give special instruction in ethics, the Education Committee would do all it could; but he was a little doubtful as to the advisability of the course proposed.

Dr. MACDONALD agreed with Dr. Mackay, and thought it would be wasting the time of the Education Committee to ask it to bring up a report on the subject.

Dr. KNOX, while agreeing as to the uselessness of teaching or lectures on the subject, sympathized very strongly with the underlying idea which had prompted Dr. McVail to propose the motion. The proper method to meet the desire of Dr. McVail would be to embody the various points in a pamphlet which would be bought by students and studied by them; the influence of the information would not be so fleeting as if it were heard at a lecture.

Dr. CASH thought teaching necessary and Dr. McVail's form of procedure the best. It would make a much greater impression if students attended lectures than if they had a twopenny pamphlet put into their hands. He most heartily supported the proposal that the matter should be referred to the Education Committee.

Mr. HOODSON was in complete accordance with Dr. McVail's motion, which opened up a case for inquiry,

but suggested that Dr. McVail and Dr. Newsholme should be added to the Committee for this purpose, and the addition at the end of the motion of the words, "and that the Committee have power to make such inquiries on the subject as it deems advisable."

Sir CLIFFORD ALBUTT seconded the amendment. The general principles of medical ethics, he said, should be inculcated into students at some part of their career, but he would be very sorry indeed if a formal matter of that kind should in any way postpone or diminish directly or indirectly that which was far more important. So much depended upon the whole tone of the schools, and the way in which lectures were given, the tone of good feeling, loyalty, and service, which the lecturer carried with his work. That was really the vital thing. He would be very sorry if the Council hastily were disposed to rely upon any formal letter, as compared with what he thought ought to be the spirit.

Dr. NORMAN MOORE said a student came into personal relation with physicians and surgeons in the hospitals. The physician or surgeon made a friend of a student who was his dresser or clinical clerk. He almost invariably invited the student to his house, and all sorts of questions relating to the conduct of a man in his profession turned up naturally in conversation between the physician or surgeon and the student. That was the true and best way of instruction. The right thing to do was far better learnt by example and association with men who had devoted their lives to the improvement of medicine and surgery than by a course of lectures, which, he thought, would be waste of time. The student knew the general principle guiding the conduct of his instructors, and from that his own intelligence would enable him to know how to act. Such a course of lectures would be an unwise addition to an already overburdened curriculum.

Dr. NEWSHOLME, speaking from the point of view of the Department of Public Health, said that the great majority of practitioners were doing their duty to the State and to one another. The question was whether anything could be done in regard to the minority. He shared the views expressed by Sir Clifford Albutt, that it was a matter of moral texture in the schools; but although that was so there were cases of difficulty which arose in relation to practice in which the making of rules was important. It was quite wrong in the public interest to wait before notifying to be "quite certain." This was true of diphtheria as well as typhoid fever. Hundreds of lives were lost every year owing to delay to verify diagnosis by bacteriological examination; if a proper relationship between the medical officer of health and the practitioner were established those lives would be saved by prompt action. He would support the reference to the Education Committee in a general form to consider the matter as a whole. As the Council had already committed itself to the practice of issuing warning notices on certain points, it did not seem to be going very much further to commit itself, if so advised by the Committee, to certain rules for difficult cases.

Dr. SAUNDY gladly supported Dr. McVail's proposal. If Dr. Norman Moore's argument were right, no need for any special instruction would be shown and the question would not arise.

Sir JOHN MOORE looked on lectures on ethics as quite unnecessary, and dreaded any further overloading of the

curriculum. Medical ethics were taught in hospitals and medical schools, as stated by Dr. Norman Moore.

Sir THOMAS FRASER supported Dr. Mackay. In the present crisis, when so many doctors had temporarily to give up their practice, their places being filled by others, those others might take advantage of their position; but did a man require to be taught that that was wrong? What would a course of lectures do to make a man conduct himself properly? He would rather agree with those speakers who had said that the true training and teaching were to be found in the atmosphere surrounding the student. If there were that atmosphere in the profession, any faults such as had been referred to would be corrected. He was strongly of opinion that it was almost an insult to the profession and to the students for the Council to take up the position that their young men in medicine, of all callings on earth, required to have their morality improved by special teaching of ethics.

Dr. LATIMER moved as an amendment the omission of the words, "to the State." Dr. LINGLEY BROWSE seconded, but the amendment was lost.

Mr. TOMES remarked that there was an obvious divergence of opinion in the Council, and he hoped Dr. Mackay would accept the motion with Mr. Hodson's amendment embodied in it.

Sir HENRY MORRIS said Dr. McVail had clearly pointed out that, owing to recent legislation, there did arise questions which were difficult, and unless instruction was given, it was almost impossible for a student or young man just entering the profession to know how properly to conduct himself.

Dr. McVAIL, in reply, called attention to the precise terms of the motion. It said nothing about the desirability or undesirability of lectures. Nothing was said as to the correct course being to issue a small pamphlet on the subject, or to issue rules, nor whether the right course was to do nothing at all. That would all depend on the report of the Education Committee. His whole anxiety was to get facts to ascertain what was being done in the medical schools throughout the country. Those facts, with any observations the Education Committee might choose to make on them, the Council would be in a position to discuss. Dr. Mackay seemed to assume that classes were necessary; Dr. Knox said lectures were useless; Sir John Moore said a course of lectures was a waste of time. The motion said nothing about those things. Sir Thomas Fraser had said it was almost an insult to the medical profession to suggest that there should be education in medical ethics. Was it suggested because a boy had passed a preliminary examination which entitled him to be put on the list of medical students that it was an insult to the medical profession as a whole?

The motion was then put to the meeting and carried. Sir HENRY MORRIS demanded a count, which, on being taken, showed 24 voting for, 8 voting against.

RECRUITING OF MEDICAL STUDENTS.

After the Council had sat in *camerâ*, the PRESIDENT made the following public statement:

The President of the General Medical Council is requested by the Council to inform the Licensing Bodies, Medical Schools, and approved Teaching Institutions, that the Director-General of the Army Medical Service has intimated to the Council his entire agreement with the Earl of Derby's decision regarding the recruiting of medical students, namely, that it is the duty of medical students (other than those in the fourth and fifth years of study) to join His Majesty's forces. The President hopes that in every medical school steps will be taken to convey this information to the students who are eligible for military service.

PHARMACOPOEIA COMMITTEE.

The British Pharmacopoeia, 1914.

The report of this Committee, presented by the PRESIDENT, stated that the number of copies of the *British Pharmacopoeia, 1914*, sold between January 1st and October 31st, 1915, was 24,434. The second impression, in which certain typographical corrections were incorporated, was issued in June, and of this about 5,500 remained in stock.

Laudanum.

The report also dealt with a letter from the Lord President of the Council with reference to the recom-

mendation of the Council of the Pharmaceutical Society made in January, 1915:

That the policy to be advocated by the Council in regard to the sale of laudanum should be that when "Laudanum" is asked for the 1914 preparation should be supplied and the poison book signed; but where the 1898 preparation is demanded great care should be taken to label it accordingly, and the attention of the purchaser should be called to the fact that it is the 1898 preparation.

It was further stated in the communication that:

In the Lord President's view, the question to be determined is whether the society is acting properly in assisting the sale of any preparation of opium that does not comply with the requirements of the new edition of the *British Pharmacopoeia*.

Upon this subject the General Medical Council resolved to reply to the Lord President to the following effect:

The Council have reason to think that the form of the recommendation published by the Council of the Pharmaceutical Society gave rise to misapprehensions as to its intention and effect. Having regard to the discussions concerning "Laudanum" that took place during the months immediately preceding the publication of the *British Pharmacopoeia, 1914*, the latter part of the recommendation might be taken as conveying to persons who desired to obtain "Laudanum" without signing the "poison book" information which might enable them to effect their purpose. This would appear to be one ground of the remonstrance addressed by His Majesty's Coroner for the City of London and Borough of Southwark to the Lord President. In the opinion of the Council such inferences would have been avoided if an intimation had been addressed to pharmacists by the Council of the Pharmaceutical Society, stating that:

When *Tincture of Opium or Laudanum* is asked for no preparation other than that described under these names in the *British Pharmacopoeia, 1914*, may be supplied, and the poison book must be signed by the purchaser. When a tincture of different strength or composition is expressly demanded the prescriber or applicant must indicate clearly the formula for the special preparation he requires.

In view of the fact that the "1898 preparation" is apparently still in demand, and is publicly sold by pharmacists with a label bearing that designation, the Council are further of opinion that this preparation should be included in the same part of the Schedule of Poisons as that which now comprehends *Tincture of Opium or Laudanum*. This result would be attained if the proportion of morphine specified in the part of the schedule in question were reduced from "1 per cent." to "0.75 per cent."

(Other proceedings of the Council will be reported in a subsequent issue.)

INSURANCE.

INSURANCE ACTS COMMITTEE.

The following is the reply of the Commissioners to the letter sent them on November 1st as to advances to doctors, which was published in the SUPPLEMENT of last week (p. 177):

National Health Insurance Commission (England),
Buckingham Gate, London, S.W.

November 4th, 1915.

Sir,

In reply to your letter of the 1st instant, I am directed by the National Health Insurance Commission (England) to state as follows:

Advances to Doctors.

1. The Commissioners desire to assure the Insurance Acts Committee that in their consideration of this matter they have at all times been desirous of securing that the advances should not be calculated on an unnecessarily conservative basis. It is, however, essential in the interests not only of Insurance Committees but of the doctors themselves that care should be taken to avoid, so far as possible, the risk of overpayment and subsequent recovery from the doctors.

2. The Commissioners have issued general advice to Insurance Committees as to the procedure to be adopted in calculating the amount available for the purpose of making advances. The Association will recognize that it is not open to the Commissioners to afford to the Association or to Panel Committees any detailed particulars of the information as to entitlements upon which the Commissioners' advice was based. With regard, however, to the criticisms referred to in your letter, it appears to the Commissioners that it may conduce to a better appreciation of the general position and of the advice given by the Commissioners if the Commissioners indicate briefly certain general misapprehensions which appear to underlie those criticisms.

3. In the first place, the amount available for advances, though stated in the form of a ratio to the counts of the Committee's Index Register, was calculated upon independent data in the possession of the Commissioners. The Association are aware, from the discussions and

correspondence which have taken place between the Commissioners and representatives of the Association, that for various reasons the registers of Insurance Committees are at the present time inflated; and they will appreciate that in these circumstances the ratio of any deduction for enlistments to the inflated Registers must be considerably higher than the ratio of such deduction to the effective insured population.

Consequently, if it is entirely erroneous to assume that the percentage difference, between the amounts which the committees have been advised to advance, and the amounts calculated on the inflated Registers, represents a reflection solely on account of enlistment. This difference includes not only the necessary allowance for enlistments but also the allowance required to be made in normal circumstances for the inflation above referred to, and, in addition, the usual margin for purposes of ease values and other adjustments which may be necessary in connexion with the final settlement of accounts at the end of the year.

4. Further, the general advice issued by the Commissioners necessarily had reference to the circumstances of the country as a whole, and was unavoidably based upon average enlistment figures. If, however, as appears to be suggested in your letter, any local information is available for the purpose of demonstrating with reasonable conclusiveness that the rate of enlistment in any particular area is below the average, the Commissioners are prepared, and have always been prepared, to give their best consideration to any facts put before them which would justify the Insurance Committee in adopting a higher rate of advances than the average rate.

Settlement for the Year 1914.

5. The Commissioners have at no time overlooked the importance of securing a settlement as regards the past year as soon as possible, and they regret that the abnormal circumstances have hitherto precluded them from taking effective steps in this direction. They have, however, recently applied to Insurance Committees for certain additional information, and they hope that it will be possible to proceed at a comparatively early date with the calculations necessary to enable a settlement to be effected.

Change of Doctor at the end of the Year.

6. The Commissioners desire me to take this opportunity to inform you that they have given their careful consideration to the representations of the Association with regard to the Draft Regulation previously issued on the subject of the right of insured persons to transfer at the end of the year. In order to meet the point raised by the Association, the Regulation will be amended to read as follows:

An insured person whose name is included in the list of a practitioner on the panel who is at any time during the month of November, 1915, holding a commission in the naval or military forces of the Crown shall not be entitled to select another practitioner or method of treatment at the end of the medical year ending on the 31st day of December, 1915, unless, in addition to giving notice to the Committee in the manner and within the period required by paragraph (1) of Article 30 of the principal Regulation, he satisfies the Medical Service Subcommittee of the committee that he has reasonable grounds for desiring to be removed from the list of the practitioner holding a commission as aforesaid, and paragraphs (1) and (5) of Article 30 shall be modified accordingly.

The substantive Regulations will be made on or about the 10th November, and will replace the Provisional Regulations on the subject previously issued.

7. A copy of a circular letter which has been issued to Insurance Committees on the subject of the Regulation is enclosed herewith for the information of the Association.*

I am, Sir,

Your obedient servant,
(Signed) S. P. VIVIAN.

A. Cox, Esq., M.B.,
British Medical Association,
429, Strand, W.C.

This letter, dated November 2nd 1915, we have not space to print on the present occasion.

SURCHARGING.

AN INJUNCTION AGAINST AN INSURANCE COMMITTEE.

A CASE of considerable interest to panel practitioners and Panel Committees was decided in the King's Bench Division on November 3rd, before Mr. Justice Rowlatt, when Dr. Charles W. Moore, of Leicester, obtained an injunction against the Borough of Leicester Insurance Committee to restrain them from deducting £31 7s. from the money due

to him under the National Health Insurance Acts by way of surcharge. It appears that in 1914 the Leicester Pharmaceutical Committee reported that too many drugs had been ordered by doctors, in consequence of which the local Drug Fund had been insufficient to pay for all the drugs that had been ordered. The Panel Committee, after conference with the Pharmaceutical Committee, made an arrangement by which £200 was transferred from the Medical Fund to the Drug Fund. The question then arose as to how this £200 was to be allocated among the doctors on the panel, and it was decided to make a calculation of the average cost of drugs ordered by each doctor, and require any doctor who had ordered drugs in excess of that average to make a rateable contribution, so that the total amount so procured should be £200. This contribution was called a surcharge, and Dr. Moore's share came to £31 7s. Notice was given to him that he was to be debited with this amount, and this was the first he had heard of the matter. He had no opportunity of attending any investigation. To those who have studied the question of the very delicate and important responsibilities laid upon Panel Committees in connexion with these surcharging inquiries it will come as a shock to find that at this time of day such a very rough-and-ready, not to say inequitable, method should have been adopted by any Panel Committee, which might well be expected to realize that no just decision as to over-prescribing can be reached without full consideration of the circumstances of each individual case. It is gratifying to find, therefore, that the judge emphasized this point in giving judgement, when he said that the finding of the Panel Committee was not a "report" within the meaning of the regulation. The fact that the Committee adopted a system of average seemed to him conclusive that it had never addressed itself to the question of extravagance; because one doctor's order for drugs was greater than the average that did not prove that that doctor was extravagant. We are glad to note these remarks, for they are in strict accordance with the advice the Insurance Acts Committee has given to Panel Committees. Short cuts in connexion with a serious charge such as that which virtually amounts to a waste of public money cannot be tolerated, and every doctor whose methods and cost of prescribing may come to the attention of the Panel Committee should be able to feel confidence that, though proved extravagant will be dealt with rigorously, exceptional circumstances and legitimate reasons for seeming excess will meet with sympathetic consideration from a body of men who understand. It is interesting to note that the attitude taken up by Mr. Justice Rowlatt is also in accord with the indications already given by the Insurance Commissioners in dealing with surcharging appeals. In a case reported recently they showed their disapproval of any system of "averaging" or mere mathematical surcharging.

The judge was also asked to rule that the regulation dealing with surcharging was *ultra vires* as the Commissioners had no power to make regulations to deprive a doctor of that to which he was entitled by the terms of the Acts and his agreement with the Insurance Committee. Mr. Justice Rowlatt, however, ruled that the regulation in question was *intra vires* and valid. Seeing that the regulation puts into the hands of a professional body the power of largely determining a professional question, and in view of the fact that the profession has always been solid on this point, it was not to be desired that this contention of the plaintiff should succeed. The Panel Committee is by the Acts and Regulations a partner with the Insurance Committee and Commissioners in protecting public funds from being wasted by extravagance, and moreover in protecting panel practitioners as a class from charges of indifference or worse in regard to this matter. The professional aspects of these inquiries could not be discussed to any useful purpose except by a professional body, and we are glad to find that the court has upheld the right of both Committees to fulfil their duty under the Acts, and to assume that the logical sequence of that action will follow—namely, that the Insurance Committee will surcharge in cases where extravagance has been proved.

A list of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian, at the house of the Association, 429, Strand, W.C.

Association Notices.

SOUTHERN BRANCH.—Mr. James Green, Honorary Secretary, gives notice that a special meeting of the Branch will be held at the Royal Hotel, Above Bar, Southampton, at 2.30 p.m. on Thursday, November 25th. The business will be to consider, and it is approved to adopt, as recommended by the Branch Council—the revised Ethical Rules of the Association. At the conclusion of this business, the meeting will resolve itself into the ordinary half-yearly general meeting, when the routine business of the Branch will be transacted. Afterwards a short paper will be read by Dr. H. D. Rolleston, senior physician, St. George's Hospital (Temporary Surgeon-General, R.N., Haslar Hospital), on war diseases, and it is hoped that a discussion will ensue. Tea will be served during or after the meeting.

STAFFORDSHIRE BRANCH.—Dr. Harold Hartley, Honorary General Secretary, Basford, Stoke-on-Trent, gives notice that the first general meeting of the session will be held at the North Stafford Hotel, Stoke-on-Trent, on Thursday, November 18th. The President, Dr. F. M. Rowland, will take the chair at 4 p.m. Business:—Resolution: That the Staffordshire Branch hereby adopts the revised rules governing procedure in ethical matters of a Branch composed of several Divisions as approved by the Annual Representative Meeting, 1915, without modification and in substitution for any ethical rules now in use by the said Branch. Exhibition of living cases. Papers:—W. Mitchell Smith: Alimentary Hygiene in Children. G. A. Carter: Nose Bleeding. S. McMurray and E. E. Young: A Case of Intracranial New Growth simulating Miners' Nymphs. Exhibition of pathological specimens, etc. Dinner at 6.15 p.m. Charge, 5s.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements) important Notice re Appointments appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BENGAL, India.—Chief Sanitary Officer for the Assam Mines Road of Health and Mining Settlement. Salary, Rs. 1,200 (£80), rising to Rs. 1,500 (£100) a month.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians. (2) House-Surgeons. (3) Dental House-Surgeon. Salary, £120 per annum in each case.

BURGH OF PAISLEY.—Resident Medical Officer for Infectious Diseases Hospital. Salary, £200.

BURNLEY: VICTORIA HOSPITAL.—House-Surgeon. Salary, £135 per annum.

CHELSEA HOSPITAL FOR WOMEN.—Anaesthetist. Honorarium, £21 per annum.

CHESTER ROYAL INFIRMARY.—Lady House-Physician and Lady House-Surgeon. Salary, £115 and £100 per annum respectively.

CITY OF BRADFORD.—Two Temporary Women Medical Officers. Salary, 28 sh. per week.

COUNTY BOROUGH OF STOKE-ON-TRENT.—Resident Assistant Medical Officer at the Stanfield Sanatorium. Salary, £359 per annum inclusive.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Lady Resident Medical Officer. Salary, £200 per annum.

DERBYSHIRE ROYAL INFIRMARY.—House-Surgeon. Salary, £250 per annum.

DEVONSHIRE HOSPITAL, Exton.—Assistant House-Physician, Salary, £100 per annum.

DUDLEY: GLEN HOSPITAL.—(1) Senior Resident Medical Officer; salary, £150 per annum. (2) Assistant House-Surgeon; salary, £120 per annum.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway Road, N.—House-Surgeon. Salary, £100 per annum.

GREAT YARBROUUGH HOSPITAL.—House-Surgeon (male). Salary, £200 per annum.

JESSOP HOSPITAL FOR WOMEN, Sheffield.—Senior and Junior Lady House-Surgeons to the Gynaecological and Maternity Departments. Salaries, £100 and £80 respectively.

LEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £10.

LONDON FEVER HOSPITAL, Liverpool Road, N.—Assistant Resident Medical Officer. Salary, £200 per annum.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant House-Surgeon. Salary at the rate of £105 a year.

LONDON TREAT HOSPITAL, Great Portland Street, W.—House-Surgeon. Salary, £50 per annum.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Cheetham Hill Road.—Lady House-Surgeon. Salary, £120 per annum.

MANCHESTER ROYAL INFIRMARY.—Resident Medical Officer at the Convalescent Hospital, Cheadle. Salary, £225 per annum.

NEW HOSPITAL FOR WOMEN, Foston Road, N.W.—House-Physician, Two House-Surgeons, Obstetric Assistant, and Pathologist. Also Senior Clinical Assistant and an Anaesthetist.

PASSMORE EDWARDS HOSPITAL, Willesden.—Honorary Anaesthetist.

THORNHALL FRANK DISTRICT COUNCIL.—Temporary Assistant Medical Officer of Health and school Medical Officer. Salary, £50 per annum.

ST. GEORGE-IN-THE-EAST DISPENSARY FOR PREVENTION OF CONSUMPTION.—Temporary Medical Officer. Salary, £500 per annum.

ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES, Red Lion Square, Holborn, W.C.—Honorary Casualty Out-patient Surgeon.

SHETLAND: WHARFSA PARISH.—Medical Practitioner. Guaranteed income £50 by the Highlands and Islands (Medical Service) Board.

SOUTHAMPTON: FREE EYE HOSPITAL.—House-Surgeon. Salary, £100 per annum.

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—House-Surgeon. Salary, £50 per annum.

VICTORIA HOSPITAL FOR CHILDREN, The Street, S.W.—(1) Senior Resident Medical Officer. (2) House-Physician. Salary, £250 and £200 per annum respectively.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford.—House-Physicians and House-Surgeons. Salary, £120 and £100 per annum respectively.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—House-Physicians. Salary, £120 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Lady House-Surgeon. Salary, £50 per annum.

YORK COUNTY HOSPITAL.—Resident Medical Officer. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS. The Chief Inspector of Factories certifies the following vacant appointments: Bungay (Suffolk), Preston, West (Lancaster).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BROWN, W. E., M.B., C.M. (Aberd.), Certifying Factory Surgeon for the Aboyne District, co. Aberdeen.

CORCORAN, P. J., M.B. Ch.B., N.U.I., Certifying Factory Surgeon for the Ballinrobe No. 2 District, co. Mayo.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

McNAB.—On the 3rd inst., at Withington Cottage, Withington, Manchester, the wife of Dr. McNeil, of a son.

WARNER.—On the 4th inst., at Bräsl, Woodford Green, the wife of Harold P. Warner, M.B., B.S., of twin sons.

DEATHS.

BOXALL.—On the 7th inst., suddenly, at Inleside, Abinger Common, Robert Boxall, M.D., formerly of 40, Portland Place.

BUCHANAN.—At 13, Berkeley Terrace, Glasgow, W., on the 9th inst., Alexander Macgregor Buchanan, M.A., M.D., F.R.F.P.S.G., Professor of Anatomy, Anderson College Medical School, Funeral private. No flowers by request.

ROSLTON.—Passed away on the 24th September, on board the City of Swire, five days from Cape Town, and buried at sea, Robert John Roslton, M.D., M.Ch., F.R.C.S.I., for twelve years M.O.H. of East London, Cape Colony, and formerly of Newtownstewart, Ireland.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W., 8.30 p.m.—A discussion on "Gunshot Wounds of the Head," to be introduced by Lieutenant Colonel P. Sarrent, R.A.M.C. F.R.C.S., and Lieutenant Colonel Gordon Holmes, R.A.M.C. M.D., to be followed by Mr. L. B. Rawling, Dr. Wilfred Harris, Mr. W. H. H. Jessop, Major W. Pearson, R.A.M.C., and others.

TUESDAY.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W., 5 p.m.—First Goulstonian Lecture by Dr. Gordon Holmes: Acute Spinal Lesions with Special Reference to those of Warfare.

WEDNESDAY.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W., 5 p.m.—Dr. Russell Wells will open a discussion on "Clinical Electrocardiography."

ROYAL SOCIETY OF MEDICINE: SECTION OF HISTORY OF MEDICINE. 5 p.m.—Books, MSS., etc., on view at 4.30 p.m.

THURSDAY.

ROYAL SOCIETY OF MEDICINE: SECTION OF DERMATOLOGY. 4.30 p.m.—Exhibition of Cases.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W., 5 p.m.—Second Goulstonian Lecture by Dr. Gordon Holmes.

FRIDAY.

ROYAL SOCIETY OF MEDICINE: SECTION OF ELECTRO-THERAPEUTICS. 8.30 p.m.—Dr. F. P. Cumberbatch: Methods of Testing the Reactions of Muscles. Dr. Eddie Sayer: Electrical Departments in Military Hospitals.

SECTION OF OBSTETRY, 5 p.m.—Discussion on "Skin-grafting in Mastoid Operations," to be opened by Mr. H. J. Marriage.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 8.30 p.m.—Professor A. Castellani of Naples: "Combined Vaccinations"

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INSURANCE.

THE ADMINISTRATION OF THE INSURANCE ACT: DIFFICULTIES AND DUTIES.

ADDRESS BY DR. McVAIL.

THE annual conference of the Association of Scottish Insurance Committees was held in Dundee on Saturday, October 30th. Dr. McVail, Deputy Chairman of the Scottish Insurance Commission, had been invited to be present, and was asked to address it.

Dr. McVail, after thanking the Association for the invitation, said that had he been aware that the continued existence of the Scottish Insurance Commission was to be discussed at the congress, his modesty might have prevented him from the embarrassment of being present. On that subject his lips were sealed, but he was amused to note the effect which the newspaper paragraph that first called attention to the matter had had on the position in Scotland. It resembled nothing so much as the proverbial influence of the intrusion of someone who was regarded as an outsider into a family dispute. He had sometimes pondered on the question why, in the administration of the Insurance Act, there was so frequently variance of view between the Commission on the one hand and the other organizations which shared in the administration of the Act, on the other hand.

Statutes Negative and Positive.

In the first place the Act was new and it was complex, and it required time for every one, and for every central or local body, to find its own proper niche, and its relation to the other administrative agencies. Apart from that, the Insurance Act differed in one essential respect from various other Acts of Parliament. The relation of the citizen to the commoner statutes was mainly passive or negative. Under the Public Health Acts he was to refrain from creating a nuisance; under the Rivers Pollution (Prevention) Acts he was to avoid contaminating a stream; under the Food and Drugs Act he was not to be guilty of adulteration; under the Alkali Acts he was not to discharge certain gases or chemicals into the atmosphere; under the Factory Acts he was not to allow his employees to work more than a stated number of hours a day, and he was not to give them less than a certain minimum of air space; at common law he was not to be guilty of theft, nor to obtain money under false pretences. In short, a man leading a blameless life might travel from the cradle to the grave without ever coming into contact with such statutes or with the common law.

Under the Insurance Act his position was widely different. There his duties were not passive, but active; not negative, but positive. Employers had regular functions to perform in the way of stamping; so also had employees, and they were required to do many other things in relation to the Act—the choosing of a doctor, the intimation of changes of address, and so forth. The duties of the approved societies and Insurance Committees were numerous. Doctors had to perform certain functions in respect of medical attendance, the keeping of records, certification, and drug prescribing. Chemists had their share in the organization; in fact, for the absolutely

frictionless working of the Act the co-operation throughout the United Kingdom of some fifteen million persons was necessary, and these fifteen millions included many who had lived comparatively irresponsible lives and had hardly at all been under discipline. Such frictionless working was, of course, a counsel of perfection, but great progress was being made. It was the duty of the Commissioners not merely to perform their own functions, but to try to secure that all the other parties concerned performed theirs; and it had sometimes seemed to him that the Commissioners would require to possess the qualities attributed to Holy Writ—they ought to be profitable for doctrine and reproof and correction, and for instruction, not exactly in godliness, but in administrative rectitude, which for the purposes of the Insurance Act was equivalent to godliness. That being so, it was not surprising that differences of view emerged. It was clear, however, that the bodies with whom the Commissioners had to deal appreciated their efforts—at least to the extent that they were determined to protect the Commission against the fate which threatens those of whom all men speak well.

One curious fact was that while admonishing the bodies present at conferences the Commissioners were usually in the position of defending the bodies who were absent, and whom at other times they had to criticize. Whilst telling the Insurance Committees what they ought to do, they at the same time had to explain that approved societies were not so much to blame as the committees might think, and when they met to admonish societies they had to point out that even the doctors had a right to be classified amongst God's creatures, as an Oxford student is said to have once reluctantly admitted of a Cambridge student.

Economy under the Insurance Act.

Another important consideration in respect of the relations between the Commissioners and the Insurance Committees was that under the Insurance Act there is no ratepayer. The ratepayer, where economy is in question, is the ultimate court of appeal in the case of town councils, county councils, school boards and parish councils. Under the Insurance Act the taxpayer is interested, but his interest is somewhat remote. Therefore in practice up till now the Commissioners, though the central authority, had found it necessary in large measure to take on the duties of a ratepayer. It was not apparent that this really required to be the position. The representatives of the approved societies, which themselves were made up of the insured, had a majority on every Insurance Committee, and ought to realize that economy was just as necessary in insurance administration as in the ordinary departments of local government. Up till now there had been far too much reliance on the Treasury. There seemed to be a feeling that because Parliament had a share in the financial burden it ought to meet all deficits, and whenever difficulties arose the cry was apt to rise for another Government grant. That had never been a very hopeful resort, but now, in presence of the fact that the grants for such admirable purposes as medical referees, nursing, laboratories, and clinics had had to be withdrawn, it was surely obvious that the Treasury door was closed against applicants unless at least it could be shown that expenditure

was absolutely necessary, that deficit was absolutely unavoidable, and that the responsibility lay with Parliament. In future it might be taken that the financial effects of laxity would have to be borne locally and not centrally, and the sooner that position was realized the better it would be for all concerned.

The Drug Fund.

The next question was whether, as representing the admonitory function of the Commissioners, the speaker had any special admonition to address to the Insurance Committee representatives assembled that day. The answer was a most emphatic affirmative. The condition of the Drug Fund demanded the closest constant attention of all concerned, and the Insurance Committees were largely concerned. Three months ago the Commissioners had issued to the medical profession a circular letter, appended to which was a statement showing how the cost of many drugs had increased owing to the war. He had had the figures in that appendix revised up to date, and in a very large majority of cases the increase had mounted still higher. One drug, which three months ago had cost ten times as much as before the war now cost nearly seventeen times as much. On the other hand, strange to say, another drug belonging to the same class had somewhat fallen in price during the three months, and a fact of that kind was one which, of course, would be noted by the medical profession. It was not merely the doctors who were concerned in the matter; they, where alternative drugs equally efficacious for any given case were in question, would naturally prescribe the less expensive, and they would not prescribe such a quantity as would involve any risk of half of a bottleful being thrown away unused. Insured persons ought at the same time to realize that if their doctor were to tell them that a tonic which they had been taking for months was no longer necessary, or that a cough mixture less palatable than heretofore would be equally efficacious, it was their duty to accept the doctor's dictum without grumbling. The whole position, of course, was subject to the fundamental proposition that the insured person should not suffer for want of any obtainable drug, but in order that some drugs might continue to be obtainable the greatest care was required, otherwise the stock might be entirely exhausted. The extraordinary range in the cost of drugs per insured person as between one insurance area and another, and one country and another, indicated how much could be done without loss to the insured, by means of rigid care and economy continually exercised.

The Scottish Drug Accounts Bureau.

The interest of the Scottish Insurance Committees in the matter was wrapped up in the work of the National Drug Accounts Committee. The Bureau, which was the servant of all the Insurance Committees in Scotland, was doing admirable work, and was issuing monthly reports of the greatest value. These reports went to each Insurance Committee concerned. They were, however, merely reports of facts; it was not within the scheme of the Bureau that advice should be given or recommendations made. The Insurance Committees had to determine their own action in presence of the facts. Dr. McVail begged them to study carefully every such report, and to act definitely on the conclusions they might form. He quite recognized the difficult and delicate position which might arise in small areas with few doctors and few chemists. The Drugs Bureau, however, in collating and submitting the facts, had relieved such small committees of much of the difficulty which they might feel, and for the rest it was their duty to face frankly and effectively whatever difficulty might remain.

Complaints to Insurance Committees.

Another matter as to which he had a word of admonition for Insurance Committees was in regard to their dealing with complaints. When the Commissioners called before them representatives of approved societies, and when in reply to criticism the societies made statements of a nature which should properly form the subject of reference to Insurance Committees, the societies, on this being pointed out to them, were apt to reply that such representations to committees were less successful than they had expected, and that they were disinclined to resort to

that procedure. It was in the nature of things that a disappointed litigant should blame the tribunal which heard his case, but Dr. McVail wished to press on committees the importance of acting in such a way as to secure the confidence of complainers, whether societies or individuals, that their complaints were fairly and carefully considered and a decision always given on the merits.

Concluding Remarks.

In conclusion, Dr. McVail said that it had always seemed to him that one of the finest features of social responsibilities in this country was exhibited in the fact that when local government was required for the administration of any Act of Parliament, responsible men were always found willing to devote some part of their spare time to the public welfare. This was so in the case of town councils, county councils, parish councils, and the like, and so it had now been found in the case of the Insurance Act. The Insurance Act was well worth good administration. It was an Act whose objects included the supplementing of the thrift of those who were already thrifty, the compelling of the thriftless to make, throughout their working life, a regular weekly contribution to their own maintenance and medical attendance during illness, and the improvement of the national health, including what was now more than ever the important function of protecting both mother and infant at childbirth. The Commissioners were greatly indebted to their colleagues, the Insurance Committees of Scotland, for the attention which they were devoting to their important duties and for the ability with which the duties were being performed.

SURCHARGING.

In the note published in the SUPPLEMENT of November 13th, page 187, on the case in which Dr. Charles W. Moore obtained on November 3rd in the King's Bench Division an injunction against the Leicester Insurance Committee to restrain them from making a deduction by way of surcharge from the money due to him under the Insurance Acts, it was stated that "the judge was also asked to rule that the regulation dealing with surcharging was *ultra vires*, as the Commissioners had no power to make regulations to deprive a doctor of that to which he was entitled by the terms of the Acts and his agreement with the Insurance Committee. Mr. Justice Rowlatt, however, ruled that the regulation in question was *intra vires* and valid."

Since the note was published we have had an opportunity of perusing the full text of Mr. Justice Rowlatt's judgement, and find that his observations did not establish the point in question. The passage in the judgement relating to this matter reads as follows:

Now the first point taken by Mr. Gore-Browne is that the regulation upon which the whole thing is founded (Regulation 40) is *ultra vires*. It is said, on the other side, that it is *intra vires*, and, whether it is *intra vires* or not, that I have no jurisdiction to decide upon that point, because the mere fact of the regulation being made is enough under the special words of the Act. I shall assume that the regulation is valid and binding, whether because it is *intra vires* in fact, or whether because no question of *intra vires* arises. I shall assume that the regulation is valid.

Mr. Justice Rowlatt did not, therefore, decide the question as to whether or not the regulation was *ultra vires*.

Counsel for the plaintiff were Mr. Gore-Browne, K.C., and Mr. Alexander Neilson, instructed by Messrs. Hempsion for the Medical Defence Union. Counsel for the defendant were Mr. Clavell Salter, K.C., and Mr. R. A. Wright.

LOCAL MEDICAL AND PANEL COMMITTEES.

BERMINGHAM.

At a meeting of the Birmingham Panel Committee on November 2nd it was reported that the Insurance Committee and the Local War Emergency Committee were willing to adopt the suggested agreement with regard to the carrying on of the practices of those who had undertaken military duty.

It was decided that vaccination of insured persons was not included in the agreement entered into between practitioners and the Insurance Committee, as vaccination

could be obtained free of charge and vaccines were not provided for in the Drug Fund.

The proposed alterations in the new agreement for 1916 were agreed to.

EAST SUSSEX.

At a meeting of the Local Medical and Panel Committees on November 3rd, approval was expressed of the compromise arrived at by the British Medical Association with the Commissioners as to the proposed new arrangements in regard to the Drug Tariff, but strong objection was expressed to the shortness of the time allowed by the Commissioners for considering the alterations.

The following scale for treatment of dependants suffering from tuberculosis was approved for submission to the Insurance Committee:

SCALE.

(a) For full medical report (including consultation at the surgery or visit)	s. d.
(b) Extra for first visit with consulting tuberculosis officer	5 0
(c) Continuous record (per quarter)	2 6
(d) Quarterly reports	5 0
(e) Attendance on patient at doctor's residence or surgery	5 0
(f) Visit at patient's home	2 0
(g) Night visit—that is, visit paid between 8 p.m. and 8 a.m. in response to call within these hours	5 0
(h) Special visit—that is, visit paid in response to call sent after 10 a.m. and before 8 p.m.	3 6
(i) Injection of vaccines (vaccines to be provided by local authority)	2 6
(j) Mileage	2 6

1. For every visit paid to a patient residing more than three miles from the doctor's residence measured along the nearest convenient road, the sum of 1s. for each complete mile of the distance after the first two.
2. Residing more than 2 mile from a metalled road (in addition to any fee payable under 1) the sum of 1s. for the first quarter of a mile and the sum of 1s. for each succeeding 5 mile. A metalled road shall be taken to include any road, whether public or private, which is made with macadam, flints, sandstone, or other hard material, and which is under ordinary circumstances suitable for carriage or motor traffic throughout the year. The distance from a metalled road shall be measured along the shortest route from the nearest accessible point on a metalled road to the residence of the patient, regard being also had to the route usually taken by the patient.

BUCKINGHAMSHIRE.

At a meeting of the Local Medical and Panel Committee on October 29th it was decided to recommend practitioners to agree to the amended agreement for 1916.

At a general meeting of practitioners in Buckinghamshire, held on October 29th, a resolution was adopted pledging those present to safeguard the interests of those serving with the colours. It was decided to send a copy of the following resolution to all Relief Committees and Committees of the Soldiers' and Sailors' Families Association in the county:

That this meeting of medical practitioners of Buckinghamshire considers that vouchers for free attendance on dependants of soldiers and sailors are being issued too freely, and that they should only be given in cases in which the weekly receipts are less than before the war.

LANCASHIRE.

Final Certificates.—At a meeting of the Lancashire County Local Medical and Panel Committees held on October 20th a memorandum was submitted by the Lancashire Insurance Committee pointing out that if an insured person does not apply for a final certificate in accordance with the instructions of the Commissioners and the requirements of his society, but goes to his doctor for a final certificate some days after he has resumed work, or has become fitted to resume work, the doctor cannot properly sign the final certificate in the form printed, and therefore the provision is made therein that the words "you have remained incapable of work up to and including to-day" may be struck out, and the words "you are fit to work to-day" inserted in their place. The memorandum was approved.

INSURANCE NOTES.

STAFFS OF APPROVED SOCIETIES AND INSURANCE COMMITTEES.

The Insurance Commission (Scotland) issued on November 2nd, with the full concurrence of the Director-General of Recruiting, a circular letter to approved societies and Insurance Committees in reply to representations that, owing to the fact that a considerable proportion of their staffs had already joined the army, there was a danger of serious dislocation of State Insurance work should their trained staff be further depleted. The Commissioners, after stating that they appreciated the difficult position in

which societies and committees may find themselves, continued as follows:

On the one hand, it is of supreme importance that the requirements in the matter of men needed for the army should be met; but, on the other hand, the Government require that the essential work of national health insurance should be continued. In these circumstances, the best advice which the Commissioners can give to societies and committees (all of whom they feel sure are anxious to afford every possible facility to their employees who are in a position to respond to the call for recruits), is that they should inform the members of their staffs that any men who are prepared to enlist should offer themselves for service under the new scheme which is now in operation. By this scheme men who express their willingness to serve are classified in groups according to age and other conditions, and are called up for service in such groups as they are required.

INSURANCE ACT IN PARLIAMENT.

IRISH INSURANCE COMMISSIONERS.

Mr. LUNDON asked the Secretary to the Treasury whether any agreement has yet been come to between the Irish Insurance Commissioners and the Medical Association with regard to the working of the National Insurance Act, and if so, on what terms; and, if not, what was the cause of the delay in completing the agreement? Mr. C. Roberts said that the adjustment of details in regard to the proposed scheme of medical certification in Ireland was proceeding through conferences between the Irish Insurance Commissioners, the medical profession, and the approved societies, and he understood that satisfactory progress is being made.

Mr. CREAN asked the Chief Secretary for Ireland whether the salaries due July 31st, 1915, to the late panel doctors of the city of Cork were still unpaid; if so, what was the cause of the delay; and whether the present difficulty with the Irish medical profession was mainly due to the dilatory way in which the business of the Department has been conducted? Mr. Roberts replied that he was communicating with the Irish Insurance Commissioners.

SANATORIUM FUNDS.

In the course of his reply to a question by Mr. Currie, Mr. Roberts said that, apart from the temporary diminution in the income of insurance committees due to enlistment, the position of insured persons who applied for sanatorium benefit had not in any way been altered to their detriment in consequence of war conditions. In reply to a question by Mr. Booth, he said that the number of persons in London on the waiting list for treatment in residential institutions was 210. The Insurance Commissioners had not done more than recommend the proper classification of applicants for the different forms of sanatorium treatment, now rendered possible by the institution of a general scheme of dispensary treatment in London.

Meetings of Branches and Divisions.

BOMBAY BRANCH.

An ordinary meeting was held in the University Library on July 29th, when Lieutenant-Colonel ASHTON STREET, I.M.S., was in the chair. Dr. F. BANA read notes on cases of idiopathic rhinorrhoea and enlargement of the lingual tonsils. Dr. R. Row showed cultures of the spirochaete of relapsing fever, with photographs and microscopic slides, and described the methods by which the cultures had been prepared. Cases and specimens were shown by Professor Y. G. NADGI, Lieutenant-Colonel ASHTON STREET, and Dr. S. B. NAYAK (skiagrams).

EDINBURGH BRANCH:

SOUTH-EASTERN COUNTIES DIVISION.

At a meeting of the Division held at Newton St. Boswells on October 29th, when Dr. J. YOUNG was in the chair, it was resolved to inform the Scottish Committee of the British Medical Association, in reply to its inquiries—(1) that the Division did not approve of the abolition of the Scottish Insurance Commission; (2) that the Division favoured the amalgamation of the smaller insurance areas to the extent that the total census population as combined should not exceed 50,000. The ethical rules approved by the Representative Meeting, 1915, were adopted.

The question of the indiscriminate distribution of books entitling dependants of soldiers and sailors to medical attendance was again raised, and it was decided to inform the Secretary of the Soldiers' and Sailors' Families Association that the doctors would prefer to provide charitable attendance individually and at their own discretion, unless arrangements were put in force by which there would be a proper check on the persons to whom the books were issued.

YORKSHIRE BRANCH.

At the autumn meeting of the Yorkshire Branch held in York on October 9th Dr. Bedford France delivered an address on the absence of proper facilities for the treatment of mental disorders in their early stages.

The revised ethical rules approved by the Representative Meeting were adopted.

IRISH COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION.

Illegal Conditions of Advertisements for Poor Law Dispensary Doctors.

In a letter, dated October 21st, 1914, the Irish Committee of the British Medical Association drew the attention of the Local Government Board (Ireland) to an advertisement in the press for a dispensary doctor in the Castlebar Union containing an illegal condition of election—namely, that candidates will be called upon by the guardians to agree to be bound by a graded scale of fees for private patients.

The Local Government Board replied stating that it had written to the Castlebar Board of Guardians pointing out that the proposed condition of appointment complained of by the Irish Committee of the British Medical Association would not be binding on the medical officers appointed. Notwithstanding this definite ruling, some boards of guardians still endeavour to make it a condition of election that the medical officers appointed should attend private patients at fees prescribed by the guardians. That boards should persist in trying to make an illegal condition such as this can only be accounted for by assuming that in some instances at least they misunderstand the recommendation of the Local Government Board with regard to the adoption of scales of fees for a certain class of persons at present receiving free treatment under the Medical Charities Act in Ireland who could not, in any sense, be considered destitute or so poor that they could not pay a moderate fee. There are families in Ireland receiving in wages as much as £2 or £3 a week who receive under the Medical Charities Acts free medical treatment; this is apparently a hereditary privilege based on the fact that their grandparents, who only received two or three shillings a week, had free medical treatment provided for them under the Medical Charities Acts. Though it is true that in a few districts in Ireland the adoption of a scale of reduced fees to meet such cases has met with some success, the great majority of dispensary doctors, while admitting the soundness of the principle underlying the scheme as recommended by the Local Government Board, have found from experience that patients who, previous to the adoption of such a scheme, paid their ordinary fees, attempted and succeeded in getting treatment under the reduced scale of fees adopted to prevent some of the more gross abuses of well-to-do patients receiving free treatment at the hands of the dispensary doctor.

Association Notices.

SOUTHERN BRANCH.—Mr. James Green, Honorary Secretary, gives notice that a special meeting of the Branch will be held at the Royal Hotel, Above Bar, Southampton, at 2.30 p.m. on Thursday, November 25th. The business will be to consider, and if approved to adopt—as recommended by the Branch Council—the revised Ethical Rules of the Association. At the conclusion of this business, the meeting will resolve itself into the ordinary half-yearly general meeting, when the routine business of the Branch will be transacted. Afterwards a short paper will be read by Dr. H. D. Rolleston, senior physician, St. George's Hospital, temporary Surgeon-General, R.N., Haslar Hospital, on war diseases, and it is hoped that a discussion will ensue. Tea will be served during or after the meeting.

RECRUITING FOR THE MEDICAL SERVICES.

THE SCOTTISH MEDICAL EMERGENCY COMMITTEE RECOGNIZED AS A TRIBUNAL.

We are informed that the Scottish Medical Service Emergency Committee, which for the last six months has been actively engaged in recruiting medical officers for the army, has now been appointed the "Tribunal" for Scotland to deal with questions affecting the liability of medical men to undertake military service. The following is an excerpt from the letter of appointment addressed to the Convener of the Committee at the Royal College of Physicians, Edinburgh, by the Assistant Director-General Army Medical Services:

War Office, Whitehall, S.W.,
November 12th, 1915.

I have been directed by Sir A. Keogh to acknowledge your letter of the 9th November, and, in reply, am to say that your Committee is to be regarded as a "Tribunal" for medical purposes, and that you are empowered to issue letters of excuse to medical men whom you think it would be undesirable to call upon to undertake military service.

The Committee will shortly make a public announcement of the manner in which they propose to discharge this important national duty. The Committee is constituted as follows:

- Dr. A. H. Freeland Barbour, President of the Royal College of Physicians.
- Mr. J. W. B. Hodsdon, President of the Royal College of Surgeons.
- Dr. Ebenezer Duncan, President of the Royal Faculty of Physicians and Surgeons of Glasgow.
- Professor Knoch, Dean of the Faculty of Medicine, University of St. Andrews.
- Professor Bryce, Dean of the Faculty of Medicine, University of Glasgow.
- Professor Shennan, Dean of the Faculty of Medicine, University of Aberdeen.
- Professor Littlejohn, Dean of the Faculty of Medicine, Edinburgh University.
- Dr. John Adams, Glasgow, Vice-Chairman Scottish Committee, British Medical Association.
- Dr. G. C. Anderson, Methil, Secretary Fife Branch, British Medical Association, and of the Fife County Local Medical and Panel Committees.
- Dr. J. R. Currie, Edinburgh, Senior Medical Officer, Scottish National Insurance Commission.
- Dr. John Gordon, Aberdeen, President Aberdeen Branch, British Medical Association.
- Dr. J. R. Hamilton, Hawick, Chairman Scottish Committee, British Medical Association.
- Dr. John C. McVail, Deputy Chairman Scottish National Insurance Commission.
- Dr. John Playfair, President of the Edinburgh Medical Guild.
- Dr. John Stevens, Secretary Edinburgh Branch, British Medical Association.
- Dr. Norman Walker, Edinburgh, Direct Representative for Scotland on the General Medical Council (Convener).
- The Secretary to the Committee is Mr. T. H. Graham, Royal College of Physicians, 9, Queen Street, Edinburgh.

RECRUITING FOR THE NAVAL AND MILITARY SERVICES: ENGLAND AND WALES.

On August 17th last the Central Medical War Committee advised all the local War Committees in England and Wales that, acting on the urgent request of the Director-General of the Army Medical Services to provide an additional large number of military medical officers, the Committee had resolved that each area should be asked to furnish a number calculated on the basis of the proportion the medical population of the area bore to the total number required.

The following is a list of the areas which, up to the present date (November 15th) have furnished their quota or more. The Committee in publishing this list is anxious to make it clear that the appearance of an area in this list does not necessarily mean that it is not likely to be called upon to furnish more medical officers, as the quota was a provisional one which may be increased or diminished in the future according to local conditions:

Barnsley	Great Yarmouth
Birkenhead	Guildford
Blackpool	Halifax
Blyth	Hartlepool
Dudley	Hexham
Gateshead	Holland

Horsham	Oldham
Huddersfield	Preston
Isle of Man	Richmond
Lewisham	Rochdale
Manchester	Shropshire and Mid-Wales
North Carmarvon and	Tower Hamlets
Anglesea	Trowbridge
Norwich	Warwick and Leamington
Nottingham	West Suffolk.

PUBLIC AUTHORITIES AND MEDICAL RECRUITING.

SEVERAL reports have recently been received which seem to show that some members of public bodies are not inclined to make due allowance for the difficulties in which medical men are placed when they consider it their duty to join the R.A.M.C. According to the *Worcestershire Echo* of November 10th, a medical officer of the Droitwich Board of Guardians, who was unable to obtain his discharge as an officer of the Yeomanry and also unable to obtain a locumtenent applied that a neighbouring doctor who was quite willing should be appointed to take over his duties temporarily. After some discussion the board granted the request, but the chairman, with a regrettable want of consideration, suggested that the medical officer ought to have resigned his position so that the board could make another appointment, though it was pointed out that to resign the appointment would have practically involved giving up practice altogether in the district. Again, from the *Worcestershire Chronicle* of November 6th, it appears that a doctor on the panel of the Worcestershire Insurance Committee applied that his panel patients should be temporarily transferred while he was serving with the army. The chairman of the committee said they could not agree to that, and if the patients went to another doctor they would have to remain until the changing period, as they could not force the patients to have any doctor. A medical member of the committee assured it that the doctors had arranged that the transfer should only be temporary, as it seemed to be impossible to obtain a satisfactory locumtenent, and the committee decided to ask the local doctors to formulate a scheme.

In this case there ought to be none of the difficulty, which the chairman raised, in making an arrangement fair both to the doctor and his patients. Repeated appeals from high authorities have from time to time been made to employers of labour to offer every facility to their workmen to join the forces without any unnecessary damage to their prospects, and it surely cannot be asking too much of public bodies that they should willingly do the same for medical men who desire to serve their country. If this is not done the efforts of the Medical War Committees to obtain a full complement of medical officers for the army will be seriously hindered, and the Local Government Board and the Commissioners and other authorities would be quite justified in forcibly reminding local authorities that, without any neglect of their ordinary duties, they share with all the community the added duty of at least not placing unnecessary difficulties in the way of medical practitioners who desire to join the medical forces.

KENSINGTON DIVISION.

A MEETING of the whole profession in the Divisional area was held at Kensington Town Hall on November 15th.

Dr. HERBERT CHAMBERS, Chairman of the Division, who presided, drew the attention of the meeting to the gravity of the present shortage of medical officers in the army.

Mr. E. B. TURNER moved:

That this meeting elects a committee representative of the profession in the areas of Kensington, Paddington, and Hammer-smith to carry out the objects for which the present meeting has been called.

Mr. Turner said that the Central Medical War Committee, as the result of an interview with the Director-General of Recruiting and the Director-General, Army Medical Service, had been recognized as a committee responsible for supplying the necessary number of new officers for the R.A.M.C., thus acting towards the profession as one of Lord Derby's recruiting committees. If therefore their efforts were not crowned with success, the authorities would come to the inevitable conclusion that voluntary effort had failed and that methods of compulsion must be resorted to, methods which would mean that men would be taken from their practices by authorities unacquainted

with the needs of different districts, or of the difficulties of individual doctors. Mr. Turner therefore exhorted the meeting to elect a strong committee in order that the situation might be thoroughly met. He said that the first class to be called upon would consist of unmarried men of military age in institutional practice—hospital, public health, school, and tuberculosis dispensary officers, and the like; the second class would consist of single men in general practice, and then married men in institutional and in general practice.

Dr. A. J. RICE-OSLEY seconded the motion.

A general discussion took place, in which Drs. F. G. LLOYD, LAURANCE, WARE, GORDON WILSON, TURTLE, CHATBERTON, SINGTON, WHITE, KINGDON, BURNHILL, and others took part, the points taken being (a) that from practical experience of some who had had temporary commissions and the information which others had received from friends on active service, there was at present very little need for additional medical officers in France; (b) that rank in the R.A.M.C. should be given according to age and experience; (c) that the navy being at present overstaffed with medical men, a number of medical officers should be transferred from the navy to the R.A.M.C.; (d) that a special fund should be earmarked by the War Office out of which men could be helped when they returned to their practices (or rather the remnants of the same) after the war.

Mr. TURNER, in reply, stated that every objection which the meeting had raised had been already put before the Director-General by the Central Medical War Committee. The 5th army was in urgent need of medical officers, and although it was true that many men at the front at present had little to do, the authorities had to be ready for the enormous increase in casualties which would occur when the final march on Berlin began. He did not think that the question of rank was felt by many to be a grievance; he knew of cases in which surgeons were serving under their former house-surgeons, and glad to be doing it. No doubt the navy was very fully provided with medical officers, but they might all be needed. With regard to the compensation fund, Mr. Turner said that the necessity for such a fund has been urgently pressed upon the authorities, but the Treasury appeared to be the stumbling block.

The CHAIRMAN then put the motion, which was carried unanimously.

It was proposed, seconded, and carried that the following conveners of the meeting be elected as the committee, with power to add to their number: Drs. T. GUNTON Alderton, Charles Buttar, Herbert Chambers, Leonard Dobson, J. Herbert Menzies, A. J. Rice-Osley, G. Crawford Thomson, E. B. Turner, G. de B. Turtle, F. J. Walde, and Walter E. Fry.

The meeting terminated with a vote of thanks to the Chairman.

The number of medical men present was 102.

TEMPORARY COMMISSION OR TERRITORIAL FORCE.

WHICH SHALL I JOIN?

THOSE who are considering in which branch of the Army Medical Service they should seek to obtain a commission for war service find considerable difficulty in obtaining any real data upon which to base their preference. When there is some local interest, such as that held out by joining a territorial unit composed by one's friends, that is often sufficient to determine the balance. Others who have no preference of this sort naturally apply to the War Office, and thereon find themselves commissioned as temporary Lieutenants of the R.A.M.C.

Following some notes and correspondence published recently in our columns we have received many letters on the subject of pay and the different conditions attaching to territorial and other rank.

On the matters of pay the territorial officer is still at a disadvantage as compared with his brother doctor who takes service as a temporary Lieutenant in the R.A.M.C. But it would appear that this factor is not always the weightiest in the minds of some men, even though it is one that has of necessity most engaged the attention of the Central Medical War Committee.

The different points of view from which these two orders of commissions are regarded is well expressed in the two following letters which have been received almost by the same post, and from the same part of the country.

Welsh Border Mounted Brigade Field Ambulance.—W. Morgan to be Captain.
 South Midland Field Ambulance.—Lieutenant E. Whiteho, M.B., to be Captain.
 East Lancashire Casualty Clearing Station.—Captain T. B. Wolstonbush, M.B., to be Temporary Major.
 East Lancashire Field Ambulance.—F. W. Marsden (late Major, East Lancashire Brigade, R.F.A.), to be Major.
 Northern General Hospital.—Captain J. E. Alderson, M.D., from Services to Units other than Medical Units, to be Captain whose services will be available on mobilization.
 Northampton Casualty Clearing Station.—Lieutenants to be Captains: F. Phillips, M.B., S. McCoull, M.B.
 Light Brigade Field Ambulance.—R. W. C. Macdonald, M.D., late Surg-on-Lieutenant 8th V.B. Royal Scots, to be Captain.
 Attached to Units other than Medical Units.—Lieutenant L. H. H. Boys to be Captain.

Vital Statistics.

VITAL STATISTICS OF LONDON DURING THE THIRD QUARTER OF 1915.

[SPECIALLY REPORTED FOR THE BRITISH MEDICAL JOURNAL.]
 IN the accompanying table will be found summarized the vital statistics of the City of London and of the metropolitan boroughs, based upon the Registrar-General's returns for the third quarter of the year. The mortality figures in the table relate to the deaths of persons actually belonging to the several boroughs, and are obtained by distributing the deaths in institutions among the several boroughs in which the deceased persons had actually resided. The 24,000 births registered in the quarter under notice were equal to an annual rate of 21.3 per 1,000 of the population, estimated at 4,518,021 persons: in the corresponding quarters of the three preceding years the birth-rates were 24.6, 24.7, and 24.9 per 1,000 respectively. The lowest birth-rates last quarter were 10.3 in the City of Westminster, 12.5 in Holborn, 13.2 in Hackney, 15.5 in Chelsea, and 15.9 in Stoke Newington; among the highest rates were 25.8 in Deptford, 25.9 in Bermondsey, 26.5 in Stepney, 27.2 in the City of London, 27.8 in Poplar, and 31.8 in Finsbury.

During the quarter the deaths of 15,337 London residents were registered, equal to an annual rate of 12.4 per 1,000; in the corresponding quarters of the three preceding years the rates were 11.5, 11.8, and 13.3 per 1,000. The death-rates last quarter ranged from 8.6 in Hampstead, 8.9 in Lewisham, 9.1 in Wandsworth, 9.8 in the City of Westminster, 10.5 in Hammersmith, and 10.8 in Kensington, to 25.3 in Bermondsey, 15.6 in Deptford, 15.9 in Southwark, 16.4 in Poplar, 16.5 in Finsbury, and 17.4 in Greenwich.

The 15,337 deaths from all causes included 26 from enteric fever, 131 from measles, 59 from scarlet fever, 193 from whooping-cough, 136 from diphtheria, and 1,299 from diarrhoea and enteritis among children under 2 years of age. Enteric fever was proportionally most fatal in St. Pancras, Stoke Newington, Lambeth, Battersea, and Wandsworth; measles in Finsbury, Shoreditch, Stepney, Poplar, Southwark, Bermondsey, and Greenwich; scarlet fever in Fulham, St. Marylebone, Finsbury, Shoreditch, and Bethnal Green; whooping-cough in Finsbury, Shoreditch, Stepney, Poplar, Deptford, and Greenwich; and diphtheria in the City of London, Shoreditch, Stepney, Poplar and Wandsworth. The mortality from diarrhoea and enteritis among children under 2 years of age in proportion to the births registered during the quarter was greatest in Shoreditch, Bethnal Green, Stepney, Poplar, Bermondsey, and Deptford.

The deaths from pthisis among London residents last quarter

numbered 1,361, and were equal to an annual rate of 0.98 per 1,000; in the corresponding quarters of the three preceding years the rates were 1.18, 1.07, and 1.25 per 1,000 respectively. The death-rates from this disease last quarter ranged from 0.58 in Lewisham, 0.79 in Hammersmith, 0.82 in Wandsworth, 0.87 in Stoke Newington, 0.88 in Paddington, and 0.89 in Kensington, to 1.1 in St. Marylebone, 1.41 in Bermondsey, 1.49 in Holborn, 1.51 in Chelsea, 1.63 in Southwark, 1.70 in St. Pancras, 1.81 in Shoreditch, and 1.83 in Finsbury.

Infant mortality, measured by the proportion of deaths among children under 1 year of age to registered births, was equal to 11.3 per 1,000 last quarter, against 81, 105, and 127 per 1,000 in the corresponding quarters of the three preceding years. Among the lowest rates recorded last quarter were 52 in the City of London, 61 in the City of Westminster, 83 in Hammersmith, 70 in Hammersmith, 71 in Woolwich, and 81 in Chelsea; while the highest rates were 143 in Stepney, 144 in Bethnal Green and in Southwark, 149 in Deptford, 157 in Bermondsey, 159 in Poplar, and 169 in Shoreditch.

HEALTH OF ENGLISH TOWNS.

IN the ninety-six largest English towns 7,337 births and 4,810 deaths were registered during the week ended Saturday, October 30th. The annual rate of mortality in these towns, which had been 14.9, 13.9, and 13.3 per 1,000 in the three preceding weeks, rose to 13.8 per 1,000 in the week under notice. In London the death-rates were 14.2, while among the ninety-five other large towns it ranged from 4.9 in Acton, 5.7 in Ilford, 7.0 in Wimbledon and in Leyton, 8.8 in Ealing and in Aberdare, and 9.0 in Willesden and in Wallasey, to 12.1 in Sunderland, 18.3 in Gateshead, 18.5 in Stockton-on-Tees, 19.1 in Brighton, 19.9 in Burnly, and 20.2 in West Hartlepool. Diphtheria caused a death-rate of 1.3 in Stoke-on-Trent, 1.7 in Rochdale, and 2.6 in Hastings. The deaths of children under 2 years from diarrhoea and enteritis, which had been 717, 508, and 364 in the three preceding weeks, further fell to 285, and included 65 in London, 24 in Liverpool, 13 in Manchester, and 8 in Birmingham. The mortality from the remaining infective diseases showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The causes of 52, or 1.1 per cent., of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number, 9 were recorded in Birmingham, 9 in Liverpool, 3 in London, and 5 in Gateshead. The number of scarlet fever cases under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2,955, 3,014, and 3,110 at the end of the three preceding weeks, were again 3,110 on Saturday, October 30th; 378 new cases were admitted during the week, against 468, 453, and 462 in the three preceding weeks.

In the ninety-six largest English towns 7,639 births and 4,945 deaths were registered during the week ended Saturday, November 6th. The annual rate of mortality in these towns, which had been 13.9, 13.3, and 13.8 per 1,000 in the three preceding weeks, rose to 14.2 per 1,000 in the week under notice. In London the death-rate was equal to 14.4, while among the ninety-five other large towns it ranged from 4.9 in Ilford, 5.2 in Wimbledon, 7.0 in Walthamstow, 7.2 in Wallasey, 8.1 in Southend-on-Sea, and 8.4 in Willesden, in Gillingham, and in East-ham, to 12.4 in Ipswich, 19.0 in Middlesbrough, 20.1 in Blackpool, 23.3 in Walsall, 24.5 in Barrow-in-Furness, and 26.1 in Barnsley. Measles caused a death-rate of 3.0 in Swindon, 3.9 in Barnsley, and 7.2 in Gloucester; diphtheria of 1.3 in Stoke-on-Trent, 1.5 in Birmingham, and 2.4 in Barrow-in-Furness; and whooping-cough of 1.1 in East Ham. The deaths of children (under 2 years) from diarrhoeal diseases, which had been 508, 364, and 255 in the three preceding weeks, further fell to 226, and included 56 in London, 20 in Liverpool, 10 in Birmingham, and 9 in Manchester. The causes of 49, or 1 per cent., of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number 10 were recorded in Birmingham,

Analysis of the Vital Statistics of the Metropolitan Boroughs and of the City of London after Distribution of Deaths occurring in Public Institutions during the Third Quarter of 1915.

COUNTY OF LONDON	Estimated Population (middle of 1915)	Annual Rate per 1,000 Living.			Deaths from									
		Births.	Deaths.	Ratio.	Enteric Fever.	Small-pox.	Measles.	Scarlet Fever.	Whooping-cough.	Diphtheria.	Diarrhoea and Enteritis (Under 2 Years).	Phthisis.	Deaths of Children Under 1 Year of Age to 1,000 Registered Births.	
...	4,518,021	24,050	15,337	21.3	12.4	26	—	131	59	193	136	1,299	1,361	11.3
Paddington	142,193	587	398	16.6	11.2	—	—	1	2	2	5	37	31	107
Kensington	171,234	684	461	16.1	10.8	—	—	1	2	2	2	35	38	115
Hammersmith	123,853	604	328	19.4	10.5	—	—	1	2	3	2	12	39	63
Fulham	157,305	860	471	21.7	11.9	1	—	1	4	9	4	38	42	107
Chelsea	124,433	697	411	15.2	12.2	—	—	—	—	—	—	—	—	61
City of Westminster	154,544	391	373	10.3	9.8	1	—	1	1	1	—	8	40	61
*St. Marylebone	116,355	820	391	29.1	11.5	—	—	—	3	4	5	1	18	25
Hampstead	84,388	286	186	13.2	8.6	—	—	—	2	1	—	3	8	87
St. Pancras	214,133	1,037	367	23.6	12.6	4	—	—	6	6	—	35	39	51
Wilmington	325,496	1,691	1,040	20.9	12.8	1	—	—	6	6	14	12	80	106
Stoke Newington	50,511	200	139	15.9	11.1	1	—	—	1	2	—	2	11	90
*Hackney	225,393	1,148	639	20.6	11.5	—	—	—	6	—	—	4	72	79
*Holborn	46,832	435	172	15.2	12.9	—	—	—	6	—	—	—	—	102
*Finsbury	84,521	659	343	31.8	16.5	—	—	—	9	4	8	1	46	38
City of London	17,831	116	61	27.2	14.3	—	—	—	—	—	—	—	1	6
Shoreditch	109,589	609	410	22.4	13.1	1	—	—	10	—	—	6	57	167
Bethnal Green	127,607	757	387	23.9	12.0	1	—	—	10	—	—	4	4	41
*Stepney	275,081	1,802	991	26.5	14.6	1	—	—	15	6	18	16	146	98
Poplar	160,839	1,112	644	27.8	16.1	1	—	—	12	2	26	10	51	159
Southwark	188,332	1,160	782	24.9	13.3	—	—	—	12	2	6	6	73	76
Bermondsey	120,843	801	473	25.9	15.3	—	—	—	12	2	6	6	73	157
*Lambeth	297,094	1,685	978	22.8	13.2	5	—	—	8	3	9	11	69	93
Battersea	167,451	818	475	19.6	11.4	—	—	—	6	1	12	6	49	54
Wandsworth	331,821	1,465	773	18.0	9.1	—	—	—	5	2	13	16	67	69
Cambwell	63,828	1,445	782	23.0	11.1	1	—	—	1	—	—	—	—	111
Deptford	109,269	704	425	25.8	15.6	—	—	—	3	2	10	1	61	31
Greenwich	96,018	666	416	23.5	17.4	—	—	—	3	1	9	3	29	33
Leamtham	169,111	726	485	23.9	13.9	1	—	—	5	—	—	—	11	44
Woolwich	122,431	677	346	22.1	11.3	1	—	—	—	—	4	6	11	44

* No correction is made for births in lying-in institutions; the boroughs principally affected are marked thus (*).

8 in Liverpool, 5 in Gateshead, 3 in Southport, and 3 in South Shields. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 3,014, 3,110, and 3,110 at the end of the three preceding weeks, fell to 3,065 on Saturday, November 6th; 544 new cases were admitted during the week, against 453, 462, and 378 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 951 births and 727 deaths were registered during the week ended Saturday, October 30th. The annual rate of mortality in these towns, which had been 16.5, 15.5, and 15.7 per 1,000 in the three preceding weeks, rose to 16.2 in the week under notice, and was 2.4 per 1,000 above the rate recorded in the ninety-six large English towns. Among the several towns the death-rate ranged from 8.1 in Haddington, 8.8 in Motherwell, and 10.5 in Clydebank, to 18.0 in Glasgow, 19.1 in Kirkcaldy, and 19.8 in Kilmarnock. The mortality from the principal infective diseases averaged 1.7 per 1,000 from all causes in Glasgow, included 14 from infantile diarrhoea, 9 from scarlet fever, 7 from measles, 2 from enteric fever, 1 from whooping-cough, and 1 from diphtheria. Six deaths from measles were recorded in Edinburgh, 4 in Greenock, and 2 in Leith; from scarlet fever 2 in Aberdeen; from diphtheria 5 deaths in Edinburgh, 5 in Kirkcaldy, and 3 in Dundee; and from infantile diarrhoea 3 deaths in Dundee.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, October 23rd, 488 births and 371 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 609 births and 345 deaths in the preceding period. These figures represent a mortality of 16.0 per 1,000 of the aggregate population in the districts in question, as against 14.8 per 1,000 in the previous period. The mortality in these Irish areas was therefore 1.2 per 1,000 higher than the corresponding rate in the twenty-six English towns which were ending on the same date. The birth-rate, on the other hand, was equal to 21.0 per 1,000 of population. As for mortality of individual localities, that in the Dublin registration area was 20.5 (as against an average of 19.5 for the previous four weeks), in Dublin city 21.2 (as against 21.0), in Belfast 14.5 (as against 14.1), in Cork 10.9 (as against 17.0), in Londonderry 12.7 (as against 18.3), in Limerick 9.5 (as against 14.5), and in Waterford 1.5 (as against 14.7). The zymotic death-rate was 2.4, as against 1.3 in the preceding period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

BALDOVAN CERTIFIED INSTITUTION FOR THE EDUCATION AND TREATMENT OF THE FEEBLE-MINDED.—Resident Medical Superintendent. Salary, £500 per annum.

BENGAL.—India.—Chief Sanitary Officer for the Assam Mills Board of Health and Mining Settlement. Salary, Rs. 1,200 (£80), rising to Rs. 1,500 (£100) a month.

BIRKENHEAD: BOROUGH HOSPITAL.—Junior House-Surgeon. Salary, £180 per annum.

BIRMINGHAM: MIDLAND FREE HOSPITAL FOR SICK CHILDREN.—Radiographer. Honorarium, £40 per annum.

BRADFORD CITY.—Two temporary Women Medical Officers. Salary, 28 8s. per week.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—House-Physician and Anaesthetist. Salary, £150 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians. (2) House-Surgeons. Salary, £120 per annum in each case.

BURNLEY: VICTORIA HOSPITAL.—House-Surgeon. Salary, £135 per annum.

CHELSEA HOSPITAL FOR WOMEN.—Anaesthetist. Honorarium, £21 per annum.

COUNTY OF PEMBROKE.—Assistant County Medical Officer and Assistant School Medical Officer. Salary, £300 a year, with £100 for travelling expenses.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Lady Resident Medical Officer. Salary, £200 per annum.

DEVONSHIRE HOSPITAL. Buxton.—Assistant House-Physician. Salary, £100 per annum.

DORCHESTER COUNTY ASYLUM. Dorset.—Medical Superintendent. Salary, £200, rising to £300 per annum.

DUDEY: GUEST HOSPITAL.—(1) Senior Resident Medical Officer; salary, £150 per annum. (2) Assistant House-Surgeon; salary, £120 per annum.

HAMPSHIRE GENERAL HOSPITAL. Haverstock Hill, N.W.—Resident Medical Officer. Salary, £200 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST. Brompton.—House-Physician. Honorarium, 30 guineas for six months.

LEEDS GENERAL INFIRMARY.—Resident Aural Officer. Salary, £100 per annum.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—House-Surgeon and Radiographer. Salary, £100 per annum.

LONDON THROAT HOSPITAL. Great Portland Street, W.—House-Surgeon. Salary, £50 per annum.

MANCHESTER: NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Chetbam Hill Road.—Lady House-Surgeon. Salary, £120 per annum.

NEW HOSPITAL FOR WOMEN. Euston Road, N.W.—House-Physician, Two House-Surgeons, Obstetric Assistant, and Pathologist. Also Senior Clinical Assistant and an Anaesthetist.

OMAGH DISTRICT ASYLUM.—Temporary Assistant Medical Officer. Salary, £4 4s. a week and travelling expenses.

PARISH OF INVERAVON, Banffshire.—Medical Officer. Salary, £75 per annum.

ROYAL COLLEGE OF PHYSICIANS, London.—Milroy Lecturer for 1916.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—Senior and Junior Lady House-Surgeons for the Gynaecological and Maternity Departments. Salaries, £100 and £80 respectively.

SHEPHERD: WHALSA PARISH. Medical Practitioner. Guaranteed income £300 by the Highlands and Islands (Medical Service) Board.

SOUTHAMPTON: FREE EYE HOSPITAL.—House-Surgeon. Salary, £100 per annum.

SOUTHPOIT INFIRMARY.—Senior House-Surgeon. Salary at the rate of £20 per annum.

STAFFORDSHIRE GENERAL INFIRMARY. Stafford.—House-Surgeon. Salary, £250 per annum.

STORTHERS HALL ASYLUM. Kirkburton, near Huddersfield.—Locum Tenens. Salary, 46 6s. per week.

SURREY COUNTY COUNCIL.—School Dentist. Salary, £300, rising to £350, per annum.

VICTORIA HOSPITAL FOR CHILDREN. Tite Street, S.W.—(1) Senior Resident Medical Officer. (2) House-Physician. Salary, £250 and £200 per annum respectively.

WEST HAM AND FETTERING GENERAL HOSPITAL. Stratford, E.—House-Physicians. Salary, £120 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Lady House-Surgeon. Salary, £150 per annum.

YORK COUNTY HOSPITAL.—Resident Medical Officer. Salary, £150 per annum.

To enquire notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—The following appointments have been made: Resident Medical Officer, Military Block: G. F. Norbury, L.S.A. House-Physicians: Miss Pandy, M.R.C.S., L.R.C.P., Miss Jobson, M.R.C.S., L.R.C.P. House-Surgeon: Miss Joll, M.B.S., Miss Chick, M.R.C.S., L.R.C.P. Assistant Anaesthetist: Miss Pillingham, M.R.C.S., L.R.C.P. Senior Obstetric Assistant: Miss Brooks, M.R.C.S., L.R.C.P. Junior Obstetric Assistant: Miss Andrews.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., and the form should be forwarded in Post Office Order or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGE.

POLLARD-FRASER.—On November 12th, at Moffat Parish Church, Dumfriesshire, John McFarlane Pollard, West African Medical Staff, to Mary Campbell Fraser.

DEATHS.

MACBINE.—On 12th instant, at 55, Cadogan Street, S.W., Robert Macbaine, M.D., F.R.C.P., aged 58 years.

WRIGHT JOHN.—On the 12th November, 1915, suddenly, at Edinburgh, John Wright Grant, M.B., C.M.Edin., late of Wolburn Sands, aged 55.

DIARY FOR THE WEEK.

MONDAY.

ROYAL SOCIETY OF MEDICINE: SECTION OF ODONTOLOGY, 8 p.m.—Paper: Mr. J. Howard Mummery: Comparative Studies in Calcification.

TUESDAY.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W., 5 p.m.—Third Goulstonian Lecture by Dr. Gordon Houslay.

ROYAL SOCIETY OF MEDICINE: SECTION OF MEDICINE, 5.30 p.m.—Adjourned Discussion on Paratyphoid Fever; to be reopened by Sir William Osler, F.R.S.

WEDNESDAY.

HUNTERIAN SOCIETY, 4 p.m.—Clinical Afternoon, National Hospital for Diseases of the Heart, W. Williams Gordon.

THURSDAY.

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne Street, Edgware Road, W., 8.30 p.m.—A Discussion on the Organization of the Medical Profession for War Service will be opened by Dr. James Galloway and Dr. Charles Butler.

ROYAL SOCIETY OF MEDICINE: SECTION OF BACTERIOLOGY AND CLIMATOLOGY, 5.30 p.m.—Presidential Address by the Hon. Dr. William Gordon.

SECTION OF NEUROLOGY, 9 p.m.—Clinical Meeting.

FRIDAY.

ROYAL SOCIETY OF MEDICINE: STUDY OF DISEASE IN CHILDREN, 4.30 p.m.—Cases and Specimens.

SECTION OF EPIDEMIOLOGY AND STATE MEDICINE, 8.30 p.m.—Dr. J. Middleton Martin: An Analysis of Gloucestershire Statistics, 1914.

POST-GRADUATE COURSES AND LECTURES.

The following Post-graduate Course will be given next week: THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

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GENERAL COUNCIL

OF

MEDICAL EDUCATION AND REGISTRATION.

WINTER SESSION, 1915.

Sir DONALD MACALISTER, K.C.B., President, in the Chair.

SHORTAGE OF DENTAL PRACTITIONERS.

At the meeting of the Council on November 26th, 1914, the question of the large amount of practice of dentistry by unqualified persons, and the fact that the number of dentists on the *Dentists Register* had not increased since the register was formed, was raised by Dr. Newsholme and Mr. Verrall. The matter was referred to the Dental Education and Examination Committee, which was authorized to communicate with the licensing authorities on the subject. A letter was accordingly sent on March 11th to the licensing bodies granting dental qualifications, to the British Dental Association, and to the principal dental schools. The Committee now presented an interim report stating that it had made inquiries and had asked a series of questions. The replies were summarized as follows, the nature of the question being indicated by the italic headings:

1. *Defects in the Law as a Cause of Shortage.*—There is unanimity in attributing mainly to this cause any deficiency in the supply of students, some bodies going so far as to say that it is the sole cause. All express themselves without hesitation on this point, which is somewhat more fully discussed in the remarks summarized in Table D.

2. *The Influence of the Preliminary Examination.*—There is more diversity in the answers to this question. Nearly half of the bodies consider its effect to be negligible, whilst others, though thinking it of some effect, qualify their answer by deprecating any general lowering of the standard. One body alone, the Glasgow Incorporated Dental Hospital, holds that the examination is too stringent.

3. *The Influence of the Length and Stringency of the Curriculum.*—A good many consider this a negligible factor; others, in more guarded answers, hold it to be insignificant as compared with the legal position. Some touch upon the expense of the curriculum in this connexion.

4. *The Advisability of Modifying the Curriculum.*—Although in Table C a good many suggestions for alterations in the curriculum are offered, it would be premature to discuss these at present, inasmuch as the Royal College of Surgeons of England, the body which licenses the largest number of dentists, is making a very careful inquiry into the matter, which has not yet been completed.

The only conclusion which so far comes out clearly is that in the opinion of these bodies, who are in the best position to judge of the matter, no appreciable increase in the numbers of those entering the profession can be looked for whilst the law affords so little protection to the qualified man.

On the motion of Mr. TOMES, the Chairman of the Committee, seconded by Sir HENRY MORRIS, the question raised by the report was referred to the Dental Education and Examination Committee with a view to the preparation of definite recommendations for the consideration of the Council.

DENTAL BUSINESS.

Unqualified Practitioners and the Public.

Dr. MAGENNIS moved:

That as it is expedient that the public should be enabled to distinguish between qualified and unqualified practitioners of medicine or of dentistry, and as a large number of persons who are unqualified are practising dentistry under such conditions as to lead the public to believe they are qualified dentists, the General Medical Council do refer the question to the Dental Education and Examination Committee to take into consideration the best methods for preventing the public from being deceived by such persons.

It was unnecessary to point out to the Council the great injustice and hardship that the public suffered from persons practising who were not qualified. All modes and methods were adopted to deceive the public. Limited companies were formed, calling themselves any name they liked. The most deceptive method was that of putting up a brass plate with the name of the individual, and underneath it "Dental Surgery." Even medical men might be deceived by that, and it was well that the public should be warned that a person having such a designation under his name must be looked upon with suspicion. The Irish Branch of the British Dental Association had taken the very wise precaution of having printed a list of the qualified and registered dentists in Ireland. This list was circulated not only to members of the medical and dental professions, but was also sent to a great number of public institutions so that they might be able to distinguish between qualified and unqualified dentists. Something should be done to prohibit unqualified persons from performing any dental operation, or administering any anesthetic such as gas or ether.

Sir BERTRAM WINDLE, in seconding, said that the art of deception was carried to the highest possible point in this connexion. How could people distinguish between a dental surgery and a dental surgeon? They could not distinguish which was the proper and which was the improper practitioner.

The motion was carried.

APOTHECARIES HALL OF IRELAND.

Sir JOHN MOORE moved:

That the Irish Branch Council be authorized to appoint for a period of one year a deputy to attend and be present on behalf of the General Medical Council at the professional examinations held by the Apothecaries' Hall for the purposes set forth in Section 18 of the Medical Act, 1858; that the deputy so appointed present to the Council a report on the general character of such examinations; and that he be paid a salary of £50 for the year in question.

Dr. LITTLE seconded.

Dr. MAGENNIS moved to postpone the question for one year, but this was not seconded, and Dr. Magennis then moved as a further amendment:

That the Irish Branch Council be authorized to appoint for a period of one year a deputy to attend and be present on behalf of the General Medical Council at the professional examinations held by the Apothecaries' Hall for the purposes set forth in Section 18 of the Medical Act, 1858, and

that the deputy so appointed shall be either an Englishman or a Scotchman who shall present to the Council a report on the general character of such examination, and that he be paid an adequate salary for the year in question.

It was not, Dr. Magennis said, right that a deputy should be appointed from a rival examining body and that the Apothecaries' Hall should be subjected to reports to the Council by men who had an evident prejudice against them. He appealed to the sense of justice of the Council to say he was not unreasonable in asking that an Englishman, Scotsman, or Welshman be appointed as a deputy to inspect the examinations, and if the sum of £50 were not sufficient to cover expenses, then on behalf of the Apothecaries' Hall he offered to supply any deficiency. The amendment not being seconded fell to the ground.

The motion was then put and carried.

Recommendations by the Council.

The Examination Committee presented a voluminous report on various matters relating to the Apothecaries' Hall of Ireland, together with reports as to the examinations held in January and February by Sir William Taylor, M.B., F.R.C.S.I., instructed to attend the examinations and to present a return thereon, and by Dr. James Little and Sir John Moore, who attended the examinations in June as members of the Irish Branch Council.

The Council adopted the following recommendations of the Examination Committee:

1. That, inasmuch as the Court of Directors of the Apothecaries' Hall of Dublin have expressed their utmost willingness to comply in every respect with the requirements of the General Medical Council in regard to the course of study and the examinations at Apothecaries' Hall, it be referred to the Examination and Education Committees, acting conjointly, to prepare for the Executive Committee a statement of the respects in which the said course of study and the said examinations have been found to be defective or insufficient; and of the suggestions they desire to make for amendment in these respects. That, further, it be delegated to the Executive Committee to communicate to the Court of the Hall the statement so prepared on behalf of the Council.

2. That the reports as to the examinations of the Apothecaries' Hall of Ireland held in January, February, and June, 1915, having been remitted to the Apothecaries' Hall, that body be requested to favour the Council with any remarks thereon which they may deem fitting.

Dr. MAGENNIS said that the Apothecaries' Hall of Ireland would carefully carry into effect every suggestion of the Council in order that it might attain to the standard the Council desired.

INDIAN MEDICAL SERVICE.

A table showing the results of examinations in July, 1915, for commissions in the Indian Medical Service was received and directed to be entered on the minutes. It appeared that ten vacancies were advertised, but only seven candidates qualified. Of these, four held the diplomas of the Conjoint Board, London; one was a graduate of the National University of Ireland, and one of the Queen's University, Belfast.

PUBLIC HEALTH COMMITTEE.

Sir JOHN MOORE, Chairman, presented a report from the Public Health Committee giving the statistics as to public health examinations during the ten years ending 1914. The Council resolved to send copies of the statistics to the universities and other licensing bodies which hold, either singly or jointly, examinations for the diploma in public health, with a request for their observations.

DISCIPLINARY CASES.

Alleged Covering of an Unregistered Midwife.

The case of Herbert Midgley Reeve, registered as of 1, Bournemouth Park Road, Southend-on-Sea, M.R.C.S. Eng. 1899, L.R.C.P.Lond. 1899, M.B.U.Lond. 1899, was considered on November 3rd. He had been summoned to appear before the Council on the following charge:

That being a registered medical practitioner you knowingly enabled one Mary Ann Preece, whose name had been removed by the Central Midwives Board from the roll of midwives, to practise as a midwife in contravention of the provisions of the Midwives Act, 1902, as if the said Mary Ann Preece were duly certified under the said Act. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

The complainants were the Central Midwives Board.

Mr. Julius Bertram, solicitor, appeared for the com-

plainants. Mr. George Elliot, K.C., and Mr. Howard Wickham, appeared for Dr. Reeve.

Mr. BERTRAM said the Central Midwives Board was charged with certain statutory duties for the purpose of purging the roll of midwives of unsuitable or dangerous practitioners. The Board could remove midwives from the roll and also had power to restore them to it. In November, 1913, Mrs. Preece was removed from the roll of midwives. In 1914, after she had made applications for the restoration of her name to the roll, it was reported to the Midwives Board that she had been acting as midwife under the aegis of a registered medical practitioner in Southend, and these proceedings were the result of that information coming before the Board. The Board was not actuated by any spirit of vindictiveness against Dr. Reeve. It would be for him to tell the Council the reasons which induced him to act as he did, and for the Council to decide what degree of culpability, if any, his action merited. The charge was one of covering. In regard to that offence the following notice had been issued after deliberation to the members of the medical profession: "In regard to the practice commonly known as covering the Council gives notice that any registered medical practitioner who by his presence, countenance, advice, assistance or co-operation knowingly enables an unqualified or unregistered person, whether described as an assistant or otherwise, to attend or treat any patient, to procure or issue any medical certificate or certificate of death, or otherwise to engage in any medical practice as if the said person were duly qualified and registered, is liable to be judged guilty of infamous conduct in a professional respect." He submitted that the notice imposed upon a medical man under the most severe penalties the duty of abstaining in any way from assisting a woman who was not upon the register of midwives to attend women in childbirth as if her name was upon that register. The practice in which Mrs. Preece was engaged was only possible by the intervention of Dr. Reeve. The ex-midwife was proceeded against before the Southend magistrates, who found as a fact that she was contravening the statute, and she was convicted and punished. At the magisterial inquiry Dr. Reeve's conduct was commented upon by the magistrate. He came forward and said what he could to excuse the woman Preece from her breach of the law. He (Mr. Bertram) did not suggest that Dr. Reeve was actuated by any base motives of achieving a large number of small pecuniary benefits at the expense of his fellow medical practitioners, but all the inseparable incidents of a really bad case of covering were present. First of all the doctor assisted an unregistered person to practise. The patient who was the subject of the practice was not attended in the confinement by the doctor at all. The patient did not engage the doctor's services. She was in each case a woman who had previously engaged the midwife in former confinements. The woman would go to the midwife and ask her to attend her. Mrs. Preece replied that she could not do it without a doctor, but Dr. Reeve would attend. Again, the doctor's fee was not paid to him by the patient; it was in each case paid to him by the midwife. The doctor did not conduct the confinements, and in each case the doctor's conduct of confinement cases was described by himself as being of a perfunctory kind. Four women were attended; he did not attend any one of the confinements; in each case he paid only one visit. At that visit he omitted to make any examination of the patient and took the nurse's word for it, or the patient's word, that there was no damage or laceration to bother about. The doctor did not examine the patient or take her pulse or temperature; but he did two things—he signed the maternity benefit card and issued to the local authority the necessary notification of birth. Mr. Bertram suggested that the visit was paid immediately after the confinement, mainly if not solely in order that the birth might be notified to the local supervising authority within the time prescribed by the Act of Parliament, and it would be plain to every member of the Council that the circumstance that the doctor in each of the four cases was the person to notify the birth had the effect of preventing the supervising authority from tracing the practice of this unauthorized person Mrs. Preece. The occurrence in one of the cases on the fifteenth day of untoward symptoms was the only circumstance which put the authorities on the track. The

offence might have been committed by Dr. Reeve from the best of motives, but, as the Council would realize, the inevitable consequence, if such a practice were condoned, would be that the work with which the Central Midwives Board was charged would become worthless and might not be performed.

The statutory declaration of George William Duncan, Secretary of the Central Midwives Board, was read, which bore out the statements set forth by Mr. Bertram. Declarations were also read made by the four women who were attended by Mrs. Prece.

Dr. PUGH (M.O.H. Southend), in answer to Mr. GEORGE ELLIOT, said that from his constant association with Dr. Reeve he was of opinion that he carried on his practice in a perfectly honourable and straightforward manner.

Mr. GEORGE ELLIOT said Dr. Reeve did not attempt and did not wish to justify his conduct. Putting the case shortly he desired to present to the Council the case of Dr. Reeve as an unfortunate error of judgement, but under circumstances which entitled him to the sympathy of the Council. While the Council might think that there had been conduct which under some circumstances justly would be regarded as deserving of very severe censure and penal remedies, yet he submitted the present was a case, having regard to the high character of the man, in which the Council might take a lenient view of the matter, and not proceed to the extreme course which might be taken.

Dr. REEVE, in answer to Mr. GEORGE ELLIOT, said he had no intention of departing from the normal practice; he had no idea at all that he was assisting an unregistered midwife. He considered the patients referred to belonged to him, and looked upon himself as responsible for them.

This concluded the case for Dr. Reeve.

The Council went into camera to deliberate on the case on November 4th. Strangers withdrew. On readmission, the PRESIDENT announced the judgement of the Council as follows:

Mr. Herbert Midgley Reeve, the Council has considered the charge made against you, namely, that being a registered medical practitioner, you knowingly enabled one Mary Ann Prece, whose name had been removed by the Central Midwives Board from the roll of midwives, to practise as a midwife, in contravention of the provisions of the Midwives Act, 1902, as if she said Mary Ann Prece were duly certified under the said Act. This charge the Council has found to be proved. Your offence was committed notwithstanding the fact that you were in possession of the following warning notice: "Any registered practitioner who by his presence, countenance, advice, assistance, or co-operation, knowingly enables an unqualified or unregistered person, whether described as an assistant or otherwise, to attend, treat, or perform any operation upon a patient in respect of any matter requiring professional discretion or skill, or otherwise to engage in professional practice as if the said person were duly qualified and registered, is liable on proof of the facts to have his name erased from the Register." The Council takes a very grave view of the action of any medical practitioner who "covers" the practice of unqualified or uncertified women, under whatever pretext they practise midwifery or otherwise attend and treat women in labour. But in order to give you an opportunity of reconsidering your position in relation to this matter, the Council has postponed judgement in your case till the next session, in May, of which you will receive due notice. You will then be required to attend and to produce testimony from your professional brethren as to your character and conduct in the interval.

In the case of Ulick Joseph Burke, registered as of 205, Vicarage Lane, Stratford, London, E., L.M. 1896, R.C.P.Irel., L., I.M. 1896, R.C.S.Irel., Mr. Harper, the Council's solicitor, on November 3rd, proved three convictions for drunkenness, in one instance associated with disorderly conduct. Mr. Burke denied the charge of disorderly conduct. The Council having considered the matter in private, the PRESIDENT, when strangers were readmitted, said:

Mr. Burke, I have to inform you that it has been proved that you have been convicted of the misdemeanours alleged against you in the notice, and that the Acting Registrar has been directed to erase your name from the *Medical Register*.

On the same day the Council considered the case of Edmund Loyal Haynes, registered as of 6, Queen's Club Terrace, West Kensington, London, W., L.S.A. Lond. 1888, M.R.C.S. Eng. 1888, L.R.C.P. Lond. 1888.

Mr. Haynes did not appear, and Mr. HARPER formally proved two convictions for being drunk, one for obtaining money by false pretences, and one of wearing military uniform without lawful authority. The Council having considered the matter in private, the PRESIDENT made the following announcement:

That Edmund Loyal Haynes having been proved to have been convicted of the misdemeanours alleged against him on the notice of inquiry, the Acting Registrar has been directed to erase his name from the *Medical Register*.

In the case of William Shaw, registered as of Larne, co. Antrim, L.R.C.P. Edin. 1886, L.R.C.S. Edin. 1886, Mr. HARPER proved a conviction of indecent behaviour and two convictions for drunkenness. Mr. SHAW, who appeared in person, stated that he would do anything that the Council would ask him to do. He was trying to walk straight, and he would be glad if the Council would postpone sentence till the next session.

Strangers and parties withdrew. On readmission, the PRESIDENT announced the judgement of the Council as follows:

Mr. Shaw, I have to inform you that the Council has found, after careful consideration, that the convictions alleged against you in the notice of inquiry have been proved. That it takes a very grave view of the misdemeanours of which you have been proved guilty and of the public scandal which is caused by such convictions; but, in order that you may have an opportunity of redeeming your position, the Council has postponed its judgement in your case until the November session next year, when you will be expected to produce testimonials as to your good conduct in the interval from your professional brethren. I have further to inform you that, in the event of any other conviction being reported before the next session of the Council in May, you will be liable to be called upon to attend to receive the judgement of the Council at that session instead of in that of November, 1916.

REMOVAL FROM THE REGISTER.

A report from the Executive Committee was received stating that Mr. Dhanpat Rai, registered on February 8th, 1901, with the address Lahore, India, had ceased to be a licentiate of the Royal College of Physicians of London and a member of the Royal College of Surgeons, England, for his conduct in respect to advertising. The Council directed that the name of Mr. Dhanpat Rai should be erased from the *Medical Register*, "he having no longer any registrable qualifications."

Meetings of Branches and Divisions.

STAFFORDSHIRE BRANCH.

SOUTH STAFFORDSHIRE DIVISION.

At a meeting of the Division held at Wolverhampton on November 16th, when Dr. J. A. COBB was in the chair, resolutions of condolence were passed with the President-elect of the Staffordshire Branch, Dr. Malet, and with Dr. W. H. T. Winter, a member of the Division, on the deaths in action of their eldest sons in the Dardanelles.

The new ethical rules were adopted and the Executive Committee of the Division was appointed to be the Medical War Committee.

After a discussion of the question of free medical attendance on the dependants of soldiers and sailors, it was unanimously resolved that the separation allowance was now so much more liberal that the time had come for the free attendance on the dependants of soldiers and sailors to be discontinued.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

KENT BRANCH.—Dr. E. A. Starling, Honorary Secretary (Chillingworth House, Tauxbridge Wells), gives notice that a special meeting of the Branch will be held on Wednesday, December 1st, at 3.15 p.m., at the Royal Star Hotel, Maidstone. Agenda: To consider and, if thought advisable, to adopt the new ethical rules and the new organization rules.

METROPOLITAN COUNTIES BRANCH: CITY DIVISION.—Dr. McNaboe, Honorary Secretary, gives notice that a meeting of the Division will be held on Wednesday, December 1st, at 4 p.m., at Balsour Hall, Kingsland Road, N., when Dr. Cox will explain the position as to the War Emergency.

A list of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian, at the house of the Association, 429, Strand, W.C. The regulations governing the loan of these publications are stated in the introduction to the list. The Library is open for consultation from 10 a.m. till 5 p.m. (on Saturdays till 2 p.m.).

RECRUITING FOR THE NAVAL AND MILITARY SERVICES :

ENGLAND AND WALES.

On August 17th last the Central Medical War Committee advised all the local War Committees in England and Wales that, acting on the urgent request of the Director-General of the Army Medical Services to provide an additional large number of military medical officers, the Committee had resolved that each area should be asked to furnish a number calculated on the basis of the proportion the medical population of the area bore to the total number required.

The following is a list of the areas which, up to the present date (November 22nd) have furnished their quota or more. The Committee in publishing this list is anxious to make it clear that the appearance of an area in this list does not necessarily mean that it is not likely to be called upon to furnish more medical officers, as the quota was a provisional one which may be increased or diminished in the future according to local conditions :

Barnsley	Hartlepool	Oldham
Birkenhead	Hexham	Preston
Blackpool	Holland	Reigate
Blyth	Hersham	Richmond
Bolton	Huddersfield	Robchide
Chester	Isle of Man	Shropshire and
Dudley	Lewisham	Mid-Wales
Finchley and Hendon	Manchester	Stratford
Gateshead	North Carmarvon	Tower Hamlets
Gloucester	and Anglesea	Tromsbridge
Great Yarmouth	North Lincolnshire	Warwick and
Guildford	Norwich	Leamington
Halifax	Nottingham	West Suffolk.

A CENTRAL COMPENSATION FUND.

Mr. ROBERT JACQUES, F.R.C.S. (Plymouth), writes : Now that the Central Medical War Committee has definitely informed us that the Treasury declines to provide a compensation fund for doctors engaged on active service it appears to be high time for the medical profession itself to endeavour to provide such a fund.

Our colleagues who have answered their country's call are in many cases facing heavy financial sacrifices in addition to the hardships and dangers of warfare. We who remain in comfort and security at home should at least be willing to bear a large share of the financial burden.

If every medical man who stays at home will agree to contribute a percentage of his receipts, a large fund can soon be raised. In this way we shall give practical proof that, though unable for various reasons to take our place with the troops, we are willing and anxious as patriotic citizens to bear our share of the burden laid upon the medical profession.

INSURANCE.

SCOTTISH PANEL CHEMISTS.

A STATE of matters which either is or threatens soon to be a deadlock has arisen in Scotland in connexion with the rates for the dispensing of drugs under the National Insurance Act. Ever since the Act came into force there has been a difference between the condition of its working in this respect in Scotland as compared with England. It can hardly be doubted that but for the war the whole finance of the Act, and particularly that part of it which relates to the remuneration of the chemists working under it, would be the subject of discussion in Parliament. In Scotland it is claimed that the Act, which in England brought a considerable accession of business to the chemists—medical men in that country having before the Act done a large part of their own dispensing—benefited the Scottish chemists hardly at all; that, in fact, the financial situation in Scotland had been difficult from the very first; and that, but for the war, the Scottish chemists would long ere this have stated their case to the Scottish Commissioners, and would possibly have had their circumstances bettered. Meantime, by the aid of a system of central checking devised by the Scottish Insurance Commissioners, excessive prescribing has been reduced to the minimum in that country, with as a consequence a comparatively good state of the Drug Fund. In England, the Scottish chemists state that as matters have not gone so well, it has been decided to lower the rate of the chemists' remuneration and to make the reduction applicable to Scotland as well. The English chemists, it is stated, accustomed to heavy discounting of their

bills, and anticipating little falling off in their incomes have agreed to the new tariff; but the Scottish chemists, already faced by a difficult financial situation, and looking forward to greater difficulty under the new rate, are anxious to press their claims, but are deterred by the circumstances of the war, and are therefore willing to maintain the *status quo* on the basis of existing agreements. But Mr. Charles Roberts, M.P., Chairman of the Joint Insurance Committee, if he has not explicitly intimated that lower terms than the present minimum rates will be enforced on July 1st next in Scotland, has certainly stated that a new drug tariff will be introduced then. It is proposed that meantime for the first six months of 1916 the Scottish chemists should accept service on the old terms and prepare a statement based on a complicated, difficult, expensive, and possibly a futile investigation as to establishment charges, cost of materials, dispensing fees, etc., to be completed by the end of April. It is suspected that whatever the result of the investigation may be the situation will not be made easier for the Scottish chemists; for if it brings out that the rates offered are too low they will at the best only obtain confirmation of the existing tariff, while if it is shown that they have put their claims too high they will be compelled to accept the new rates. Under the circumstances a good deal of dissatisfaction is making itself evident in the form of notices of withdrawal, which if at all general will arrest the working of the Act. The situation may be eased considerably if it can be shown that it is not intended that an expected surplus in Scotland shall be diverted to meet deficiencies in English and Welsh areas, where the expenditure on drugs has been abnormally high.

CERTIFICATES IN RESPECT OF INSURED PERSONS IN ASYLUMS.

CIRCULAR A.S. 175 issued by the Commissioners for England and Wales states that the Commissioners understand that approved societies find no difficulty in practice in obtaining from the medical officers of asylums certificates as to the admission to and discharge from asylums of their members. As to periodical certificates while such members are in the asylums, it is suggested that it ought not usually to be necessary to trouble the medical officers for them, seeing that if the member has no dependants there is no question of the payment of benefits until he leaves the asylum, though the societies might reasonably desire to be informed at intervals of, say, three or six months that the person is still an inmate. Where the member has dependants, the society, having to pay the benefit to the dependants, has to satisfy itself that the member is still an inmate, and it will usually be sufficient for the society to obtain a declaration signed by the dependants that the member is still an inmate of the institution. False declarations would subject the dependants to penalties under Sect. 69 (1) of the 1911 Act. Societies would also be well advised to obtain a certificate from a responsible officer of the institution at intervals of perhaps three months. The above refers to asylums supported by public authorities or by a charity or voluntary subscriptions.

In the case of a member who is an inmate of a private asylum, the benefit is payable weekly, and Sect. 12 of the Act does not apply. In these cases, as the benefit cannot be paid to the members themselves, societies may appoint some person to receive the money on behalf of and for the benefit of the member, and the same procedure should then be adopted as to certificates and declarations as in the case of members who are in public asylums.

LOCAL MEDICAL AND PANEL COMMITTEES.

LONDON.

At the meeting of the London Panel Committee on November 23rd, the chairman (Dr. H. J. CARDALE) said that the proposed revision of the terms of service went to the root of their contract with the Insurance Committee. Upon the question of "Rep. mist." and that of the method of signing certificates (unlike the other question of drug finance) the profession had not been consulted. It was decided to take steps to define their position, and to take counsel's opinion on the point whether the panel practitioners were prejudicing their position by delay.

A recommendation was before the meeting proposing to ask Lord Derby to receive a deputation with a view to placing before him the position of panel practitioners with regard to army recruiting. On the suggestion of

Dr. GALLOWAY it was agreed to approach the Central Medical War Committee instead.

The Committee considered a case in which during three months a practitioner had issued 6,280 prescription forms for 1,506 patients; the average cost per insured person on his list was reported to be 1s. 1d. The Pharmacy Subcommittee estimated the excess at about £60, but thought the case would be met by recommending that an excessive demand was made upon the drug fund to the extent of 10 per cent. of the total cost of the drugs (£251) ordered by the practitioner during the period under review, and this was agreed to. The practitioner was invited to attend the Committee, but failed to do so.

ESSEX.

SINCE the opening of the new session four general meetings and one emergency meeting of the Local Medical and Panel Committees have been held.

The total cost of checking prescriptions, together with the expenses of the Joint Drug Committee, amount to £384 5s. 6d., of which the Panel Committee paid £128 1s. 10d. for 1914.

Subcommittees of the Local Medical and Panel Committees in the twenty-one areas in Essex were arranged on the lines of the parent Committee, the Commissioners agreeing to allow the Panel Committee to defray the expenses of such meetings as are strictly required for the administration of the Panel Committee.

The interpretation of the new regulations as to "Rep. mist." is believed to be that any reasonable arrangement, such as that in Essex, will be looked upon favourably by the Commissioners. The Panel Committee decided that it could not accept any alteration of the present arrangements during 1916.

GLOUCESTERSHIRE.

At a meeting of the Local Medical and Panel Committee held on November 10th it was proposed to augment the checker's salary by £20, provided he supplied the returns required in the Insurance Acts Committee's circular M.5 for the examination of each doctor's expenditure in prescribing.

With regard to the terms of service for 1916 it was agreed that, after consultation with the Panel Committee, a practitioner may be required not to give any repeat order for any drug or appliance without specifying the date of the original prescription or a reference number for the same.

In view of the attempt to withdraw the domiciliary 6d., it was decided to circulate doctors on the panel to certify every case of tuberculosis.

ISLE OF WIGHT.

At a meeting of the Local Medical and Panel Committees held on November 12th it was decided to protest most strongly against the abolition of the method of prescribing by the use of "Rep. mist."

The terms of service for 1916 were considered, and it was decided that as a large percentage had been deducted from the payments due to doctors for the last six quarters and was still unpaid, and taking into account that the chemists were, under pressure, to be paid in full, unless the same safe guarantee be soon given there was a great danger of the local medical profession refusing to work the Insurance Act.

BURGH OF EDINBURGH.

At a meeting of the Panel Committee held on November 9th a statement was submitted as to the undertaking entered into last year between the Soldiers' and Sailors' Families Association for attendance upon the necessitous dependants of soldiers and sailors on service. Since it appeared that the Soldiers' and Sailors' Families Association was under the impression that panel doctors had agreed to attend the families of their panel patients, the matter had been considered by the Medical Emergency Committee and a suitable letter sent to the secretary of the Association.

It was reported that of 89 practitioners on the Edinburgh panel who had been asked to subscribe towards the expenses of the Committee, 75 had paid their subscriptions. Of the 14 who had not subscribed, 5 were absent on service with His Majesty's forces, 2 had promised to pay, and 4 had refused.

INSURANCE ACT IN PARLIAMENT.

SANATORIUM BENEFIT FUNDS.

IN reply to Mr. CURTIO (Leith Burghs), Mr. C. Roberts, Chairman of the Joint Committee of Insurance Commissioners, said, on November 18th, that he could not admit the validity of the calculation that the three cases receiving domiciliary treatment for tuberculosis in the county of Renfrew in 1913 had cost on an average £327 each. It was correct that there was a large deficit in the Renfrew Committee's Sanatorium Benefit Fund, and that the Treasury had agreed to pay half of this deficit, and requisitions from other quarters to the same effect had also been agreed to by the Treasury. Mr. Roberts pointed out that the 6d. specifically allocated to the panel doctors in respect of their responsibility for domiciliary treatment of tuberculosis could not be applied in meeting expenditure sanctioned in accordance with Section 17 (2) and (3) of the 1911 Act, and that such expenditure had been sanctioned in 14 cases altogether in Scotland. He did not think that the facts supported any general expression of a view adverse to domiciliary treatment of tuberculosis. The particular form of treatment had to vary with the condition and surroundings of the patient, and, as was pointed out by the Departmental Committee on Tuberculosis, it was of primary importance to the success of any scheme that it should enlist the hearty co-operation and stimulate the interest of general practitioners.

Mr. Roberts further said, in reply to Sir Henry Craik, that it was not the case that one of the inducements to the passage of the Insurance Act was that the domiciliary treatment of tuberculosis would come to an end, as both domiciliary and institutional treatment were equally part of sanatorium benefit. He agreed that in deciding which form of treatment should be given the welfare of dependants of the victim should be considered.

In reply to additional questions by Mr. Currie, Mr. Roberts said that his attention had been drawn to the statement of the Kilmarnock Insurance Committee that the cost of certain cases had averaged over £63 each. This referred to the year 1914. He added that he must not be understood to accept the implications drawn from the statement of the Kilmarnock Committee. The arrangement in respect to domiciliary treatment formed part of the general terms of remuneration of the panel practitioners, and had been fully explained to the House by Mr. Lloyd George on October 23rd, 1912. Asked further whether any general effort was being made to reduce expenses, Mr. Roberts repeated his previous reply that "it is impossible to revise the arrangements sanctioned by the medical profession, in view of the absorption of the medical profession in the war."

MEDICAL BENEFIT REGULATIONS.

Sir Philip Magnus asked whether, having regard to the official circular of the Insurance Commissioners (201.1.C.) issued in September 1914, to the effect that, owing to the war and to the additional duties now undertaken by the doctors, no substantial revision of the regulations would be made, and having regard, further, to Sir Robert Morant's letter of March 17th, 1915, addressed to the Secretary of the British Medical Association, confirming the above-mentioned statement, and adding that no changes of any kind had been under consideration for adoption during the present year, any explanation could be offered of the action of the Commissioners in having drafted new regulations, to come into operation on January 1st, 1916, which materially modified the agreement entered into by medical practitioners, who were now required to accept the new conditions or to withdraw from the panel.

Mr. C. Roberts replied: The reference in the documents cited to modifications in the agreements between medical practitioners or chemists and Insurance Committees related only to the question of modifications during the course of the year 1915, under special powers taken for the purpose by regulations introduced at the end of 1914. These special powers have not, in fact, been used. A revision under the ordinary powers of the regulations as from January 1st, 1916, was necessitated by the new terms of service for chemists. The consequential changes affecting doctors were, in view of the special circumstances of the war, carefully devised so as to secure that the doctors' financial position should be left untouched in all respects, and were fully discussed beforehand with representatives

of the medical profession, and recommended by them to the profession for acceptance.

Sir P. Magnus: Were these the only alterations introduced into the regulations in 1914?

Mr. C. Roberts: There were two minor regulations in reference to rubber stamps, and one other point, which can be exactly connected with the financial terms of the doctors, but they also were not objected to. They were discussed beforehand with the medical profession.

CORRESPONDENCE.

SURCHARGING PANEL PRACTITIONERS.

Dr. J. F. COWNIE (Cardiff) writes: I see every week discussions and resolutions reported as to surcharging doctors in different areas. In Cardiff I myself was asked to show reason why I should not be surcharged some £54 for 1914. The average cost of my prescriptions for 1914 was 9.5d. In Edinburgh, where the floating surcharge has been saved for the doctors, the average price of prescriptions for 1914 was 10.58d. The general average paid to each doctor in Edinburgh in 1914 was 2s. 8d. for each attendance and in 1913, 3s. 4d. (SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL, July 24th, p. 45). My average fee was 1s. 5d. It is evident from these figures that the incidence of illness is very much higher in Cardiff than in Edinburgh, and must vary in different areas. It is therefore very unjust to try to penalize doctors who exceed their drug allowance in districts where there is so much illness. It is also unfair, and surely there should be some scheme whereby the money available for drugs should be fairly distributed in the United Kingdom. The doctor who does the most work is underpaid, and worried by Panel Committees as well. Of course I quite agree that prescriptions for proprietary drugs, and extravagant prescriptions should be surcharged where proved.

Recent decisions of the courts have made it fairly clear that it is good law as well as common sense that a panel doctor must not be surcharged simply on the consideration that the cost of his prescribing has exceeded that of other doctors in his area. Neither can surcharges be made simply to supplement a drug fund which has proved to be insufficient to pay the chemists in full, it being necessary to prove definitely and specifically that the doctor has been extravagant in his prescribing. The system of pooling the balances of drug funds that will come into operation with the commercial tariff in 1916 will meet Dr. Cownie's suggestion so far as the chemists are concerned, but it in no way meets, but rather aggravates, the fact that doctors in unhealthy areas who have a large amount of work to do only receive the same total amount of money as doctors in healthy areas where there is much less work to do.

"ENQUIRER" says that eight months after 1914 he was informed that his prescriptions exceeded the 2s. allowed for drugs, and though so far no action has been taken against him, seeing that the record cards have now been divided into two halves so that the identity between patients and illnesses is lost, he asks how excessive prescribing could be proved against him.

There is no doubt that the Panel Committee in the first instance and the Commissioners later in case of appeal, would find themselves unable to prove matters which depended on knowing what disease any particular patient suffered from. It might, for example, be difficult, if not legally impossible, to prove that too much medicine or too many dressings had been ordered; and, so far, part of the case against "Enquirer" might be unprovable. But in other cases it would not be necessary to know anything about the patient or the illness to prove that particular prescriptions were extravagant, as containing, for example, an excessive amount of expensive colouring or flavouring agents of no medicinal value, or drugs ordered under proprietary names, and costing a large amount, where similar *L.P.* preparations could have been ordered of equal efficiency. "Enquirer" should note that the mere fact that he has exceeded the 2s. would not by itself be held as proof of excessive prescribing.

UNFAIR BALANCES.

Dr. R. S. BURD (Oaken, Wolverhampton) suggests that the British Medical Association should inform the Government that in the event of the 1914 accounts remaining unpaid on January 31st, 1915 (sic) the Association would advise its members "to look to take on any work beyond their own. He adds that there is no reason to extend charity to the Insurance Committees in addition to the other charitable work now being done by the profession.

* Apparently 1916 was intended to be written instead of 1915. If so, Dr. Burd is not unreasonable in allowing thirteen months for the payment of accounts.

ECONOMY IN POSTAGE.

Dr. CHARLES STANDRING (Broadway, Worcestershire) writes, suggesting that a great saving in postage might be effected by Insurance Committees if the pink cards notifying changes of the addresses of panel patients, marriages of women insured, etc., were sent to the doctors in batches at the end of each quarter instead of singly, as is often done.

* That a great saving in postage by Insurance Committees is both possible and urgently advisable there can be no doubt; but in the special matter referred to complaints would probably arise if the pink cards were not sent as early as possible, without waiting for the end of the quarter.

Dr. McFEELEY'S CASE.

Dr. G. PRICE (Kineton, Warwick) writes suggesting that the contract between panel doctor and his panel patient is a mutual contract, that the patient broke it by going to another doctor, and that this relieved Dr. McFeeley altogether from the contract.

"FIAT JUSTITIA" expresses his opinion that Dr. McFeeley was unjustly treated by the Commissioners and is entitled to apologies from the patient and his employer and from the doctor who took over the case without first communicating with him.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In the ninety-six largest English towns 6,728 births and 5,363 deaths were registered during the week ended Saturday, November 13th. The annual rate of mortality in these towns, which had been 13.3, 13.8, and 14.2 per 1,000 in the three preceding weeks, rose to 15.4 per 1,000 in the week under notice. In London the death-rate was equal to 17.3, while among the ninety-five other large towns it ranged from 5.2 in Ilford, 6.6 in Gillingham, 8.5 in Enfield, 8.7 in Southend and in Barrow, and 8.9 in Snettisham and in Wokingfield, to 20.4 in Burnley, 24.0 in Middleton, 24.0 in Glasgow, 24.0 in Hartlepool, 2.8 in St. Helens, and 25.1 in Barnsley. Measles caused a death-rate of 3.0 in Swindon, 3.5 in Hastings, 3.9 in Barnsley, and 6.2 in Gloucester. The deaths of children under 2 years from diphtheria and enteritis, which had been 24.25, and 22.6 in the three preceding weeks, further fell to 17.5, and included 48 in London, 13 in Liverpool, and 7 each in Birmingham, Manchester, and Gateshead. The mortality from influenza and other infective diseases showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The cases of 39, or 0.7 per cent., of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number 7 were recorded in Birmingham, 4 in Liverpool, and 2 each in London, Stoke-on-Trent, St. Helens, Warrington, Manchester, Preston, South Shields, and Gateshead. The number of patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 3,110, 3,110, and 3,065 at the end of the three preceding weeks, fell to 3,061 on Saturday, November 13th; 339 new cases were admitted during the week, against 462, 376, and 344 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 1,029 births and 726 deaths were registered during the week ended Saturday, November 6th. The annual rate of mortality in these towns, which had been 15.5, 15.7, and 16.2 per 1,000 in the three preceding weeks, fell to 16.1 in the week under notice, and rose to 19.9 per 1,000 in the two following weeks. The large English towns. Among the several towns the death-rate ranged from 6.1 in Falkirk, 11.3 in Kilmarnock, and 11.7 in Clydebank, to 17.8 in Paisley, 18.0 in Greenock, and 22.0 in Leith. The mortality from the principal infective diseases averaged 1.4 per 1,000, and was highest in Aberdeen and Ayr. The 354 deaths from all causes in Glasgow included 9 from scarlet fever, 6 from measles, 4 from infantile diarrhoea, and 2 from enteric fever, 2 from diphtheria, and 1 from whooping-cough. These deaths from measles were recorded in Greenock, 2 in Edinburgh, and 2 in Ayr; from scarlet fever 2 deaths in Aberdeen; from whooping-cough 2 deaths in Aberdeen; from diphtheria 5 deaths in Edinburgh and 2 in Aberdeen; and from infantile diarrhoea 5 deaths in Dundee.

HEALTH OF IRISH TOWNS.

During the week ended Saturday, October 31st, 559 births and 392 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 488 births and 371 deaths in the preceding period. These deaths represent a mortality of 16.9 per 1,000 of the average population, and are in question, as against 15.8 per 1,000 in the previous period. The mortality in these Irish areas was therefore 3.1 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week under notice. The birth-rate, on the other hand, was equal to 24.0 per 1,000 of population. As for mortality of individual localities that in the Dublin registration area was 17.6 (as against an average of 19.5 for the previous four weeks), in Dublin city 18.5 (as against 20.7), in Belfast 17.1 (as against 19.9), in Cork 15.6 (as against 14.8), in Londonderry 19.0 (as against 16.4), in Limerick 21.7 (as against 13.5), and in Waterford 22.8 (as against 16.2). The zymotic death-rate was 2.3, as against 2.3 in the preceding period.

During the week ended Saturday, November 6th, 540 births and 367 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 529 births and 393 deaths in the preceding period. These deaths represent a mortality of 15.8 per 1,000 of the average population in the districts in question, as against 16.9 per 1,000 in the previous period. The mortality in these Irish areas was therefore 1.1 per 1,000 less than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 23.2 per 1,000 of population. As for mortality of individual localities that in the Dublin registration area was 15.6 (as against an average of 18.6 for the previous four weeks), in Dublin city 16.5 (as against 20.0), in Belfast 15.8 (as against 15.1), in Cork 16.3 (as against 13.8), in Londonderry 24.0 (as against 17.7), in Limerick 6.6 (as against 13.9), and in Waterford 22.8 (as against 15.2). The zymotic death-rate was 1.2, as against 2.3 in the preceding period.

Southern General Hospital.—Major J. T. J. Morrison, M.B., F.R.C.S., to be Lieutenant-Colonel; G. B. Girdlestone, M.B., F.R.C.S., to be Captain, whose services will be available on mobilization; F. Norton, M.D., (late Surgeon-Lieutenant 3rd V.B. South Staffordshire Regiment), and J. Gardiner to be Captains, whose services will be available on mobilization.

South Midland Mounted Brigade Field Ambulance.—The date of appointment of Lieutenant S. P. Johnson, M.B., is September 24th, 1915, and not as stated in the *Gazette* of October 1st, 1915.

South Midland Casualty Clearing Station.—Lieutenant A. B. Fyoster, M.B., to be Captain.

South Midland Field Ambulance.—Surgeon-Captain G. Mackie (from South Midland Brigade, R.F.A.) to be Captain; Captain G. Mackie to be temporary Major; Captain R. D. Moore, from Attached Units (late Medical Officer, 1st to be Captain.

Sanitary Service.—R. G. Fleming, M.B., to be Captain, whose services will be available on mobilization.

South-Western Mounted Brigade Field Ambulance.—Transport Officer and Honorary Lieutenant T. Shaw relinquishes his commission on account of ill health.

Wessex Divisional Sanitary Section.—W. H. Biggs to be Lieutenant. **Wessex Casualty Clearing Station.**—Major A. Draper, from Yorkshire Mounted Brigade Field Ambulance to be Major; C. Telfer to be Lieutenant.

Wessex Field Ambulance.—Captain F. E. Stokes, M.B., to be temporary Major; J. B. Kelly to be Lieutenant.

Welsh Field Ambulance.—Lieutenants T. P. Edwards, M.D., and J. W. Dale, M.B., to be Captains; Lieutenant-Colonel A. L. Jones, from the T.F.R., to be Lieutenant-Colonel; Lieutenant-Colonel A. L. Jones is second for duty as a senior medical officer.

Western General Hospital.—Captain R. H. Kelly, M.D., F.R.C.S., is second.

West Riding Field Ambulance.—The date of promotion of Lieutenant F. White to Captain is April 1st, 1915, and not as stated in the *Gazette* of September 20th, 1915.

West Riding Field Ambulance.—C. H. Heppenstall, M.B., to be Lieutenant.

Attached to Units other than Medical Units.—Major P. McK. Terry, from Wessex Casualty Clearing Station, and A. Butler-Harris, M.B. (late Major Essex Regiment), to be Majors. The date of promotion of Captain J. N. Macmillan to Major is August 5th, 1914, and not as stated in the *Gazette* of June 26th, 1915. The date of resignation of Captain W. M. Ferguson is June 1st, 1915, and not as stated in the *Gazette* of June 26th, 1915.

North Midland Field Ambulance.—Lieutenants from North Midland Field Ambulance, to be Captain. Lieutenants to be Captains: J. F. Ward, M.B., A. L. McCully, M.B., E. S. Johnson, R. P. Pollard, M.B., W. Brown, M.D., A. H. Fullerton, M.B., Lieutenant W. L. Carls, M.D., F.R.C.S., relinquishes his commission on account of ill health. To be Lieutenant: G. Johnston, M.B. Lieutenants T. A. Fisher, T. S. Allan, W. M. Cox, P. H. G. Gosse, W. H. Calvert, M.D., and H. W. Lance, M.B., to be Captains.

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.

Major H. F. Berry, M.B., from Attached to Units other than Medical Units, to be Major.

Major T. Dushy, M.B., from Western General Hospital, to be Major.

The transfer of Captain E. P. Minett from London Field Ambulance, announced in the *London Gazette* of January 18th, is cancelled.

Surgeon-Captain B. W. Eranthwaite, from the London Regiment, to be Surgeon-Captain.

UNATTACHED LIST FOR THE TERRITORIAL FORCE.

OFFICERS' TRAINING CORPS.

Major H. H. Littlejohn, F.R.C.S., M.D., R.A.M.C.(T.F.), to command medical unit of the Edinburgh University Contingent, Senior Division.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

ASHTON-UNDER-LYNE UNION.—Assistant Resident Medical Officer. Salary, £250 per annum.

BALDOVAN CERTIFIED INSTITUTION FOR THE EDUCATION AND TREATMENT OF THE FEEBLE-MINDED.—Resident Medical Superintendent. Salary, £300 per annum.

BENGAL, India.—Chief Sanitary Officer for the Assam Division Board of Health and Mining Settlement. Salary, Rs. 1,200 (£80), rising to Rs. 1,500 (£100) a month.

BIRKENHEAD BOUGH HOSPITAL.—Junior House-Physician. Salary, £150 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £120 per annum in each case.

BURGH OF PAISLEY INFECTIOUS DISEASES HOSPITAL.—Resident Medical Officer. Salary, £200.

CANNING TOWN WOMEN'S HOSPITAL, Plaistow, E.—Senior Resident Medical Officer (Lady). Salary, £120 per annum.

COUNTY OF ANGLESEY.—Temporary County Medical Officer of Health and School Medical Officer. Salary at the rate of £300 per annum.

DEVONSHIRE HOSPITAL FOR SICK CHILDREN.—Lady Resident Medical Officer. Salary, £200 per annum.

DEVONSHIRE HOSPITAL, Buxton.—Assistant House-Physician. Salary, £100 per annum.

DORCHESTER COUNTY ASYLUM, Dorset.—Medical Superintendent. Salary, £300, rising to £350 per annum.

DURLEY GUEST HOSPITAL.—Senior Resident Medical Officer; salary, £150 per annum. (2) Assistant House-Surgeon; salary, £150 per annum.

GLAMORGAN COUNTY ASYLUM, Bridgend.—Temporary Assistant Medical Officer. Salary, £250 per annum.

HAMPSTEAD GENERAL HOSPITAL, Haverstock Hill, N.W.—Resident Medical Officer. Salary, £200 per annum.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £130 per annum.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—House-Surgeon and House-Physician. Salary, £100 per annum each.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Assistant Resident Medical Officer. Honorarium at the rate of £120 a year.

LORD DERBY WAR HOSPITAL, Warrington.—(1) Chief Resident Surgeon. (2) Pathologist. Salary for (1) £1 3s. 6d. per day; for (2) £1 per day.

MANCHESTER: NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Cheetham Hill Road.—Lady House Surgeon. Salary, £120 per annum.

PARTH COUNCIL OF TYRHE, Aberdeenshire.—Medical Officer. Salary, £30 per annum.

PUTNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—Temporary Medical Officer. Honorarium, £25 per annum.

RHONDDA IFRAN DISTRICT COUNCIL.—Temporary Assistant Medical Officer of Health and School Medical Officer. Salary, £350 per annum.

ROYAL COLLEGE OF PHYSICIANS, London.—Milroy Lecturer for 1917.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House-Surgeon. Salary, £120 per annum.

SHETLAND: WHALSAY PARISH.—Medical Practitioner. Guaranteed income £300 by the Highlands and Islands (Medical Service) Board.

SOUTHAMPTON: FREE EYE HOSPITAL.—House-Surgeon. Salary, £250 per annum.

SOUTH LONDON HOSPITAL FOR WOMEN.—Assistant Physician and Temporary Assistant Surgeon.

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—House-Surgeon. Salary, £250 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Lady House-Surgeon. Salary, £50 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Cleator (Cumberland), Crevkerm (Somerset), Woleston (Warwick).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ROBERTS, D. R., M.B. Durh., District Medical Officer of the Bedwelly Union.

St. THOMAS'S HOSPITAL.—The following appointments have been made:—Casualty Officers and Resident Anaesthetists: W. H. C. Ronalds, F.R.C.S., B.A. Cantab., M.R.C.S., L.R.C.P.; G. T. Gimlette, B.A. Oxon., M.R.C.S., L.R.C.P.; G. M. Vevers, M.R.C.S., L.R.C.P.; C. Gardiner Hill, B.A. Cantab., M.R.C.S., L.R.C.P.; W. Thomas, B.Sc. Lond., M.R.C.S., L.R.C.P.; G. C. Berg, M.R.C.S., L.R.C.P.; G. H. C. Byrne, M.R.C.S., L.R.C.P. Obstetric House-Physicians (Senior): W. H. Marshall, B.A. Cantab., M.R.C.S., L.R.C.P.; (Junior): F. E. Higgins, B.A. Cantab., M.R.C.S., L.R.C.P. Bacteriologist, Children's Medical Department: G. L. Bhatia, B.A. Cantab., M.R.C.S., L.R.C.P.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

CRESSWELL.—On November 15th, at 24, Windsor Place, Cardiff, the wife of F. P. S. Cresswell, F.R.C.S., of a son.

DEATHS.

MASON.—On November 18th, at 49, George Street, Portman Square, London, George Armitage Mason, M.A., M.B., B.C. Cantab., aged 58 years.

MASER.—On November 18th, at "The Yews," Longford, Coventry, Herbert Charles Picard Maser, M.R.C.S., L.S.A. Lond., aged 75 years.

ROBERTS.—At High Tisbury, Tisbury, on Thursday, November 18th, Robert Barker Robson, M.B., M.R.C.S., 20, Bondgate Without, Alnwick. Interred at Alnwick on Saturday, November 20th.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W., 8.30 p.m.—Paper: Gas Poisoning, Physiological Symptoms and Clinical Treatment, by Dr. Leonard Hill.

FRIDAY.

ROYAL SOCIETY OF MEDICINE: SECTION OF LARYNGOLOGY, 4 p.m.—Specimens and Cases.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.—Clinical work; graduates only.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, DECEMBER 4TH, 1915.

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RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

ENGLAND AND WALES.

The Central Medical War Committee for England and Wales has held several conferences with representatives of the Insurance Commissioners for England to consider the manner in which the interests of insured persons should be safeguarded while enabling the medical profession to make an adequate response to the demands of the military services of the country for medical officers. On Wednesday last both parties had a conference at the offices of the Local Government Board with representatives of that body. The steps which should be taken in the interests of the public as a whole, including the public health and tuberculosis services, were discussed and a preliminary understanding was reached on many details. The result will, it may confidently be anticipated, materially facilitate the task of the Central and of the local Medical War Committees.

AGE OF CANDIDATES FOR COMMISSIONS.

We are requested to state that medical men under 45 years of age are not now eligible for commissions unless physically fit for service at home and abroad.

VISUAL TESTS FOR TEMPORARY COMMISSIONS.

CANDIDATE writes: Is it not time the present visual standard was relaxed in view of the need of medical men in the army? At present a man is accepted whose vision without glasses is worse than that of a rejected candidate. A candidate with defective vision in one eye is rejected if this defect is not due to a refractive error, notwithstanding that his vision with the other eye is perfect. At the same time a candidate who requires glasses to perform any delicate operative work is accepted. A surgeon who is daily performing the most delicate operative work without glasses is rejected, whilst he would be accepted as a private in the combatant ranks, and, moreover, his effective vision may be perfect.

DRUGGISTS' TRAVELLERS.

DR. C. GORDON ROBERTS (Halstead, Essex) writes: Are druggists' travellers a luxury or necessity to the profession? Undoubtedly the former, for which we indirectly have to pay, therefore at a time like this, when every man is of importance to the nation, they should be dispensed with and set free for other purposes. Many dispensers are still required for the army; those, therefore, of military age should volunteer for this, and the older men take their places in the laboratory or workshop. The chief difficulty raised by those to whom I have spoken is one of finance, but if the profession will combine, refuse to deal with any traveller, whether of or over military age, and agree to send their orders to the same firms as heretofore, the firms on their part should be ready to pay half salaries during their absence, and keep their berths for them on their return. If organized properly it should benefit the country and press harshly on none.

MEDICAL VACANCIES.

NOTICE TO ADVERTISERS.

The attention of advertisers is drawn to the fact that, in view of the urgent need of His Majesty's Forces for medical men, no advertisement will, so far as possible, be accepted, until further notice, for insertion in the *BRITISH MEDICAL JOURNAL* which it appears would probably, if published, result in there being relegated to civil practice a practitioner who, in view of the national emergency, should be serving with the colours.

INSURANCE.

AN OFFICIAL HANDBOOK TO ADMINISTRATION.

THE Scottish Insurance Commissioners have issued a very timely and necessary *Handbook for the Use of Insurance Committees in Scotland*.¹ As stated in the introduction, it is primarily for the assistance of members of Insurance Committees, and is not intended as an exhaustive or technical exposition of the powers and duties of committees. As a matter of fact, though it may be at times of value to even the best informed clerks of committees, neither for clerks nor for ordinary members well up in the Act will this book prevent the need for frequent reference to the Commissioners. The introduction takes up four pages with an account of what is called "the general scheme of administration of National Health Insurance." This is simply a bare list of the authorities concerned in the working of the Act with a summary of a small fraction of the functions of each, and in its present form it seems useless unless it be regarded as a very incomplete part of the index of the book. Next follow eight chapters dealing with the constitution, powers, and duties of Insurance Committees and of their sub-committees, and of the Panel, Pharmaceutical, and Local Medical Committees, and the administration for deposit contributors. Lengthy chapters also deal with the administration of medical and sanatorium benefits and with the complex finance and accounting of Insurance Committees. The chapters dealing with the constitution and duties of the various committees are fairly full and detailed, though the powers of the different committees are often, perhaps of set purpose, left so indefinite that it cannot be a matter of surprise that committees often first decide on and act and ask for permission afterwards, trusting that an accomplished fact will be allowed to pass, even though not in order.

The accounts given of medical and sanatorium benefits contain a large amount of detail, and will be of the greatest value not only to members of Insurance Committees, but to members of Panel and Pharmaceutical Committees. The long chapter dealing with financial arrangements, and with

¹ Issued by the Scottish Insurance Commissioners for official use October 1st, 1915. (1s.)

the keeping of the numerous registers and account books cannot be said to be satisfactory. For ordinary members of committees this chapter might have been condensed to occupy one half the space, while for the practical purposes of clerks of committees it is little more than a mere outline of the work to be done, leaving constant need for a frequent reference to various circulars or regulations only barely named in the *Handbook*. In other words, the chapter, in trying to hit a medium, will fail to satisfy all parties.

In an appendix dealing with finance, there is a curiously complicated diagram showing the tortuous passages and repassages of medical benefit moneys through the labyrinthine accounts of the committees. It goes some distance towards explaining why medical practitioners have to wait so many months for a final settlement of their accounts. This is contained in one of twenty-five appendices containing various documents issued from time to time by the Commissioners, lists of approved sanatoria in Scotland, of Panel and Pharmaceutical Committees, and addresses of clerks and Insurance Committees throughout the kingdom. In addition to a table of contents there is also a good index of all the subjects dealt with.

The first thing that strikes one in the book is the enormous, bewildering, if not gratuitous complexity that has been introduced into the working of the Insurance Acts. Much of this was, of course, inevitable, but it is quite clear from a study of the *Handbook* that with better co-ordination between the different sections a simpler and easier working might have been and may yet be brought about, involving less of those irritating delays of which there are so many complaints, while at the same time vastly reducing the cost of working. On what ought to be quite simple matters it is evident that clerks of committees will often have to refer to the Commissioners, not only on new points that arise, but because the regulations are ambiguous or difficult to understand, or to reconcile with other regulations, orders, or circulars. If unnecessary expense is to be prevented and the full benefit of the Act obtained, the *Handbook* demonstrates that, though the Act has only been in force about three years, a full and complete codification of the circulars, orders, and regulations has already become necessary.

INSURANCE COMMITTEES.

LONDON.

Admission of Tuberculous Insured Persons to Poor Law Infirmarys.—At the meeting of the Insurance Committee for London on November 25th it was stated that the Metropolitan Asylums Board were proposing to approach the Local Government Board with a view to arrangements being made whereby destitute and infirm persons might obtain immediate admission to an infirmary on leaving a general hospital or sanatorium. Mr. HANDEL BOOTH denounced the proposal as a contravention of the promises made to insured persons when the Act was passed. Dr. LAURISTON SHAW said that chronic tuberculous persons should not be taken or kept in sanatoria, which should be reserved for cases likely to be permanently benefited. In the other and chronic cases the alternatives were a return to the patient's home, often a miserable one, or admission to a Poor Law infirmary where constant and skilled attention would be available. Mr. W. S. BROWN, one of the representatives of insured persons, suggested that the financial position would have borne the strain had it not been for the overweening demands of the medical men at the beginning. Dr. B. A. RICHMOND said that officially no patient had been sent into a Poor Law infirmary, but it was known that unofficially this had been done, perhaps two or three times a week. He vigorously contested the suggestions of Mr. Brown. On a vote, 20 were in favour of a motion that the Insurance Committees make no representations to the Local Government Board favouring a transference to the Poor Law infirmary, and 16 against. The CHAIRMAN of the Finance Committee denied certain allegations implying improper and improvident administration of the sanatorium benefits. Applications had only been granted on the advice of the applicant's medical attendant, reinforced by the decision of the Committee's medical officer. Unfortunately there were over 200 insured persons on the

waiting lists at the same time that the Committee was, as opportunity arose, reducing the number of beds.

The Medical List and the War.—Dr. H. H. MILLS stated that there were 1,549 doctors on the medical list in the service of the Insurance Committee, but of these 106 were attached to institutions, leaving 1,443 in personal relationship with insured persons. Of this number 169 were engaged in the army or navy; nearly all the others were very fully engaged, and, in common with munition workers, claimed to be conducting work of national importance. The sickness incidence among insured persons would be at least as high as before the war in spite of enlistments, for the men enlisted represented the more healthy lives, and their places had largely been taken by women, representing a higher sickness incidence.

Allegation against a Panel Practitioner.—The Committee passed censure on a practitioner against whom it was alleged that he had allowed prescriptions to be given by unqualified persons, not always, as the Medical Service Subcommittee judged, with his knowledge, and that he had resided so far from his surgery that he had to enter into arrangements with his neighbouring practitioners for the provision of medical attendance at night. It was also stated that he was serving another insurance committee and it was decided to require him to seek permission to alter the hours so as to fulfil his agreement personally, and that he should secure the assistance of a partner before March, 1916.

LOCAL MEDICAL AND PANEL COMMITTEES.

SOMERSET.

At a meeting of the Local Medical and Panel Committee, on November 11th, Dr. J. A. MACDONALD gave a summary of the new regulations with regard to the proposed changes in the drug tariff, and assured the meeting that the introduction of a new drug tariff would have no prejudicial effect upon the payments to be made to the doctors. He referred to the new regulation which insisted on certificates being signed by the doctor's own hand, and expressed the opinion that when any alteration in the regulations was under consideration by the Commissioners, such change should be submitted to some body of medical men for their consideration, due time being allowed for the purpose.

It was decided to send the following resolution to the Director-General of the Army Medical Service and to the Central Medical War Committee:

That while we recognize that the army has the first call on the medical profession, it is obvious that a serious position for the civilian population will arise if the number of medical practitioners, especially in rural areas, is unduly depleted, and we trust that the Director-General of the Medical Service will earnestly consider whether any re-arrangement of his present staff surgeons can be made which will at least delay the need for further heavy calls on the profession.

YORK.

At a meeting of the Panel Committee on November 10th, it was reported that the York Local Medical Committee had been recognized to July 15th, 1916.

Prescribing.—The terms of service for panel practitioners for 1916 were considered. It was reported that the chemists would be prepared to continue to dispense *Rep. Mist.* prescriptions so long as the term was only used within the current month, but that they wished to dispense aqua destillata in every prescription where aqua was ordered, and to charge a fee of 3d. when the prescriptions were marked "urgent," by the doctor and dispensed out of hours. It was decided to inform the Pharmaceutical Committee that the Panel Committee could not consent to the dispensing of aqua destillata where aqua was ordered.

Deduction.—Attention was drawn to the fact that a large sum of money was still owing to the doctors for 1914 and to the large deductions being made every quarter from the payments to doctors to cover the enlistment of insured persons, while at the same time numbers of names were deducted from the lists owing to this enlistment. The Committee considered the reply of the Commissioners to the representations of the British Medical Association on these matters to be eminently unsatisfactory, and it was decided to urge the Insurance Committee to represent to the Commissioners the serious dissatisfaction which the present state of affairs was causing.

INSURANCE NOTES.

DEDUCTIONS FROM PANEL PAYMENTS.

DR. J. H. LYELL, HONORARY SECRETARY of the British Branch, British Medical Association, and Joint Secretary of the Perth Panel Committee, writes drawing attention to the "possibility of deductions from panel money in the case of doctors mobilized or volunteering for service and unable to fill in and sign their record cards." He also forwards copy of correspondence relating to a case in which such a deduction had been threatened. The matter commenced with a letter from the Clerk of the Perth Insurance Committee to the wife of a Perth practitioner who is now serving at the front. The Clerk stated that it was necessary either for her or the doctor to make arrangements for the keeping of records for the current year, and if such records were not duly furnished, a deduction would be made from the amount to be paid to the doctor for the year. He said he knew that in some cases between 1s. and 2s. per insured person had been deducted, and it might reach a maximum of 2s. 6d. per insured person on the doctor's list. The Clerk therefore desired to be informed what arrangements the doctor or she had made for the keeping and furnishing of records. This letter was brought to the notice of Dr. Lyell, who sent a copy to the Scottish Commissioners, pointing out that the panel patients of the doctor in question were by arrangement being attended by his colleagues who remained in Perth, and that they were filling up the records for him to be duly furnished to the authorities at the end of the year along with the rest of the cards. In reply, the Commissioners said that, as respects 1914, the maximum rate of deduction from the Special Parliamentary Grant in respect of the failure to furnish adequate medical records was 1s. per insured person on the list, and this was imposed only where no records at all had been furnished for 1914, and where, in addition, these for 1913 were incomplete. When full returns for 1913 had been received, the rate of deduction was on the general basis of $\frac{1}{2}$ d. per insured person for each month in 1914 for which records were not furnished. The Commissioners' letter then proceeds:

In regard to the mobilized doctors, deduction has not been made in any case. Where records for two months prior to mobilization only were in question, or where information could be obtained from the representatives of the doctors that the records were in order although they had not been submitted, the Commissioners were of opinion that the records could be accepted as complete, and payment was made in full. It may be added that every effort was made to elicit information which would justify such action, but it was not deemed advisable to trouble the doctor himself if on active service. In cases where no information was obtainable the Commissioners were precluded by the terms of the Special Parliamentary Grant from making payment, but a sum has been retained and deducted to keep the matter open until the doctor's return, when he will be afforded every opportunity of forwarding records and making any explanations. In conclusion, I am to state that as regards the records for treatment after the date when any doctor was mobilized or volunteered, the records fall to be submitted by the deputy or locum with the other records for 1915. There is no question of a doctor himself who is on service being asked to furnish them. Obviously he is not in a position to do so.

APPROVED SOCIETIES AND COMPENSATION CLAIMS.

Skelton v. Baxter.

A question of importance to insured persons and approved societies came before the Master of the Rolls, Lord Justice Bankes, and Lord Justice Warrington, in the Court of Appeal last week when an appeal was heard from an award of the judge of the Essex County Court, who retained no deduction under the Workmen's Compensation Act. It appeared that Annie Skelton, a domestic servant, had met with an accident and compensation being claimed, the judge decided in her favour. In the course of the county court proceedings the question was raised whether the application was really an arbitration at the instance of Skelton or proceedings by the Prudential Approved Society under Section 11 of the National Insurance Act, 1911, which provides that where an insured person has been entitled to compensation in respect of an injury but unreasonably refuses or neglects to take proceedings to enforce the claim, it shall be lawful for the approved society at its own expense to take such proceedings in the name and on behalf of such person. On the evidence it was shown that Skelton had signed a retainer, the claim was made to her by the solicitor of the Prudential Society, and had been approved by the society had a financial interest in the matter she would be indemnified against any costs. The judge decided that the proceedings were really brought by Skelton and made an award in her favour, against which the respondent appealed.

In the Appeal Court, the Master of the Rolls said that he did not consider it necessary to discuss the very obscure provisions of Section 11 or the precise position of approved societies with regard to "maintenance." Skelton had signed a retainer, and

it made no difference that the Prudential Society had given her a partial indemnity and found the money for the court fees and counsel's fees. That might or might not be "maintenance" in the eyes of the law, and might or might not expose the society to an action based on "maintenance," but the circumstance that the plaintiff had been "maintained" by a third person would be no defence to the proceedings. He did not think it had been made out that the Prudential Society had attempted to escape the liability to pay costs which is imposed on a society acting under Section 11. It had been held in the county court that a society had no right to take proceedings until it had been proved that the insured person had unreasonably refused or neglected, but it was plain in the present case that there was no such neglect or refusal, and Section 11 had really nothing to do with the present case. He was of the same opinion as the county court judge, that the application was in truth Skelton's application, and the appeal should be dismissed with costs. The Lords Justices delivered judgement dismissing the appeal.

INSURANCE ACT IN PARLIAMENT.

MEDICAL BENEFIT REGULATIONS.

MR. WILES asked whether the introduction of the new medical benefit regulations was regarded by many members of the medical profession as a breach of the promises made by Sir Robert Morant in his letter to the British Medical Association, dated March 17th, as well as of the terms of the official circular 201/I.C. Mr. Roberts, in reply, said there had been no breach of any promises given, the documents in question referred to contingencies contemplated during the year 1915, which had not in fact arisen, but he had taken steps to remove any misapprehension on the part of the London Panel Committee and the mass meeting of practitioners held at Bristol on November 11th. He had not previously heard that the Kent Panel Committee had invited doctors to withdraw their services after December 31st, but if any doctor had doubts as to the facts of the position he could obtain full information either from the Insurance Committee or the Commissioners. (See also reply to Sir Philip Magnus, SUPPLEMENT, November 27th, p. 201.)

SCOTLAND AND THE COMMERCIAL DRUG TARIFF.

In reply to a number of questions by Mr. Currie (Leith Burghs), Mr. Roberts, Chairman of the Joint Committee of Insurance Commissioners, said that the Departmental Committee on the Drug Tariff had given four out of eleven days on which evidence was taken to evidence as to Scottish conditions, two days being occupied in hearing the secretary of the body which represents Scottish chemists. But as that body desired to amplify its views, he had undertaken to receive such statement within a period which would allow the position in Scotland to be re-examined before July 1st, 1916; the existing tariff would remain in force in Scotland until that date, although the Pharmaceutical Society of England and Wales had recommended chemists in England and Wales to accept the commercial tariff as from January 1st. So far no proof had been given that the commercial tariff would be inequitable in Scotland. The English Commissioners had no organization corresponding to the central checking bureau of Scotland. With regard to the 1913-14 Treasury grant of £50,000 for excessive sickness, it was voted to meet any need arising in any part of Great Britain. No such need had arisen in Scotland, except for a small sum granted in 1914 to meet the enhanced cost of certain drugs under war conditions. In order to remove misconceptions on the whole subject, he had arranged to send a communication to each panel chemist in Scotland.

TUBERCULOUS SOLDIERS.

MR. R. McNeill on November 25th made inquiries as to soldiers invalided from the front suffering from tuberculosis. He suggested that men discharged from the Brompton Hospital were obliged to return to their own homes, and asked whether, being contributors under the Insurance Act, the Insurance Commissioners would place one or more of the sanatoriums at present empty at the disposal of the War Office for the reception of such men. The Chairman of the Joint Committee of Insurance Commissioners said that the military authorities were responsible for the treatment of tuberculous soldiers up to the date of their discharge from the army. Special administrative and financial arrangements had been in operation for a considerable time which secured that the necessary

residential treatment on re-entry into civil life was made available without delay. It was not the case that a large number of men discharged from the army before they were cured of tuberculous disease were thrown upon their own resources, as there was a special fund to deal with such cases, and the arrangements were believed to be working satisfactorily. In reply to a question by Mr. Booth on the same day, Mr. Roberts said that the grant

of £100,000 voted in the Supplementary Estimates for 1914-15, £50,000 was paid into the special account for credit to the several insurance funds. The balance was surrendered and revoted in the Estimates for 1915-16. Payments out of the grant were being made in connexion with the special arrangements for the treatment of soldiers and sailors invalided from service and discharged suffering from tuberculosis.

MEMBERS ELECTED TO THE BRITISH MEDICAL ASSOCIATION

(JANUARY 15TH, 1915, TO AUGUST 31ST, 1915).

(Concluding List.)

New South Wales Branch.

Alexander, A. M. A., M.B., Sydney Hospital
Anderson, Colin, M.B., R.P.A. Hospital,
Camperdown
Aspinall, A. E., M.B., Sydney Hospital
Blashli, E. F., M.B., 8, Chalis Avenue, Potts
Point
Blumer, S. J., M.B., Boroville
Bowie, W. A., M.B., Scarborough
Bowman, Angus W., M.B., Geranton
Brown, K. S. McA., M.B., Sydney Hospital
Brunnich, Karl F. C., M.B., R.P.A. Hospital,
Camperdown
Chaslains, Frederick, M.B., Mudgee
Coghlan, C. C., M.B., Sydney Hospital
Curtis-Elliott, F. M.B., Sydney Hospital
Dawson, W. C., M.B., Kurri Kurri
Dean, W. A., M.B., Burwood
Donald, W. H., M.B., R.P.A. Hospital,
Camperdown
Durrar, J. W., M.B., R.P.A. Hospital,
Camperdown
Finley, C. A., M.B., Adelong
Gadega, K. B., M.B., Mona Road, Darling
Point
Gibson, N. M., M.B., R.P.A. Hospital,
Camperdown
Graham, S. M., M.B., R.P.A. Hospital,
Camperdown
Greaves, F. W. B., M.B., Campsie
Grey, F. T., M.B., Box, 885, G.P., Sydney
Grice, K. H., M.B., Goulburn Hospital, Goul-
burn
Hains, I. C., M.B., Gilgandra
Hay, G. M., M.B., R.P.A. Hospital, Camper-
down
Jeffrey, Eric, M.B., Sydney Hospital
Jones, J. T., M.B., Sydney Hospital
Joyce, A. H., M.B., Sydney Hospital
Keeney, H. McMurdie, M.B., Peak Hill
Kirkland, W. D., M.B., Lithgow
Loweley, H. A., M.B., Royal Alexandra Hos-
pital, Camperdown
McCarthy, F. J., M.B., Sydney Hospital
McCrystal, W. J., M.B., Berrimbuck
MacCallloch, J. R., M.B., c/o Bank of Aus-
tralia, Threadneedle Street, F.C.
McDonald, W. A., M.B., State Hospital, Lid-
combe

McRae, Donald, Esq., Gennie
Meehan, A. V., M.B., Sydney Hospital
Nixon, R. J., M.B., R.P.A. Hospital, Camper-
down
Oliver, C. H., Esq., Kyogle
Parkinson, C. K., M.B., Sydney Hospital
Quirk, F. P., Esq., Condobinin
Rae, R. K., M.B., Sydney Hospital
Reid, S. A., M.B., Sydney Hospital
Rewick, G. A., M.B., Glebe Point
Sandilands, Rev. James, M.B., Wala, Male-
kula, New Hebrides
Smith, D. Ian, M.B., Sydney Hospital
Smith, G. Keith, M.B., Kensington
Taitford, J. W., M.B., Neutral Bay
Taylor, R. J., M.B., R.P.A. Hospital, Camper-
down
Thompson, Thomas, Esq., Taranga
Touze, C. J., M.B., Royal Hospital for Women,
Paddington
Ward, G. D. E., M.B., Royal Alexandra
Hospital, Camperdown
Wilson, F. H., M.B., Berrara
Weeks, Edith, M.B., Bokara, Cremorne
Wesley, C. H., M.B., R.P.A. Hospital, Camper-
down
Wiley, C. J., M.B., R.P.A. Hospital, Camper-
down
Willis, H. H., M.B., R.P.A. Hospital, Camper-
down
Wllocks, G. C., M.B., Sydney Hospital
Zions, Norman, M.B., 255, Oxford Street,
Paddington

New Zealand Branch.

Adams, R. N., Esq., Blenheim
Brown, Wm., M.B., 60, Stafford Street,
Dunedin
Chil ds, T. W. J., M.B., Collingwood
Ede, E. R., Esq., Green Island, Dunedin
Gilmour, B. H., Esq., Timaru
Herrick, T. H., M.B., Motueka
Jefferys, H. E., Esq., Nelson
Macdonald, G. N., Esq., The Hospital,
Christchurch

Northern Counties of Scotland Branch.

MacKenzie, J. J. Ross, M.B., Nairn
Thomson, Joseph A., M.B., Cullen

North of England Branch.

Anderson, J. G., Esq., 178, Hylton Road,
Sunderland
Bower, John, M.B., Lawn Villa, Heaton Road,
Newcastle-on-Tyne
Cairns, H. M., M.D., Municipal Buildings,
West Hartlepool
Falconer, Kinloch, M.B., Blackhalls, Castle
Eden
Fielden, H. A., M.D., Shildon, co. Durham
Herbst, William, M.B., 25, Simonside
Terrace, Heaton, Newcastle-on-Tyne
Hethcote, Douglas, M.B., 4, Victoria Road,
Darlington
McIntosh, S. M.B., Stockton
Macintosh, Angus, M.B., 1, Ward Terrace,
Sunderland
Newton, G. D., Esq., 2, Elision Place, New-
castle-on-Tyne
Shepherd, G. Ferguson, Esq., 9, Ogle Terrace,
South Shields
Stephenson, Geo. E., M.B., Northumberland
War Hospital, Newcastle-on-Tyne
Whitby, Alfred, Esq., Hesleden, Castle Eden
Wilkes, Lillian S., L.R.C.P., 25, Victoria Road,
Darlington
Williams, K. T., Esq., Lingdale, Boosbeck

Orange Free State and Basutoland Branch.

Brock, E. G., Esq., Cloccan
Graham, George, M.B., Trompsburg
Murray, W. A., M.B., Philippsburg

Queensland Branch.

Clowes, A. Stalham, Esq.
Gearn, Clifford, Esq., The Hospital, Warwick
Haythorne, E. L., Esq., Dalby
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 Storr, F. A., Esq., Knowle Cottage, Mirfield

Naval and Military Appointments.**ROYAL NAVAL MEDICAL SERVICE.**

The following appointments are made by the Admiralty:
 Fleet Surgeon C. R. Shovart, M.B., to the *Pembroke*, additional Staff
 Surgeon R. H. McGillin, M.D., to the *Victoria*, additional Surgeon A. B. to
 Moore (temporary) to the *Pembroke*, additional J. S. Orwin, M.B., to
 the *Victoria*, additional. Temporary Surgeon G. H. M. B. to the
Pembroke, additional for Chatham Hospital. To be temporary
 Surgeons: J. F. M. Payne, L. S. Goss, B.A., H. V. Hals, T. S. Gibson,
 H. T. S. McClinch, M.B., P. L. O'Driscoll, M.B.

ROYAL NAVAL VOLUNTEER SERVICE.

To be Surgeon-probationers: C. H. Macklin, J. S. Clark, F. Wilson,
 D. H. Cameron, D. G. F. Bell, A. Ritchie.

ARMY MEDICAL SERVICE.

A. E. Garrod, M.D., F.R.C.P., to be temporary Colonel.
 Major J. G. Bell, M.B., to be temporary Lieutenant-Colonel whilst
 an Assistant Director of Medical Services.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel C. E. Lightwood, M.D., late 5th Mounted Rifles,
 Imperial Light Horse, to be temporary Major.
 Surgeon-Major A. C. Stamborg, M.D., Medical Corps, Royal Militia
 of the Island of Jersey, to be temporary Major.
 T. MacGregor, F.R.C.S. Edin., and J. G. Rowell to be temporary
 Majors whilst employed with the Huddersfield War Hospital.
 Temporary Captain A. M. Leake, V.C., F.R.C.S., to be temporary
 Major.

Temporary Honorary Captain J. L. Dickie, M.B., having ceased to
 serve with the British Red Cross Hospital, Newey, relinquishes his
 commission.

To be temporary Majors: H. E. L. Canney, M.D., temporary Captain
 in Reserve, M.D.

To be temporary Captains: Major E. W. Braithwaite, from the
 Prince of Wales's Own (West Yorkshire Regiment), Territorial Force.
 Temporary Lieutenants to be temporary Captains: R. Le G.
 Constabulary, J. S. Vellacott, M.B., F.R.C.S., late Captain, South African
 Constabulary, J. A. Sherry, J. R. Gyllencreutz, E. Hamilton,
 L. H. F. Thatcher, M.D., I. B. O'Dier, M.D., L. H. Stone, M.B.,
 W. Mett Conley, M.B., D. McVicker, M.B., J. S. Stewart, M.B., O. A. C.
 Mitchell, M.B., V. D. O. Loran, M.B., C. M. Forster, C. H. Treadgold,
 M.D., J. G. Higgins, A. J. McC. C. Morrison, M.B., A. S. Blackwell,
 M.D., F.R.C.S. R. W. Nibbell, M.D., F.R.C.S., C. McCall Wilson, M.D.,
 L. Cassin, M.B., F.R.C.S. Edin., D. W. Woodruff.

Lieutenants of the Canadian A.M.C. to be temporary Lieutenants:
 W. W. Racey, M.B., L. H. Douglass, M.D., A. Andoo, M.B., C. R.
 Young, M. B., D. C. Wilson, M.D., J. D. Curtis, M.B.

The notification regarding temporary Lieutenant D. E. Fenwick,
 M.B., which appeared in the *Gazette* of October 23rd, 1915, is
 cancelled.

The date on which temporary Lieutenant J. L. Whately relinquished
 his commission is October 23rd, 1915, and not as stated in the *Gazette*
 of November 11th, 1915.

To be temporary Lieutenants: V. B. Wamsley, M.B., D. Meek, M.B.,
 A. Dick, M.B., A. J. Dunlop, M.B., W. V. Bennett, M.B., C. Wits, M.F.,
 C. G. Lambie, M.B., A. R. Snowden, E. C. E. Van Eysden, I. R. F.
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 E. W. S. Hughes, W

of Medical Services, to be Assistant Director of Medical Services, Welsh Division (temporary).
 Captain Temporary Major H. J. Dunbar, M.R., from Welsh Field Ambulance, to be Deputy Assistant Director of Medical Services, Welsh Division (temporary).

ROYAL ARMY MEDICAL CORPS.

East Anglian Casualty Clearing Station.—Lieutenant R. C. S. Smith, M.B., to be Captain.
East Lancashire Casualty Clearing Station.—W. Briggs, M.B., and J. Ramsay, M.D., to be Lieutenants.

East Lancashire Field Ambulance.—Lieutenant G. Stevenson, M.B., to be Captain; B. Hobsley, M.B., to be Lieutenant.
Home Counties Casualty Clearing Station.—H. B. Parsloe to be Lieutenant.

Home Counties Field Ambulance.—Major A. T. Falwaiser to be temporary Lieutenant-Colonel. The date of promotion of Major H. G. O. Mackenzie, M.D., to be temporary Lieutenant-Colonel is May 21st, 1915, and not as stated in the Gazette of September 10th, 1915.
London Casualty Clearing Station.—Captain C. H. S. Frankau, M.B., F.R.C.S., to be temporary Major.
London (City of London) Field Ambulance.—Captain L. Courtauld, M.B., is seconded.

London Mounted Brigade Field Ambulance.—H. Fulton (Honorary Major), retired Special Reserve, late Captain London Signal Companies (Army Troops), B.E., to be Major.
London (City of London) Sanitary Company.—J. P. Elias, M.D., to be Lieutenant.

London Sanitary Company.—Lieutenant E. J. Messent to be Captain; Second Lieutenant K. B. Williamson, from the Unattached List for the T.F.; H. J. L. Marfoot, and Sergeant H. S. Tibbitt, from 1st London Sanitary Company, to be Lieutenants.

Northern General Hospital.—Captain W. R. Higgins, M.B., is seconded; Captain J. L. F. C. Borrow, M.B., is seconded for duty with North Midland Mounted Brigade Field Ambulance; Captain J. D. Hall is seconded for duty with East Anglian Casualty Clearing Station. Lieutenants to be Captains: H. J. Smith, M.B., C. W. Sharpey.

North Midland Casualty Clearing Station.—J. A. Young, M.B., to be Lieutenant.

Northumbrian Field Ambulance.—Lieutenant W. H. Morrison, M.B., from Attached Units other than Medical Units, to be Lieutenant.
Southern General Hospital.—Lieutenant-Colonel E. C. Board resigns his commission on account of ill health. Lieutenants A. P. Phillips and A. C. Tibbitts to be Captains.

South Midland Casualty Clearing Station.—Captain E. B. Landon, from Attached to Units other than Medical Units, and C. C. Lavington, M.B. (late Captain in this unit), to be Captains.

Welsh Border Mounted Brigade Field Ambulance.—Lieutenant F. L. Newton, M.B., to be Captain.

Welsh Casualty Clearing Station.—Lieutenant J. Anderson, M.B., to be Captain.

West Lancashire Field Ambulance.—Lieutenant L. E. Stott, M.B., to be Captain.

Attached to Units other than Medical Units.—Captain J. Cook, from Welsh Field Ambulance, to be Captain. Lieutenants to be Captains: F. U. Moffat, G. M. M.D., F. Macdon, M.B., P. W. Downes, J. E. Pearce, H. W. Case, M.B., F. W. A. Stott, M.B., T. Porter, M.B., B. J. J. Marsh, A. Oliver, M.D., G. R. Wilson, M.B. (late Captain East Lancashire Regiment), to be Captain, H. G. Ludolf (late Lieutenant West Riding Divisional Train, A.S.C.) to be Lieutenant.

Vital Statistics.

HEALTH OF ENGLISH TOWNS.

In the ninety-six largest English towns, 7,354 births and 5,519 deaths were registered during the week ended Saturday, November 20th. The annual rate of mortality in these towns, which had been 15.8, 16.2, and 15.4 per 1,000 in the three preceding weeks, rose to 17.3 in the week under notice. In London the death-rate was equal to 16.2, while among the ninety-five other large towns it ranged from 4.3 in Enfield, 5.6 in Gillingham, 7.5 in Eastbourne, 7.6 in Hornsey, 9.2 in Ilford, and 9.8 in Wolverhampton, to 20.5 in Wigam, 22.6 in Liverpool, 22.5 in Middleburgh, 23.6 in Gloucester, and 24.1 in Dudley. Measles caused 10 deaths, and influenza 10, in St. Helens; 7 in Bromwich, 1.7 in Hastings and in Lincoln, 1.9 in Blackburn, 2.1 in Stockport, 2.6 in Bury, and 4.1 in Gloucester; whooping-cough of 1.1 in Birkenhead, 1.2 in Bournemouth and in Derby, and 2.2 in Norwich; and 10 deaths of infants, which had been 13.8, 14.2, and 15.4 per 1,000 in the three preceding weeks, further fell to 12.0, and included 21 in London, 12 in Liverpool, 11 in Manchester, 6 in Birmingham, and 6 in Sheffield. The mortality from enteric fever and scarlet fever showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The causes of 67 per cent. of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number, 11 were recorded in Birmingham, 11 in Liverpool, 5 in Gateshead, 3 in London, and 3 in Blackburn. The number of scarlet fever patients under treatment at the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 3,110, 3,056, and 3,061 at the end of the three preceding weeks, fell to 3,027 on Saturday, November 20th; 356 new cases were admitted during the week, against 378, 354, and 339 in the three preceding weeks.

HEALTH OF SCOTCH ISLANDS.

In the sixteen largest Scotch towns 887 births and 778 deaths were registered during the week ended Saturday, November 13th. The annual rate of mortality in these towns, which had been 15.7, 16.2, and 16.1 per 1,000 in the three preceding weeks, rose to 17.3 in the week under notice, and was equal to the rate in the ninety-six largest English towns. Among the several towns the death-rates ranged from 8.2 in Clydebank, 8.3 in Coatbridge, and 12.2 in Falkirk, to 21.9 in Dundee, 21.7 in Ayr, 21.6 in Glasgow, and 22.1 in Perth. The mortality from typhoid fever was 1.1 in Glasgow, 1.2 in Edinburgh, and was highest in Greenock and Hamilton. The 350 deaths from all causes in Glasgow included 14 from infantile diarrhoea, 6 from measles, 5 from scarlet fever, 3 from diphtheria, 2 from enteric fever, and 2 from whooping-cough. Four deaths from measles were recorded in Edinburgh, 6 in Greenock, 5 in Hamilton, and 2 in Ayr; from scarlet fever, 3 deaths in Edinburgh and 2 each in Dundee and Aberdeen; from diphtheria, 5 deaths in Edinburgh and 2 each in

Dundee and Paisley; and from infantile diarrhoea, 6 deaths in Dundee and 5 in Aberdeen.

In the sixteen largest Scotch towns 887 births and 790 deaths were registered during the week ended Saturday, November 20th. The annual rate of mortality in these towns, which had been 16.2, 16.1, and 15.7 per 1,000 in the three preceding weeks, rose to 17.6 in the week under notice, and was 1.7 per 1,000 above the rate in the ninety-six large English towns. Among the several towns the death-rate ranged from 12.0 in Clydebank, 12.1 in Coatbridge, and 12.2 in Falkirk, to 19.4 in Glasgow, 23.6 in Coatbridge, and 23.8 in Paisley. The mortality from the principal infective diseases averaged 1.4 per 1,000, and was highest in Paisley and Ayr. The 402 deaths from all causes in Glasgow included 14 from infantile diarrhoea, 6 from measles, 5 from scarlet fever, 4 from infantile diarrhoea, and 2 from whooping-cough. Four deaths from measles and 3 from scarlet fever were recorded in Edinburgh; 1 death from diphtheria in Glasgow and 4 in Paisley; and 5 deaths from infantile diarrhoea in Dundee.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, November 13th, 469 births and 391 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 540 births and 367 deaths in the preceding period. These deaths represent a mortality of 16.8 per 1,000 of the aggregate population in the districts in question, as against 15.8 per 1,000 in the previous period. The mortality in these Irish areas was therefore 1.4 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate on the other hand, was equal to 21.0 per 1,000 of population. As for mortality of individual localities, 19 in the Dublin registration area was 20.9 (as against an average of 18.0 for the previous four weeks) in Dublin city, 23.0 (as against 13.0), in Belfast, 16.0 (as against 15.0), in Cork, 20.4 (as against 14.3), in Londonderry, 19.0 (as against 15.0), in Waterford, 9.5 (as against 16.0). The zymotic death rate was 1.6, as against 1.2 in the preceding period.

During the week ending Saturday, November 20th, 503 births and 478 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 499 births and 391 deaths in the preceding period. These deaths represent a mortality of 20.6 per 1,000 of the aggregate population in the districts in question, as against 16.8 per 1,000 in the previous period. The mortality in these Irish areas was therefore 4.7 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 21.0 per 1,000 of population. As for mortality of individual localities, 19 in the Dublin registration area was 22.1 (as against an average of 12.8 for the previous four weeks), in Dublin city, 25.7 (as against 13.8), in Belfast, 20.3 (as against 15.9), in Cork, 20.4 (as against 14.3), in Londonderry, 19.0 (as against 15.0), in Waterford, 13.5 (as against 14.3), and in Waterford, 2.8 (as against 14.7). The zymotic death-rate was 1.4, as against 1.6 in the preceding period.

Quarterly Returns.

From the Registrar-General's quarterly return it appears that during the quarter ended September 30th there were registered in the 83 notified districts in Ireland 22,779 births (11,700 boys and 11,079 girls), equal to an annual rate of 17 in every 1,000 of the estimated population. The average number of births registered during the corresponding quarter of the ten years 1905 to 1914 was 25.25 per 1,000, as against 17 in the present quarter. The estimated mean population of those years. The birth-rate per 1,000 in the various provinces was: Leinster, 21.4, Munster, 20.7, Ulster, 20.8, and Connaught, 19.3. The highest birth-rate was 29.5 for Dublin county borough, and the lowest, 14.0, for Duntroon. The number of deaths registered during the quarter was 14,670 (7,418 males and 7,252 females), affording an annual rate of 13.4 per 1,000 of the estimated population; the average rate for the corresponding quarter of the ten years 1905 to 1914 was 15.1 per 1,000. The death-rate in the various provinces was: Leinster, 14.3, Munster, 13.1, Ulster, 13.7, and Connaught, 11.1. The county or county borough death-rates range from 12.9 in Leitrim to 18.7 in Dublin county borough. In the first quarter 3,511 persons emigrated. The birth-rate is therefore 2.1 below the average rate for the corresponding quarter of the previous ten years, and 1.4 below the rate for the third quarter of 1914. The deaths, on the other hand, are 1.7 above the average rate for the corresponding quarter of 1914, and the death-rate is 0.5 below the rate for that quarter and 0.9 below the average for the third quarter of the last ten years.

In comparison with the results of the corresponding quarter in 1914, the returns of pauperism furnished by the Local Government Board show a decrease of 4,392 in the average number of workhouse inmates on Saturdays during the quarter, and a decrease of 625 in the average number of registered paupers. The number of persons on the rolls in the third quarter of the previous ten years the number of workhouse inmates shows a decrease of 7,885, and the number of persons on outdoor relief shows a decrease of 12,255, the total under both heads being 20,140 in 1914. The Roman Catholic population of the notified towns with the average population for those years, is 0.1 per cent. The marriages, 66,179 registered during the second quarter of 1915 are equivalent to an annual rate of 62.7 per 1,000 of the estimated population, being 0.75 above the rate for the corresponding quarter of 1914 and 0.75 above the average rate for the second quarter of the last ten years. These marriages correspond to an annual rate of 5.26 per 1,000 of the estimated population. The number of persons in the first quarter of the present year who are members of all other religious persuasions. It is to be borne in mind that in many parts of the country the greater portion of the annual number of Roman Catholic marriages is registered in the first quarter, while the marriages of other religions are registered in the first quarter is generally less than that for any of the other quarters of the year.

ENGLISH URBAN MORTALITY IN THE THIRD QUARTER OF 1915.

[SPECIALY REPORTED FOR THE "BRITISH MEDICAL JOURNAL."] In the accompanying table will be found summarized the vital statistics of ninety-six of the largest English towns, based upon the Registrar-General's returns for the third quarter of the year. The 97,900 births registered in these towns during the quarter under notice are equivalent to an annual rate of 17.3 per 1,000 of the estimated at 18,136,180 persons. In London the birth-rate last quarter was 21.4 per 1,000, while among the other large towns it ranged from 12.0 in Bournemouth, 12.2 in Hastings, 12.6 in Eastbourne, 12.7 in Southampton, 12.8 in Liverpool, 12.9 in Glasgow, 13.0 in Middleburgh and in Sunderland, 27.5 in Birkenhead, 27.6 in Bootle, 27.8 in Newcastle-on-Tyne, 29.2 in Gateshead, and 30.2 in Barrow-in-Furness. The zymotic death-rate was 1.6 per 1,000 of the estimated population, 12.5 per 1,000; in London the rate was 12.4 per 1,000, while among the other towns the lowest rates were 7.2 in Ilford, 7.5 in Hornsey, 8.2 in Wimbledon, and 8.5 in Willesden, in Eastbourne, in Southend-on-Sea, and in Swindon.

Analysis of the Vital Statistics of Ninety-six of the Largest English Towns during the Third Quarter of 1915.

Towns.	Estimated Population.	Births.	Deaths.	Annual rate per 1,000 Living.	Deaths from Principal Infectious Diseases.										Deaths under 1 year to 1,000 Births.	Uncertified Deaths per Cent. of Total.
					Births.		Enteric Fever.	Small-pox.	Measles.	Scarlet Fever.	Whooping-cough.	Diphtheria.	Diarrhoea and Enteritis (under 5 years).			
					Births.	Deaths.										
96 Great Towns	18,136,180	97,900	55,537	21.7	12.3	142	—	851	292	572	540	5,322	118	0.8		
London	4,516,612	24,050	13,937	21.4	12.4	26	—	134	59	193	136	1,299	113	0.1		
Croydon	181,556	900	427	19.8	9.4	—	—	4	—	3	—	23	61	—		
Wimbledon	99,598	222	122	15.1	8.2	—	—	1	—	—	5	13	80	—		
East Ham	71,030	300	157	16.8	8.9	2	—	—	4	—	—	2	57	—		
Acton	64,369	314	162	19.6	10.1	—	—	—	1	—	1	1	20	0.6		
Willesden	169,922	354	21.3	8.5	2	—	3	—	—	5	4	24	71			
Horseley	88,263	321	167	14.5	7.5	—	—	—	—	—	—	—	18	93		
Tottenham	149,495	658	347	21.0	9.3	—	—	2	—	—	4	2	19	8.3		
Edmonton	71,024	297	187	22.4	10.6	—	—	—	2	—	6	6	26	108		
Enfield	61,069	306	154	20.1	8.8	—	—	—	—	—	3	3	7	126		
West Ham	796,570	1,955	952	26.4	12.9	10	—	—	60	—	10	2	149	63		
East Ham	146,586	791	326	21.7	8.9	—	—	—	—	—	—	—	18	93		
Leyton	133,719	617	309	18.5	9.3	—	—	1	—	—	2	2	13	79		
Walthamstow	134,825	683	302	20.3	9.0	—	—	1	—	—	1	1	20	91		
Hford	91,041	328	163	14.5	7.2	—	—	—	—	—	—	—	6	43		
Gillingham	55,559	245	183	17.0	11.0	1	—	1	—	—	2	2	98	—		
Hestings	59,620	185	167	12.4	11.2	—	—	—	—	—	1	—	70	15.0		
Fastbourne	56,662	175	118	12.6	8.5	—	—	2	—	—	1	1	8	74		
Brighton	133,336	575	314	15.4	11.2	—	—	—	—	—	—	—	12	80		
Portsmouth	245,827	1,103	611	18.0	10.0	7	—	—	6	—	13	20	70	0.5		
Bournemouth	85,904	257	209	12.0	9.8	—	—	—	1	—	5	2	66	—		
Southampton	123,948	647	367	20.9	11.9	6	—	9	—	—	4	26	94	—		
Reading	90,083	441	206	19.6	9.2	—	—	—	—	—	3	4	59	1.5		
Oxford	54,339	206	162	15.2	12.0	—	—	—	—	—	—	—	2	78		
Northampton	91,123	438	279	19.3	12.3	1	—	—	1	—	1	12	20	116		
Cambridge	57,676	246	146	16.6	10.5	—	—	—	—	—	—	—	5	54		
Southend-on-Sea	83,908	343	177	16.4	8.5	—	—	2	—	—	2	2	47	4.0		
Ipswich	76,472	403	209	21.1	11.0	—	—	—	2	—	6	3	17	92		
Great Yarmouth	57,502	279	176	19.5	12.3	3	—	—	—	—	1	1	4	72		
Norwich	124,107	541	257	11.4	11.4	—	—	5	—	—	3	3	16	105		
Swindon	52,750	243	112	18.5	8.5	—	—	2	—	—	2	2	7	55		
Exeter	60,788	271	164	17.9	10.8	—	—	2	—	—	2	—	7	25		
Plymouth	122,421	916	621	17.3	11.7	4	—	—	—	—	5	3	33	112		
Bath	70,292	329	159	14.6	9.1	—	—	—	—	—	—	—	29	—		
Bristol	363,312	1,707	1,020	18.8	11.3	1	—	2	—	—	6	3	63	111		
Goucester	50,759	272	116	21.5	9.2	—	—	—	—	—	—	—	4	63		
Stoke-on-Trent	241,430	1,545	831	25.7	13.8	1	—	14	8	—	20	68	133	1.9		
Wolverhampton	306,725	1,537	837	22.5	13.5	—	—	—	—	—	—	—	9	33		
Walsall	94,093	604	275	25.7	11.7	—	—	8	—	—	2	4	51	147		
West Bromwich	69,430	454	212	26.2	12.2	1	—	19	—	—	5	2	20	112		
Dudley	51,895	327	149	25.3	11.5	—	—	—	—	—	—	—	14	128		
Birmingham	868,430	4,852	2,549	22.9	11.9	3	—	30	12	—	24	20	312	3.0		
Smethwick	76,314	455	183	23.9	9.6	—	—	4	—	—	1	1	25	112		
Coventry	119,003	726	296	24.5	10.0	1	—	1	2	—	3	9	54	1.7		
Leicester	232,664	1,181	712	20.3	12.3	—	—	—	—	—	2	116	152	0.6		
Lincoln	80,243	289	157	19.2	9.1	—	—	—	—	—	—	—	90	0.6		
Grimsby	78,667	469	221	23.9	11.3	—	—	2	—	—	2	34	119	0.9		
Nottingham	266,918	1,317	811	19.8	12.2	1	—	13	2	—	5	79	134	0.2		
Derby	126,389	655	351	20.8	11.1	1	—	20	6	—	4	2	13	99		
Stockport	126,040	583	384	18.6	12.2	—	—	10	2	—	3	2	26	125		
Blackhead	137,710	487	247	17.5	14.2	—	—	—	—	—	1	11	110	162		
Wallasey	87,175	449	231	20.7	10.6	—	—	—	—	—	1	3	8	76		
Liverpool	767,992	5,005	2,886	25.1	15.6	3	—	30	14	—	29	27	417	2.0		
Deeble	73,230	504	288	27.6	15.8	1	—	6	—	—	3	2	69	183		
Southport	100,775	652	383	26.1	11.4	—	—	—	—	—	—	—	33	105		
Wigan	171,747	237	177	13.2	9.9	—	—	—	—	—	4	1	1	3		
Warrington	91,491	519	305	22.8	13.4	2	—	2	—	—	4	2	30	146		
St. Helens	74,923	425	245	22.8	13.1	1	—	14	—	—	2	2	18	118		
Bolton	185,247	887	530	19.2	11.5	2	—	3	—	—	2	1	60	127		
Bury	59,213	240	176	16.3	11.9	—	—	16	2	—	—	11	12	129		
Manchester	738,538	4,080	2,360	22.2	12.8	8	—	34	22	—	10	247	120	0.5		
Balford	234,975	1,250	782	21.3	13.3	2	—	14	7	—	4	102	131	0.1		
Oldham	151,044	666	481	17.7	12.8	—	—	—	—	—	—	—	22	122		
Healdale	94,320	380	293	16.2	12.5	—	—	—	—	—	—	6	20	124		
Burnley	110,040	468	344	17.1	12.5	1	—	1	—	—	1	4	43	186		
Blackburn	134,387	598	365	17.8	10.9	—	—	14	1	—	1	2	26	115		
Blackpool	118,514	588	393	19.9	13.3	—	—	6	—	—	1	39	33	3.8		
Preston	62,206	285	188	18.4	12.1	2	—	1	—	—	1	1	9	88		
Harrow-in-Furness	65,921	497	222	30.2	13.5	3	—	—	—	—	3	8	17	101		
Barnsfield	112,065	446	315	15.9	12.7	—	—	—	—	—	—	—	2	18		
Halifax	100,373	451	355	15.9	12.7	—	—	—	—	—	—	—	4	86		
Bradford	291,482	1,278	977	17.6	13.4	5	—	12	—	—	5	10	48	133		
Leeds	459,260	2,362	1,579	20.6	13.8	3	—	19	3	—	15	11	173	155		
Deesbury	54,083	283	191	21.0	14.2	—	—	6	—	—	1	2	6	99		
Wakefield	57,643	216	162	16.2	12.3	1	—	1	—	—	2	8	89			
Hareley	53,829	213	131	25.1	17.8	—	—	—	—	—	—	—	2	23		
Sheffield	422,228	2,952	1,761	24.9	14.8	8	—	74	17	—	18	38	240	155		
Rotherham	65,313	430	241	24.7	14.8	—	—	—	—	—	—	—	44	164		
Yorke	83,892	433	245	20.6	11.7	—	—	6	—	—	2	6	2	44		
Hull	291,118	1,767	1,025	24.3	14.1	1	—	8	—	—	1	1	18	140		
Middlesbrough	126,452	864	498	27.4	15.8	1	—	37	—	—	2	10	172	151		
Darlington	61,441	390	174	25.5	11.4	—	—	2	—	—	1	1	9	97		
Stockton-on-Tees	59,311	400	207	27.1	14.0	—	—	3	—	—	3	4	21	150		
West Hartlepool	64,794	270	211	21.6	13.6	—	—	1	—	—	—	—	6	145		
Sunderland	152,927	1,045	577	27.4	15.1	1	—	6	—	—	5	7	76	127		
South Shields	111,357	751	454	27.1	16.4	—	—	8	—	—	7	2	48	148		
Gateshead	129,362	879	503	29.5	16.9	—	—	13	—	—	3	3	88	164		
Newcastle-on-Tyne	273,415	1,894	955	18.0	14.0	3	—	3	—	—	11	11	5	73		
Tynemouth	61,408	367	192	24.0	12.5	3	—									

The deaths from all causes included 142 from enteric fever, 831 from measles, 299 from scarlet fever, 372 from whooping-cough, 540 from diphtheria, and 1,000 from treated diarrhoea and enteritis among children under 2 years of age. The 142 deaths from enteric fever were equal to an annual rate of 0.03 per 1,000; in London the death-rate from this disease was slightly lower, 0.01, among the other large towns it ranged upwards to 0.11 in Ealing and in Portsmouth, 0.13 in Blackrook, 0.17 in Rhondda, 0.19 in Southampton, 0.20 in Tynemouth, and 0.21 in Great Yarmouth. The 831 fatal cases of measles caused a death rate equal to 0.19 per 1,000; in London the rate was only 0.12 per 1,000, while among the other towns the rates were as high as 0.68 per 1,000 in Rhondda, 0.72 in Bradford 1.08 in Bury, 1.10 in West Bromwich, 1.11 in Bath, 1.17 in Middlesbrough, 1.60 in Manchester, and 1.79 in Barnsey. The 299 deaths from scarlet fever were equal to an annual rate of 0.05 per 1,000; in London the rate was 0.05 per 1,000; while among the other large towns the highest rates were 0.30 in Stockton-on-Tees, 0.23 in Ealing and in Carlisle, 0.25 in South Shields, 0.31 in Ipswich, and 0.71 in Warrington. The 540 fatal cases of whooping-cough were equal to an annual rate of 0.13 per 1,000; in London the death-rate from this cause was 0.17 per 1,000, while among the other large towns it ranged upwards to 0.32 in Shields and in Middlesbrough, 0.33 in Lincoln, 0.34 in Edinboro, 0.37 in Rotherham, 0.41 in Birkenhead, 0.43 in South Shields, and 0.56 in West Hartlepool. The 540 deaths from diphtheria were equal to an annual rate of 0.12 per 1,000, the rate in London being equal to the mean for all the large towns. The highest death-rate from this cause were 0.27 in Preston and in Stockton-on-Tees, 0.29 in Middlesbrough, 0.30 in Coventry, 0.33 in Tole-on-Trent, 0.34 in Wintlewood, 0.40 in Harrow, 0.45 in Burnley, and 0.53 in Northampton. The fatal cases of diarrhoea and enteritis among children under 2 years of age numbered 5,322, and were in the proportion of 54.36 per 1,000 to the births registered during the quarter; in London the proportion was 44.01 per 1,000, while among the other large towns the proportions ranged upwards to 100.11 in Gateshead, 109.18 in Rotherham, 116.65 in Birkenhead, 136.90 in Bootle, and 147.93 in Barnsley. Infant mortality, measured by the proportion of deaths among children under 1 year of age to registered births, was equal to 118 per 1,000; in London the rate was 113 per 1,000; while among the other large towns the lowest rates recorded were 29 in Swindon, 33 in Southampton, 47 in Southport, 51 in Bradford, 54 in Barnsley, and in Coventry, and 55 in Gillingham and in Gateshead; the highest rates were 151 in Hull, 155 in Leeds and in Sberheld, 162 in Birkenhead, 164 in Rotherham and in in Gateshead, 183 in Bootle, 186 in Burnley, 193 in Barnsley, and 200 in Southport, 4.2 in Tyne-mouth, 4.6 in North Shields, 5.4 in Dudley and in Gateshead, and 15.0 in Gillingham.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

ASHTON-UNDER-LYNE.—Resident Medical Officer. Salary, £250 per annum.

BENGAL, India.—Chief Sanitary Officer for the Assam Mines Board of Health and Mining Settlement. Salary, Rs. 1,200 (£80), rising to Rs. 1,500 (£100) a month.

BETHNAL GREEN INFIRMARY.—Assistant Medical Officer. Salary, £280 per annum.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House-Surgeon. Salary, £180 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Third House-Surgeon. Salary, £180 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £120 per annum in each case.

CITY OF LONDON RED CROSS HOSPITAL, Finsbury Square, E.C.—Resident Medical Officer. Salary at the rate of £200 per annum.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Lady Resident Medical Officer. Salary, £200 per annum.

DERBYSHIRE ROYAL INFIRMARY.—House-Surgeon. Salary, £200 per annum.

DUDLEY GUEST HOSPITAL.—(1) Senior Resident Medical Officer; salary, £150 per annum. (2) Assistant House-Surgeon; salary, £50 per annum.

EAST-END MISSION TO THE JEWS.—Medical Man.

KESTEVEN COUNTY ASYLUM, near Sleaford.—Assistant Medical Officer.

KING EDWARD VII HOSPITAL FOR OFFICERS.—Resident Medical Officer.

LEEDS GENERAL INFIRMARY.—Resident Aural Officer. Salary, £100 per annum.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer (lady). Salary, £130 per annum.

LINCOLN GENERAL DISPENSARY.—Resident Medical Officer. Salary, £50 per annum.

LONDON LOCK HOSPITAL, Harrow Road and Dean Street, W.—Honorary Anaesthetist.

LONDON TEMPERANCE HOSPITAL, Hamstead Road, N.W.—Assistant Resident Medical Officer. Honorarium, £120 a year.

LONDON THROAT HOSPITAL, Great Portland street, W.—House-Surgeon. Salary, £50 per annum.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—House-Surgeon and House-Physician. Salary, £100 per annum each.

LIVERPOOL MEDICAL MISSION.—Assistant Medical Officer.

LIVERPOOL ROYAL INFIRMARY.—House-Surgeon. Salary, £50 a year.

MANCHESTER: NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Cheetham Hill Road. Lady House-Surgeon. Salary, £120 per annum.

NATIONAL SANATORIUM, Beenden, Kent.—Assistant Medical Officer. Salary, £150 per annum.

NORTH DEVON INFIRMARY, Barnstaple.—House-Surgeon. Salary, £100 per annum.

NORTH STAFFORDSHIRE INFIRMARY, Stoke-on-Trent.—House-Physician. Salary, £200 per annum.

PUTEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—Temporary Medical Officer Honorarium, £25 per annum.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Ventnor.—Senior Resident Medical Officer. Salary, £250 per annum.

ROYAL PORTSMOUTH HOSPITAL.—House-Surgeon. Salary, £150 per annum.

ROYAL SOCIETY.—Government Grants for Scientific Investigations.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House-Surgeon. Salary, £20 per annum.

SHEFFIELD JESSIE HOSPITAL FOR WOMEN.—Junior Lady House-Surgeon for the Gynaecological and Maternity Department. Salary, £80 per annum.

SHEPHERD: WHALSAY FAIRHIS.—Medical Practitioner. Guaranteed income £300 by the Highlands and Islands (Medical Service) Board.

SHIP SURGEON.—Salary, £25 per month.

SOUTHAMPTON: FREE EYE HOSPITAL.—House-Surgeon. Salary, £100 per annum.

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—House-Surgeon. Salary, £250 per annum.

WARRINGTON: THE LORD DERBY WAR HOSPITAL.—Chief Resident Surgeon. Salary, £1 3s. 6d. per day.

WEST HAM UNION.—Assistant Medical Officer. Salary, £300 per annum.

WILKIN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Lady House-Surgeon. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Millom (Cumberland).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BUTLER, W. B., M.R.C.S., L.R.C.P., Certifying Factory Surgeon for the Hereford District, Co. Hereford.

KELLY, L. P., L.R.C.P. and S.L., District Medical Officer of the Clevebury Mortuary Office.

REYNOLDS, H. S., F.R.C.S. Edin., District Medical Officer of the Wisbech Union.

St. THOMAS'S HOSPITAL.—The following appointments have been made.—Resident Assistant Physician: Geoffrey Hoffman, B.A., M.B., B.C. Ch. Oxon., M.R.C.P. Edin., Medical Registrar; J. L. Birley, M.A., M.B., B.Ch. Oxon., M.R.C.P. Lond., surgical Registrar; P. H. Mitchell, M.B., M.S. Lond., F.R.C.S. Eng. Obstetric Registrar; J. M. Wyatt, M. B., B.S. Lond., F.R.C.S. Eng. Ophthalmic Registrar; P. G. Doyno, B.A., M.B., B.Ch. Oxon., F.R.C.S. Eng.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

SCOTT.—At 6, Renswick Street, Cavendish Square, London, W., on November 27th, the wife of S. Gilbert Scott, M.R.C.S., L.H.C.P., had a daughter.

TENNENT.—On October 22nd, at Kulim, South Kedah, Malaya, the wife of J. Hall Tennent, M.B., Ch.B. Edin., of a daughter.

DIARY FOR THE WEEK.

TUESDAY.

Röntgen Society, Institution of Electrical Engineers, Victoria Embankment, 8.15 p.m.—Mr. L. A. Levy on Screens; Mr. G. G. Blake on Localisation.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W., 9 p.m.—Clinical and Pathological Evening. Dr. A. G. Buchanan: Demonstration of Treatment by Hypnotic Suggestion.

THURSDAY.

ROYAL SOCIETY, 4.30 p.m.—Croonian Lecture on Respiratory Process in Muscle, and the Nature of Muscular Motion. Dr. W. M. Fletcher and Professor F. G. Hopkins.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
CLINICAL SECTION, 3 p.m.—Cases. Paper.—Dr. F. Parkes Weber: sequel to Cases of Chronic Splenomegaly.

POST-GRADUATE COURSES AND LECTURES.
NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, DECEMBER 11TH, 1915.

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RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

The following letter has been issued to the Secretaries of local Medical War Committees by the Central Medical War Committee for England and Wales:

Dear Sir,

1. At the interview between Lord Derby and representatives of this Committee and the Scottish Emergency Committee on November 5th, 1915, Lord Derby made the following pronouncement for issue to the press:

It is officially announced that Lord Derby yesterday received representatives of the War Emergency Committees, which have been formed with a view to organizing the civil medical profession and making arrangements which would facilitate the setting free of younger men from their practices in order to undertake military service with our armies in the field. The representatives explained to the Director-General of Recruiting the system under which the Committees have been working and the measure of success which had hitherto resulted from their efforts.

Lord Derby informed them that he fully approved of the scheme and expressed a wish that this work should be continued, and that the War Emergency Committees should undertake the whole of the arrangements for procuring medical men for the army, and he agreed that, on the recommendation of the Director-General, Army Medical Service, the Committees should be recognized as the means of organizing the medical profession with regard to military service.

2. It will be seen that this statement puts on the Central Medical War Committee the same responsibility for recruiting medical men of military age as is placed on the local Recruiting Committees, so far as concerns the rest of the population. Therefore, it is essential that a canvass should be carried out by every local Medical War Committee among the medical men of 45 and under, the limit of age fixed by the War Office for general service.

3. The following is the plan suggested for adoption:

Canvass of Men of Military Age.

(a) The cards of the group No. 41 in Lord Derby's scheme relate to the medical practitioners. The blue

cards for men of military age under Lord Derby's scheme—that is, for those under 40 years of age—are at the chief local recruiting office. On representations from the Chairman of the local Medical War Committee these cards can be obtained, provided the applicant will guarantee to make the necessary canvass of the men whose cards are handed over. The necessary steps are:

1. A personal application of the chairman (or, failing him, the secretary) of the local Medical War Committee.
2. The registration of the applicant as an official canvasser under the scheme.
3. Receipt of the official white card authorizing the holder to call upon the men.

(b) In districts where the number of medical men is considerable it is obviously not possible for one man to do the canvass. In one such district the local Medical War Committee has appointed no fewer than twenty canvassers all of whom are senior medical men of the district. Each of these is to be registered as an official canvasser, so that the responsibility for the safety of the blue cards is distributed.

(c) In some districts the number of medical men will be few, and the work each of these is doing, and the possibility of enlisting those of military age, may be so well known that the possession of the blue cards will present no advantage to the officers of the local Medical War Committee. In such cases it is suggested that the chairman of the Committee should notify the chief local recruiting officer that the arrangements as regards the medical men of the district are in the hands of his committee.

(d) It is particularly urged that notifications of willingness to serve should be sent by the local Medical War Committee to the office of the Central Medical War Committee, which will communicate with the practitioners concerned, and issue to them a certificate of enrolment. It is of the utmost importance that the Central Committee should be able to correlate the requirements of the civil population and the military services, and only by the careful selection of the men from the districts where they most abound can this be done. From some districts offers of service will be held over until the relative plethora of other districts has been drawn upon.

4. The Central Medical War Committee wishes it to be clearly understood that if a local Medical War Committee

does not canvass the medical men of military age in its area it will be reported that we are unable to carry out the duty devolved on us by Lord Derby so far as that area is concerned. The result will be that the canvass will then be carried out by the local Recruiting Committee, or, should Lord Derby's organization be no longer working, by whatever authority is then responsible for general recruiting.

Recording of information ascertained from Blue Cards.

5. It is important that the information gained from the cards as regards age and whether married or single should be filed for reference. The local list should be corrected by it and all such corrections sent to us at the first convenient opportunity.

It is essential that the Committees in the metropolitan area should forward full information as regards ages of the "blue card" men as soon as possible to this office, as our record of the ages of men in that area is incomplete.

Classification of Men.

6. The next step will be the local grouping and classification of the men, not only of the men up to 40 but also of those up to 45. A list of these, as far as we have been able to ascertain the facts, has already been sent to local Medical War Committees.

For this purpose the appended system of classification will be found useful. Attention is directed to the note prefixed to the classification system, as it is very important that no area should use that system as a reason for not supplying its fair share of medical officers on the ground that some of the earlier mentioned classes are not represented in the area.

7. On receipt of the grouping from each area, the Central Medical War Committee will proceed to apply to all the men of military age to fill up a form of application for a commission. Those who do so may rely on the Committee calling on them for service only as and when required, and giving them at least one month's notice in which to make their arrangements.

8. Those medical men of military age who claim to be physically unfit should obtain from a duly authorized military medical examiner a certificate of unfitness. No other certificate can be recognized as a legitimate claim for exemption on this ground.

9. It is specially requested that there should be no slackening in the attempt to get those men who can do so to go *now*, that is to say, as soon as possible. The number of medical men for which the War Office last appealed is far from complete, and the last thing the Central Medical War Committee wishes to do is to allow the classification and enrolment system (which is mainly for use in *future* calls) to be used as an excuse for stopping the flow of medical officers who are wanted *now*.

We are, yours faithfully,

N. BISHOP HARMAN, M.B.
ALFRED COX, M.B.

Secretaries.

429, Strand, W.C.,
December 8th, 1915.

APPENDIX.

In response to requests from local Medical War Committees, the Central Medical War Committee has drawn up the following scheme of classification as an indication of its views as to the order in which, generally speaking, the individual practitioners in any area may advisedly be urged by the local Committees to leave their practices for the purpose of undertaking military service. The general principle underlying the classification is that the necessary withdrawals of medical men for military purposes should take place in such a manner as to cause

as little disturbance as possible of the medical service essential to the needs of the area.

The classification is not to be taken as a time table, indicating that the whole of any one group throughout the country will be called up before later groups are drawn upon. But where any question arises as to which of two or more men should accept service first, it is thought that a reference to the classification may be found of use in settling the difficulty.

Each area is expected to try to release as many men as possible for military service, consistent with the needs of the local community. Whether any particular area can or cannot spare more men is, in the opinion of the Central Committee, a question that can only be equitably settled after due consultation between the central and local Committees. The former will know the needs of the War Office and what other areas have done, while the latter will know the difficulties peculiar to the locality.

Married or Single.	{	1. All newly qualified men who are physically fit.
		2. Junior medical officers employed by public authorities, such as assistant school medical officers, assistant medical officers of health, assistant asylum medical officers, tuberculosis officers, etc.
Single.	{	3. Junior resident medical officers at institutions.
		4. Assistants to private practitioners, and partners where no other partner has gone.
		5. Men in single-handed urban or semi-urban practices. For exceptions see Class 6.
		6. Men in urban or semi-urban areas who have assumed sole responsibility for some man who is already serving. Wherever possible such a man should be replaced by one who is ineligible for military service on age or other grounds.
		7. Married men in single-handed urban or semi-urban practices.
		8. Single men in rural areas where there are no other practices.
		9. Married men in rural areas where there are no other practices.

NOTE.—It is to be understood that any medical man engaged in service for the efficiency of which any central Government department has any responsibility cannot be called up for military service if the consent of the Government department concerned is withheld.

CONSULTANTS AND SPECIALISTS.

The Committee is of opinion that, with regard to Consultants and Specialists of military age, the opinion of the local Medical War Committees, and of the Hospitals to which they are attached, must be ascertained as to whether the services of these men can be spared before they are accepted for commissions. But as such local Committees will doubtless be glad to receive guidance, the Central Medical War Committee calls attention to the following classification. The basis of the valuation was held to be the ultimate necessity of the specialist to the community. If his work could be easily done by another and more necessary member of the profession, then he was held to be relatively unnecessary. In all cases the evaluation is for pure consultants or specialists only.

Order.

1. Anaesthetists, Radiographers, Dermatologists.
2. Dentists with medical qualification.
3. Gynaecologists.
4. Alienists.
5. Aurists, Ophthalmologists, and Laryngologists.
6. Physicians.
7. Surgeons.
8. Clinical Pathologists attached to recognized institutions.

NOTE.—Consultants and Specialists are required to offer for General Service, and not for special work only.

MARYLEBONE.

A MEETING of the Marylebone Medical War Committee was held November 17th, 1915. It was reported that the additional members co-opted at the previous meeting had accepted service. The committee now includes fourteen members. Mr. Chas. Ryall is Chairman, and Mrs. Charlton Briscoe, M.B., Honorary Secretary. The Honorary Secretary reported that of the 1,050 doctors in the borough 275 were on commissioned service (number at date is 295).

Mr. Bishop Harman made a statement as to the relation between Lord Derby's Committees and the Medical War Committees. General leave had, he said, been given for local medical war committees to use the "blue cards" for canvassing purposes. Major Galloway read the official statement put out after the conference between the Central Medical War Committee, the War Office and Lord Derby, in which the position of the local medical committees was clearly shown.

The Chairman stated that he had already applied for and obtained the "blue cards" of all the medical men under 40 years of age registered in the borough. The cards had been handed to him personally under guarantee that the canvassing was carried out by the committee or their delegates. It was thereon agreed that the committee take the responsibility for the blue cards and the canvassing thereof.

Dr. Frederick Taylor, Major Galloway, and Major MeAdam Eccles were appointed a recruiting subcommittee to instruct the canvassers on their work. A list of possible canvassers, all senior men of the profession, was drawn up; of these the following have since agreed to serve:

Dr. Dyke Acland.
Dr. Mitchell Bruce.
Sir Thomas Barlow.
Sir Francis Champney, Bt.
Sir Anderson Critchett, Bt.
Sir Frederick Eve.
Sir David Ferrier.
Dr. Dundas Grant.
Sir A. Pearce Gould, K.C.V.O.
Sir James Goodhart, Bt.
Dr. de Havilland Hall.

Dr. Handfield Jones.
Mr. William Lang.
Sir Henry Morris, Bt.
Sir Malcolm Morris, K.C.V.O.
Mr. C. Mansell Moullin.
Dr. Norman Moore.
Dr. Newton Pitt.
Sir Seymour Sharkey.
Dr. Frederick Taylor.
Dr. Samuel West.

On the matter of classification of the profession Mr. Bishop Harman proposed that the committee consider the order in which consultants and specialists could be spared from the service of the civil community for army service. A list was drawn up; this and the principles underlying it will be found in the recruiting scheme of the Central Committee (see page 213).

STRATFORD.

At a meeting of practitioners in the Stratford area held at the Town Hall on November 19th, it was reported that 51 practitioners from the area had joined the navy and army, including 16 who had joined since August, 1915. A vote of condolence was passed with the relatives of Drs. Eric Wright and Alexander Graham, both of whom have died on active service.

The following resolution with regard to the conduct of the practices of those absent on war service was adopted, and has been circulated to all practitioners in the area by the Local Medical War Committee:

That the doctors who have gone on war service or who do so in future be invited to draw up a list of their bona-fide patients and appointments for circulation to the neighbouring practitioners by the Local War Medical Committee, and that they shall be attended or held on behalf of the absentee, and shall be restored to him on his return to practice, and not be taken for twelve months afterwards by any doctor who attended during his absence. All fees except midwifery fees to be equally divided with the absentee. This arrangement is to hold good whether a locumtenent is in charge or not. All differences of opinion as to patients, or appointments, or other matters to be decided by the local War Medical Committee, with an appeal if desired to the Central War Medical Committee.

The following resolution with regard to medical attendance on dependants was also passed:

That the medical practitioners of the area do not consider it is necessary to continue after December 31st, 1915, the scheme for the gratuitous medical attendance on dependants of those serving with the colours.

A list of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian, at the house of the Association, 429, Strand, W.C. The regulations governing the loan of these publications are stated in the introduction to the list. The Library is open for consultation from 10 a.m. till 5 p.m. (on Saturdays till 2 p.m.).

INSURANCE.

SUGGESTED PARLIAMENTARY INQUIRY INTO THE INSURANCE ACTS.

THE following letter has been addressed to the Prime Minister, and Chairman of National Health Insurance (Joint) Committee:

Sir,

The attention of the British Medical Association has been drawn to a notice which appeared in the *Times* of November 26th stating that the Council of Approved Societies under the National Insurance Acts has decided to press for a parliamentary inquiry into the working of the Act and of its various Commissions, with a view to steps being taken to bring about more economical working.

Expressions of opinion made by persons with more or less claim to represent insured persons or Insurance Committees to the effect that some sort of inquiry should be made into the working of the Insurance Act have also been noted.

I am instructed to say that while the British Medical Association would welcome at an appropriate time an impartial inquiry into the working of the Insurance Acts, it considers the present moment to be most inopportune. For the proper conduct of such an investigation it would be necessary to secure suitable medical representatives to serve on the Inquiry Committee, the attendance of medical witnesses from various parts of the country, and the collection of a great deal of evidence. For none of this work has the medical profession now adequate leisure or opportunity. Many of its members directly affected are on military service with the army or navy abroad or at home, and those that are left are hard pressed in many areas to give the requisite attendance on the civilian population.

The Association would most respectfully urge, therefore, that no encouragement should be given to those who wish to occupy the time of public men and of representatives of the medical profession in a subject of great but at the moment of secondary interest, for in the present emergency their energies are most fully and usefully occupied in other ways.

I am, Sir,

Your obedient Servant,

ALFRED COX,

Medical Secretary.

THE INSURANCE ACT IN SALFORD.

THE Salford Panel Committee has just sent to all panel practitioners in the area a circular stating that after full consideration of the revised medical benefit regulations for the coming year, the Committee has no hesitation in recommending the profession to accept the same and to continue the contracts with the Insurance Committee. This is, of course, done on the distinct understanding that the Government guarantees to the doctors the minimum payment of 7s. per insured person, and that the chance of getting the whole or part of the floating 6d. remains exactly as at present. For the year 1913 the drug fund in Salford showed a very serious deficit, being only sufficient to pay the chemists about two-thirds of their bills; and even with the special grant from the Government, the chemists had to be content with only 85 per cent. of the money due to them. In 1914, however, owing to the special arrangements in Salford, there is a sum of about £700 from the floating 6d. available for distribution among the doctors, after paying the chemists' bills in full, and it is practically certain that there will also be a fair sum in 1915 to be distributed among the doctors, though not quite so much as in 1914. The Panel Committee makes an urgent appeal to all panel practitioners to take seriously the responsibility thrown on them under the new regulations of preventing any abuse of the drug fund, stating that the Committee will not hesitate to make surcharges where it is satisfied that extravagant prescribing has taken place. No serious objection is taken to the new regulations referring to the use of the term "Rep. mist." and to the signing of certificates, but there is a very general feeling that in simple fairness to the profession the Commissioners ought to have given the profession generally sufficient time in which to consider the new regulations and to suggest modifications, and it is

freely stated that if the Commissioners persist in springing regulations on the profession at the last moment, they can hardly complain if the profession in its turn imitates such dilatory tactics and instead of widely advertising its intentions, quietly postpones any future decision to refuse service to a period which would seriously embarrass the Commissioners. On the present occasion following the recommendation of the Panel Committee it is practically certain that no practitioners will leave the panel, except for unavoidable reasons.

PANEL CHEMISTS IN SCOTLAND.

REPORTS of meetings of panel chemists in various areas of Scotland appear to show that at least in some parts of the country the concessions made by the Commissioners with regard to the drug tariff are not sufficient to satisfy the chemists. As stated by Mr. Roberts in Parliament, it is not intended to bring the commercial tariff into force in Scotland before July 1st, 1916, and the Commissioners will be prepared to consider any evidence brought forward before April 30th to prove the inadequacy of the establishment charges which the chemists are allowed to make under the new tariff. Well-attended meetings of panel chemists have been held in Edinburgh and Leith, East Lothian, Glasgow, Ayr, Perth, etc., to protest against the new arrangements, and in each case all, or nearly all, the chemists of the areas have signed notices terminating their contracts of service as from December 31st unless the *status quo* is conceded for 1916. In each case the chemists are willing to continue service on the present tariff, to withdraw their demands for increased remuneration during the period of the war, to run the risk meantime that the money available may not be sufficient to pay their bills in full, and to consider the proposals of the Departmental Committee on the Drug Tariff as soon as is reasonably practicable. Mr. Roberts, however, refuses to promise that the commercial tariff will not be introduced in Scotland on July 1st, and he demands a report from the chemists before April 30th. The Pharmaceutical Society has issued a long statement of the whole position, giving a number of reasons why the proposals connected with the commercial tariff ought not to apply to Scotland. In reply to this the Commissioners have issued a circular to every panel chemist dealing with the various objections of the Pharmaceutical Standing Committee, and challenging it to show cause why the conclusions of the Departmental Committee should not be accepted.

INSURANCE COMMITTEES.

LEICESTERSHIRE.

At a meeting of the Leicestershire Insurance Committee, a resolution was carried, to be forwarded to the county council with a covering letter, stating that just as under the Insurance Acts it was considered reasonable that the insurance committees should contain representatives of various interests such as doctors, nurses, chemists, county councils, etc., as well as representatives of approved societies. In the same way the committee suggested that the interests of tuberculosis cases would best be consulted if county councils invited a few practical insurance workers to serve on their sanitary committees when dealing with matters of tuberculosis; that where this had been done nothing but favourable results had followed. The advantage of insured persons with the increased power available by joint action of the insurance committee and the county council were the chief reasons for the request.

The remaining matters of general interest also came before the various subcommittees. The Sanatoriums Subcommittee recommended that rules for the conduct of insured persons in receipt of domiciliary sanatorium benefit, on the lines of the rules for persons receiving medical benefit, should be submitted to the Commissioners for approval. Rules in respect of institutional treatment were not submitted, as the committee had already approved the rules for patients in force in the institutions of the local authority to which tuberculosis cases were sent. It was decided to take no action on the circular letter sent round by the Ayrshire Insurance Committee, which suggested that the payment to medical practitioners of the capitation fee of 6d. per person for the treatment of insured persons recommended for domiciliary treatment should be discontinued.

In the Medical Benefit Subcommittee it was stated that the Commissioners had informed the committee that generally if an insured person applying for treatment as a temporary resident was unable to produce a medical card or other evidence of his title to medical benefit, there would appear to be no objection to the practitioner making a charge for his services on the understanding that the amount would be refunded when the patient's title to medical benefit was established by the production of the medical card, but it was essential that the patient should be fully made to understand the nature of this arrangement. With regard to the payments to doctors and chemists the Finance Subcommittee recommended that in respect to the last quarter of the year the chemists should be paid in full, and that payments be made at the rate of 1s. 10d. to prescribing doctors, 2s. 1d. to doctors dispensing, and 1s. 10d. to approved institutions.

LOCAL MEDICAL AND PANEL COMMITTEES.

LANCASHIRE.

At a meeting of the Lancashire County Local Medical and Panel Committee, held on November 10th, the revised arrangements for the administration of medical benefit for 1916 (Memo. 217, I.C.) were considered. There was some doubt as to the exact position, under Article 6 of the amended Regulations, of those practitioners who undertake to supply drugs and appliances to insured persons, and it was decided that the Secretary of the British Medical Association be asked for a full explanation. With this exception, the revised arrangements for 1916 were approved.

Excessive Prescribing.—As a result of a scrutiny of the prescriptions for 1914 it was found that 120 doctors had exceeded the amount allocated under the regulations out of the Medical Benefit Fund Account. It was recommended that no action be taken in the following cases: Doctors who had signed (1) prescriptions in their own names when doing work for doctors on active service; (2) signed prescriptions in their own names when acting for other doctors; (3) who are on active service; (4) who had many cases of long duration, or who had many cases during an epidemic.

LIVERPOOL.

At a meeting of the Panel Committee, on November 9th, the compromise arrived at by the Commissioners with regard to the proposed changes in the regulations affecting the drug tariff was approved, and it was decided to endeavour to render effective the existing safeguards against extravagant prescribing, as embodied in Article 40 of the regulations, subject to the elimination of the Pharmaceutical Committee in the matter.

The revised arrangements for the administration of medical benefit for 1916 were approved.

MONMOUTHSHIRE.

At a meeting of the Local Medical and Panel Committees, on November 9th, a resolution was adopted approving of the amalgamation of the English and Welsh National Health Commissions, and it was decided to forward a resolution to the President of the Local Government Board and to the other bodies concerned calling upon the Monmouthshire County Council and other public bodies in the county employing whole time medical officers, to at once place them at the disposal of the War Office, and requesting the Local Government Board not to place any obstacles in the way.

At a meeting of the Monmouthshire panel doctors held on November 12th the following resolutions were adopted:

1. That we do not accept any alteration in the present agreement.
2. That this meeting of the Monmouthshire panel doctors wholeheartedly approve of the suggested amalgamation of the English and Welsh National Health Commissions into one central body.
3. That we, the members of the medical profession on the panel for the county of Monmouth, being desirous of keeping the drug account within the 2s. per head for the year 1915, are giving medicines at our surgeries to insured persons at our own expense, and we ask the Government to amend the Insurance Acts so that panel practitioners may be allowed the dispensing fee for those insured persons who desire to have their medicines direct from their own medical advisers.

PERTH AND PERTHSHIRE.

A MEETING of the Panel Committees of Perth and Perthshire was held on November 26th. It was decided to send a resolution to the Secretary of the Pharmaceutical Standing Committee (Scotland) expressing the sympathy of medical practitioners with the chemists in Scotland in the present crisis with regard to the drug tariff. Under the advice of the Scottish Committee of the British Medical Association it was resolved meanwhile to make no contribution towards the expense of the Central Checking Bureau. In view of a communication from the Commissioners to the effect that no payment could be made for unallocated persons unless practitioners accepted responsibility for "persons who, in an emergency, outside of office hours, or on Sundays, may find it necessary to apply direct to a doctor," it was decided that such responsibility should be accepted. It was agreed that the terms of the new agreement should be accepted, as recommended by the British Medical Association.

INSURANCE ACT IN PARLIAMENT.

REGULATIONS AND EXPLANATORY CIRCULARS.

Mr. BOOTH asked (1) how many regulations had been issued since the beginning of the Act; (2) what was the average number of copies printed of each regulation; (3) how many had been amended or withdrawn; (4) how many had required explanatory circulars; and (5) whether, in view of the depletion of the staffs owing to the war, any assurance could be given that the stream of communications would be reduced to a reasonable size. In reply, Mr. Roberts said the figures asked for could not be given without laborious calculations which were not required for administrative purposes, but he was fully in sympathy with the suggestion in the fifth part of the question, and hoped that societies and committees would be materially assisted by the considerable progress made with the consolidation of regulations. Mr. Booth and Mr. Currie pressed for a more precise reply to the questions, but Mr. Roberts repeated his inability to answer without a considerable amount of work, which he hesitated to throw on the staff for no particular purpose.

UNTRACKED CONTRIBUTION CARDS.

Mr. Roberts said, in reply to Mr. Booth, that the number of unclaimed contribution cards bearing stamps in the hands of the Commissioners in Great Britain was about 300,000. Any card belonging to a member of an approved society was transmitted to the society on application, and societies could now place a distinctive mark on cards before issuing them to members. Sums representing the value of stamps on cards ultimately unclaimed were for the present being carried to a special account in the National Health Insurance Fund. The loss of cards dated back to the early days of the system, and the difficulty did not now arise.

TUBERCULOSIS CASES.

Referring to the statement that the cost of certain tuberculosis cases for the county of Renfrew worked out at £327, Mr. Currie asked if it was incorrect, and, if so, how far. Mr. Roberts repeated his former reply that he accepted the mere arithmetical sum, but did not accept the inference which seemed to be drawn from it (see BRITISH MEDICAL JOURNAL, November 27th, p. 787).

TUBERCULOUS SOLDIERS.

In reply to Mr. R. McNeill, Mr. C. Roberts said that he was not aware of any cases referred to the Insurance Commissioners by the military authorities under the arrangements he had explained in reply to an earlier question (SUPPLEMENT, BRITISH MEDICAL JOURNAL, December 4th, p. 207) for which residential accommodation had not been secured without delay. In answer to another question by Mr. McNeill the Financial Secretary to the War Office said that no soldier suffering from tuberculosis was, under the regulations, discharged from a military hospital unless he was fit to travel and fit for sanatorium treatment. When so discharged they were civilians, and came under the arrangements made with the Insurance Commissioners. In the great majority of cases the disease was not due to military service. He was not aware that, as suggested by Mr. Booth, men of the kind were coming upon the funds of approved societies all over the country in increasing numbers.

DRUG FUND.

In reply to Mr. Booth, Mr. Roberts said that the revised arrangements about the Drug Fund were being brought into operation in 1916, after consultation with and on the recommendation of the Medical and Insurance Committee representatives of the Advisory Committee, and the clerical labour involved, for which special arrangements were being made, was not expected to entail on balance any additional expenditure.

CERTIFICATION IN IRELAND.

On December 1st Sir John Lonsdale asked a question as to the present position of affairs in regard to the new scheme of certification in Ireland; whether the proposal to appoint part-time referees had been suspended during the war, and if care would be taken to ensure that all appointments would be decided solely on grounds of merit and experience. Mr. Charles Roberts said that a conference was being held to consider the position in the light of the revised proposals and that no referees would be appointed until the end of the war.

Meetings of Branches and Divisions.

PERTH BRANCH.

The annual winter meeting of the Perth Branch was held on November 26th, when the reports for 1915 of the Council and Treasurer were submitted and approved, and the new ethical rules were accepted by the meeting in the name of the Branch.

Highlands and Islands Schemes.—Dr. Beatty reported that a Representative of the Board had met the various practitioners of the Highland area of the Branch, with the view of adjusting the terms of individual agreements, and, as far as he could learn, satisfactory arrangements were being arrived at.

THE LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

BOOKS NEEDED TO COMPLETE SERIES.

The Librarian will be glad to receive any of the following volumes, which are needed to complete series in the Library:

- American Association of Genito-Urinary Surgeons. Transactions, 1906.
- American Climatological Associations. Vols. 1, 4, 5, 6.
- American Dermatological Association Transactions. Vols. 5, 7, 8, 11, and 29.
- American Journal of the Medical Sciences. New series, vols. 4, 5, 1842-3; vols. 14, 15, 1847-8; vols. 18-30, 1850; vol. 35, 1857; vol. 46, 1864-5; vol. 59; or any parts of these vols.
- Society of Tropical Medicine and Hygiene, London, Transactions, Vol. 2.
- South African Medical Journal. February and April, 1895. Titles, Vols. 3 and 4.
- United States Department of Agriculture, Bureau of Animal Industry. Reports 1-7, 10-14.
- United States Hygienic Laboratory Bulletins. Nos. 3, 8, 9, 10, 11, 12, 15, 17, 18, 19, 24, 29, 43.
- Virchow's Archiv. Vols. 1-150.
- Watt. Bibliographia Britannica, 4 vols., 1824.
- Yearbook of Pharmacy, 1912.

Naval and Military Appointments.

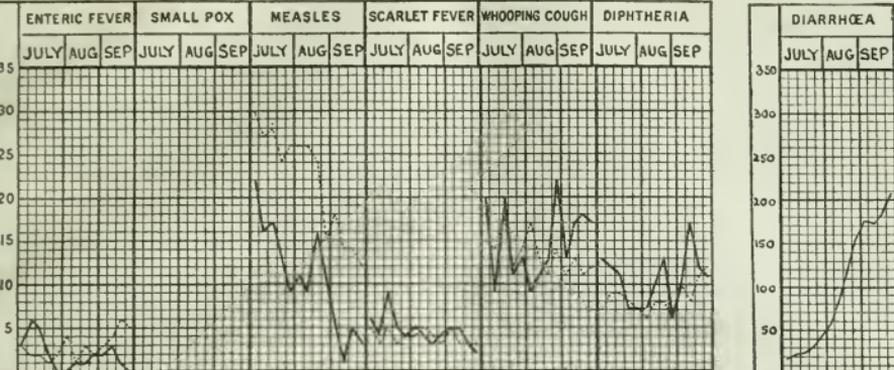
ROYAL NAVAL MEDICAL SERVICE.

The following announcements are made by the Admiralty: Fleet Surgeons E. Follitt to the *Africa*, and L. E. Dartnell to the *Fleet*, additional. Staff Surgeons W. H. Edgar, M.D., to the *Thames*; W. Le. Hewitson to the *Victory*, and L. S. Whitman, M.B., to the *Fleet*, both additional, for disposal; G. H. S. Mills, M.B., to the *Bellona*; Surgeon R. H. Hole, M.B., to the *President*, for special service. Temporary Surgeons A. L. Eslemont to the *Penelope*, additional, for Chatham Hospital; L. S. Goss, B.A., H. P. S. McCintock, M.B., and L. W. Gemmill, M.B., to the *Victory*, additional, for Haslar Hospital; G. G. Mennery, M.D., to the *Cochrane*; J. Matheson, M.B., and P. L. O'Driscoll, M.B., to the *Victor*, additional, for Plymouth Hospital. To be temporary Surgeons: L. W. Gemmill, M.B., J. A. R. Robinson, C. D. Banes, R. F. Ninidie, M.B.

ROYAL NAVAL VOLUNTEER SERVICE.

Surgeon-probationers T. N. D'Arcy to the *Juscel*, and F. Wilson to the *Laurel*. To be Surgeon-probationers for temporary service: R. E. Bleton (re-entry), W. T. Hewick, G. Buchanan, H. R. S. Bowker, A. T. Harrison, C. A. Kirton, T. Anderson.

DEATHS FROM EPIDEMIC DISEASES IN LONDON DURING THE THIRD QUARTER OF 1915.



NOTE.—The black lines show the recorded number of deaths from each disease during each week of the quarter. The dotted lines show the average number of deaths in the corresponding weeks of the five preceding years, 1910-14. Under the heading "Diarrhoea" are given the deaths from diarrhoea and enteritis among children under 2 years of age; the corrected average number of these deaths is not available.

number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals at the end of last quarter was 1,418, against 1,362 and 1,019 at the end of the two preceding quarters; 2,227 new cases were admitted during the quarter, against 2,778, 2,038, and 1,719 in the three preceding quarters.

Diarrhoea.—The 1,299 deaths under this heading are those attributed to diarrhoea and enteritis among children under 2 years of age; measured in proportion to the births registered during the quarter, the mortality from this cause was greatest in Shoreditch, Bethnal Green, Stepney, Poplar, Bermondsey, and Deptford.

In conclusion, it may be stated that the aggregate mortality last quarter from these epidemic diseases, excluding diarrhoea, was 16.9 per cent. below the average.

THE REGISTRAR-GENERAL'S QUARTERLY RETURN.

[SPECIALLY REPORTED FOR THE "BRITISH MEDICAL JOURNAL."]

The Registrar-General has just issued his return relating to the births and deaths in the third quarter of the year, and to the marriages in the three months ending June last. The marriage-rate during that period was equal to 23.9 per 1,000 of the population, and was 4.7 per 1,000 above the mean rate in the ten preceding second quarters; it was the highest marriage-rate in the second quarter of any year since civil registration was established.

The 127,492 births registered in England and Wales during the third quarter of the year were equal to an annual rate of 21.0 per 1,000. This rate was 4.5 per 1,000 below the mean rate in the corresponding quarters of the ten preceding years, and was the lowest rate on record for that quarter of the year. The birth-rates in the several counties last quarter ranged from 14.6 in Sussex, 15.3 in Rutlandshire, 15.8 in Carnarvonshire, 16.1 in Herefordshire, 16.2 in Devonshire, and 16.5 in Somersetshire, to 25.1 in Carmarthenshire, 25.2 in Northumberland, 25.6 in Monmouthshire, 25.7 in Glamorganshire, and 26.5 in Durham. In ninety-six of the largest towns the birth-rates averaged 21.7 per 1,000, and ranged from 12.0 in Bournemouth, 12.4 in Hastings, 12.6 in Eastbourne, and 13.2 in Southport, to 27.5 in Birkenhead, 27.6 in Bootle, 27.8 in Newcastle-on-Tyne, 29.5 in Gateshead, and 30.2 in Barrow-in-Furness; in London the birth-rate was 21.4 per 1,000.

The excess of births over deaths last quarter was 88,079, against 117,552, 112,065, and 111,577 in the third quarters of the three preceding years. From a return issued by the Board of Trade it appears that the passenger movement between the United Kingdom and places outside Europe resulted in a net balance inwards of 7,776 persons of British nationality, and a net balance outwards of 1,635 aliens. Between the United Kingdom and European or Mediterranean ports there was a net balance inwards of 459 persons. Thus in the aggregate there was a net balance inwards of 6,500 persons.

The 109,415 deaths registered in England and Wales during the quarter under notice were equal to an annual rate of 11.6 per 1,000, against an average rate of 12.9 per 1,000 in the corresponding period of the ten preceding years. The death-rates in the several counties last quarter ranged from 7.1 in Huntingdonshire, 7.3 in Rutlandshire, and 7.5 in Middlesex, 8.4 in Surrey, and 9.6 in Berkshire, in Herefordshire, and in Essex, to 13.4 in Cardiganshire and in Merionethshire, 13.5 in the West Riding of Yorkshire, in Northumberland, and in Cumberland, 13.6 in Durham, and 13.7 in the North Riding of Yorkshire. In the ninety-six largest towns the death-rate averaged 12.3 per 1,000, and ranged from 7.2 in Ilford, 7.5 in Hornsey, and 8.2 in Wimbledon, to 15.6 in Liverpool, 15.8 in Bootle, and in Middlesbrough, 16.4 in South Shields, 16.9 in Gateshead, and 17.8 in Barnsley; in London the death-rate was 12.4 per 1,000.

The deaths from all causes included 332 from enteric fever, 2,099 from measles, 458 from scarlet fever, 1,113 from whooping-cough, 1,074 from diphtheria, and 679 from influenza, besides the cases of children under 2 years of age. The mortality from measles was 22 per cent. above the average; that from diphtheria was equal to the average; while from enteric fever, whooping-cough, and scarlet fever the mortality was below the average.

The rate of infant mortality, measured by the proportion of deaths among children under 1 year of age to registered births, was equal to 58 per 1,000, or 28 per 1,000 below the average rate in the ten preceding quarters. The several counties furnished the rates of infant mortality ranged from 24 in Rutlandshire, 39 in Radnorshire, 42 in Wiltshire, 46 in Huntingdonshire, 50 in Cambridgeshire, 52 in Hert-

fordshire, and 53 in Somersetshire, to 110 in Warwickshire, 117 in Lancashire, 122 in Northumberland, 123 in the East Riding of Yorkshire, 126 in the West Riding, and 127 in Durham. In the ninety-six large towns the rate of infant mortality averaged 116 per 1,000, and ranged from 3.5 in Ilford, 4.1 in Hornsey and in Gloucester, 5.1 in Walsell, and 5.2 in Walthamstow, to 9.5 in Liverpool and in South Shields, 9.6 in Barnsley, 9.8 in Sunderland, 9.9 in Gateshead, and 10.2 in Middlesbrough. Among persons aged 65 years and upwards the death-rate averaged 64 per 1,000, the lowest rates in the large towns being 39.6 in Eastbourne, 42.7 in Enfield, 43.0 in Exeter, 43.6 in Bath, and 44.0 in Edmonston; the highest rates were 83.3 in Oxford, 84.3 in Carlisle, 85.1 in Halifax, 85.8 in Barrow-in-Furness, and 92.6 in South Shields.

The mean temperature of the air during the quarter was appreciably lower than in the corresponding period of the preceding year, and was slightly below the average in most districts; the rainfall exceeded the average, except in the North-West and the South-West; and the duration of bright sunshine was above the average in all districts.

HEALTH OF ENGLISH TOWNS.

In the ninety-six largest English towns 7,107 births and 5,805 deaths were registered during the week ended Saturday, November 27th. The annual rate of mortality in these towns, which had been 15.4, 15.4, and 15.9 per 1,000 in the three preceding weeks, further rose to 16.7 per 1,000 in the week under notice. In London the death-rate was equal to 17.1, while among the ninety-five other large towns it ranged from 6.5 in Ilford, 7.5 in Eastbourne, 7.7 in Oxford, 8.5 in Acton, 9.5 in Ealing, and 9.6 in Wimbledon, to 22.8 in St. Helena, 23.2 in Liverpool, 23.4 in Wigan, 24.2 in Salford, and 25.1 in West Hartlepool. Measles caused a death-rate of 2.6 in Hastings, 4.3 in Lincoln, and 5.1 in Gloucester; whooping-cough of 2.0 in Southwick; and diphtheria of 1.1 in East Ham. The mortality from the remaining infective diseases showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The causes of 71, or 12 per cent. of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number 14 were recorded in Birmingham, 14 in Liverpool, 4 in Preston, and 3 each in London, St. Helena, Warrington, Manchester, and Dartington. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 3,065, 3,061, and 3,027 at the end of the three preceding weeks, further fell to 2,927 on Saturday, November 27th. Two new cases were admitted during the week, against 344, 339, and 336 in the three preceding weeks.

In the ninety-six largest English towns 6,793 births and 6,430 deaths were registered during the week ended Saturday, December 4th. The annual rate of mortality in these towns, which had been 15.4, 15.3, and 16.7 per 1,000 in the three preceding weeks, further rose to 18.5 per 1,000 in the week under notice. In London the death-rate was equal to 19.6, while among the ninety-five other large towns it ranged from 8.5 in Enfield, 10.2 in Walthamstow, 10.7 in Glasgow, 11.4 in Wimbledon, and 11.5 in Ilford, and in Bournemouth, to 23.9 in South Shields, 24.0 in Gateshead, 24.3 in Liverpool, 26.9 in Stockport, 27.3 in Walsell, and 27.7 in Blackpool. Measles caused a death-rate of 1.3 in Cardiff, 2.4 in Glasgow, 4.6 in Stockport, and 5.1 in Gloucester; diphtheria of 2.7 in Great Yarmouth; and whooping-cough of 2.0 in Southwick. The mortality from the remaining infective diseases showed no marked excess in any of the large towns, and no fatal case of small-pox was registered during the week. The causes of 62, or 1.0 per cent. of the total deaths were not certified by a registered medical practitioner or by a coroner; of this number 14 were recorded in Birmingham, 12 in Liverpool, 5 in London, 3 in Southend, 3 in Preston, and 2 each in Warrington, Bury, Manchester, and Barrow. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 3,051, 3,027, and 2,927 at the end of the three preceding weeks, further fell to 2,811 on Saturday, December 4th; 278 new cases were admitted during the week, against 339, 336, and 318 in the three preceding weeks.

HEALTH OF SCOTTISH TOWNS.

In the sixteen largest Scottish towns 921 births and 1,020 deaths were registered during the week ended Saturday, November 27th. The annual rate of mortality in these towns, which had been 16.1, 17.5, and 17.6 per 1,000 in the three preceding weeks, further rose to 22.7 in the week under notice and was 4.0 per 1,000 above that recorded in the ninety-six large English towns. Among the several towns the death-rate ranged from 8.5 in Kilmarnock, 13.9 in Aberdeen, and 14.5 in Leith, to 28.5 in Paisley, 29.5 in Coatbridge, and 29.7 in Hamilton. The mortality from the principal epidemic diseases averaged 1.8 per 1,000, and was highest in Falkirk and Hamilton. The 525 deaths from all causes in Glasgow included 8 from infantile diarrhoea, 7 from diphtheria, 6 from scarlet fever, 3 from measles, 3 from whooping-cough, 1 from infantile enteric fever, 1 from influenza, 1 from measles, 5 from scarlet fever, and 3 from diphtheria were recorded in Edinburgh; 2 deaths from measles and 2 from diphtheria in Greenock, and from measles 8 deaths in Hamilton, and 3 in Glasgow.

In the sixteen largest Scottish towns 1,000 births and 1,006 deaths were registered during the week ended Saturday, December 4th. The annual rate of mortality in these towns, which had been 17.5, 17.6, and 22.7 per 1,000 in the three preceding weeks, fell to 22.4 in the week under notice, but was 3.9 per 1,000 above that recorded in the ninety-six large English towns. Among the several towns the death-rate ranged from 13.7 in Glasgow, 14.4 in Edinburgh, and 16.3 in Motherwell, to 25.6 in Paisley, 24.0 in Greenock, and 37.8 in Hamilton. The mortality from the principal epidemic diseases averaged 1.9 per 1,000, and was highest in Greenock and Hamilton. The 465 deaths from all causes in Glasgow included 8 from diphtheria, 7 from scarlet fever, 7 from infantile diarrhoea, 3 from measles, 2 from enteric fever, and 1 from whooping-cough. Six deaths from measles, 3 from scarlet fever, and 2 from diphtheria were recorded in Edinburgh; 9 deaths from measles in Hamilton, 6 in Greenock, and 4 in Coatbridge, and 5 deaths from diphtheria in Paisley.

HEALTH OF IRISH TOWNS.

During the week ending Saturday, November 27th, 555 births and 467 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 503 births and 478 deaths in the preceding period. These deaths represent a mortality of 20.1 per 1,000 of the aggregate population in the districts in question, as against 20.6 per 1,000 in the previous period. The mortality in these Irish areas was therefore 3.4 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 23.9 per 1,000 of population. As for mortality of individual localities, that in the Dublin registration area was 21.1 (as against an average of 19.0 for the previous four weeks), in Dublin city 25.3 (as against 20.8 in Belfast, 16.1 (as against 17.3), in Cork 21.8 (as against 16.2), in Londonderry 20.2 (as against 16.8), in Limerick 24.4 (as against 15.5), and in Waterford 22.8 (as against 16.6). The zymotic death-rate was 2.0, as against 1.4 in the preceding period.

During the week ending Saturday, December 4th, 447 births and 507 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 555 births and 467 deaths in the preceding period. These deaths represent a mortality of 21.8 per 1,000 of the aggregate population in the districts in question, as against 20.1 per 1,000 in the previous period. The mortality in these Irish areas was therefore 3.5 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth-rate, on the other hand, was equal to 19.2 per 1,000 of population. As for mortality of individual localities, that in the Dublin registration area was 21.9 (as against an average of 20.7 for the previous four weeks), in Dublin city 26.5 (as against 22.6), in Belfast 21.1 (as against 17.6), in Cork 23.8 (as against 18.2), in Londonderry 17.7 (as against 17.1), in Limerick 25.5 (as against 15.5), and in Waterford 25.5 (as against 16.6). The zymotic death-rate was 2.2 as against 2.0 in the preceding period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

ASHTON-UNDER-LYNE UNION.—Assistant Resident Medical Officer. Salary, £250 per annum.

AUSTRALIAN COMMONWEALTH.—Officer in Control of Institution for the preparation of Vaccines and Antitoxins. Salary commencing at £650, rising to £750 per annum.

BIRKENHEAD BOROUGH HOSPITAL.—House-Surgeon and Junior House Surgeon. Salaries, £200 and £170 respectively.

BOLTON INFIRMARY AND DISPENSARY.—Third House-Surgeon. Salary, £180 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £120 per annum in each case.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Lady Resident Medical Officer. Salary, £200 per annum.

DUDLEY GUEST HOSPITAL.—Senior Resident Medical Officer; salary, £150 per annum. (2) Assistant House-Surgeon; salary, £150 per annum.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—Two House-Surgeons. Salary at the rate of £60 per annum, with £5 washing allowance.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer (lady). Salary, £130 per annum.

LINCOLN GENERAL DISPENSARY.—Resident Medical Officer. Salary, £200 per annum.

NORWICH POOR LAW INFIRMARY.—Lady Resident Medical Officer. Salary, 5 guineas weekly.

PADDINGTON INFIRMARY.—(1) First Assistant Medical Officer; remuneration, 7 guineas a week. (2) Second Assistant Medical Officer; remuneration, 6 guineas per week.

PITNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Member of Court of Examiners.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Medical and Surgical Registrars (ladies).

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House-Surgeon. Salary, £120 per annum.

ST. MARY'S HOSPITAL FOR CANCER, FISTULA, AND OTHER DISEASES OF THE RECTUM, City Road, E.C.—House-Surgeon. Salary, £150 per annum.

ST. PANCRAS, LONDON.—Senior Assistant Medical Superintendent and Senior Assistant Medical Officer. Salary, £225 per annum.

SHETLAND: WHALSA PARISH.—Medical Practitioner. Guaranteed income £300 by the Highlands and Islands (Medical Service) Board.

SOUTHPORT INFIRMARY.—Senior House-Surgeon. Salary, £200 per annum, and fees of £10.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Lady House-Surgeon. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointment: Levenwick (Shetland).

To ensure notice in this column—which is compiled from our advertisement columns where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BUTCH, T. M.B., Ch.B. Edin., Certifying Factory Surgeon for the Launceston Kirk District, co. Kincardine.

EVANS, G. C. J., M.D. Durh., Certifying Factory Surgeon for the Riddermind District, co. Worcester.

LEGG, D. J. M., F.R.C.S. Edin., District Medical Officer of the Shifnal Union.

MORTON, John, M.B., C.M., Visiting Surgeon to the Western Infirmary, Glasgow.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded to Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGE.

EAGLETON—WOOD.—On November 23rd (very quietly), at Goring-on-Thames, by the Rev. H. E. Sand, great-nephew of the bridegroom, Arthur Joseph Eagleton, M.B., Captain R.A.M.C., son of the late J. G. Smith, Barrister-at-Law, Chief Justice, Court Small Causes, Madras, and Mrs. Smith, Herkiss, Goring-on-Thames, grandson of the late Joseph Eagleton, M.D., and the late Arthur Smith, of The Grott, Basildon, Helms, to Mabel, youngest daughter of the late Mr. and Mrs. W. Wood, of Barnsey, Yorks. Indian and American papers please copy.

DEATHS.

BARRETT.—On November 4th, at Hincley Cottage Hospital, after a long illness, Charles William Sessions Barrett, M.B., of Appleton House, Hincley, son of the late Dr. Charles Albert Barrett, of Wallingford, Berkshire, aged 58 years.

LAKE.—Mildred, wife of Richard Lake, of St. Bickenhall Mansion, and of 6, Cavendish Place, on December 8th.

DIARY FOR THE WEEK.

TUESDAY.

ROYAL SOCIETY OF MEDICINE:
PSYCHIATRY SECTION, 4.30 p.m.—Clinical Meeting at the Bethlem Royal Hospital, S.E.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE:
HISTORY OF MEDICINE SECTION, 5 p.m.—Dr. Raymond Crawford: Superstition: Concerning Monstrous Births. Mr. D'Arcy Power: Edmund Harman, "King's Barber" to Henry VIII.

THURSDAY.

ROYAL SOCIETY OF MEDICINE:
DERMATOLOGY SECTION, 1, Wimpole Street, W., 4.30 p.m.—Exhibition of Cases, followed by Papers.

FRIDAY.

ROYAL SOCIETY OF MEDICINE:
ELECTRO-THERAPEUTIC SECTION, The King George Hospital, Watling Road, S.E., 8.30 p.m.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, Cavendish Square, London, W., 5.30 p.m.—A Series of Papers on Tropical Subjects will be read by Dr. G. C. Low, A. F. J. Kerr, W. M. Strong, and J. O. Scurce.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, DECEMBER 18TH, 1915.

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RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

CENTRAL MEDICAL WAR COMMITTEE.

CO-ORDINATION OF RECRUITING FOR MILITARY MEDICAL SERVICES AND THE NEEDS OF THE CIVILIAN POPULATION.

The following letter, drafted in accordance with proposals made at a conference with the Insurance Commissioners on December 10th, has been issued to the honorary secretaries of local Medical War Committees in England and Wales:

Offices: 429, Strand,
London, W.C.,
December 14th, 1915.

Dear Sir,

The Central Medical War Committee wishes to call the attention of the local Medical War Committees to an aspect of their work which in the anxiety to secure medical officers for the army has not perhaps received all the attention it deserves, namely, the duty of guarding as far as possible civilian interests while finding medical men for military service. The reference to the Central Committee is "to organize the medical profession in England and Wales in such a way as will enable the Government to use every medical practitioner fit to serve the country, in such a manner as to turn his qualifications to the best possible use and to deal with all matters affecting the medical profession arising in connexion with the war." This obviously throws on the Central Medical War Committee the duty of considering in all its aspects the organization of the profession for the present needs of the country.

If we are to provide the army with a steady and sufficient supply of medical officers—our primary duty—we must arrange that the work of those who go is carried on in their absence. The interests of our colleagues demand this as well as the interests of the nation. Any unnecessary ground of complaint on the part of the civilian population occasioned in the process of obtaining the necessary supply of medical men for the army would obviously tend to prejudice recruiting, and to make the work of local Medical

War Committees throughout the country more difficult. Therefore, in the interests of the men who have gone or are going, of their patients, of future recruiting, and of the country in general, it behoves us to conduct our recruiting with careful regard to the needs of every locality.

The Central Medical War Committee has been in conference with various Government departments on this question, and particularly with the National Health Insurance Commissioners, who are responsible to Parliament for the medical treatment of a very great proportion of the industrial population of the country. The Committee agrees with the opinion expressed by these bodies, that, taking the country generally, there is an ample supply of doctors of military age to meet any demands that seem likely to be made on the profession in the immediate future. But these men are unequally distributed. Some are in areas never too well supplied with doctors at any time, in which the withdrawal of comparatively few might cause serious difficulties. Some are in areas where the proportion of doctors to the population is such that a large number could be spared with comparatively little inconvenience to the community. The task before the Central Medical War Committee is to so adjust the demands in each area as to convince both doctors and the general public that these demands are equitable. How is this to be done?

The Central Medical War Committee, in conjunction with the National Health Insurance Commissioners, is closely studying figures that have been worked out to show the proportion of doctors (and especially of general practitioners) to population in every area. It has, moreover, the advantage of a large amount of information received from callers and correspondents and through the Commissioners. But it feels it must rely very much on the activity, foresight, and local knowledge of the local Committees.

In answer to recent inquiries re the War Register, a great deal of valuable local information has been sent in, but the Central Medical War Committee is of opinion that the need of taking a comprehensive view of the medical needs of the area is not yet sufficiently before local Committees. This is shown by the fact that quite accidentally cases have come to our notice where really serious difficulties have arisen as regards attendance on the local population, as to which the means of information of the local Committees appears to have been defective, since they have neither acted themselves nor warned the Central Committee. Local Committees are, or should be, in possession of information as to the conditions in every part of their area, and it is imperative that careful

consideration should at once be given by the local Committees to those districts in their area where there seems to be a risk that if further men be withdrawn there might be serious consequences to the community and to the doctors who are left. The Committee should not wait until mischief has actually occurred, but should act in time. This action, taken with a full sense of responsibility, should take the form of a careful consideration of the needs of each district and its capacity for releasing more doctors, assisting, where necessary, in working out any rearrangements of work among the remaining practitioners. The public must not be led to expect that in respect of medical attendance it is entitled to "business as usual." All sections of the public must be prepared to economize in this as in other directions. But the amount of sacrifice required of both public and the profession should both now, and as recruiting progresses, be kept as equal as possible throughout all districts of an area and throughout all areas of the country.

When a Committee has made this careful survey (which, if not already made, should be pushed through as rapidly as possible), if it finds there are any weak districts in its area, it should at once warn the Central Medical War Committee that commissions should not be given to practitioners in the districts named without further consideration, and it should increase its pressure on the men of military age in those other districts, if any, which seem able to spare more doctors.

The needs of the various districts in its area and of every kind of practice should be considered by the local Committee, which should take advantage of all possible sources of reliable information as to the necessities of private practice which the members of the Committee will be able to furnish. Again, the Committee should be in close touch with the Panel Committees in its area; the secretaries or other representatives of such might very usefully be on the local Medical War Committee. The Panel Committee should in its turn be in equally close touch with the Insurance Committee. The local Medical War Committee should also be in touch with any body employing any considerable number of medical men, such as institutions and hospitals.

On its part the Central Medical War Committee will make use of all information given to it by its local Committees and by central authorities, and will be in close touch with the Insurance Commissioners. It is believed that by such a local and general system of inquiry and intercommunication between Panel and local Medical War Committees there should be no danger of inequitable treatment of the doctors or population of any area.

The Committee wishes to state its conviction that such a system of safeguards need not, and in fact must not, prejudice the supply of medical men for the army. But since some areas will have to watch very jealously, and at once, the release of a few or even any men, other areas must be called upon to furnish much greater supplies than have hitherto been asked from them, and the local Committees are asked to believe that the demands on them will be made as judiciously as possible, with a due regard to their own advice as to the needs and capabilities of their areas, and with a careful study of what other parts of the country can do and are doing in the way of recruiting.

The Central Medical War Committee is well aware that, in asking local Committees to deal at once with this aspect of the matter, they are asking a great deal of bodies already burdened with considerable responsibilities. But a very great compliment has been paid to the profession in leaving, as the War Office and Lord Derby have done, the organization of the profession for military purposes to a purely professional committee. The reputation of the profession for organizing capacity and public spirit is at stake, and the Central Medical War Committee feels sure that the confidence of the authorities that these qualities would be shown by the profession will not be found to have been misplaced.

We are,

Yours faithfully,

N. BISHOP HARMAN,

ALFRED COX, M.B.,

Secretaries.

To the Honorary Secretaries of
Local Medical War Committees.

WAR SERVICE FOR TOWN DOCTORS.

One of the chief hindrances in the way of medical men in big cities and towns volunteering for commissions in the R.A.M.C. is the difficulty they find in arranging for the carrying on of their practices during their absence. There are many most anxious to go to the front who point with justice to the liabilities they have contracted, and to the almost certain loss of the goodwill of their practices if they leave them without any security. A heavy rent on a house taken for a term of years, or a debt still owing on the purchase money of a practice, are not liabilities that can be lightly treated; neither is the prospect of a return home after the war with no certainty of regaining a reasonable share of the accustomed work one that a married man with a family can view without apprehension. There should be some way or ways of meeting these difficulties quite irrespective of the usual, but now almost impracticable, method of securing the service of a locum-tenent. We put forward some suggestions which seem to offer practicable solutions of the difficulties.

1. Many men state that they could leave their work for a period of six months without any great risk of loss. For example, in certain watering places many could be spared during the winter months, while in some inland urban districts the need for doctors is reduced in summer. We have known of not a few cases where two men were willing to take service turn and turn about, one doing the home work of both whilst the other was away at the war. At present the authorities of the Army Medical Service have not seen their way to accept such offers of joint service. But we may hope that as the reservoir from which the supply of medical officers must be drawn is reduced in plenitude they may see their way to reconsider the position. The army authorities point out that the initial months of a newly commissioned medical officer's service are not so fruitful of effect as the later months, for a man has to learn his work in relation to military conditions, so that with two men working out one year of service the period of relatively barren service would be increased out of reasonable proportion. Yet it would seem that with a great variety of medical work there might be room for these men in some capacity so little removed from the usual methods of civil practice as would reduce the possible loss of efficiency to a minimum.

2. Another suggestion which has been made is for a system of multiple war partnerships, which, it is held, might be a feasible way of securing the practices of men on service. The idea is that several men, say half a dozen, near neighbours to each other, should unite in partnership for the duration of the war and for five years after. The practice of each man joining in such a partnership would be valued on the usual basis; assets and liabilities would be pooled. Two or three men of the half-dozen would be released for war service; during their absence their practices would be worked by the home partners. The military pay of the men on service would be paid into the general account of the firm. Periodically the receipts would be divided in the agreed proportion. Such a scheme, it is suggested, holds out two advantages. First, any loss on the practices of the absentees would be counterbalanced by the bringing in of their military pay, and the considerable economies that could be effected, for example, by the reduction of two or three motor cars. Secondly—and this is the more important feature of the scheme—the goodwill of their practices would be secure, for during the five years after the war they would have full opportunity to regain any loss that had arisen from the withdrawal of their personal attention. Many medical men do not like partnerships; they prefer complete independence in their work, but this is a time when personal preferences should be waived if by so doing the country's necessities can be better met. There is room for some of our professional colleagues who have expert knowledge of large partnerships and their working to publish the details of a model scheme.

3. A third method of dealing with the difficulty has been put into operation in one of the metropolitan urban areas. The constitution of the scheme was reported in the SUPPLEMENT of last week, p. 215. The Stratford Medical War Committee resolved:

That the doctors who have gone on war service or who do so in future be invited to draw up a list of their bona-fide patients and appointments for circulation to the neighbouring practitioners by the local Medical War Committee, and

that they shall be attended or held on behalf of the absentee, and shall be restored to him on his return to practice, and not be taken for twelve months afterwards by any doctor who attended during his absence. All fees except midwifery fees to be equally divided with the absentee. This arrangement is to hold good whether a locumtenent is in charge or not. All differences of opinion as to patients, or appointments, or other matters to be decided by the local Medical War Committee, with an appeal if desired to the Central Medical War Committee.

That is a scheme well worth trial in other areas, and is particularly suitable to districts where there is a fair equality in the type of practice carried on by the several practitioners.

4. Yet another method of co-operation might be found in the establishment of a central clinic, to which the panel patients and their dependants under the care of several doctors in any particular area might be required to resort for treatment.

The data now in the hands of the Central Medical War Committee as to the distribution of doctors throughout the country show that the number of doctors in the cities and towns is much greater in proportion to the population than it is in the country districts. Further, there are many more doctors in what are known as the "residential" districts of the towns than in the working-class districts, both actually and relatively to the population. The causes that produce these effects are subject to reasonable explanation; not the least of these is the custom of treating the sick in their own homes when their circumstances permit, and not by promptly removing them to a private hospital, as is often done in American cities. Our home method requires a greater personnel than the American hospital method, and the treatment of the working classes conforms more to the American method.

In the near future the country must look to the town practitioners to volunteer in increasing numbers for war service. The difficulties of the town practitioners are considerable, but these are not insurmountable, if, in the face of the foe, they will forget the common rivalries of practice, and, with a strength born of unity, put into practice the Pauline injunction, "Bear ye one another's burdens."

MEDICAL STUDENTS.

The Students' Representative Council of the University of London has received, in response to inquiries, the following letter, which, though it does not contain anything which has not been published in the JOURNAL several times already, seems worthy of reproduction, because it expresses very plainly in the last sentence the course which medical students are advised by the War Office now to take:

24/General No./3323 (A.G. 2D; (R).

War Office,
7th December.

Sir,
With reference to your letter of the 17th November, I am directed to inform you that students who at or before the close of the present winter session will be qualified for entry to one of the examinations for the third year students in medicine and duly enter for the examination for which they are studying, will not be affected until after its conclusion, and if they are successful will be included in the class of fourth year men under Lord Derby's scheme.

I am to point out that fourth and fifth year medical students should continue their studies, and should be advised to join the medical unit of their University Officers' Training Corps. They should be given a copy of this letter to show to the recruiting canvassers, who will indicate on their cards the reason for their not enlisting.

I am, Sir, your obedient servant,
(signed) R. J. STRACHEV,
Colonel for Director of Recruiting.

The Hon. Secretary,
Students' Representative Council,
University of London.

In the House of Commons, on December 13th, Mr. Pringle and Sir Philip Magnus asked questions with regard to the employment of senior medical students as surgical dressers and clerks in military hospitals, and whether their services in these capacities would be taken into account as hospital attendance for the purpose of their medical qualification. Mr. Tennant said that he was informed that medical students were not being so employed. In reply to a further question as to whether a saving of qualified medical men might not be made if senior medical students were so employed, Mr. Tennant expressed the opinion that it was really better that medical students who

were in their last year of study should join the combatant forces of the Crown. Those who were approaching completion of their medical curriculum should proceed with it and become doctors. He considered that medical students should not be employed as orderlies, but admitted that as dressers they might get some amount of clinical practice which would be of value, but in a subordinate capacity, not being members of the R.A.M.C., they would not receive it. Mr. Tennant's answer as to medical students joining the combatant forces has to be read in connexion with the above letter, which states the view of the War Office in more precise terms.

OFFICERS' TRAINING CORPS.

In the House of Commons, on December 8th, Mr. Tennant said, in reply to Sir George Scott Robertson, that it was not considered that Officers' Training Corps in this country had completed their usefulness, and it was not considered that it was necessary to transfer any of them to France, as arrangements existed there already for training young officers. In reply to Mr. Peto, he said that it was not now the practice to give first commissions to candidates who have not served in the ranks. Previous service in the Officers' Training Corps, with the military experience it brought, put the individual in a better position than those who had not had such experience. Members of Officers' Training Corps of 18 years old and upwards should, if not accepted for commissions, be attested under Lord Derby's scheme.

Association Intelligence.

MEDICAL PRACTITIONERS AND DENTAL TREATMENT OF SOLDIERS.

At the last meeting of the Medico-Political Committee consideration was given to representations by the Glasgow and West of Scotland Branch that one of its members, who practised solely as a dentist, had been refused payment by the local military authorities of his account for dental treatment given to soldiers on the ground that a Scottish Command Order of June, 1915, directed that none but registered dental surgeons were to be employed to render dental treatment to the troops.

The Medico-Political Committee, being of opinion that this action of the military authorities was an interference with the rights given to medical practitioners by the Dentists Act, immediately communicated with the War Office upon the matter, and is pleased to be able to report the extremely satisfactory result of its action as shown by the following correspondence:

British Medical Association,
October 29th, 1915.

Sir,
Medical Practitioners and Dental Treatment of Soldiers.

The attention of the Association has been drawn through one of its Scottish Branches to the Scottish Command Order 1316, dated June 7th, 1915, based, it is understood, upon instructions from the War Office, to the effect that none but registered dental surgeons are to be employed to render dental treatment to the troops.

This Association desires to draw your attention to the fact that notwithstanding anything contained in the Dentists Act, the privilege of practising dentistry has always been held to be preserved for registered medical practitioners. The only offence under the Act which is subject to a penalty—namely, the use of professional titles by unregistered persons—is expressly stated in the Act not to apply to legally qualified medical practitioners.

The Association is in entire sympathy with the efforts of the War Office to see that dental treatment is only given by thoroughly competent persons, but I am instructed to point out that on the strength of the privilege given to registered medical practitioners under the Dentists Act there are a certain number of medical practitioners who have devoted themselves entirely to dentistry, though their names do not appear on the Dental Register. It appears to the Association to be an injustice that such men should not be allowed to give dental treatment to soldiers, and I am instructed to urge that the War Office should so vary its instructions in this matter as to allow of payment being made in respect of dental treatment of soldiers to those medical practitioners who practise dentistry solely.—I am, Sir, your obedient servant,

ALFRED COX,
Medical Secretary.

The Secretary,
War Office, Whitehall, S.W.

War Office, London,
19th November, 1915.

24, General Number, 3926 (A.M.D. 2).

Sir,

With further reference to your letter of the 29th October, 1915, I am commanded by the Army Council to inform you that it was not intended that registered medical practitioners should be held to be ineligible to give dental treatment to soldiers.

The letter to the effect that none but registered dental surgeons were to be so employed was issued in order to prevent soldiers being sent for treatment to unqualified dentists.

A circular letter has now been despatched to all Commands informing them that the term "Registered Dental Surgeons" does not exclude the employment of registered medical practitioners who are practising dentistry.

I am, Sir, your obedient servant,
(Signed) B. B. CURRIE.

The Medical Secretary,
British Medical Association,
429, Strand, W.C.

THE LIBRARY OF THE BRITISH MEDICAL ASSOCIATION.

The following books were added to the Library during January, February, and March, 1915.

- Presented by the Authors.*
- Gimlette, J. D.: Malay Poisons and Charm Cures. No. 295.
Hearsey, H.: Nyctalund Sleeping Sickness Diary, No. 24. 1915.
Lantry, J. B.: The Vicious Circle of Neurasthenia. 1915.
Landon, A.: Medical Diagnosis, 1915.
Leftwich, R. W.: Index of Symptoms. 5th ed. 1915.
Ransom, A.: A Campaign against Consumption. 1915.
Sequeira, J. H.: Diseases of the Skin. 1911.
White, Sir W.: Elements of Pharmacy, Materia Medica, and Therapeutics. 10th ed. 1915.

Presented by the General Medical Council.

The British Pharmacopoeia. 1914.
Minutes, Vol. 51, 19 4, and Index to Minutes, 1903-1914.

Presented by Dr. T. D. Paradise, Kingston-on-Thames.

Winslow's Practical Midwifery. 1837.

- Calendars, Reports, and Society Transactions, etc.*
- American Association of Genito-Urinary Surgeons, Transactions, Vol. ix, 1914.
American Laryngological Association, Transactions, Vol. xxxvi, 1914.
American Otolological Society, Transactions, Vol. xiii, 2, 1914.
Association of Military Surgeons of the United States, The Journal, Vol. xiv (to complete).
Calcutta University Calendar, 1914-15.
Dublin University Calendar, Examination Papers, 1914.
France, Recueil des actes officiels et documents interessants l'hygiène publique, 1914.
Lester Institute of Preventive Medicine, Collected Papers, No. 10, 1914.
London County Council, Annual Report, 1913, Vol. II, Asylums; Vol. III, Public Health.
Local Government Board: Forty-third Annual Report of the Medical Officer, 1913-14; Report on the Effects of certain Condensing and Drying Processes used in the Preservation of Milk on its Bacterial Contents, 1914; Further Report on F. es as Carriers of Infection, 1915; Report on the Work of Inspectors of Food, 1913-14; Report on the Freezing Point of Milk and the Detection of Added Water, 1914.
Melbourne University Medical Society Jubilee, 1914.
Metropolitan Water Board, Report on Water Supply, October-November, 1914.
Michigan University Clinical Society, Transactions, Vol. 5, 1915.
Middlesex Hospital Archives, 33, 34, 1914.
National Association for the Prevention of Consumption, etc., Report of Sixth Annual Conference, Leeds, 1914.
National Association for the Study of Pellagra, Transactions, Second Meeting, 1912, 1914.
Pharmaceutical Society of Great Britain, Calendar, 1915.
Pinner, W. William Laboratory Contributions, No. 8, 1914.
Royal College of Physicians, List of Fellows, Members, Extra Licentiate, and Licentiate, 1915.
Royal Dental Hospital, Annual Report, 1913.
Society for Experimental Biology and Medicine, Proceedings, Vol. 12, Society of Tropical Medicine and Hygiene, Transactions, Vol. 8, 1915.
Southern Surgical and Gynaecological Society, Transactions, Vol. 26, 1915.
United States Treasury Department Hygienic Laboratory, Bulletins Nos. 94 and 97 and 100, 1914.
University College Hospital Medical School, Research Department, Collected Papers, vol. 4, 1914.

- Added to the Library through the BRITISH MEDICAL JOURNAL.*
- Arnson, W. E. M.: I. K. Therapy. 1914.
Bachmeister: Die Entstehung des Europäischen Lungenphthisis, 1914.
Behan, R. J.: Pato. its Origin, etc. 1914.
Bennett, N. G.: Science and Practice of Dental Surgery, 1914.
Berger, H.: Dexamis, 1914.
Blackburn, R. J.: Indian Home Nurse, 1914.
Brend, W. A.: Handbook Medical Jurisprudence, 2nd ed. 1915.
Brown, J. C.: Essays and Addresses, 1914.
Brown, W. Langdon: Physiological Principles in Treatment, 1914.
Buchanan, M.: Manual of Anatomy, 1914.
Bulkeley: Feeding of School Children, 1914.
Burton: Tuberculous Hand, etc. 1914.
Chamer, Elizabetha: Woman, Marriage, Motherhood, 1913.
Cornet, F.: Extraction of Teeth, 2nd ed. 1914.
Cornet, F.: Acute General Military Tuberculosis, 1914.
Coryell, G.: Serpentina, 1914.
Crawford, L.-Col. D. G.: A History of the Indian Medical Services, 1600-1913, 2 vols. 1914.
Crossen, H. S.: Diagnosis and Treatment of Diseases of Women, 1914 ed. 1915.
Cunningham: Practical Anatomy, 6th ed. Vol. 2, 1914.
Curgueny, J. S.: The Child's Diet, 1914.

INSURANCE.

IRELAND. MEDICAL CERTIFICATION.

Sir,

May we let the medical men of Ireland and others interested in the settlement of the medical certification question know through your columns that the Irish Medical Committee had under discussion to-day the agreement which has been recently sent to every medical man in Ireland by the Irish Insurance Commissioners?

A number of criticisms and suggestions were made in connexion with this document and the deputation which has carried on negotiations with the Commissioners up to the present was instructed to meet them again to press these amendments upon them, and to report the result to the profession at as early date as possible.

We are pleased to be able to state that at our interview the Commissioners met us in a very friendly spirit, and accepted the majority of our amendments, which they promised to embody in a memorandum to be circulated to the profession in a few weeks. Under these circumstances we feel it our duty to recommend the acceptance of the agreement as meeting the demands of the profession expressed at the delegates' meeting held on September 17th, 1915, and as a fair attempt to establish an equitable scheme of certification. We hope that those members of the profession who intend to share in the work of certification will sign the agreement pending the issue of the memorandum.

We are, yours faithfully,

R. J. JOHNSTONE, F.R.C.S.E.,
Chairman,

T. HENNESSY,
Medical Secretary,
Irish Medical Committee.

December 10th, 1915.

SCOTLAND.

OPPOSITION OF SCOTTISH CHEMISTS TO THE COMMERCIAL DRUG TAXIFF.

At the meeting of the Glasgow Insurance Committee on December 8th the Medical Benefit Subcommittee reported that all persons and firms on the pharmaceutical list of the Committee, with two exceptions, had intimated their desire to have their names removed from the list at the close of the present year. The correspondence between the chairman of the Joint Committee of Insurance Commissioners and the Pharmaceutical Standing Committee for Scotland showed that the chemists had expressed their willingness to continue for another year on the present conditions. The chairman of the Subcommittee stated that further negotiations had taken place, and he hoped that a settlement would be effected.

The Dundee Insurance Committee at its meeting on the same day, without expressing any opinion on the merits of the dispute, renewed the contracts with the chemists on the basis of those for the current year. It was agreed to intimate this decision to the Scottish Commissioners, and to inform them that if the arrangement did not receive their approval it was for them to devise ways and means for the supply of drugs to insured persons.

It was reported to the Stirling County Insurance Committee on December 9th that all the panel chemists in the county had given notice to withdraw after December 31st. The Medical Benefit Subcommittee, considering that the position of the chemists was reasonable, recommended the Insurance Committee to invite the chemists to renew their contract for 1916 on the same basis as obtained in 1915, but advised that if an arrangement with the chemists were come to on a different basis the Insurance Committee should concur. The recommendations were adopted after discussion.

THE DRUGS ACCOUNTS COMMITTEE OF SCOTLAND.

A memorandum has been issued, signed by the Superintendent of the Central Checking Bureau, Glasgow, and recommendations to secure uniformity and efficiency in the system of pricing and checking prescriptions throughout Scotland. After scrutiny and checking of over a million prescriptions sent in by the fifty six Insurance Committees

of Scotland, various points have emerged which have led to some important suggestions summarized below.

Uniform Price Lists.

At present different committees have different wholesale price lists on which to base the prices of ex-tariff drugs, and the differences are often very great. For example, "*Elizir Aceto-morph. et terpin*" is priced at 3½d. per ounce in some areas, 4d. in others, and 4½d. in others, and as many chemists are on more than one panel it often happens that they are paid at different prices for the same drug or article, and great confusion results.

Emergency List.

The lists of emergency drugs and appliances vary considerably in different areas, and the method of dealing with them also varies. For example, one area refuses to pay for anything not on the list or for quantities in excess of that allowed, while other areas will pay for articles not on the list. Some important areas, such as Glasgow, have no emergency list, and the disadvantage of such variety is great.

Disallowed Items.

It often happens that panel practitioners prescribe appliances and toilet articles which are disallowed by the Bureau—such as atomisers, respirators, toilet soaps, various secret remedies, medicated wines, and so on—and it is suggested that steps be taken to make the position quite clear to both doctors and chemists.

Different committees have adopted very different methods with regard to the prescribing of proprietary articles, some allowing none, others having a list of articles which should not be prescribed, though nothing is said as to their being disallowed, while others have a list of articles which are disallowed. In some cases there are arrangements between doctors and chemists that the chemist may supply official preparations even when the doctor prescribes a corresponding proprietary article; for example, by arrangement, when nrotropine at 6d. an ounce is prescribed the chemist may supply the equivalent, hexamine, which is only 1d. an ounce. The confusion thus caused often depletes the drug fund to a great extent.

Late Receipt of Prescriptions.

Considerable trouble and labour is often caused by chemists and Insurance Committees not sending in prescriptions on the dates fixed, and in many cases they are sent in instalments long after the proper date.

Recommendations.

In view of the above facts, the following recommendations are made in the memorandum:

1. That all insurance committees in Scotland adopt the same wholesale price list for pricing ex-tariff drugs.
2. That each area adopt an emergency list of drugs and appliances approved by the Commissioners, and that articles not on the list and orders in excess of the quantities sanctioned shall be disallowed.
3. That "repeat" orders be abolished and each prescription be written in full and signed.
4. That proprietary preparations according to a given list be disallowed; that the chemical equivalents and official preparations of similar composition be prescribed and dispensed, and under no circumstance shall secret remedies be paid for.
5. That large supplies of medicines or appliances intended for a long period be not ordered for a patient at one time.
6. That prescriptions shall be signed by the practitioner in the proper space, and that deputies or locumtenents shall sign the name of their principal and add their own initials.
7. That the date, name and address of the patient be always put in the proper space.
8. That the writing out of prescriptions by chemists be disallowed, and any alteration on a prescription be initialled by the practitioner. The use of a facsimile rubber stamp renders it doubtful if the prescription is a proper voucher.
9. That a uniform style of prescribing forms on white paper be adopted, each area being distinguished by a conspicuous letter or number.
10. That the dates of sending in prescriptions by chemists and transmission to the Bureau be strictly

adhered to, and those sent in late be delayed till the following month.

Repeat Prescriptions.

Following the above recommendations there is an appendix dealing with "repeat" prescriptions bearing alterations and additions by chemists. The difficulty of checking "repeats" is so great, and so much needless labour is imposed on the chemists who have to search for the originals, often without any date or reference, that it appears necessary to do away with the use of the term "Rep. mist." The use of the term compels the patient to go to the same chemist, and interferes with the free choice of chemist contemplated in the Act, and quotations are given from the Act, the regulations, and the doctors' agreements that make it appear that the term is not really allowable. Evidence is also brought to show that the use of the term tends to excessive prescribing, as in every area where the drug accounts are abnormally high there was a large proportion of repeat orders. It is also shown how the use of the term may lead to serious doubts as to what is intended, and chemists have often had to ask the patient what was really wanted. These and similar difficulties have led to great waste of time of the chemists and of the Checking Bureau, and often left doubt as to whether the patients had received the proper medicines or appliances. It is therefore strongly urged that the term "Rep. mist." be entirely abolished. It is also urged that practitioners should in every case give full details as to what they desire, and not leave it to the chemist to decide, for example, as to what kind of bandages should be supplied. The official prescription is a voucher attested by the signature of the doctor, and it is improper that any writing should be put on the form after it has left the hands of the doctor, who is presumed to have vouched for what is written thereon.

LOCAL MEDICAL AND PANEL COMMITTEES.

PORTSMOUTH.

At a meeting of the Panel Committee held on December 2nd, a resolution was passed in favour of the acceptance of an emergency settlement of practitioners' accounts for 1914 if a satisfactory offer were made by the Insurance Commissioners.

OLDHAM.

A meeting of the Local Medical and Panel Committees held on December 9th decided that there was no present necessity to contribute towards the expenses of the Joint Checking Board.

The clerk to the Oldham Insurance Committee reported that the Pharmaceutical Committee had made a strong representation to the effect that chemists could not supply emergency dressings to the order of doctors on the prices of the new tariff, and had suggested that an addition of 33½ per cent. to the prices of the new tariff should be made to chemists' bills for emergency dressings. The Commissioners had suggested that they would be prepared to approve an arrangement by which each doctor was paid for emergency drugs and dressings a flat rate of 1s. per annum for every 100 persons on his list, but it was decided not to accept either the suggestion made by the Pharmaceutical Committee or that made by the Commissioners.

EAST SUFFOLK.

At a meeting of the Panel Committee held on November 9th, it was resolved to ask the Insurance Committee to request the chemists on the panel not to supply dressings in any case when the quantity required was not stated, and to write to those doctors who had prescribed cod-liver oil preparations for patients not on the domiciliary list, pointing out that in many instances the cases may have been overlooked and should have been marked "domiciliary," but that it was in the interests of economy that as many patients as possible should be placed on the domiciliary list.

It was also resolved that a communication should be addressed to the Insurance Committee strongly protesting against the ordering of proprietary articles by doctors, and stating that the Panel Committee was of opinion that doctors doing so should be surcharged for such articles.

The revision of the flat rate arrangement of 1s. for two days' supply of drugs and appliances to temporary residents outside the chemists' areas and for emergency drugs and

appliances was further considered, and it was decided to press for the continuance of a flat rate.

It was announced that the sum of £220 had been allocated to that area from the Special Mileage Fund for 1914.

COUNTY OF GLAMORGAN.

At a meeting of the Panel Committee, on December 7th, 1915, a resolution was adopted approving of the suggested amalgamation of the English and Welsh Insurance Commissioners into one central body.

A communication was received from the Pharmaceutical Committee requesting an inquiry under Regulation 40 in the cases of 138 practitioners who had exceeded the amount allocated per insured person for 1914, and the matter was referred to the Subcommittee.

INSURANCE ACT IN PARLIAMENT.

CRITICISMS OF ADMINISTRATION.

In the House of Commons on December 1st, on the motion for adjournment, Mr. Currie (Leith Burghs) raised the question of an inquiry into the administration of the Insurance Act. He complained that in reply to questions as to the working of the Act only evasive answers had been given, and on several occasions Mr. Roberts had simply referred him to blue books dealing with actuarial questions. On referring to these books he found that the actuaries said that the claims on the older friendly societies dealing with male members were, on the whole, within the actuarial calculations, but they regarded it as evident that some revision of the finances of the Act would be required with respect to women, and on the question of sickness among male unskilled lives the Chief Actuary said that the "uniform rate of contribution which in the case of men appears to be sufficient on the general average will tend to be too low and the adoption of corrective measures will be necessary." It was thus clear that the actuaries could not give a certificate that the Insurance Act as a whole and in each separate department was financially sound. The business of the London Insurance Committee was notoriously in a state of chaos, and representations were pouring in from men originally biased in favour of the Act who made themselves responsible for its administration. The condition of sanatorium benefit was really one of partial paralysis partly due to the fact that the Local Government Board stopped expenditure. Questions asked as to the amount of money paid to panel practitioners for the treatment of tuberculosis cases, had been parried by Mr. Roberts, who said he accepted the figures, but could not accept the inferences drawn from them. Mr. Roberts had dodged questions as to whether opinions of officials engaged in the working of the Act would be collected with a view to putting it on a more satisfactory basis. Further, the trouble that has arisen with the chemists in Scotland had been caused not so much by the substance of what Mr. Roberts proposed, as by the indefensible manner in which he had put his proposals forward and his refusal to be guided by the Scottish Commissioners. Referring to the cost of administration and the benefits under the Act, there was a widespread feeling that working men who had to pay the premiums were not getting back enough out of the Act. It was understood that the Retrenchment Committee was considering the operations of the Act, and it was rumored that it would recommend the abolition of the Scottish Commission. The present time was really a good time for the appointment of a committee to inquire into the working of the Act. An inquiry would take a long time, but the officials must have a great fund of information which would enable a better state of things to be brought about.

Reply.

Mr. C. Roberts, in reply, said that apart from any personal questions, an inquiry was asked for on the ground of the financial unsoundness of the Act, which, it was alleged, was rapidly going from bad to worse. Mr. Roberts repudiated the suggestion that there was anything which he wished to conceal. It was quite impossible at present to state the total amount payable to panel practitioners, because he did not know, and no one knew the number of persons who had enlisted at the end of 1914. The question of the chemists had been forced on him.

The Pharmaceutical Society of Great Britain claimed that there were grievances in both England and Scotland which required remedy; a Departmental Committee was appointed to consider the question, and suggested certain alterations to meet the grievances. Mr. Currie suggested that he had dealt with the Scottish chemists in an autocratic manner, but he entirely denied it. Better terms had been proposed to the Scottish chemists than the English chemist had been willing to accept, and he had promised that if the Scottish chemists could prove, not by vague statements but by ascertained facts, that the Scottish conditions justified higher remuneration, he was quite willing to consider it and to allow the existing tariff to remain in force for six months, when fresh terms would be considered. Mr. Currie had suggested that the guidance of the Scottish Commissioners ought to have been taken, but in administrative questions of this sort there was no distinction of policy to be drawn between the Minister responsible to Parliament and the department which carried out the policy. It was suggested that the present time was opportune for an inquiry, but as a matter of fact not only the approved societies but his own department were at present working with depleted staffs. In a little time there might be as many as 70 per cent. of the men of military age in the army, and with a staff so depleted the extra burden of a great roving inquiry could not be borne, and every approved society was in the same position. With regard to the abolition of the Scottish Commission, the Retrenchment Committee had come to no decision, and it was supposed that the question was still under consideration. With regard to the soundness of the finance of the Act, vague opinions might be formed, but there was only one way to answer the question satisfactorily—that was, a full and proper inquiry. regard must be paid to the general financial position of the country at the present time. The whole question of benefits would come up and the question as to the treatment of deposit contributors, medical benefit in Ireland, the extension of medical referees, and other questions which might involve Government help. At a time when it could not be said within a thousand million pounds what the National Debt was going to be, it would be difficult and most inopportune to set up a roving commission which would raise all these questions as to the possible extension of the Insurance Acts, but a record was being kept of all suggestions made. Mr. Roberts was proceeding to refer to what had been called the partial paralysis of sanatorium benefit and improper payments to doctors, when Mr. Currie interposed to say that he had not suggested that 6d. for domiciliary treatment was too much, but it was the bad distribution of the money that was the object of his criticism. Mr. Roberts said the arrangement with the doctors was for three years, but it was impossible to deal with the arrangement at present when so many doctors were at the front, and so many were conducting their practices in circumstances of great pressure. With regard to the alleged paralysis of sanatorium benefit, the position in London had been greatly exaggerated. The funds would certainly be diminished by enlistments, but there were large funds, amounting to £800,000 or something of the sort, for the country as a whole, and, in addition, a sum of £150,000 resulting from pre-war surpluses. It was granted that more money could well be spent in the fight against tuberculosis, but Insurance Committees, whether in London or elsewhere, must use sums at their disposal, and learn, as other people have, to live within their income at present; and though the problem might not be wholly solved, a vast amount of good might still be done. It was true that the income had been diminished by enlistments, but it might be remembered that the large accumulation of funds going on was being accompanied by a higher rate of interest than the actuaries estimated, and that would be of considerable value in the future. In addition, the fall in sickness claims by both men and women was great and remarkable. In London, for example, sickness benefit has fallen by 33 per cent. for men and 25 per cent. for women, and this at a time when it was said that the Act was tottering on the verge of a precipice; a sum of more than £29,000,000 had been invested in Government securities, and already during the period of the war between eight and nine million pounds had been invested as a result of accumulation under the Act in Government securities almost entirely, and a very large proportion had gone into the war loan.

W. E. N. Dunn, M.B., to be temporary honorary Lieutenant whilst serving with the British Red Cross Hospital, Netley.
The date on which temporary Quartermaster and honorary Lieutenant F. Brian relinquished his commission is December 7th, 1915, and not as stated in the *Gazette* of December 6th, 1915.
G. A. Sumner to be temporary Quartermaster, with the honorary rank of Lieutenant.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenants to be Captains: R. Thompson, J. H. Bayley, J. Lawson, M.P., N. Graham, M.B., A. E. Richmond, F. L. P. O. G. Bennett, M.B., F. A. Clements, M.B., G. F. Edgerton, M.B., R. P. C. Thomson, M.B., W. Murdoch, M.B., D. W. J. Andrews, W. J. Webster, M. G. G. Cook, M.B.
Lieutenant (on probation) M. J. Graham, M.B., is confirmed in his rank.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

East Lancashire Casualty Clearing Station.—T. W. Leighton, M.B., to be Lieutenant; J. W. Cottrell to be Quartermaster, with the honorary rank of Lieutenant.

East Lancashire Field Ambulance.—Major S. Nesfield, from Attached to Units other than Medical Units, to be Major. The date of promotion of Lieutenant R. S. Young, M.B., to Captain, is May 31st, 1915, and not as stated in the *Gazette* of October 1st, 1915. Lieutenant T. Hayhurst, M.B., to be Captain. N. C. Frye to be Quartermaster, with the honorary rank of Lieutenant.

Home Counties Cavalry Station.—Captain R. W. Brimacombe, from Attached to Units other than Medical Units, to be Captain; Captain D. H. Scott, M.B., from Highland Field Ambulance, to be Captain.

London Field Ambulance.—O. Gleeson to be Lieutenant.
London Sanitary Company. E. B. Argles, S. L. Bartholomew, and M. S. Briggs, to be Lieutenants.

Northern General Hospital.—Lieutenant J. D. Lickley, M.D., to be Captain.
North Midland Field Ambulance.—D. A. Wilson, M.B., and J. Howard, to be Lieutenants.

Northumbria Field Ambulance.—Lieutenant C. D. Rogers, M.B., R. Kettle, M.B., J. Steedman, M.B., to be Captains.
Sanitary Service.—A. N. Stevens to be Captain, whose services will be available on mobilization.

Southern General Hospital.—Lieutenant A. B. Newton, M.B., to be Captain; J. E. F. Palmer to be Captain, whose services will be available on mobilization.

South Midland Mounted Brigade Field Ambulance.—Lieutenant F. P. Davies, from Attached to Units other than Medical Units, to be Lieutenant.

Welsh Dwydd Mounted Brigade Field Ambulance.—Transport Officer and honorary Lieutenant R. G. Cockrill resigns his commission on appointment to A.S.C.

Wessex Field Ambulance.—F. J. M. Kennedy and T. J. Costello, M.B., to be Lieutenants.

Western General Hospital.—F. H. Lacey, M.B., late Lieutenant East Lancashire Divisional Train, A.S.C.; V. W. Sankey, M.D., and R. Willan, M.B., to be Lieutenants.

West Lancashire Field Ambulance.—R. Findlay, M.B., and N. McCaff-Smith, M.D., to be Lieutenants. Quartermaster and honorary Lieutenant J. Bennett is seconded whilst holding a temporary commission in the A.S.C.

West Riding Field Ambulance. H. A. Peetham, M.D., to be Lieutenant.
Attached to Units other than Medical Units.—Lieutenants G. S. Glass, M.B., and W. R. Collingridge to be Captains; A. L. Eodley, F. W. White, and T. N. Walsh to be Lieutenants.

Vital Statistics.

HEALTH OF IRISH TOWNS.

During the week ending Saturday December 11th, 494 births and 464 deaths were registered in the twenty-seven principal urban districts of Ireland, as against 447 births and 507 deaths in the preceding period. These deaths represent a mortality of 20.0 per 1,000 of the aggregate population in the districts in question, as against 21.8 per 1,000 in the previous period. The mortality in these Irish areas was therefore 2.9 per 1,000 higher than the corresponding rate in the ninety-six English towns during the week ending on the same date. The birth rate, on the other hand, was equal to 21.2 per 1,000 of population. As for mortality of individual localities, that in the Dublin registration area was 22.6 (as against an average of 23.2 for the previous four weeks), in Dublin city 23.5 (as against 25.1), in Belfast 21.0 (as against 18.9), in Cork 22.4 (as against 20.1), in Londonderry 17.7 (as against 15.9), in Limerick 12.2 (as against 16.6), and in Waterford 7.6 (as against 20.9). The zymotic death-rate was 1.6 as against 2.2 in the preceding period.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements) important Notice re appointments appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

AUSTRALIAN COMMONWEALTH.—Officer in Control of Institution for the preparation of Vaccines and Antitoxins. Salary commencing at £650, rising to £750 per annum.

BIRENHEAD BOROUGH HOSPITAL.—House-Surgeon and Junior House-Surgeon. Salaries, £200 and £170 respectively.

BIRMINGHAM.—CITY EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Commencing salary, £300 per annum, with 85 travelling expenses.

BIRMINGHAM.—CITY FEVER HOSPITAL.—Resident Lady Medical Officer. Salary, £250 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Sector House-Surgeon (ineligible for military service). Salary, £230 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £120 per annum in each case.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Lady Resident Medical Officer. Salary, £200 per annum.

EAST HAM COUNTY BOROUGH EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary, £200 per annum.

HOSPITAL FOR SICK CHILDREN. Great Ormond Street, W.C.—Two House-Surgeons. Salary at the rate of £60 per annum, with 45 washing allowance.

LEASOWE HOSPITAL FOR THE TREATMENT OF SURGICAL TUBERCULOSIS IN CHILDREN. Cheshire.—Resident Medical Officer (ineligible for military service).

LEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £200.

NORTH STAFFORDSHIRE INFIRMARY. Hartshill, Stoke-on-Trent.—House Physician. Salary, £200 per annum.

OLDHAM UNION.—Resident Assistant Medical Officer. Salary, £300 per annum.

PUTNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

ROYAL EYE HOSPITAL. Southwark, S.E.—House-Surgeon (ineligible for H.M. Forces). Salary at the rate of £150 per annum.

ST. MARYLEBONE INFIRMARY. St. Charles Square, North Kensington.—Two Temporary Assistant Medical Officers.

SHREWSBURY DISPENSARY.—Medical Practitioner.

SHREWSBURY : SALOP COUNTY ASYLUM.—Assistant Medical Officer. Salary, 7 guineas per week or £350 per annum.

SOUTHPORT INFIRMARY.—Senior House-Surgeon. Salary, £200 per annum, and fees of £10.

WOLAN. ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Lady House-Surgeon. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Bala (Merioneth), Horamonden (Kent), Leadhills (Lanark).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

DRUMMOND, W. E., M.B., C.M. Edin., Resident Medical Superintendent of Baldovan Certified Institution for the Treatment and Education of the Feeble-Minded, Dundee.

GRANT, P. N., M.B., C.M. Glasg., Surgeon to the Out-patient Department for Diseases of the Throat and Nose, Royal Infirmary, Glasgow.

MACNAUGHTON, Miss M., M.B., B.Ch. Edin., Assistant Medical Officer to the Southampton Park Infirmary.

VICARY, R. H., M.R.C.S., L.R.C.P., District Medical Officer of the St. Marylebone Parish.

WHITE, S. B., M.B., B.Ch., M.R.C.S., L.R.C.P., District Medical Officer of the New Forest Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Orders or Stamps with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

BLETCHLY.—On the 10th December, at Hazelwood, Nailsworth, Gloucestershire, the wife of George Playne Bletchly, M.B. Lond., of a son.

MARRIAGES.

HUNTER-GREENWAY.—On 27th November, at St. Martin-in-the-Fields, Trafalgar Square, by the Rev. Wilfred Parker, Major J. E. Hunter, I.M.S., to Marjorie Phyllis, daughter of Mr. and Mrs. C. Greenway, 2, Whitehall Court, London, S.W.

MACINTYRE—WILKES.—December 11th, at the Parish Church, Darlington, by the Rev. W. G. Davison, Fred Ross Macintyre, elder daughter of Richard M. Wilkes, M.A., B.C.L., Solicitor, Darlington.

DEATH.

RATNER.—On December 7th, at 18, Dunsire Road, Stamford Hill, N., John Alexander Ratner, B.A., M.R.C.S., late of 36, Kingsland Road, in his 71st year.

DIARY FOR THE WEEK.

MONDAY.

ROYAL COLLEGE OF SURGEONS, LINCOLN.—Ten Fields, W. 5 p.m.—Breakday Lecture by Surgeon-General Sir Anthony A. Dowbig: Wounds in War.

TUESDAY.

LONDON DERMATOLOGICAL SOCIETY (St. John's Hospital, 49, Leicester Square, W.C.).—4.30 p.m.: Cases and Specimens. 5.30 p.m.: Dr. Prosser White—Occupational Dermatitis.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham.

THE POST-GRADUATE COLLEGE, West London Hospital, Hammer-smith, W.—Clinical work; graduates only.

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RECRUITING FOR THE NAVAL AND MILITARY MEDICAL SERVICES.

THE ENROLMENT SCHEME.

THE Central Medical War Committee published its scheme of enrolment for the medical profession in the SUPPLEMENT of December 11th, and stated that Lord Derby had informed the Committee that he fully approved of the scheme, that he hoped the War Emergency Committees for England and Wales, Scotland, and Ireland respectively would undertake the whole of the arrangements for procuring medical men for the army, and that he recognized the Committees as a means of organizing the medical profession with regard to military service.

The enrolment scheme of the Committee is, therefore, as far as concerns the medical profession, equivalent to Lord Derby's scheme of attestation; as is the latter for the general public, so is the enrolment scheme of the Medical War Committee the last effort of the voluntary system. It gives to the medical profession an opportunity which will not recur of organizing itself to meet the demands of the military services of the Crown. If it fails compulsion seems to be the only alternative. If compulsion has eventually to be applied to the medical profession it will be due to failure now to respond to this last appeal to maintain the voluntary system.

The terms and conditions of services of temporary lieutenants R.A.M.C. can be obtained on application to the Central War Committee, and have been fully stated in the JOURNAL on several occasions. On October 30th, p. 662, a table will be found comparing the emoluments of temporary lieutenants R.A.M.C. and lieutenants and captains of the R.A.M.C. Territorial. The contract with a temporary lieutenant R.A.M.C. is for a year, at the end of which he receives a gratuity of £60; his consolidated pay is 24s. a day, and in addition he receives free rations or an allowance in lieu. The total emoluments, therefore, are at the rate of £500 a year, rather more than less.

RESIDENTIAL DISTRICTS.

At a meeting of the profession of Chelsea and Fulham, held at Fulham Town Hall on December 16th, when Dr. J. C. Jackson, Chairman of the British Medical Association Division, presided, Mr. Bishop Harman, who attended on behalf of the Central Medical War Committee, gave an account of the work of the Central and local War Committees. At the present time the main effort must be to rouse the "residential" town areas to a livelier sense of their responsibilities and to so arrange their work that they could spare more men for the army service. In these districts medical men were actually and relatively much more numerous than in the rest of the country on a population basis, and it was necessary to tap this source of supply before more men were allowed to go from country and industrial areas. The difficulties of the town men were great, for their practices were almost entirely personal. But it was possible to make such arrangement as would safeguard the practices

of the absentees and yet fully meet the necessities of their patients. He discussed the various schemes which had been suggested (see SUPPLEMENT, December 18th, p. 222), and, in reply to questions, said that many civil practitioners were being employed by the War Office, but that the supply was greater than the demand. A committee for Chelsea and Fulham was appointed.

ACTION BY THE LOCAL GOVERNMENT BOARD IN IRELAND.

At the last meeting of the Swinford Board of Guardians a letter was read from the Local Government Board relative to the appointment of Dr. Sweeney to the medical officership of the Charlestown Dispensary district. The letter suggested that in view of the present urgent necessity for additional doctors for the army and navy, the guardians might endeavour to make some temporary arrangement whereby Dr. Sweeney, who is 27 years of age, would be enabled to volunteer for active service until the termination of the war. The guardians could keep the post open until Dr. Sweeney's return. The guardians replied that the appointment was made before the issue of the Local Government Board's circular letter of November 26th, and that as Charlestown, with a population of over 9,000, was one of the largest dispensary districts in the county, and as temporary arrangements would not be desirable, it was hoped that the Local Government Board would sanction the appointment.

HOSPITALS AND THE ALLEGED WASTE OF MILITARY MEDICAL OFFICERS.

At a meeting of the Worcester Infirmary Committee on December 20th a long discussion took place on the question of the arrangements to be made to cover the surgical and other work at the infirmary in the absence of two further members of the staff on war service. In the absence of Dr. Tom Bates, jun., and Dr. Slinger, the honorary medical staff recommended that the services of Drs. Legge, Coombs, and Corder should be accepted. Dr. Seymour subsequently offered his services, saying that it was unlikely that he would have the good fortune to be able to join the army, but the honorary medical staff, reporting that provision had been made to cover the work, did not add to their former recommendation.

A member having moved that Dr. Seymour's services also be accepted, Dr. Tom Bates, sen., said that the Central War Committee had expressed the view that it was the duty of every eligible doctor to apply for a commission in the R.A.M.C. He thought that the honorary medical staff, having approved of five members leaving, were perfectly justified in declining the offer of services of men of military age. If they had acted otherwise they would have stultified themselves. He thought that they should be supported in the action they had taken, which was founded, not on personal grounds, but on true patriotism.

The Dean of Worcester said that during the last three months he had had a good deal of correspondence with the Medical Board, the Advisory Board, the War Office, Mr. McKenna, and the Secretary of the British Medical Association on the question of the supply of doctors. He entered into correspondence with the authorities because it seemed to him that there was waste in calling up for service a very large number of doctors, and then making no use of them. There were hundreds of doctors

who had sacrificed their practices, and rightly so, in what they believed to be the interests of their country, but the War Office left them to waste their time, and did not make use of their services. He had applied to the War Office a number of instances. He himself had a son who gave up a very good practice. He went to the War Office and was told that he would be wanted, but for four months he did nothing but play golf. When he was given some work to do, it was work an orderly could do, or some elderly medical man. When the question of the need of medical men was considered it was most important that men who had already offered their services should be adequately used before a very large number of others were called up. He had urged the War Office and the medical authorities that, instead of taking men, they should take the offer of their services, and leave them until they were actually wanted. Any man who was married and had a family, before going, should be assured that the War Office would really utilize the services of the men who had already gone.

Dr. Bates, sen., said, in reply, that the War Office required many more doctors for the new armies of two million men, and asked whether these new armies were to be sent to face the enemy without sufficient doctors.

The Mayor of Worcester asked whether the motion meant that the hospital was going to engage no doctors who were under military age, and the Chairman replied in the affirmative. This answer caused dissent, and the Chairman said that the proposal before the meeting was to accept the offer of the services of the three doctors over military age. An amendment accepting Dr. Seymour's services in addition was carried by 8 votes to 1.

SOLDIERS SUMMONED TO SICK RELATIVES.

REQUEST BY THE WAR OFFICE TO DOCTORS.

We have received the following communiqué from the War Office:

In February last it was brought to the notice of the Army Council that instances had occurred where soldiers had been put to considerable expense, which they could ill afford, on account of having been summoned to their homes owing to the serious illness or death of a near relative.

It was therefore decided that a free railway warrant might be issued in such cases, the concession being restricted to cases of grave and urgent illness, or death, of a parent, wife, or child, and the genuineness of each case to be duly certified by a medical attendant.

Experience has shown that the concession is open to abuse, and that soldiers may be summoned to their homes at the public expense when the urgency of the illness does not justify it. This may happen through the fact that medical practitioners are unacquainted with the conditions underlying the concession, and the Army Council therefore appeal to the medical profession to assist the military authorities in preventing the abuse of the privilege.

A specimen form of certificate, which it is requested may be taken into general use, is appended, and medical practitioners are asked to exercise the greatest caution in signing these certificates, which should only be issued when there is reason to anticipate serious results from the illness of the relative concerned.

Form of Medical Certificate which must be used when it is necessary to Summon a Soldier to his Home owing to the Dangerous Illness of a Parent, Wife, or Child.

I hereby certify that (patient's name) of (patient's address) the' of (Number) (Rank) (Name) (Regiment) is under my professional care, and is dangerously ill.
(Signature of Medical Attendant).

* Insert whether parent, wife, or child.

Meetings of Branches and Divisions.

METROPOLITAN COUNTIES BRANCH:

CHELSEA DIVISION.

At a meeting of the Chelsea Division at Fulham Town Hall on December 16th the existing officers of the Division were re-elected for the ensuing year and the revised official rules were adopted.

On the proposition of Dr. E. W. HAMLTON, it was resolved to send a letter of condolence to the relatives of the late Dr. J. H. Meers, who had lost his life in the service of his country, having been killed in action in France. He had been for some years a member of the Division.

INSURANCE.

THE PRICING OF PRESCRIPTIONS UNDER THE COMMERCIAL TARIFF.

ABOUT a month ago the chairmen and clerks of the various insurance committees of Lancashire met in conference with the Commissioners in London to consider the additional duties falling on insurance committees in the pricing, checking, and analysing of prescriptions in the coming year under the commercial tariff. The Commissioners suggested that in the interests of efficiency and economy the committees should consider the desirability of co-operating for the purpose of carrying out their additional duties, and the representatives of committees undertook to report further to the Commissioners. Since then the various chairmen and clerks have held two meetings at Manchester and Preston, and passed resolutions to the following effect: First, that the extra cost involved in the checking of prescriptions under the new system should be borne by an additional grant from the Commissioners, and should not form a charge on the existing revenues of the insurance committees; secondly, that the grouping of committees is desirable, as some committees might find difficulty in providing independently efficient and economical arrangements for the new duties; and thirdly, the following groups were suggested for the county of Lancashire:

- Group 1.—Lancashire Comty.
- Group 2.—Manchester and Salford.
- Group 3.—Liverpool, Birkenhead, Bootle, St. Helens, Southport, Stockport, Wallasey, Warrington, and Wigan.
- Group 4.—Barrow, Blackburn, Blackpool, Bolton, Burnley, Bury, Oldham, Preston, Rochdale.

It was further decided that each group should appoint a convener, and that after particulars had been obtained from each, and its representatives had met to decide on a scheme, a general meeting of the groups should be held in order to secure as far as possible uniformity of method. The proposals have been submitted to the Commissioners, who have now announced that they see no objection to the groups as provisionally arranged, and that they have decided to take steps to make available such sum of money towards the administrative expenses of the committees as will fairly represent the additional cost imposed on committees by the new system. They further express the hope that committees will, in the interests of national economy, take every means to keep the cost as low as possible.

SCOTLAND.

SCOTTISH CHEMISTS AND THE DRUG TARIFF.

AS the result of conferences in Edinburgh and London between the Executive of the Scottish Association of Insurance Committees, acting with the Pharmaceutical Standing Committee (Scotland) on the one part and Mr. Charles Roberts, M.P., Chairman of the Joint Committee of Insurance Commissioners, on the other, an understanding has been reached in connexion with the deadlock threatened by the fact that some 99 per cent. of Scottish panel chemists had intimated that they could not continue their agreements after December 31st. The result is expressed in the following letter addressed to the Pharmaceutical Standing Committee (Scotland). It appears to show that the offer originally made by the Scottish panel chemists has been accepted, and that there will be no interruption in the service for medicines and appliances for insured persons during 1916.

Pharmaceutical Standing Committee (Scotland),
36, York Place, Edinburgh,
December 14th, 1915.

Dear Sir—I am instructed to say that your letter of December 13th with reference to our interview with Mr. Charles Roberts on December 9th was considered by my Committee yesterday, and I have now to confirm my telephone message to you, and to say that the understanding reached between the Pharmaceutical Standing Committee (Scotland) and the Pharmaceutical Standing Committee (Scotland) on the one part and Mr. Charles Roberts, M.P., Chairman of the Joint Committee of Insurance Commissioners, on the other, an understanding has been reached in connexion with the deadlock threatened by the fact that some 99 per cent. of Scottish panel chemists had intimated that they could not continue their agreements after December 31st. The result is expressed in the following letter addressed to the Pharmaceutical Standing Committee (Scotland). It appears to show that the offer originally made by the Scottish panel chemists has been accepted, and that there will be no interruption in the service for medicines and appliances for insured persons during 1916.

2. The Pharmaceutical Standing Committee (Scotland) to undertake by August 31st, 1916, to furnish to the Scottish

Insurance Commissioners a report on their objections to the new proposals embodying evidence on the points as to which they are at issue with the recommendations of the Departmental Committee.

In accordance with this settlement we have to-day issued a letter to each panel chemist in Scotland recommending them to continue service during the year 1916 under the terms specified.

I am, yours faithfully,
(Signed) J. RUTHERFORD HILL,
Secretary.

SURCHARGING.

O'Neill v. County of Middlesex Insurance Committee.

THE case of *O'Neill v. The County of Middlesex Insurance Committee*, which was decided by Mr. Justice Rowlatt in the King's Bench Division on December 20th last, raised several points of considerable interest to the profession. In the spring of this year an investigation was held into the character and amount of the drugs and appliances ordered for insured persons" by the plaintiff, with a view to his being surcharged, and the amount credited to the Drug Fund. This investigation was in the first instance carried out by a subcommittee to which the duty had been delegated by the Panel Committee. The subcommittee, with the assistance of an expert, closely scrutinized the plaintiff's prescriptions, and notified the plaintiff of the course which was being pursued against him. The plaintiff duly appeared before this subcommittee, and in due course a report was made to the Insurance Committee, and the Insurance Committee made an order surcharging him to the extent of £325 odd.

It was then seen that an order had been made against the plaintiff without his having had any opportunity of appearing before the Panel Committee itself or of putting his case, as he was entitled under the terms of Regulation 40, which creates the procedure under which these orders are obtained, nor had the Pharmaceutical Committee appeared before the Panel Committee, as provided by the Regulation, and, indeed, was not represented even at the hearing before the subcommittee, and for this reason the order which the Insurance Committee had made was invalid.

In order, therefore, to get over the difficulty the matter was reopened by the Panel Committee, which formally notified the plaintiff to that effect, and summoned him to attend before them, and the Pharmaceutical Committee was communicated with. The Pharmaceutical Committee again were not represented before the Panel Committee, but contented itself with forwarding its views in a written memorandum. The plaintiff did attend, but, although given every opportunity to state his case, he declined to do so or to answer questions. In the result the Panel Committee confirmed the report of the subcommittee, and the Insurance Committee again made an order against the plaintiff in the same terms as before.

In these circumstances the plaintiff contended: First, that the Insurance Commissioners having once made an order against him which was invalid were *functus officio*, and therefore incompetent to make a second order in respect of the same matter. Secondly, that the investigation was not conducted in a fair judicial spirit, and he further contended that in law Regulation 40 was void as being a regulation which the Insurance Act itself did not authorize.

The judge held that the Insurance Committee were perfectly entitled to cure the defect in the order which it made in the first instance by securing for the plaintiff a hearing before the Panel Committee and making a fresh order upon its report, and that the fact that the Pharmaceutical Committee was not represented at either of the hearings was not a matter as to which the plaintiff was entitled to complain. He emphasized the importance in inquiries of this character of perfect bona fides and a spirit of fairness throughout, and that although "the investigation need not be attended at every step by the practitioner affected by it... he must undoubtedly be heard before the report is sent in, and must be heard on the ground which the investigation covers, and substantially must be allowed to challenge the result to which the investigation ultimately led and the steps which led to it." These essentials had, in his judgement, been complied with. As regards the question as to the validity of the regulation itself, he pointed out that power was given to the Commissioners by Section 65 of the Insurance Act, 1911, to make regulations "generally for carrying this part of this Act into effect." It was argued that this regulation was contrary to the general scheme of the Act, which gave insured persons a right to the unfettered judgement of a medical practitioner whom they could select, but this the judge said was erroneous. The Act did not say in terms that the doctor was to exercise his uncontrolled will, and

from the fact that funds were created to pay doctors and to buy drugs, and that these funds must be limited showed that this was so. The duty of prescribing involved a duty of prescribing according to the available resources, and without extravagance; and, in order to carry out the provisions of the Act, it was obviously necessary to make rules to curb extravagance. He therefore decided against the plaintiff on all the points raised and gave judgement for the defendants.

INSURANCE NOTES.

DRAFT STANDING ORDERS FOR PANEL COMMITTEES.
THE Insurance Commissioners (England) have prepared and issued in a leaflet a set of draft standing orders for panel committees. It is pointed out that they are not necessarily exhaustive, but it is thought that they will be of assistance to panel committees in framing such orders.

CORRESPONDENCE.

"REP. MIST."

DR. W. JOHNSON (Wolverhampton) writes: The proposal to abolish the practice of writing "Rep. mist." in panel prescriptions is one which will give a lot of unnecessary work to panel doctors, and this at a time when there is a shortage of doctors, and some are doing the work of two or three men. "Rep. mist." by itself may mean anything, but if the date of the required prescription is added it is easy for the chemist to find it. It is absurd to write out a cough mixture or a prescription for some chronic complaint every time the patient comes up for more.

INSURANCE ACT IN PARLIAMENT.

NUMBER OF PANEL DOCTORS.

In reply to Sir Edward Cornwall, Mr. Roberts stated, on December 20th, that the figures showing the number of doctors on the panel in London and the provinces on July 1st, 1914, were not available, but the figures for January 1st, 1914, which would not differ materially, were: London, 1,400; English areas, 14,600, including doctors on more than one panel. The corresponding figures for doctors who would be on the panel for 1916 were, approximately: In London, 1,440; in other English areas, 14,400. These figures included a number of doctors on military service whose names remained on the panel whilst some other doctor or doctors were undertaking to carry out their duties.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are made by the Admiralty: Fleet Surgeon J. Chambe's, B.A., M.B., to the *Pembroke*, additional, for Chatham Hospital; temporary Surgeon B. A. Playne, M.B., D.S.O., to the *Fleet*, additional, for disposal; T. Gwynne-Jones to the *Victory*, for R.N. Barracks.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon-probationer for temporary service: J. H. Kerr.

ARMY MEDICAL SERVICE.

Colonel E. H. L. Lynden-Bell, C.B., is retained on the active list, under the provisions of Articles 120 and 522, Royal Warrant for Pay and Promotion.

Lieutenant-Colonels to be temporary Colonels whilst holding the appointments of Assistant Directors of Medical Services: F. W. Hardy, M.B., C. E. Pollock, L. Way, F. A. Symonds, D.S.O., M.B.

ROYAL ARMY MEDICAL CORPS.

Major Sir E. S. Worthington, Kt., C.M.G., M.V.O. to be temporary Lieutenant-Colonel whilst Commandant, Officers' Convalescent Home, Cimiez.

J. C. G. Ledingham, M.B., to be temporary Lieutenant-Colonel. The following are granted temporary rank whilst employed with the Halifax War Hospital:—As Lieutenant-Colonel: J. F. Woodratt, M.D. As Majors: A. Drury, M.B., J. C. Wright, M.B., T. H. Hunt, M.D. Temporary Major T. Mill, M.B., F.R.C.S., having resigned his appointment at the Beaufort War Hospital, relinquishes his commission.

Temporary Captain T. W. Eden, M.D., F.R.C.S., to be temporary Major.

Temporary Lieutenants to be temporary Captains: W. W. Deans, E. R. G. Greville, D. Thomson, M.B., J. R. P. Allen, G. Hadfield, M.D., J. H. Aikman, M.B., W. C. Jardine, M.B., W. H. Laslett, M.B., M. A. MacDonald, M.B., T. Feilly, M. Bates, M. D., F.R.C.S., J. A. Glover, M.D., N. Beeder, M.B., W. V. Macintosh, M.B., G. Jackson, M.B., E. A. Pearson, M.B., W. J. Nisbet, M.B., M. J. Murray, M.B., F. W. McMillan, M.B., T. O. Williams, M.B., J. E. Cox, C. J. Kelly, D. W. Reid, M.B., C. H. Thompson, R. Williams, T. R. Scullion, E. R. Westhead, M.B., W. W. Littlewood, M.B., J. I. Russell, M.B., J. R. Fisher, M.B., D. C. Ashton, M.B., C. Lunde, M.B., W. Ansdan, C. A. Kenny.

To be temporary Captains: C. C. Butmore, A. T. Smith, M.D., J. Burnell, M.B., F.R.C.S., J. S. Morrow, M.D., J. F. R. Gardiner, M.B., W. Rankin, M.B., N. H. Oliver, W. P. H. Mouch, M.D., J. L. Bentall, M.B., A. E. Knight, M.B., G. C. Chubb, M.B., F.R.C.S.

The names of the undermentioned temporary Lieutenants are as now described, and not as stated in the Gazette of September 15th, 1915, and of November 19th, 1915, respectively: E. Seely, M.B., N. Devereux, F. W. Martin, M.B.

The following relinquish their commissions: Temporary Captain G. A. C. Mitchell, M.B.; temporary Lieutenants D. J. G. Grant, M.B., A. H. Flannery, M.B., J. Matheson, M.B.

The appointment to a temporary Lieutenancy of W. R. S. Watkins is cancelled by December 15th.

Temporary Lieutenant J. M. J. A. Levins is removed from the army for absence without leave.

Temporary Lieutenants relinquish their commissions on account of ill health: E. G. Cameron, H. F. W. White, M.B.

Lieutenant F. J. Cleminson, F.R.C.S., Royal Army Medical Corps, Territorial Force, to be temporary Lieutenant substituted for the notification which appeared in the *Gazette* of November 19th, 1915. Lieutenants of the Canadian Army Medical Corps to be temporary Lieutenants: C. E. Wilson, M.B., H. C. Sutton, M.B., H. B. Moyle, M.B., H. F. Rogers, M.B., A. V. MacCallum, M.B., S. MacCallum, M.D., Berker, M. B. T. R. Phipps, M.D., E. N. Drier, M.D., F.R.C.S. Edin., G. W. Carleton, M.B., W. W. Cruise, M.B., F. A. Ross, M.B., E. H. McVicker, M.B., A. B. Moffat, M.B., J. McE. Kilgour, M.B., V. F. Cartwright, M.B., A. E. McKibbin, D. A. Warren, W. A. McLeod, M.D., E. S. Russell, M.D., C. R. Young, M.B., E. Bryceon, T. P. Devlin, J. B. Christian, M.B., J. F. Macdonald, M.D., J. J. Hamelin, M.D., W. E. H. Fraser, M.D., R. W. Halsey, M.D., B. T. MacLaren, M.D., E. H. Freeman, M.D., E. S. Moorhead, M.B., M. B. Roberts, J. B. Brown, M.B., C. S. Wynne, M.B., H. W. Piddell, A. D. E. Rommel, J. D. Shields, M.B., A. F. Laird, M.D., W. L. Evans, M.B.

Temporary honorary Lieutenants to be temporary Lieutenants: C. C. Brewis, A. H. Morley, T. W. Molhuish, W. D. Cruickshank, M.B.

To be temporary honorary Lieutenants: L. G. Jacob, S. B. Prall, W. Thomas.

Temporary honorary Lieutenant J. P. S. Dunn, M.B., having ceased to serve with the British Red Cross Hospital, Netley, relinquishes his commission.

G. E. Ingo and C. W. Atkins to be temporary Quartermasters, with the honorary rank of Lieutenant.

OVERSEA CONTINGENTS.

AUSTRALIAN ARMY MEDICAL SERVICE.

Colonel N. E. Howse, V.D., to be temporary Surgeon-General.

CANADIAN ARMY MEDICAL CORPS.

Major J. E. Davey to be temporary Lieutenant-Colonel.

A. G. McLeod to be temporary Captain.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

East Anglian Field Ambulance.—Sergeant-Major H. G. Aldis, from *East Anglian Field Ambulance*, to be Quartermaster, with the honorary rank of Lieutenant.

Eastland Field Ambulance.—Lieutenants J. M. Chrystie and A. R. Moodie, M.B., to be Captains.

Home Counties Field Ambulance.—Lieutenants W. T. Henderson, M.B., and W. W. Maxwell, M.D., to be Captains.

London (City of London) Field Ambulance.—E. N. Buter Gate Captain, *East African Medical Service* to be Lieutenant.

London (City of London) Sanitary Company.—S. A. Mann and E. A. Atkins, M.D., to be Lieutenants.

London Field Ambulance.—Captain (temporary Major) J. R. Holmes, M.B., relinquishes his temporary rank on alteration in posting.

Captain J. B. Hines, M.B., is seconded for duty with *London Regiment*. Captain W. Cowie, M.B., to be temporary Major.

London General Hospital.—Major (temporary Lieutenant-Colonel) H. F. Hawkins, M.D., from *London General Hospital*, to be Major.

Major H. P. Hawkins, M.D., to be Lieutenant-Colonel on the permanent personnel. Captain F. H. Mitchiner, M.B., F.R.C.S., from the list of officers superannuated for service with the O.T.C., to be Captain on the permanent personnel. Lieutenant L. B. Clarke, to be Captain.

London Sanitary Company.—Lieutenant A. G. Williams, M.B., to be Captain.

Lowland Field Ambulance.—Captain W. A. Burns, M.B., to be Major.

North Midland Field Ambulance.—Lieutenant C. S. Lee to be Captain.

Southern General Hospital.—Captain J. G. McLannahan, from *South Midland Field Ambulance*, to be Captain, whose services will be available on mobilization. Lieutenants to be Captains: H. A. B. Whitelocke, W. Stobie, M.B. To be Captains, whose services will be available on mobilization: D. A. W. Stone, M.B., A. A. Purrell, M.B.

South-Western Mounted Brigade Field Ambulance.—J. W. A. Cooper to be Lieutenant.

West Lancashire Casualty Clearing Station.—Major (temporary Lieutenant-Colonel) E. W. Barnes, from *West Lancashire Field Ambulance*, to be Major; to be Lieutenant-Colonel, to be temporary Lieutenant-Colonel; Lieutenant B. K. Merson to be Captain.

West Lancashire Field Ambulance.—Transport Officer and honorary Lieutenant J. N. P. Holt resigns his commission.

Attached to *Units other than Medical Units*.—Lieutenant-Colonel R. C. Hichet, M.D., retired list, T.F. (late Fort R.G.A.), to be Major; Lieutenants C. C. Fitzgerald, C. B. Alexander, and H. D. McCrossan, M.B., to be Captains. T. E. Saunt and J. E. S. Wilson to be Lieutenants.

TERRITORIAL FORCE RESERVE.

ROYAL ARMY MEDICAL CORPS.

Captain D. C. L. Leyland, M.D., F.R.C.S., from *London (City of London) Field Ambulance*, to be Captain.

Vacancies and Appointments.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

VACANCIES.

AUSTRALIAN COMMONWEALTH.—Officer in Control of Institution for the Preparation of Vaccines and Antitoxins. Salary commencing at £550 per annum.

BIRMINGHAM BOROUGH HOSPITAL.—House-Surgeon and Junior House-Surgeon. Salaries, £200 and £170 respectively.

BIRMINGHAM: CITY FEVER HOSPITAL.—Resident Lady Medical Officer. Salary, £250 per annum.

BOLTON INFIRMARY AND DISPENSARY.—Senior House-Surgeon (ineligible for military service). Salary, £230 per annum.

BRIGHTON ROYAL INFIRMARY.—(1) House-Physicians; (2) House-Surgeons. Salary, £120 per annum in each case.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Lady Resident Medical Officer. Salary, £200 per annum.

DERBYSHIRE ROYAL INFIRMARY.—House-Physician and Casualty Officer (ineligible for military service). Salary, £200 per annum.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—Two House-Surgeons. Salary at the rate of £50 per annum, with £5 washing allowance.

LEEDS PUBLIC DISPENSARY.—Lady Resident Medical Officer. Salary, £120 per annum.

NEWCASTLE-UPON-TYNE: ROYAL VICTORIA INFIRMARY.—Assistant Resident Officer (male ineligible for military service, or female). Salary, £100 per annum, and lodging allowance of 30s. per week until further accommodation is provided.

NORTH STAFFORDSHIRE INFIRMARY, Hartshill, Stoke-on-Trent.—House-Physician. Salary, £200 per annum.

NORWICH POOR LAW INFIRMARY.—Lady Resident Medical Officer. Salary, 5 guineas weekly.

OLDHAM HOSPITAL.—Resident Assistant Medical Officer. Salary, £300 per annum.

PUTNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

ROYAL EYE HOSPITAL, Southwark, S.E.—House-Surgeon (ineligible for military service). Salary at the rate of £150 per annum.

ST. PANCRAS DISPENSARY, Oakley Square, N.W.—Honorary Physicians.

SHEFFIELD: ROYAL INFIRMARY.—House-Surgeon (male ineligible for military service, or female). Salary, £100 per annum.

SHREWSBURY DISPENSARY.—Medical Practitioner.

SHREWSBURY: SALOP COUNTY ASYLUM.—Assistant Medical Officer. Salary, 7 guineas per week or £350 per annum.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House-Surgeon (ineligible for military service). Salary, £250 per annum.

WEST HAM AND EASTERN GENERAL HOSPITAL, Stratford, E.—Casualty Officer (ineligible for military service). Salary at the rate of £150 per annum.

WIGAN: ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Lady House-Surgeon. Salary, £150 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announced the following vacant appointments: Edinburgh (North), Edinburgh (South); Lytham (Lancaster).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

ANDERSON R. M.D., B.S.Durh., District Medical Officer of the Working Union.

BUSTED, J. H., L.R.C.P. and F.R.Edin., L.F.P.S.Glasg., Certifying Factory Surgeon, Hungay District, co. Norfolk and Suffolk.

CONNOR, C. J., M.B., C.M. Aberd., District Medical Officer of the 16th Division.

FULTON, Miss J. M., M.B., Ch.B., R.U.I., Assistant Medical Officer, Barking Heath Lunatic Asylum, Maldstone.

GRAVES, A. J., M.E.C.S., L.R.C.P.Lond., Certifying Factory Surgeon, Cleator District, co. Cumberland.

GREVES, F. Ailcock, M.B., B.S.Lond., F.R.C.S.Eng., Assistant Surgeon to the Royal London Ophthalmic Hospital, Moorfields.

KERR, James Rutherford, Ch.M.Glasg., Head Surgeon to the Allies Hospital, Yvetot, France.

WALSH, M. J., M.B., B.Ch., N.U.I., Assistant Medical Officer of the Stebbing Hill Hospital of the Stockport Union.

WILKES, Miss L. S., L.R.C.P., L.R.C.S. Edin., L.F.P.P.S. Glasg., District Medical Officer of the Newcastle-upon-Tyne Union Infirmary.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded in Post Office Order or Stamp with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGE.

KILNER-BROWN.—On December 14th, at the Whalley Range Presbyterian Church, by the Rev. J. T. Middlemiss, Thomas Fourtree, Captain R.A.M.C.(T.F.), East Lancashire Casualty Clearing Station, eldest son of Thomas Kilner, Blackburn, to Olive Mary, eldest daughter of Mrs. Brown, 219, Chester Road, Manchester, and of the late Frederick Brown, Largo, Ayrshire.

DEATHS.

CHILD.—On the 14th December, at his brother's residence, Cranleigh, Kent-road, Southsea, Lieutenant-Colonel Lectorchild Frederick Childie, I.M.S., M.B. Lond., M.I.C.S., of Roundhay, Banbury Road, Leeds, in the 56th year of his age.

TRAVERS-SMITH.—On the 16th inst., at Tramore, Hartfield Road, Tramore, Victoria Edward Travers-Smith, M.D., Trinity College, Dublin, aged 55.

THE
British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

EPITOME

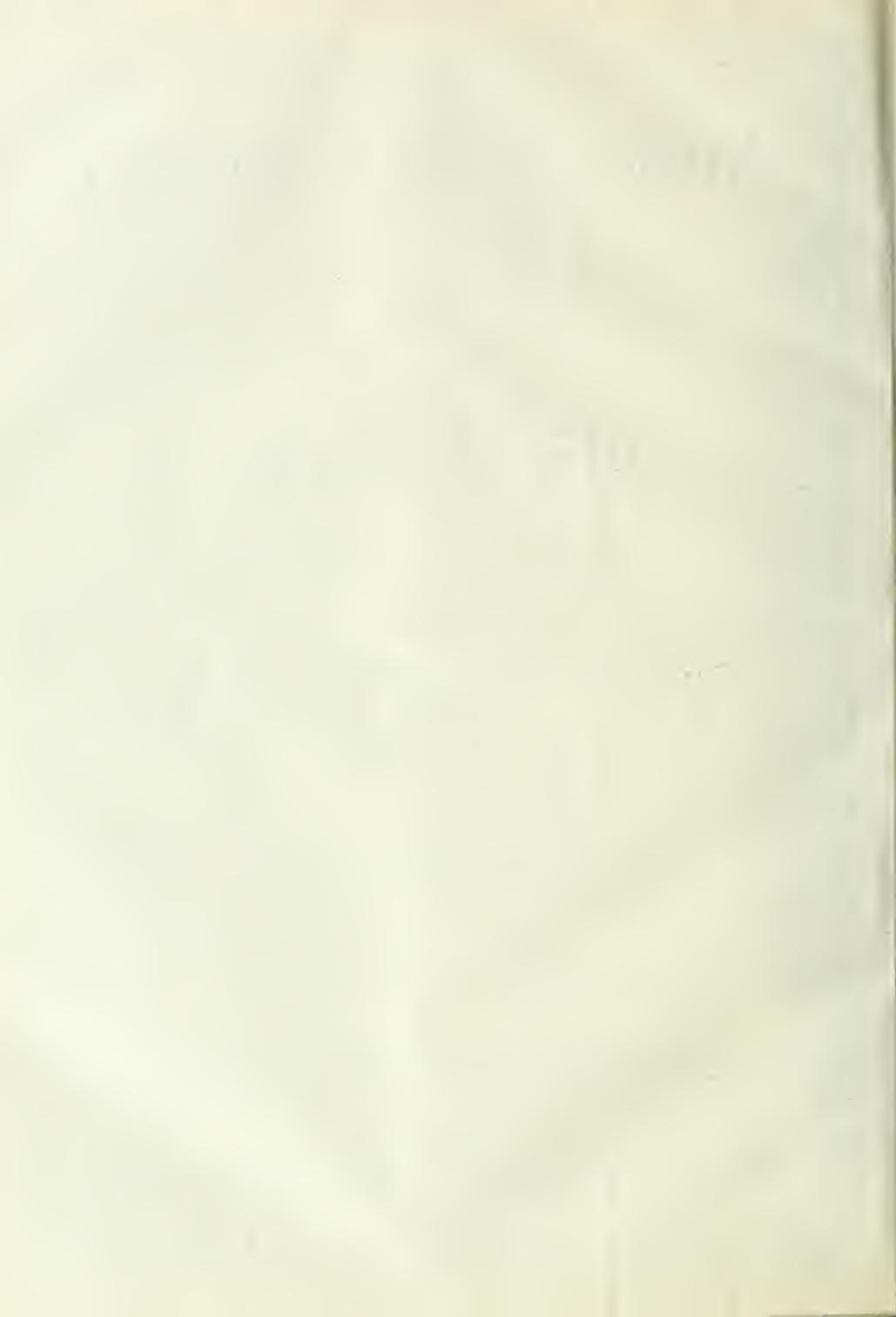
OF

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JULY TO DECEMBER, 1915.

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AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

1. Spontaneous Meningeal Haemorrhage in Young Subjects.

V. CORBIER, L. LEVY, and L. NOVÉ-JOSSERAND (*Ann. de méd.*, Tome II, No. 2, 1914, discuss that form of meningeal haemorrhage which occurs in young people who are apparently in perfectly good health, for which there is no known cause, and which ends as a rule in complete recovery or in apparently complete recovery, so that the patient leaves the hospital and is lost sight of. The number of cases on record is not very large, but typical cases of this kind have been reported and discussed by a number of different writers. The authors report a case in a man 22 years of age, whom they had under observation in two attacks of meningeal haemorrhage, the second following the first at an interval of ten months. The first attack was exactly of the type described above, the second appeared to be of the same nature, but it was followed very quickly by a haemorrhagic encephalitis, which proved to be fatal. An autopsy was made and the case was thus more completely investigated than was possible in the cases previously reported. At the autopsy signs of the two subarachnoid haemorrhages could be seen, the second haemorrhage having ended in a ventricular inundation. In addition to the haemorrhages there was a recent haemorrhagic encephalitis. The encephalitis was suspected of being toxic-infectious, but the most careful search failed to show the presence of any microbe. With regard to the relation existing between the haemorrhagic encephalitis and the two haemorrhages which preceded it, the authors conclude (1) that the so-called spontaneous meningeal haemorrhage of young people should be considered at least in certain cases as the expression of a subarachnoid localization of a toxic-infection or of an unknown latent intoxication; (2) the localization is, as a rule, almost exclusively meningeal at the outset—at all events, if, as is probable, the cortex is also involved, it is to so small an extent as to pass unperceived clinically. The special susceptibility of the meninges in young people perhaps explains the predominance of the subarachnoid lesions. (3) At some moment the toxic-infection which has become latent, once more becomes active, passes beyond the meninges and attacks the nervous parenchyma; acute encephalitis, with its grave or fatal prognosis, then results. (4) The distinction between the meningeal haemorrhage and the haemorrhagic encephalitis is only a difference of anatomical localization. (5) The prognosis of the spontaneous meningeal haemorrhage of young people should be revised. While the prognosis remains good for the immediate attack it should be reserved with regard to the future.

2. Gastric Headaches.

CHENEY (*Amer. Journ. of Med. Sciences*, May, 1915) calls attention to a certain class of headaches due to disturbance of the stomach, of not infrequent occurrence, presenting typical characteristics, and in which it is possible to prove the existence of stomach disorder to the exclusion of other disease, the headaches being cured by therapy directed against the underlying gastric disturbance. Such headaches are usually periodic, and commence suddenly as a hemicrania of a boring character after a period of good health. Of varying severity they may be so severe as to incapacitate for all work, but more usually they are not so violent as to prevent the patient following his usual occupation. Sometimes nausea and vomiting accompany the pain, but often there is no symptom pointing to the digestive organs. In all cases, whether indigestion is complained of or not, a test meal and gastric analysis should be carried out. The most frequent trouble is one of motility, the significant feature being delay of food in the stomach through weakness of its muscular wall. Other cases may show a hyperchlorhydria, the pain following food which is too acid or spicy, while others may be due to a low grade chronic gastritis with abundant mucus. Although gastric analysis renders the cause of the headaches reasonably certain, all other possible causes must be eliminated before this can be accepted as a basis for treatment. Notes are given of three cases typical of the different kinds of gastric disorder which may cause chronic headaches, and the frequent coincidence of constipation with the headaches and gastric findings is noted,

the question arising whether intestinal stasis is not the primary trouble, the headaches being autotoxic, and the stomach condition reflex. Against this is the fact that laxatives do not remove the symptoms in the cases under consideration, the essential feature in the treatment being the adoption of a proper dietary suitable for the gastric condition discovered. It is frequently found that such dietary, and other measures to overcome gastric atony and faulty secretion, are sufficient to regulate the bowels without recourse to laxatives.

3. X Rays and Pernicious Anaemia.

CH. AUBERTIN (*Maladies du coeur, des vaisseaux, et du sang*, September, 1914) discusses a case of pernicious anaemia in a radiologist. He has previously shown that in radiologists the white corpuscles are often modified and show leucopenia, hypopolynucleosis, and eosinophilia. The history of the present case, as far as this was available, was supplied by Gavazzeni and Minelli of Bergamo, colleagues of the patient, Dr. Tiraboschi, aged 49 years, who had been for fourteen years radiologist at the Maggiore Hospital, Bergamo. Tiraboschi was specially occupied with osseous radiography, and always used a hard tube with very penetrating rays. During the first years of his work he took no special protective measures; he then suffered from a radio-dermatitis of the left hand and left part of the face, but this never went beyond the stage of slight pigmentation. For several years afterwards he was in perfect health, except that he complained of a slight diminution in acuity of vision, which he considered to be due to x rays. The symptoms of anaemia became noticeable three years before his death, and the disease ran a fairly typical course, but the patient continued at work up to the day before his death, and no examination of the blood was made. At the autopsy the spleen was found to be greatly reduced in size and to measure only 5 centimetres (1.9 in.) in length, 4 centimetres (1.5 in.) in width, and 2 centimetres ($\frac{3}{8}$ in.) in thickness. On cutting it was hard and the pulp was diminished. The bone marrow of the ribs was red and scanty. The testes were atrophied. The bone marrow showed the following abnormalities: Few normoblasts; absence of megaloblasts; red corpuscles diminished in number and much deformed, with a few megalocytes; polynuclears diminished in number; lymphocytes increased; few myelocytes and eosinophiles. Sections of the spleen were sent for examination to Aubertin, who found that the Malpighian corpuscles were for the most part greatly atrophied, the arteries were thickened as a result of periarteritis and endarteritis, and in some cases were obliterated; the Malpighian corpuscles were made up of lymphocytes, which were normal but rarefied, and by a few very voluminous mononuclear cells; the pulp was extraordinarily loaded with iron cells. Gavazzeni, Minelli, and Daina, who, with Minelli, conducted the autopsy, look upon the medullary aplasia as the characteristic feature of the anaemia and have no doubt that the cause was the harmful action of x rays. Aubertin points out that the medullary aplasia is not very characteristic in type and bears only a very distant resemblance to that found in animals after strong doses of x rays. Nevertheless, the condition of the spleen, taken in conjunction with the fact that blood changes are known to occur in radiologists, inclines him to agree with their view. In no other case of pernicious anaemia examined by him has the atrophy of the spleen been so extreme nor the amount of iron pigment so abundant, and in a number of peculiarities the condition of the spleen recalls that seen in animals which have been irradiated for a long time and have not immediately succumbed. The case calls attention to the necessity for radiologists to take greater precautions against penetrating rays until the question of the possibility of an x-ray pernicious anaemia has been finally settled.

SURGERY.

4. Colloidal Gold and Infected Wounds.

B. CUNEO and P. ROLLAND (*Bull. et mémoires de la Soc. de Chir. de Paris*, No. 13, 1915) have made use of colloidal gold in the treatment of 300 cases of infected wounds

during the present war. The gold may be employed either by intravenous or intramuscular injection, or by subcutaneous injections into the peripheral zone of the infected region. The dose for intravenous injection is from 2 to 6 c.cm., for intramuscular injection 50 c.cm., and the injection can in either case be repeated on each of several successive days. The intravenous method gives the quickest result, and is indicated for strong patients with resistant cases, and is produces a reaction so violent as in some cases to cause a tendency to cardiac collapse; and though in the dose suggested above it is free from any danger, and the heart condition is easily overcome by means of the usual remedies, yet for weakly and depressed patients the intramuscular injection which acts more slowly but causes no general reaction is to be preferred. In making subcutaneous injections at the periphery of the infected zone injury to the vessels is to be carefully avoided, lest the violent reaction of the intravenous method should result. The authors have tried the effect of colloidal gold in a large variety of cases. The most valuable results were seen in the treatment of extensive injuries infected with anaerobic organisms. In such cases severe toxic symptoms persist even after surgical treatment and the most energetic use of antiseptics. If, however, colloidal gold was then injected, there followed, after the reaction already described, a fall of temperature, a slowing of the rate of the pulse, and an improvement in its quality together with a return of the arterial pressure almost to normal, a point which merits considerable attention. In addition to the general improvement, local improvement was noticeable, there being a diminution of fetid odour or discharge, lessening of the oedema, and more rapid elimination of parts already mortified. In a number of cases in which subcutaneous injections were made, the appearance of the wound seemed to improve and the extension of the infection to be arrested. In pyogenic infections the benefit from the use of colloidal gold seemed less clear, perhaps because the cases in which it was tried were specially cases of infections of serous membranes, where the production of a sufficiently strong local reaction could not be depended on. Even in such cases, however, marked temporary improvement sometimes occurred. In cases of penetrating wounds of the abdomen treated on conservative lines, injections of colloidal gold were given as a preventive treatment against infection, but it was not possible to pronounce definitely as to their effect. The authors have used other colloidal metals (silver, palladium, rhodium) in the treatment of surgical infections, but colloidal gold has seemed to them to give results definitely superior to those given by the other metals. Notes of four typical cases are given in the article.

5. Nephritis Simulating Renal Calculus.

The difficulties encountered in the differential diagnosis of painful chronic nephritis and renal calculus are discussed by BORCHGREVINK (*Norsk Maagazin for Laegevidenskaben*, January, 1915), who records the following case: A nurse, aged 26, felt weakness and pain in the lumbar region. Micturition was painful and frequent, and whenever her feet got cold she had to pass water every half-hour. She had to give up active work, and she awoke one night with violent pain in the lumbar region and the lower abdomen. An hour later the pain was confined to the left costal arch, whence it radiated to the bladder. Next day the urine was bloody. The pain continued, and was accompanied by vomiting and marked tenderness in the left hypochondrium and lumbar region and a slight tenderness in the left iliac fossa. The urine contained pus, albumin, and blood, and the temperature was normal. For about four years the patient was partially invalided by attacks of pain in the left inguinal and epigastric regions, vomiting, haematuria, and dysuria. A catheter specimen of urine was sterile, and cystoscopy showed nothing amiss. Catheterization of the right ureter showed active secretion of urine, which contained no sediment nor microbes and only a trace of albumin. The excretion from the left kidney was sluggish and the urine contained a considerable amount of albumin and a scanty sediment consisting of epithelial cells, leucocytes, a few red cells, and one hyaline cast. The Roentgen rays showed no calculi nor other abnormality. Nephrotomy showed the capsule of the kidney to be firmly adherent to the surrounding fatty tissue by fibrous bands. The surface of the kidney was smooth, and on section it showed little amiss apart from a pale, fibrous patch in the deeper part of the cortex. There was a double ureter, one limb of which was kinked close to the kidney. The left kidney was removed, for, though there seemed little amiss with its structure at the operation, it was obvious that the alarming and exhausting

symptoms were due to this organ. A microscopic examination showed nephritis in a few parts. Some of the tubules contained a hyaline exudate, and the outlines of the cells were blurred. At one point the straight tubules were interspersed with very oedematous interstitial tissue. The patient felt better after the operation than she had done during the past five years. The urine was now normal in quantity and contained only a trace of albumin. The author points out the discrepancy between the violent symptoms, including renal colic and haematuria, and the absence of any gross lesion in the kidney from which these symptoms came. Particularly in the early period of the disease was it difficult to accept any other diagnosis than that of renal calculus.

6. Oil Impregnation of Drainage Tubing.

McARTHUR (*Surgery, Gynaecology, and Obstetrics*, May, 1915) reports that a properly prepared rubber tube impregnated in oil is of high service in post-operative drainage where sero-fibrinous or haemorrhagic exudate is ordinarily expected within the first three days. He drained the cavity in a partial thyroidectomy a few years ago, making use of the usual small rubber drain. He saw how the tubing became plugged every few hours with a fibrin coagulum, resulting in distressing retention in the wound from an excessive serous exudate from the cut surface of the gland. The strain on the "cosmetic" skin-stitches is a special disadvantage in thyroidectomy. After this and similar experiences McArthur kept some pure gum tubing in liquid petroleum for a week. At the end of that time it had become considerably swollen, the calibre had almost doubled, and the walls had become gelatinous in consistence. It acted admirably for draining all sero-fibrinous discharging cavities, as coagulation did not take place until after all flow had ceased. Oil-impregnated tubing is now extensively employed in two Chicago hospitals. This material is strongly recommended for use after amputation of the mammary gland, removal of cysts and other growths in bones, and operations on the abdominal cavity, where the softness of the tubing precludes pressure ulceration and perforation of the bowel. It is also a good substitute for the cigarette drain in bile-tract surgery. The fact that no clotting occurs allows the surgeon to employ a tube of very small calibre. Granulations do not develop and become adherent, so that the tubing may be withdrawn without difficulty, the patient being saved much pain. Pressure necrosis is greatly diminished, and, above all, the non-coagulation of serum in the lumen allows of thorough drainage. The author gives precise directions for the preparation of oil-impregnated drainage.

7. Indiscreet Paracentesis Abdominis.

To illustrate the dangers of performing paracentesis abdominis without an intimate knowledge of the condition of the abdominal organs, C. G. CREUTZ (*Finsk Läkarsällskapets Handlingar*, January, 1915) records the case of a woman who was admitted to Professor Engström's hospital for severe abdominal distension. Three weeks earlier a doctor had performed paracentesis abdominis elsewhere, and after he had withdrawn a large quantity of fluid he had told the patient she had a tumour of the reproductive organs, necessitating a further operation. She did not at once follow his advice, and a few days later her abdomen was again much distended. In hospital she was found to be much emaciated, while the abdomen was enormously distended and fluctuating. It was everywhere dull on percussion, and there was no demonstrable resonance in the upper side of the abdomen when she lay on one side. The urine was clear, and contained neither albumin nor sugar. There was no oedema of the feet, nor abdominal tenderness. The uterus was retroflexed and prolapsed. A general anaesthetic was given and a vertical incision made between the umbilicus and the symphysis. Through the opening in the abdominal wall a large amount of fairly thick, slightly blood-stained, colloid fluid escaped. A multilocular, pseudo-mucous cyst of the size of a man's head was found secured by a pedicle to the left ovary. The cyst, which was freely movable, was removed after its pedicle had been ligatured. In the anterior wall of the cyst there was a sharply cut hole, 1 cm. in diameter. Through this hole some of the contents of the cyst had prolapsed, and close to it was an irregular tear, about 7 cm. long, which had been made during the operation. Masses of colloid were adherent to the body of the uterus and to several sections of the intestine. The size and shape of the hole in the cyst and its position relative to the abdominal wall, suggest that it was made by an ordinary sized trocar during paracentesis.

It is therefore practically certain that the ill-advised paracentesis abdominis, performed elsewhere three weeks before the operation, was responsible for the dissemination of masses of colloid with proliferating cells throughout the abdominal cavity and for the fatal pseudo-myxoma of the peritoneum found at the operation.

OBSTETRICS.

8. Scopolamine-Morphine in Labour.

A REPORT, based on a critical analysis of 60 cases, treated in the obstetric service of Frankenthal and Cary at Michael Reese Hospital, Chicago, is given by J. L. BAER in the *Journal of the American Medical Association*, May 22nd, 1915. The dosage varied from $\frac{1}{4}$ to 1 grain morphine, and from $\frac{1}{32}$ to $\frac{1}{16}$ and $\frac{1}{8}$ grain scopolamine hypodermically. Twenty-six cases are described as not successful; in 7 there was little success, in 3 partial success, in 5 fair success, in 8 good success, and in 6 the treatment was completely successful. The average duration of the so-called first stage exceeded that of a series of the same number of cases of one year ago taken for comparison by about seven hours, while the second stage in the two series was about equal. The total number of bimanual examinations made in all the 60 cases was only 77. Every patient admitted to the Michael Reese Maternity is examined once bimanually as soon as prepared after admission, and not afterwards unless there is the most distinct indication for it; hence the onset of the second stage had to be determined in most cases by other means, such as rupture of membranes, bearing-down pains, etc., and as a result the seven-hour retardation period should be considered as applying to the combined first and second stages. Pituitary extract was apparently not employed, as its use in the Michael Reese Maternity service is limited sharply to the end of the second stage, when it will be of most benefit and least disadvantage. Memory tests were carried out conscientiously, without necessarily disturbing patients seemingly somnolent. In 26 it remained throughout labour, 39 were cloudy, but the 26 had a greater total of the drug than the 39; 22 complained bitterly of a distressing thirst, and headache and vertigo were present in 27 and 31 cases respectively, the former sometimes intense and lasting several days; 43 patients slept part of the time. Pain was diminished in 39 cases, absent in 1, and average in 19, and increased in 1. Spontaneous was present in 18 cases and delirium in 9, and caused the most annoying phase of the whole investigation, calling for unremitting watchfulness. The risk of self-infection during labour was a source of constant anxiety, and it was next to impossible to keep the birth parts clean. In 1 case rupture of the uterus occurred, an accident which had been thought possible. Birth in all cases but 4 was spontaneous. Amnesia at birth was entirely absent in 28, present in 26, and marked in 5. Analgesia was present in 4, slight in 5; pain was average in 37, and marked in 8. Perineal tears occurred in 12 cases, and were repaired immediately, according to the routine at the hospital. Respirations in the baby were spontaneous in 46 cases, and aid was needed in 13. One stillbirth occurred in Case lxii, rupture of the uterus, with escape of the fetus into the abdominal cavity and prompt death of the mother. Of the late lasting symptoms most complaint was made of blurred vision. Two had marked delirium for two and four days *post partum*. After-pains were noteworthy in 8 cases. Spontaneous delivery of the placenta occurred only twice. Baer says in conclusion: "The prolongation of labour, the increase in the number of fetal asphyxias, the excessive thirst and intense headaches that are so distressing, the difficult control of patients, and avoidance of infection by soiling of the genitals, the more frequent *post-partum* haemorrhages, the blurred vision, the ghastric deliriums persisting far into the puerperium, the inability to recognize the onset of the second stage unless by risk of more frequent examinations, the masking of early symptoms such as *ante-partum* haemorrhage, rupture of the uterus and even eclampsia, the violence and uncertainty of the whole treatment, the general bad impression given to our patients who are being taught to approach the 'horrors of labour' in fear and trembling, constitute so severe an arraignment of this treatment of labour cases that we feel compelled to condemn it, leaving open the question of the merit of a single dose of morphine and scopolamine in those cases in which we have hitherto given morphine and atropin."

GYNAECOLOGY.

9. Hystereotomy for Cancer of Cervix.

MAURER (*Rev. de gynéc. et de chir. abdom.*, August, 1914) has issued a very complete report of 60 cases of abdominal hysterectomy for cancer of the cervix, all in Pozzi's clinic in the Hôpital Broca from November, 1905, to November, 1913. The operators were Pozzi, Proust, Bender, Dartigues, and Rouhier. Thirty of the operations were registered as "complete," and 30 as "extended" (*élargie*). Maurer admits that the later "extended" cases were very much more extended than the earlier. The dissecting away of the parametrium grew more and more complete, and in nine instances bilateral ligation of the internal iliacs was practised. Hence, even in a series under observation in a first-class hospital, statistics, Maurer admits, must always be carefully scrutinized. Pozzi and Proust operated on 46 cases, with 13 fatal results, (28.2 per cent.); 4 more fatalities occurred, making 17 deaths in the whole 60, the percentage being 28.3. Maurer reminds us that hospital patients often apply when the malignant disease is advanced. Hence the results are not so satisfactory as in private practice, where intelligent women are easily persuaded to submit to early operation. Ligation of the internal iliac arteries has answered well under Proust. One out of eight patients in this series where ligation was undertaken died, but the bladder was involved, and part of its wall had to be resected. Proust further admits that he has lost another such case since November, 1913. This method of preliminary ligation of the internal iliac artery greatly simplifies the operation, the patients suffer much less from shock, for the good reason that the field of operation is exsanguinated so that there is practically no bleeding, and the ureters can be isolated and the parametrium dissected away with ease and with the least possible handling. After bearing in mind, Maurer observes, that hitherto the extended operation has been mainly performed on advanced cases, it is relatively less dangerous than the less extensive procedure, as the knife passes through healthy tissues all the way round the diseased organs, so that no cancerous focus is opened up and partially left behind, nor does the knife carry malignant or septic germs into healthy tissues. Notwithstanding all precautions the ureters were occasionally damaged. In one case a ureter was accidentally caught up by the pressure forceps. When the instrument was removed the duct apparently resumed its natural calibre and colour, but it sloughed and a fistula developed. In another case a secondary uretero-vaginal fistula developed. In 3 cases the bladder was wounded, twice in deliberate resection of the bladder. Maurer adds that preliminary cystostomy was not practised in any of the three cases; it is a good practice, since it will reveal highly characteristic appearances when the vesical walls are involved. A very bad accident reported in 3 of the 60 cases was rupture of the new growth. All occurred in non-extended operations, where the uterine, being less freely isolated, is subjected to much traction. In one instance the uterus was torn off through the isthmus and pus escaped from the uterine cavity into the pelvic cavity; 2 out of the 3 cases died of the operation. By the beginning of 1914, when Maurer's report was published, 7 patients had survived and were doing well over two years after the operation, which was "complete" in 3 and "extended" in 4 of this subspecies. It will be found on consulting Maurer's summary that the 2 cases living over six years and the 1 living over four years after the hysterectomy all underwent the un-"extended" operation. A clinical report of the 60 cases forms the greater part of Maurer's monograph.

THERAPEUTICS.

10. Strychnine in Broken Cardiac Compensation.

NEWBURGH (*Amer. Journ. of Med. Sciences*, May, 1915) shows, from an unbiased examination of the evidence, that there is no sound basis for the generally accepted belief that the use of strychnine in acute and chronic heart failure increases the work of the heart and slows and steadies the pulse. The laboratory observations of other investigators show that doses permissible in man can have no direct effect in the treatment of heart disease, while clinically no benefit is obtained from single doses in cases of heart failure. The possible effect of the prolonged use of strychnine in large doses over a period of several days in persons suffering from chronic heart failure was studied, the patients being kept in bed on a diet of liquids and soft solids, the liquids being limited to 1,000 c.c. in

the twenty-four hours. Since many patients will entirely recover their compensation as a result of such treatment alone, without the aid of drugs, the clinical course of the infection was watched for the first few days in order to eliminate such cases from the series studied, only those patients who did not recover their compensation after three or four days being given strychnine, the effect upon the pulse, respiration, urinary output, systolic and diastolic pressures, weight, and subjective symptoms being noted. Finally, digitalis bodies and directed therapy were given in order that the effect of strychnine might be compared in the same patient under otherwise uniform conditions with the effect of remedies whose efficiency is established. Eight cases of broken cardiac compensation were thus studied, and none were benefited by strychnine, compensation not being improved in the slightest, while subsequently recovered when given digitalis; 2 others died in hospital, and 2 were discharged unimproved. This failure of strychnine cannot be explained on the assumption that the patients were beyond therapeutic aid, because half did recover when given digitalis, and the reasons they did not recover during the time strychnine was being administered was because strychnine does not improve the work of the heart. It is concluded, therefore, that there is no pharmacological or clinical evidence justifying the use of strychnine in the treatment of acute or chronic heart failure.

11. Treatment of Hay Fever with Calcium Salts.

In confirmation of their earlier report on the beneficial action of calcium salts in hay fever, R. EMMERT and O. LOEW (*Munch. med. Woch.*, January 12th, 1915) give further details of their earlier cases, adding a report of 2 new cases thus treated. The 5 patients whose hay fever had been banished by a prolonged course of calcium chloride in the summer of 1913, were immune to this disease also in the summer of 1914, during which the treatment was continued. The calcium chloride was dissolved in distilled water, 1.0 grams of crystallized calcium chloride to the half litre. Three teaspoonfuls of this solution were given every day at meals, the dose of calcium chloride being 3 grams of the crystallized salt, which are equivalent to 1.5 grams of the salt in the anhydrous state. The treatment should be continued throughout the year, but from October to February the dosage may be halved. In addition to the administration of calcium chloride in the pure state, the authors gave their patients large quantities of vegetables and cheese, as they contain a relatively greater quantity of salts than meat and the cereals. Among their more recent cases was that of an accountant, age 47, who for more than fifteen years had suffered from severe hay fever from the middle of May to the beginning of July. His eyes smarted and there was a free nasal discharge with attacks of sneezing, forty successive sneezes often occurring at one attack. The nose became so obstructed at night that respiration and sleep were disturbed. The treatment with calcium chloride was begun on March 14th, 1914, and during the following summer there were no symptoms of hay fever. The results in the other 7 cases were also strikingly successful. No harm resulted from this treatment in any case, and even when prolonged there were no signs of renal irritation. Both authors have taken 2 to 3 grams of calcium chloride every day for the past six years without showing any signs of renal disease. The harmful action of calcium salts on the kidneys is confined to large doses; and, according to Wolf-Eisener, the inhibitory action of calcium on the kidneys is observed only when they already show inflammatory changes. The treatment, which was apparently discussed in their earlier communication published in the *Munch. med. Woch.*, Nr. 48, 1913.

12. The Use of Dahlia in Infections.

RUHRÄH (*Amer. Journ. of Med. Sciences*, May, 1915), after reviewing the work of previous investigators upon the antiseptic action of certain anilin dyes, gives his experience in the use of dahlia as an efficient local application for streptococcal infections of the throat. Commencing with weak solutions, it was found that saturated solutions, about 4 per cent., could be applied to the mucous membranes of the throat, or other parts of the body, without producing pain or subsequent irritation. The effect of its use is most marked for superficial involvement of the mucous membranes, whether the infection is streptococcal or due to other organisms; but, as the drug only penetrates to short distances, it is useless in deep-seated affections. It generally produces distinct lessening of the intensity of the inflammation, and of the consti-

tutional symptoms; and, while being painless and non-irritating, it is markedly antiseptic, its colour being the only disadvantage, though stains of fabrics can be removed if immediately washed out in cold water. Applications of the mouth may be treated, either by the application of a saturated solution, or by using a mouth wash from 1 in 1,000 to 1 in 10,000, the stronger solutions not being often required. Not only does the dahlia kill the infecting organisms, but it stimulates healing, and its use is beneficial upon external skin ulcerations and lesions caused by, or accompanied with, pure organisms. The author has used it successfully in the treatment of vaccinations which are slow in healing, and upon infected abraded surfaces; while others report upon its value in the treatment of erysipelas, acute and chronic eczema, herpes, tinea tonsurans, tinea sycosis, and furunculosis.

PATHOLOGY.

13. Pathological Changes in Appendicitis.

STANTON (*Amer. Journ. of Med. Sciences*, April, 1915) records the results of microscopic examination of 539 appendices removed during ten days following an acute attack, together with the gross pathology observed at operation in more than 1,500 cases. He classifies the pathological data with reference to the duration of the symptoms previous to the time of examination, and this method of grouping the appendices as part of a disease process according to the day of the disease in which they are removed shows how fundamentally alike are the specimens removed during each succeeding day of the attack. The sequence of changes in the complicating peritonitis are even more uniform, for, if studied as a disease process, it is found that the lesions at any given time present features essentially similar in each case. During the first twenty-four hours of an attack the pathological changes are similar in nearly all cases, a definite obstruction of the lumen of the appendix being always present, distally to which the organ is distended. Following on the first eight or ten hours of the attack, fibrin is found on the peritoneal surface, and towards the close of the first twenty-four hours a considerable proportion of the appendices show commencing gangrene macroscopically. Microscopically, there is an intense diffuse polynuclear leucocytic infiltration with focal areas of haemorrhages and necrosis involving all coats, the peritoneal lesion being a fibrinous or sero-fibrinous exudate. Surgically, this peritoneal involvement of the first day may be ignored and the abdomen closed without drainage. On the second day, owing to the coalescence of the microscopic necrotic areas, macroscopic areas of gangrene are noticeable, and perforation, if it is going to occur, usually takes place on this day. There is intense leucocytic infiltration of all coats with ulceration of the mucosa, and in the majority of cases a definite fibrino-purulent exudate on the peritoneal surface. By the third day the destructive process in the appendix itself has usually reached its maximum both as regards macroscopic and microscopic evidences, the most striking histological feature now being evidence of commencing repair, as seen by the presence of fibroblasts in all sections, which evidences of repair are increased on the fourth day. On the fifth day the necrosis and polynuclear leucocytic infiltration still predominates in the cases presenting macroscopic evidences of gangrene, although the repair process is well advanced, while in the non-gangrenous cases the polynuclear leucocytic infiltrates have almost disappeared except at the surfaces of the ulcerations in the mucosa and of the periappendicular exudates. Decided advance in these repair processes are seen on the sixth and seventh day, while in the second week they are so far advanced as to present microscopic pictures of a subacute or chronic character, and if acute recurrences, following dietary or other causes, occur at this stage they result in the engrafting of a new acute lesion upon the histological picture of partial repair. The protection of the general peritoneal cavity from infection depends upon the maintenance of the integrity of the fibrinous periappendicular adhesions rather than upon the bacterial impermeability of the appendicular walls. In cases of diffuse peritonitis the peritoneal surfaces are put at rest by withholding all food and cathartics by mouth, and the subsequent changes tend to the resolution of the lesion or the formation of circum-scribed abscesses. After the first thirty-six to forty-eight hours of a diffuse peritoneal infection the lesions met with are essentially undrainable and not suited to surgical interference until the period of localized abscess formation.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

14.

Trench Diarrhoea.

REMLINGER AND DUMAS (*Rev. d'hygiène et de police sanitaire*, March 20th, 1915) say that the term "trench diarrhoea" covers some very different conditions: infectious by typhoid and paratyphoid bacilli, mucous-membranous enteritis, diarrhoea connected with improper action of the stomach. In most cases it is simply a more or less acute form of dysentery—a complaint from which no troops in the field are exempt. Diarrhoea and dysentery have prevailed with particular severity among the troops in the Argonne. They appeared at the end of the hot weather, when hostilities began in that district, and were but little checked by the cold of winter. Of the several hundred cases, some were dyspeptics of long standing, others were cases of mucous-membranous enteritis, easily produced by the coarse army diet, consisting largely of meat, independently of any stay in the trenches. Another was a case of paratyphoid. In most of the cases, however, the patient had never suffered from gastric or intestinal trouble. Soon after he entered the trenches, where he felt the fatigue and cold intensely, the diarrhoea appeared, beginning with four or five soft yellowish stools in the twenty-four hours. Gradually the number increased, especially at night; the faeces became more liquid and clear, and greenish instead of yellow. At the same time colicky pains preceded defaecation, which produced no feeling of relief. Tenesmus supervened, and the number of stools increased to twelve or fifteen, some of them greasy or bloody, and two-thirds of them at least occurring during the night. There was never any fever, but slight constitutional disturbance in the way of loss of strength and appetite, slight frontal headache, and sometimes nausea and vomiting. The only treatment required was to keep the patient warm and quiet in bed, which a few days effected a complete cure in the majority of cases. In a few cases serious, but rarely fatal, dysentery occurred. In the fatal cases the autopsy showed lesions of the large intestine and by-trophy of the mesenteric ganglia. The small intestine was healthy, and Peyer's patches were neither ulcerated nor hypertrophied. The spleen was hard and shrunken, thus excluding all action by Eberth's bacillus or paratyphoid bacilli. Microscopic examination of the stools showed the features characteristic of dysentery, and animal parasites, such as the eggs of ankylostomata, were never found. The causes of trench diarrhoea are said to be exposure to cold and wet, and to the want of warm food. In the case of the large numbers of men unaccustomed to much meat, the fact that the rations consist almost exclusively of beef was certainly a contributory cause. Few of the patients attributed their malady to water. Although a few admitted they had drunk water from shell holes or from sources of doubtful purity, most of them said that the cold enabled them to a large extent to do without drinking anything but wine, tea, or coffee. Now, all the causes above mentioned must be regarded as predisposing only. The presence of a special bacillus is essential, but it seems to have little effect alone, as it has been found in the faeces of men who have not been exposed to the predisposing conditions, and who have remained in perfect health. The bacillus seems to be derived from the trench mud contaminated with faecal matter. This gets on to the boots, thence on to the hands and the food. In the summer dust and flies also carry the infection. Moreover, the infection, even if it does not occur in the trenches, may take place in the villages hard by where the men go to rest, after five or ten days in the trenches, for about an equal period. The result is that the villages are crowded, and it is impossible to secure propersanitary precautions. Further, most of the food for the men in the trenches is cooked in these villages, so that the bacilli may also be carried to the trenches from the kitchens. What is now called "trench diarrhoea" has always been rife in the Argonne, and presented no difference of character in the summer of 1914 from what it has been in previous summers.

15.

Examination of Infants' Stools.

McCLANAHAN AND MOORE (*Amer. Journ. of Med. Sciences*, June, 1915) record their routine examination of 125 infants' stools, believing that the procedure ranks in importance

with blood counts and urinalysis, and is the only accurate method of determining the disturbing food element in infants with intestinal indigestion, the conclusions drawn from the examination giving information of practical value. The stool is collected on a diaper or square of gauze and then put in a jar with screw top to prevent drying before examination, the main features of which consist in recording the number of stools; their colour, reaction, odour, and consistency; the presence of blood, mucus, or curds; the estimation of neutral fats, fatty acids, soaps, and total fat; the reaction to Lugol's solution, and the predominance of either Gram-negative or Gram-positive bacilli. While the colour of the normal stool is light yellow, malt renders it brown, condensed milk light yellow, skimmed milk very pale, and excessive soap whitish. Various infections cause green stools, from the conversion of bilirubin to biliverdin, from excessive acidity or alkalinity of intestinal contents, or from some oxidizing ferments, or due to the *Bacillus pyocyaneus*. If due to the latter, treatment with nitric acid causes the colour to disappear, while if due to biliverdin the characteristic bile reaction results. High acidity is usually due to relative excess of carbohydrate, whereas an alkaline stool may be due to a relative excess of protein or the presence of soap. An excess of neutral fats indicates either a lowered tolerance for fats or an excess in the food, and excess of fatty acids and soap shows that the neutral fat has been broken up by digestion, but has failed to be absorbed. While examination of the stools is a very important point in all bottle-fed infants, it must not be solely relied upon to the exclusion of other clinical symptoms, weight curve, and energy quotient.

16. Arterial Murmurs and Peripheral Resistance.

L. BARD (*Archives des maladies du cœur, des vaisseaux, et du sang*, May, 1915) deals with the possible clinical value of a study of the arterial murmurs which under certain conditions can be heard on auscultation. If the stethoscope is placed over a normal artery, without causing compression of the artery, no murmur is heard, though certain arterial "tones" may at times be detected. But if the artery is compressed by the stethoscope a murmur, contemporaneous with the diastole of the artery or the systole of the heart, is heard over the larger arteries. Under certain conditions the murmur is produced with special ease, as, for instance, in all the important arteries in cases of aortic insufficiency, in the thyroid arteries in exophthalmic goitre, in the carotid arteries in anaemia, and in even the smaller arteries in cases of pernicious anaemia. The author has carried out a series of investigations on the sounds produced in the brachial artery just below a compression armet, such as is used for the determination of arterial pressure. The procedure is the same as in Korotkow's method for the determination of arterial pressure. A small phonoscope is used instead of a stethoscope; it is placed without pressure on the chest just above the bend of the elbow and just below the armet, and the pressure of the armet is first increased progressively up to the point of suppression of the circulation, and then is diminished slowly and progressively. Murmurs, if present, are noticed during both the rise and the fall of pressure, but always more readily during the fall. Near to the point of maximum systolic pressure the murmurs are replaced by a short phase of simple arterial "tones," and as the pressure decreases, while it is still well above the minimum diastolic pressure, they are replaced by vibrant "tones." Since the murmurs are not heard during the whole period of compression of the artery, it is clear that while narrowing of the calibre of the artery may be a necessary factor in the production of arterial murmurs, it is not in itself a sufficient cause. The murmur does not correspond in the different cases to a particular stage of narrowing of the artery. The murmur always ceases a little below the maximum systolic pressure, whatever that may happen to be, and it does not therefore correspond to any actual degree of pressure in the narrowed vessel. The consistency of the arterial walls is not an essential factor, since in both positive and negative cases the vessel walls may be normal. The degree of density of the blood is far from being an essential factor in a case of pernicious anaemia with precordial jugular and ocular murmurs, auscultation of the brachial artery by the method

described revealed only a murmur of feeble intensity. In the author's opinion the essential factor in the production of the murmurs is the degree of emptiness of the peripheral segment of the artery below the narrowing, this being dependent upon the blood flow in the capillaries, and therefore upon the peripheral resistance. A fact which is in itself suggestive of this hypothesis is that some of the best marked murmurs are heard in certain cases of aortic insufficiency, while they are totally absent in cases of dilatation of renal origin. Again, it is to some extent confirmatory of this explanation that the murmur is less distinct during the period of progressive compression than during that of relaxation, for it is clear that the emptiness of the peripheral segment of the artery is more complete during the latter operation. A direct proof of the theory of causation here put forward is given by placing a second armlet on the forearm, and demonstrating, as can be done with ease, that a murmur when present will invariably disappear if the flow of blood is obstructed in the region of distribution of the artery under consideration. It thus results that the production of arterial murmurs by compression depends upon the state of the peripheral resistance, and the presence or absence of the murmurs, their greater or less intensity, the length of the period during which they are produced, etc., would all furnish information as to the state of the peripheral circulation. Moreover, the method of observation will not only have a diagnostic significance, but observations of the varying conditions made on the same patient from day to day would have a bearing on prognosis and on the results of any method of treatment employed.

SURGERY.

17. Rapid X-Ray Localization of Foreign Bodies.

A RAPID method of x-ray localization for use in the military hospitals of Montpellier has been elaborated by BERTIN-SANS and LEENHARDT (*Arch. d'electr. m'ed.*, No. 387, 1915), who state that, without demanding the time and complex material of the methods of precision, it gives sufficiently exact results, and has a special value for the trunk and thick parts of the body. Having found, approximately, the region in which the foreign body is situated, a cross in cardboard is stuck on the anterior part of the subject, and a similar cross on the posterior. Each branch of these crosses is 8 or 10 cm. in length, and at every space of 2 cm. there is placed a minute piece of metal, a grain of lead for example, care being taken to differentiate the shape of these marks, as between the two crosses. The subject is made to lie upon the photographic plate in such a manner that the posterior cross is, if possible, in juxtaposition with the plate. The anticathode of the tube is placed vertically above the centre of the anterior cross, and two exposures are made, the second after displacing the tube for a known distance. The two crosses are then removed, and their situations marked with silver nitrate. On the plate there appear two shadows of the projectile, two of the anterior cross, and one (if there has been juxtaposition) of the posterior. With the result of the first exposure, representing the ray of normal incidence, we are for the moment only concerned. From this it is possible to trace immediately the point of entrance of the rays which formed the shadow of the projectile, its exact situation on the skin being ascertained by a reference to its co-ordinates, or, in other terms, its distance from each of the two branches of the cross within the angle of which it lies. The fact that each branch has a 2 cm. scale enables one quickly to estimate these two distances of the projectile, at least to a refinement of 5 mm., which is sufficient in practice. This point having been marked on the skin, the same procedure is followed with the posterior cross, the point in this case marking the egress of the rays intercepted by the projectile. The projectile, therefore, lies along the line between these two points, and it remains to determine the distance at which it is situated from either of them. Its distance from the plate is given by the formula:

$$x = \frac{h \cdot d}{D - d}$$

where h is the distance between plate and anticathode, D the displacement of the cross, and d the displacement of the shadow of the foreign body, measured by taking the distance between the same points of the projectile in the two images. A ready reckoner may be established, furnishing for given values of h and D , the value of x corresponding to various values of d . If

the height h of the anticathode above the plate is 65 cm., and the displacement D of the tube is 10 cm. between the two exposures, we have the following, which can be multiplied indefinitely and intermediately:

Values of d , Displacement of Shadow.	Values of x , Distance of Pro- jectile from Plate.	Values of d , Displacement of Shadow.	Values of x , Distance of Pro- jectile from Plate.
0.1 cm.	0.64 cm.	2.6 cm.	13.41 cm.
0.5 ..	3.09 ..	2.9 ..	14.61 ..
1 ..	5.90 ..	3.2 ..	15.75 ..
1.3 ..	7.47 ..	4.4 ..	19.86 ..

If the posterior cross is in contact with the plate, the distance x gives immediately the depth of the bullet from the point traced on the posterior part of the subject. The depth of the projectile from the point traced on the anterior surface is found in an analogous manner. It suffices to discover on the plate the mark of the anterior cross, to measure the distance between the two shadows of this cross, taking the point nearest the projectile, and to deduce, with the aid of the formula just given, the distance from this point to the plate. By subtracting from this distance the value already obtained for x , one arrives at the depth of the projectile from the anterior point. The same rule must be followed if, by reason of the conformation of the region, the posterior part of the subject is not in close juxtaposition with the plate, with the result that there is a double shadow of the posterior cross.

18. Cancer of the Breast under 20.

R. H. FOWLER (*New York Medical Record*, May, 1915) reports three cases of carcinoma in subjects under 20 years of age. In the first, carcinoma of the rectum, quite inoperable, developed in a boy aged 15, and rapidly proved fatal. The second patient, a boy aged 14, was struck on the right nipple by a golf ball, and scirrhous carcinoma developed. The breast was removed on February 6th, 1913, and there is no after-history. The third patient was a Russian Jewess, aged 19, admitted into hospital for recurrence of cancer on September 17th, 1914. She had observed a swelling in the left breast when 17½ years of age. She married at 18, and immediately became pregnant: the growth increased rapidly, and the breast was amputated, by the radical method, in February, 1914, when "scirrhous carcinoma" was reported. Recurrence proved rapid, and on admission, seven months after the operation, into hospital, recurrences were detected in the main scar, and also in a number of scars resulting from incisions made to drain the axillary flap—two recurrences rather than implantation carcinoma. There was invasion of the opposite breast, with enlargement of the axillary lymphatic glands upon that side, and invasion of the left lung and right humerus. Death occurred on November 16th, 1914, hardly eighteen months after the tumour was first observed.

19. Tonsillectomy.

BALFOUR (*Annals of Surgery*, March, 1915) discusses tonsillectomy in children from the standpoint of the general surgeon, urging the complete removal of both glands where they are visibly diseased, obstructively enlarged, or the possible atrium of infection. While guillotine operations are inefficient in a varying percentage of cases a properly performed dissection will always be satisfactory. It is essential for success that the anaesthetic should be administered by one accustomed to producing an ideal anaesthesia sufficiently deep to prevent unalloyed reflexes interfering with the dissection, yet so light that the patient is returning to consciousness by the time the operation is completed. With the child's head lying free over the head of the table and supported by an assistant at one side with another assistant on the opposite side for tongue traction, sponging, etc., the surgeon stands between the two and introduces his index finger behind the posterior pillar, and by firm upward traction puts the anterior pillar on the stretch, and with blunt dissecting scissors frees it from the tonsil without breaking through the capsule. The tonsil is then held with a tenaculum forceps and freed from the posterior pillar by blunt dissection, which usually enables the tonsil to be rolled out of its bed. By this method the operator sees exactly what he is doing, and the technique when once acquired possesses distinct advantages as a precise and safe operation in the hands of a competent general surgeon.

OBSTETRICS.

20. Anaesthesia of the Internal Pudic Nerve during Labour.

K. BOLLAG (*Muench. med. Wochs.*, February 23rd, 1915) points out that there is not yet any satisfactory method for abolishing the principal pain of labour, but the lesser pain, due to irritation of the internal pudic nerve, can be abolished by the injection of novocaine-suprarenin into this nerve. He has carried out this treatment in more than 225 cases at Professor O. v. Herff's gynaecological hospital. The internal pudic nerve gives off three important branches, which supply the anus, the muscles and skin of the perineum, a portion of the labia, and the region of the clitoris. Fortunately the trunk of the nerve is easily reached, but some practice is necessary in order to anaesthetize this nerve properly. The author uses a 2 per cent. solution of novocaine-suprarenin, supplied by Höchst in ampullae containing 5 c.cm. The contents of one ampulla were usually sufficient, but sometimes two were used. At first there were several failures due to faulty technique and the difficulties of finding the nerve in fat subjects. A plain Record 5 c.cm. syringe was used with a needle at least 6 cm. long. The patient was placed on her back with the legs flexed at the hips. The tuber ischii was then located and the needle was inserted between it and the middle of the perineum and directed towards the lesser sciatic foramen so as to strike the nerve which passes under the ligamentum sacro-tuberisum on the posterior surface of the ischium. About 2 c.cm. of the solution were injected as the needle was slightly withdrawn, and when the needle was almost withdrawn 2.5 c.cm. was injected under the skin of the perineum. The remaining 2.5 c.cm. of the solution were then injected in a similar manner into the internal pudic nerve and perineum of the opposite side. A double dose was given when difficulty was experienced in finding the nerves in fat patients. The injections were sometimes facilitated by introducing a finger or two into the vagina, where they acted as a guide to the spine of the ischium. The subcutaneous injection into the perineum was undertaken in order that, even if the trunk of the nerve was missed, the perineum would still be anaesthetized. The injection should be given at the beginning of the second stage of labour, when the passage of the head is causing pain. The anaesthesia begins five to ten minutes after the injection, and lasts at least two and often more than three hours. In some cases the injections were given too late, and in others too early. It is advisable to give the injections a little too early rather than too late. The relief was often so great that patients who were almost wild with pain remained perfectly quiet after anaesthesia had been induced. It was also beneficial when the perineum had been ruptured, as it enabled the operator to suture the perineum at once without pain. In seven cases the treatment was ineffective on account of faulty technique or because it was given too late. In five other cases, although the perineum and vulva were obviously quite anaesthetic, the patients complained of pain during the passage of the head. The author concludes by claiming that, thanks to its simplicity, this treatment can be as well employed at home as in a hospital.

21. Osteoplastic Operation for Contracted Female Pelvis.

FRANKLAND SMITH (*Medical Record*, April 3rd, 1915) has made a series of experiments on animals, with the bold object of endeavouring to widen a contracted pelvis by transplantation of bone. Many border-line cases, he insists, could be permanently relieved by an increase of not more than 1.5 to 2 cm. in the conjugate diameter. It is possible, he believes, to obtain the result by permanently spreading the pelvic bones. The transplant is obtained from the inner surface of the tibia near its upper extremity, being of sufficient width or length for the purpose. The periosteum can be removed with the transplant, which must be absolutely fresh. An incision is then made over the symphysis pubis, carried at once down to the bone. The fibro-cartilaginous tissues must be completely removed, and the little villous-like projections on the bone which run into the hyaline cartilage must be curetted. The bones are then separated for a certain distance by an instrument made for the purpose, and the transplant set in place. It may be held in position either by grooves made in the pubic bones or by a heavy kangaroo tendon bound about the graft and the bones. After the incision through the integuments has been closed with catgut a properly fitting plaster cast is applied. The progress and position of the transplant can be watched by the use of the Roentgen rays.

GYNAECOLOGY.

22. Caruncle of the Female Urethra.

YOUNG (*Boston Med. and Surg. Journ.*, June 3rd, 1915) describes a series of cases of urethral caruncle operated upon in the Genito-Urinary Service of the Massachusetts General Hospital. The pathological reports of 19 cases where sections were made and examined by an expert illustrate a fact that has struck other observers, but seems never to have been so clearly made out before. Though caruncle is a common disease, and is generally held to be an innocent neoplasm, it is also known to recur and prove troublesome to extricate; whilst, on the other hand, cancer of the female urethra does not appear to be common. Yet, on section, a caruncle often appears malignant. In those taken from Edward L. Young's 19 cases a large proportion showed irregularity of epithelial cell growth in crypts and in foldings from the surface, and of islands of epithelial cells included in the tissue. On further inspection, with Whitney as pathologist, one more section showed irregularity of cell growth, suggesting carcinomatous degeneration; and, besides in these five, there were very irregularly lined epithelial surfaces in three others. The age range in these cases was wide—namely, 6 to 63 years. Young was able to follow up three of the five patients where the growth seemed histologically malignant. One of the three, examined four years after operation, and the second eight years after, showed no signs of recurrence, and there were no symptoms. The third was once more under Young's care six years after the removal of the caruncle. Her general health was good, except that she was a little run down, but the symptoms had recurred. A tumour, about one-fourth of an inch in diameter at its thickest part, surrounded the meatus. The whole urethra felt lard, thickened, and indurated. No enlarged glands could be detected. This patient refused to undergo a second operation. Thus, caruncle seems often clinically innocent, though histologically malignant—in appearance, at least. Young, turning to symptoms in his entire series, found that in 26, or 35 per cent., the patients had no symptoms of any kind pointing towards the caruncle. Even a caruncle of the size of a strawberry was discovered quite accidentally, and in 35, or half the entire series, there were no urinary symptoms. In 23, or one-third, the patients had already undergone various operations in other institutions for the removal of similar growths—namely, 3 "several," 5 two, and the others one surgical procedure. Age had no relation to recurrence, nor had the nature of the operation, excision, actual cautery, or chemicals. In all patients where there had been a strictured urethra not remedied at the first operation, the caruncle returned. Young gives statistics showing a close relation between stricture and caruncle. No definite facts as to the etiology of caruncle could be founded on the cases under observation. If, however, an operation is undertaken, whether it be the touching of a minute caruncle with the thermo-cautery or resection of the urethra, Young considers that the whole urethral canal should be sounded and explored, lest a stricture be overlooked.

THERAPEUTICS.

23. Serum Treatment of Pneumonia.

ROPER (*Conn. Univ. Med. Bull.*, April, 1915) gives his experience in the treatment of 20 cases of pneumonia with a serum derived from a horse which had been treated with a vaccine containing five strains of pneumococci, including typical and atypical types. Two series of cases were treated, the first receiving very small doses subcutaneously, while in the second the doses approximated more nearly those advised at the present time given intravenously. In the first series there was no noticeable immediate effect, 13 out of 14 patients recovering, and, though there seemed to be an improvement in the general condition, the temperature curve showed no material change, and there was no shortening of the course of the disease. Of the 6 cases in the second series 3 died, and the total mortality of the two series was 20 per cent., which approximates the average hospital mortality. The same serum which was used in the first series was used for the first 3 of the second series, 2 of which defervesced immediately, while the third showed no immediate effect, though eventually recovering. The last 3 were treated with a serum from a horse treated as before with a vaccine containing five strains of pneumococci (including Neufeld I) and a *Streptococcus mucosus* isolated from

one of the cases, but no defervescence occurred. Of the 6 cases in the last series (with the exception of the 2 cases already mentioned) no defervescence occurred after injection, but some developed striking phenomena. Four had chills following within two hours after the administration of the serum, the temperature rising to 103 in one, and 106 in two of the cases, and dropping in a few hours to 98 and 99 respectively, but in all four cases the temperature returned in a short time to a high level, and the course of the disease was unaffected. Leucocyte counts were unaffected. Pneumonias may be divided into those due to typical and atypical organisms, the former being common and the latter uncommon. A polyvalent serum active against the typical varieties should show results in the great majority of cases. Although in two of the cases the abrupt termination of the disease on the administration of the serum was very striking, the probability that this was merely coincident with a natural defervescence must be borne in mind. While it is possible that in the cases having chills the serum had furnished bacteriostatics enough to cause phagocytosis and consequent lysis of the pneumococci, thus liberating sufficient endotoxins to cause the disturbance, so many factors enter into the interpretation of the result of therapy with a polyvalent serum that no conclusion can be arrived at. For the present attention should be confined to the action of high value serum on typical cases only until value in typical cases has been established, and strains from cases resisting treatment should be identified and classified.

24. Lactose in Glycosuria.

The extent to which lactose can be usefully employed in the diet of patients suffering from glycosuria is still in debate. Bourquelot and Troisier concluded, from a single case of a diabetic patient in the last stage of phthisis, that the ingestion of increasing doses of lactose led to the excretion of increasing quantities of sugar in the urine, sometimes up to the amount ingested. On the other hand, Lepine holds that, of the two constituents of lactose, the galactose but not the glucose is assimilated. Lafon recognizes a favourable action of milk upon glycosuria, and established that 25 per cent. of the lactose ingested was assimilated. Denegés found that in certain forms of glycosuria the addition of sugar of milk to the diet diminished the amount of sugar excreted, and sometimes caused its total disappearance. Chelle found that the administration of lactose could temporarily restore a patient from diabetic coma. FERNAND FARGES (*Gazette hebdomadaire des sciences médicales de Bordeaux*, June 6th, 1915) has investigated the effect of a milk diet and of the addition of lactose to an ordinary diet upon the urine and the blood in diabetes. The conclusions as to the effect upon the urine are given in the article under consideration, the discussion of the blood changes being reserved for a later article. Notes of severe cases are given. In one case the patient when first seen was found to pass 2.1 litres of urine in twenty-four hours with a total of 42 grams of sugar; 20 grams of lactose per day were added to the diet for eight days, no other change being made; the urine was again examined. The total quantity passed was now 2 litres, and of sugar 16.77 grams. The patient was put on to 2 litres of milk per day and 100 grams of lactose. Four days later the amount of urine passed in a day was 1.150 c.cm., and sugar had disappeared. From this time on, eggs, fish, chicken, and gluten bread were added to the diet, and later half a litre of wine, and the patient was kept under observation for seven weeks. The amount of urine passed was 1,200 and 1,300 c.cm. per day, and sugar remained absent. An even more striking case was the total disappearance of glycosuria in a patient suffering from diabetic gangrene who at the beginning passed 90.66 grams of sugar per day. In all the cases described 2 litres of milk was given per day and an amount of lactose of varying amount, from 200 grams per day. In each of the first 5 cases described sugar altogether disappeared from the urine; in the sixth the amount of sugar excreted daily had fallen from 336 grams to 7 grams, when the patient ceased attendance at the hospital. In 4 cases there was a marked diminution in the amount of urine passed. The seventh case is illustrative of a further series of cases in which the author found that the amount of sugar excreted diminished under treatment and then continued to show slight variations about a limiting figure, but did not completely disappear. In the case described the amount of sugar excreted was 87 grams before treatment, and later varied between 3 and 5 grams daily. Among the conclusions arrived at are: (1) That lactose is completely assimilated by the diabetic patient; (2) that in certain diabetics there

is a limited improvement, no further decrease in the amount of sugar excreted being obtained by further increasing the dose of lactose; (3) that lactose aids the assimilation of other carbohydrates; (4) that lactose, which is ordinarily strongly diuretic, has a contrary action in diabetics. The author proposes to carry out further investigation of the subject from the theoretical as well as the clinical point of view.

25. Noviform in the Ambulant Treatment of Eye Diseases.

BERNOULLI (*Muench. med. Woch.*, January 19th, 1915) is an enthusiastic advocate of the use of noviform in a strength of 3, 5, or 10 per cent. in various inflammatory diseases of the eye and its appendages. Usually diseases of the eyelids and cornea are treated by the general practitioner with boracic lotion and yellow ointment. But since noviform was introduced in 1912 in the treatment of these conditions it has deservedly displaced the older remedies in the opinion of many ophthalmists. The author has used noviform for two years, and has found it act rapidly in cases of blepharitis which had proved refractory to weeks and months of treatment with boracic lotion and white or yellow precipitate ointment. Both these ointments can, in fact, be dispensed with in the squamous and ulcerative forms of blepharitis, but the yellow ointment is still to be recommended for ezeematous and phlyctenular conjunctivitis. Noviform is non-irritant, and as it causes no burning or pain, the patient can be trusted with it for home use. In chronic blepharo-conjunctivitis it is advisable to give the eye zinc baths before the noviform is applied in the form of a 5 to a 10 per cent. dilution in vaseline, which is applied two or three times a day. Ezeema of the face, accompanied by ezeematous conjunctivitis, rapidly disappears when treated with a 20 per cent. noviform ointment. Again, when foreign bodies have been removed from the cornea, the application of a 3, 5, or 10 per cent. noviform ointment reduces the risk of infection. Since he began using noviform the author has seldom seen ulceration of the cornea follow the removal of a foreign body from the eye. In some cases it is advisable to combine the noviform vaseline with 1 per cent. of atropine, so as to hasten painless recovery.

PATHOLOGY.

26. Chorion epithelioma of Testicle

COOKE, of San Francisco (*Johns Hopkins Hospital Bulletin*, June, 1915), tabulates 47 cases, including his own, reported for the first time, in which tumours developing in the testicle were found histologically similar to chorion epithelioma in women. COOKE'S patient was a powerful built man aged 26, limited comatose into hospital. There was no family history, and all that could be found out about him was that five days before admission he had been seized with cramp, followed by haematemesis, headache, disordered vision, and loss of consciousness. The mammary glands were prominent, and the left nipple enlarged and surrounded by a fairly well developed glandular base. Pressure of the breasts caused the escape of a few drops of colostrum-like fluid. The right testis measured $\frac{4}{8}$ in. by 3 in. by $\frac{2}{8}$ in., being converted into a large firm ovoid tumour. Melæna and haematemesis, and ultimately rise of temperature, were noted before the patient's death on the fifth day. At the necropsy chorion-epithelioma of the right testis was discovered, and there were metastases in the brain, liver, kidneys, stomach, peritoneum, and thyroid. The haemorrhage which had obscured diagnosis was traced to the ulceration of a metastatic nodule in the stomach. The spleen weighed 190 grams and was enlarged, but bore no metastatic growths. The tumour of the left testicle showed the appearances seen in chorion-epithelioma, largely broken up by haemorrhages, and the normal tubuli had entirely disappeared. The histology of the metastatic nodules was similar. The left mammary gland, examined under the microscope, showed fairly numerous tubules lined with normal epithelium. The right gland was not examined. In another case of chorion-epithelioma of the testicle, quite recent (Wartlin), there was, as in this instance, hyperplasia of the mammary glands. The age of the 47 patients ranged from 16 to 46, the large majority being adults between 20 and 40. In 2 the affected testicle was undescended, 29 cases ended fatally, and in 17, where the testis was removed, no post-operative results were reported. The left testis was a little more frequently affected than the right.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

27. Emotional Shock following Shell Explosion.

FIESSINGER (*Journ. des praticiens*, February 15th, 1915) gives an account of a number of cases of emotional shock following shell explosion. One case was that of a non-commissioned officer of heavy artillery, who had received a severe bruise—but no more serious damage—on the left thigh. The patient had been a bright and cheerful man with no antecedent nervous manifestations, family or personal. To any inquiries he replied in monosyllables, and after a few questions his expression and manner indicated profound fatigue. His memory appeared normal, but there was a marked alteration of intelligence. He preserved absolute silence, appeared to be extremely melancholy, and suffered from insomnia, intense headache, and distaste for food. The reflexes were normal, and muscular power was retained. Subcutaneous injections of strychnine resulted in some improvement. A similar case was that of a lieutenant of artillery. There was no trace of a wound in this case. The patient appeared to be in a state of stupor; he refused all nourishment and preserved a fixed stare. After two days there was a phase of nervous excitement, followed by one of melancholy and intense depression. The author points out that the explosion of heavy shells provokes a terrifying impression on nervous subjects, and that this shock is less marked on those who have been seriously wounded otherwise. With regard to the nature of the attack, the author states emphatically that in none of the cases referred to was there any evidence of simulation, and that the condition was to be regarded as a traumatic neurosis, only occurring in those of susceptible nervous system. Rest treatment and suggestion were beneficial, and there were few ultimate ill effects.

28. Dysenteric Polyneuritis.

A. V. MUELLER-DEHAM (*Wien. med. Woch.*, April 17th, 1915) has observed many cases of polyneuritis during an epidemic of dysentery, which broke out in the autumn of 1914 in Kagran. Among the complications of dysentery, "rheumatic" symptoms were by far the most common and affected the majority of the patients. The pain was most frequent and troublesome in the legs, was often increased by movement, and was of a shifting character. Although the patients had been exposed to wet and cold, and had led a strenuous life in the open, the pain was traced, not to "rheumatism," but to neuritis directly traceable to the dysentery. This view was supported by the facts that (1) these symptoms were much less common among soldiers suffering from wounds or diseases other than dysentery, (2) true articular rheumatism is a very rare disease among the class of patients under discussion, and (3) the symptoms were characteristic of true neuritis. Every form of neuritis was observed. In some cases there was extreme muscular atrophy, and the electrical reaction to degeneration was present. In some cases there was typical sciatica, in others there was polyneuritis with extreme tenderness and thickening of the nerve trunks, with hyperaesthesia and anaesthesia of the skin. In other cases, again, there was paresthesia without any demonstrable anatomical lesion. The reflexes were often absent, and acro-paraesthesia was common. "Vascular spasm" and trophic disturbances of the nails and skin were also observed. The author considers these manifestations of neuritis were not due to any specific poison produced by the bacillus of dysentery (his material included only cases of bacillary dysentery), but to the nocera condition of the intestine, which permitted the absorption of imperfectly digested substances into the system. In this connexion he points out that polyneuritis may also be a sequel to tuberculous ulceration of the intestine. The coincidence of neuritis and other forms of intestinal ulceration is so common that intestinal ulceration should be suspected in every case of neuritis. As the patients improved and the dysenteric ulceration disappeared, the symptoms of neuritis also passed off. Many of the patients suffered from oedema on admission to hospital when, though the pulse was usually good, the patients were much exhausted. It was not clear whether this oedema was a cachectic, toxic phenomenon, or due to vasomotor influences connected with the neuritis. The latter view was supported by the frequency with which other vaso-

motor abnormalities, pain and paraesthesia, were associated with this oedema. The neuritis were unaffected by salicylates, but it disappeared in most cases simultaneously with the other symptoms of dysentery.

29. Haemorrhagic Nephritis due to Novocain-Adrenalin.

LENSCHOW (*Norsk Magazin for Laegevidenskaben*, May, 1915) records the case of a man, aged 21, who had never undergone a serious illness. On September 10th, 1914, he was operated on for inguinal hernia on the right side. A general anaesthetic was dispensed with, and a subcutaneous, subaponeurotic injection of novocain-adrenalin was given. A 1 per cent. stock solution of novocain was boiled, and then adrenalin was added, and altogether 70 c.cm. of the novocain solution and 14 minims of adrenalin were used. The dosage of the former was 70 cg. and of the latter 0.7 mg. The operation was satisfactorily completed and the wound healed by first intention. On the day following the operation the patient complained of dull pain in both lumbar regions. The urine was blood-stained, and a heavy brown-red deposit was found under the microscope to consist of red cells and a great quantity of hyaline and blood cell casts. The kidneys were not palpable and there was no rise of temperature. The haematuria gradually diminished, and when the patient was discharged, sixteen days after the operation, the macroscopic appearance of the urine was normal, and it contained no albumin. There were, however, still a few red cells to be seen under the microscope, but no casts. The author points out that there has apparently been no previous record of nephritis following an injection of novocain-adrenalin. The cases of poisoning by this preparation have been distinguished exclusively by symptoms referable to the vascular and central nervous systems. Subcutaneous and subfocal injections of such a small quantity and of such a dilute solution of novocain-adrenalin as given in the author's case have not hitherto caused any toxic symptoms. It may be suggested that the haematuria was independent of the anaesthetic and that the association of the two was purely accidental. The author dismisses this hypothesis, and considers that the rapid development of the haematuria after the operation and the absence of fever as indicative of a toxic effect. But he does not know which of the components of the novocain-adrenalin was to blame; he suggests that in the future the urine should be examined when large injections of novocain-adrenalin have been given.

SURGERY.

30. Projectiles Within the Knee-joint.

COUETAUD (*Bull. et mém. de la Soc. de Chir. de Paris*, April 7th, 1915) has collected notes of 17 cases of projectiles within the knee-joint, the projectiles being within the cavity of the joint in 9 cases and parietal in 8. He found that the intercondyloid space was the site of predilection for projectiles with only a small penetrating force—that is, round balls or large fragments of shells. For making an exact diagnosis radiology appeared to be superior to radiography, but mistakes in the interpretation of the radioscopic appearances had occurred, probably as the result of the inability of some of the patients to adopt the most suitable position for a good result. As a rule, the most serious anatomical lesions were found in the cases in which the projectile was within the cavity of the joint. Moreover, the nature of the projectile largely determined the severity of the wound, and as a rule the severity increased progressively according as the projectile was a rifle bullet, a round ball, or a fragment of a shell. In addition to the danger from the presence of the projectile within the joint there are frequently added those from fissures of the bone and intra-articular spicules of bone. The majority of the patients had suffered from great exertions in the trenches, and the wounds, soiled with mud, were almost always infected when they came under treatment. The first 6 cases recorded were examples in different degrees of osteomyelitis, giving rise to the general phenomena of septicæmia, phlebitis, diarrhoea, nephritis, etc. Operative intervention is obviously required in all cases except in those few in which the foreign body is

small, encysted, and without reaction on the joint. With regard to the operation to be performed the author believes that most frequently the best treatment is by a large crescentic incision, as for suture of a fractured patella. In this way alone can all necessary explorations be made, and foreign bodies which may be multiple removed. An arthrotomy often proves insufficient for dealing adequately with the condition, and has to be followed later by a resection or amputation. Thus in the present series of 17 cases a preliminary arthrotomy had been performed in each of the 3 cases in which resection was needed, in each of 2 cases of amputation, one ending fatally, and in one fatal case in which the general condition of the patient contraindicated a later amputation. The results obtained in the 17 cases were: 2 deaths, 1 recovery after amputation, 3 recoveries after resection, 4 other recoveries with ankylosis, and 7 absolute cures with complete or almost complete restoration of movements. Of the 7 cases of cure no operative treatment was undertaken in 3, in each of which the projectile was embedded in bone; in one the projectile had already been extracted before the patient reached the hospital; in one arthrotomy was able to be performed almost immediately after the infliction of the wound; in 2 no operation was performed at the time, but after an interval of four weeks in one case and eight weeks in the other. Good effects were observed from immobilization of the limb, especially by means of plaster-of-Paris splints with metal clamps, the knee being left uncovered.

31. Disinfection of Surgeon's Hands.

ELLICE McDONALD (*Surgery, Gynaecology, and Obstetrics*, July, 1915) employs a solution of forty parts of acetone, sixty of methylated spirit, and two of pyxol as a germicide for washing of the surgeon's hands before an operation. Acetone need not be chemically pure, and may be obtained from oil and colourmen's shops, as it is used in the arts for removal of varnish. The solution is poured into a vessel big enough to admit the hands, which are immersed in it for one minute. A nailbrush is also employed, and penetration of every crevice. The solution is inexpensive, unirritating to the skin, and efficient. It may be used repeatedly, and though it acquires a sediment, this detritus in no way impairs its efficiency. After obtaining, through laboratory experiments, clear evidence of its bactericidal qualities, McDonald has employed this solution for the surgeon's hands, and for the sterilization of the skin of the abdomen, for over a year with uniformly satisfactory results. In consequence he has found that operation wounds heal more perfectly than after any of the methods of disinfection current among great operators at the present date. McDonald has discarded rubber gloves, but fortifies the skin with a hand varnish which is easily applied.

32. Rupture of the Intestine by Compressed Air.

STAFER (*Munch. med. Woch.*, March 9th, 1915) records the case of a lad, aged 15, who was cleaning a machine with compressed air when, unintentionally, he blew dust into the eyes of his companion. In a passion his companion forced the nozzle, through which the compressed air was escaping under a pressure of 6 to 8 atmospheres, into the lad's anus. This happened between 10 and 11 a.m. At 2 p.m. the lad was admitted to hospital much cyanosed and with an anxious expression. Respiration was laboured and superficial and the whole body was bathed in sweat. The lungs were displaced upwards, the action of the heart was regular, its sounds were normal, and the pulse was small and 120. The abdomen was distended like a drum, and was everywhere tympanitic. There was some blood about the anus, but a rectal examination was negative. The temperature was 37.2° C. and the urine was normal. The patient was perfectly conscious and complained of severe abdominal pain. The history of the case and the condition of the patient indicated rupture of the intestine. Laparotomy was therefore performed under general anaesthesia, an incision being made in the middle line between the umbilicus and the symphysis. When the peritoneum was divided offensive gas escaped with a loud hissing sound and the abdomen collapsed. The intestines and peritoneum were inflamed and masses of blood were found in the pelvis. Faecal peritonitis was diagnosed and the abdominal wound was enlarged upwards to ensure a better view. Between the pelvic colon and the splenic flexure fifteen ruptures of the serosa were found and sutured. The serosa of the transverse colon was completely torn longitudinally and, just below the hepatic flexure, there was a longitudinal rupture extending for about 6 cm. Through this rupture faeces had escaped into

the abdominal cavity. The caecum and the colon were resected almost as far as to the middle of the pelvic colon, with which the ileum was connected by a termino-lateral anastomosis. The abdominal cavity was cleaned, a Mikulicz tampon was inserted, and the wound partially closed. The patient rallied after the operation, but next day fever, vomiting, and hiccup came on and he died at 3 p.m.

33. Congenital Defects of the Anus and Rectum.

BRENNER (*Surgery, Gynaecology, and Obstetrics*, May, 1915) publishes a report, with comments, of 61 cases of atresia of the anus and rectum under his observation. The varieties were as follows: Atresia ani simplex 27 cases, 17 reported as in males, 6 reported as in females, and 4 where sex was not reported; atresia of the anus and vulval outlet 10 females; atresia ani with complete occlusion by a membranous diaphragm 3 cases, 2 male and 1 female; atresia ani with perineal outlet 2, 1 male and 1 female; atresia ani with serotal outlet 2 males; atresia recti 12, 9 in males, 1 in female, 2 sex unreported; atresia recti with vaginal outlet 3 females; atresia recti with urethral outlet 1 male and 1 female. The operative treatment is also tabulated. Perineoplasty (mostly proctoplasties) 29, of which 19 proved successful, 6 died of the operation, 4 died after more or less perfect recovery, the surgical mortality being 24 per cent. Inguinal colostomy 11 cases, 2 successful, 4 died of the operation, 5 later, surgical mortality 66.6 per cent.; perineal dissection for fistulous openings 10 cases, 9 successful, 1 died after recovery, the surgical mortality being nil. Lastly, in two cases colostomy and proctoplasty were combined, one dying of the operation. Brenner observes that this procedure, a novel and unique technique, promises good results in selected cases. He notes that his statistics demonstrate that perineal dissection for fistulous openings gives excellent results, and is a safe procedure. The 29 proctoplasties for anal or ano-rectal obstruction show a mortality of 24 per cent., which is, after all, much lower than before the era of aseptic surgery. Inguinal colostomy, though advised by some authorities as the procedure *ob initio*, is attended with high mortality, 66 per cent., and therefore must be condemned excepting as a last resource.

OBSTETRICS.

34. Detachment of Placenta in Eclampsia.

ZARATE (*Ann. de gynéc. et d'obstét.*, August, 1914-April, 1915) notes how utero-placental apoplexy is known to be a result of puerperal eclampsia, and is probably overlooked in many cases. Essen-Müller detected retroplacental haematoma in 2 out of 23 cases of eclampsia. Zarate, in a Buenos Aires institution, detected and described the same pathological condition in 2 out of 25 cases of eclampsia. He believes that, on the other hand, it is the eclampsia that is overlooked in many cases of detachment of the normally attached placenta. In reports of that complication, more than two-thirds had marked albuminuria. Zarate describes in full the two instances of detachment where eclampsia was recognized, and notes that both mothers and children were lost. The first patient applied for hospital relief in the middle of the eighth month, because she had suffered from a fit a few days previously. The uterus was not tense, the vertex presented, and the patient not seeming very ill was advised to come again three days later. Next day, early in the morning, a second fit occurred and the patient was admitted. In the afternoon, when straining during defaecation, the patient vomited blood. The midwife then noted that there was great dyspnoea, with a pulse of 130, the uterus was perfectly rigid and the fetal heart sounds inaudible. Yet the patient was not anæmic and at first acute hydramnion was diagnosed. The resident medical officer dilated the cervix, the membranes broke, and about two pints and a half of clear amniotic fluid escaped, followed by a pint and three-quarters of syrup-like blood mixed with fresh blood. Basiotripsy was performed, and after delivery the placenta, completely detached, slipped out, with a quantity of clot. The tampon was applied, but in vain, and the patient died although she rallied for a time after an intravenous injection of serum. The second patient was admitted comatose after about ten attacks of eclampsia, the tongue bitten, the lower extremities oedematous, and the urine scanty, dark, and loaded with albumin. Dilatation was complete fourteen hours after admission. The uterus from the first was very tense. An hour after the dilatation delivery occurred, a great mass of coagula coming away. Post-

partum haemorrhage proved very obstinate and therefore hysterectomy was performed, but the patient died under the operation. Zarate figures the uterus. The uterine wall showed great hyperplasia of the connective tissue, with degeneration of the muscle cells. Between the bundles of cells were numerous areas of haemorrhage, some old, others recent. The blood had pushed aside the parallel bundles of muscle cells and there was no line of demarcation between the muscosa and decidua, where the decidua cells were broken up into islets by the haemorrhages. Thus marked local pathological changes may be associated with eclampsia.

35. Chronic Inversion of Uterus: Abdominal Operation.

HEDLEY (*Journ. Obstet. and Gyn. of the British Empire*, January, 1915) reports two cases where inversion occurred during labour and was not reduced for several months. In both he opened the abdominal cavity. A ring was then seen in the normal position of the cervix at its attachment to the vaginal walls, large enough to admit the tip of the forefinger. The Fallopian tubes and broad ligaments were drawn into the ring. Manual attempts proving of no avail in the first case, the ring was divided posteriorly in the middle line with scissors, so that there was a vertical incision involving the posterior wall of the uterus, the vaginal portion of the cervix, and the posterior vaginal wall. The assistant was immediately able to reduce the inversion by very slight pressure from the vagina. The wound was closed with catgut sutures from above downwards. Ventral fixation of the fundus was considered advisable. In the second case Hedley, having opened the abdominal cavity, was able to replace the uterus quite easily by pressing on it through the bladder walls. The drawbacks of making a vaginal examination when the peritoneal cavity was open were thus avoided. The fundus was fixed to the parietes with catgut. Perfect recovery followed both operations. Hedley maintains that the abdominal operation is, as a rule, the proper treatment for chronic inversion. The repositer is slow, tedious, and painful in its action, and the patients are already anaemic, whilst stretching and cutting the cervix from below is only possible in a minority of cases.

GYNAECOLOGY.

36. Post-partum Retroposition of the Uterus: Conservative Treatment.

CHERRY (*New York Med. Journ.*, May 1st, 1915) found that at the Columbus Hospital, New York, out of 2,315 patients applying for treatment within four years, 455 had retroversion of the uterus, out of which 325, or 70 per cent., followed abortion or labour. These are of far more frequent occurrence than is generally believed, and would be less seldom overlooked if patients were followed up through the entire period of involution, by bimanual explorations carried on to the sixth or eighth week. Breast-feeding must be insisted upon for at least two months, the tight application of the binder avoided, and small doses of ergot administered. A great many displacements can be prevented by these precautions, and postural treatment must be undertaken later on. The patient must not be kept in the dorsal position. She must be encouraged to lie on her side and abdomen, and as the fundus nears the brim of the pelvis the assumption of the exaggerated lateral prone position with elevation of the hips upon pillows should be practised. Mild exercises must be enforced several times daily so as to hasten involution by increasing the general muscular tone. They should begin on the second or third day after delivery, beginning with the arms, then the lower extremities, and, later, the abdominal muscles. The result of this preventive, conservative treatment is that the patient is saved from permanent pessary life and from operations which do not by any means give permanently satisfactory results.

37. Autoplastic Transplantation of Human Ovary.

NATRASS (*Med. Journ. of Austral.*, January 16th, 1915) performed Caesarian section on a woman, aged 17, subject to great pelvic contraction owing to disease of the right hip joint, which was still in an active condition, as a sinus over the great trochanter discharged pus freely. The operation was undertaken on March 7th, 1911. A full-time female child, weighing 6 lb. and measuring 19 in., was extracted alive. In order to prevent further conception, the ovaries were excised and transplanted into the anterior abdominal wall. The ovaries after amputation were

dropped into normal saline solution at 98.4° F., and divided longitudinally through the hilum. As much of the stroma as possible was cut away with curved scissors, as Natrass found from previous experience in transplantation in the lower mammals that the transplanted ovary degenerated in direct proportion to its thickness and density, as abundance of fibrous stroma arrests the free permeation of nutritive fluid. The sheath was then separated from the anterior surface of the left rectus abdominis muscle, and when the outer border was quite free the operator grafted on to it the partially split left ovary. The ovary was fixed to the muscle, the edge of the latter lying within the split in the former, with a few catgut sutures. The cut surface of the right ovary was placed on the right external oblique muscle, about two inches from the middle line and fixed with catgut sutures. It was thus quite subcutaneous. The patient weaned her child in August, 1911. On September 24th the catamenia returned, lasting three days, moderate and painless. The periods continued fairly regular, always moderate in amount, and usually quite painless; but sometimes the patient knew when they were due by tenderness in the grafted ovaries, usually most marked in the right, which was subcutaneous. On September 6th, 1914, three years and a half after the operation, Natrass saw the patient and found her in good health; the uterus was of normal size and the periods were regular. The right or subcutaneous graft could be easily felt, the left could only be defined by the sickening sensation which the patient felt when it was pressed.

THERAPEUTICS.

38. The Sitting Position in Pneumonia.

MILLE. E. COTTIN (*Rev. méd. de la Suisse romande*, May 20th, 1915) has made an extensive study of the results of allowing pneumonic patients to leave their bed for part of the day. She tells how this plan came to be adopted by C. Widmer (*Munch. med. Woch.*, May 26th, 1914); he was surprised to find that in eight severely delirious patients of his who left their beds the delirium disappeared, fever diminished, and there was rapid disappearance of the pneumonic symptoms; none of these patients died. Later, he treated 50 cases by this method, and advised early resort to it; he found that the patients realized the benefit of sitting on a sofa or taking a short walk in the room; they felt they were free from the notion of being ill, and their pain was relieved. A period of four hours' sitting daily was found sufficient; temperature fell from 38° to 37°, the frequency of respiratory and cardiac movements diminished, blood pressure increased, and a feeling of euphoria was experienced. Mille. Cottin has treated a large number of cases thus: She selects for description 20 of the gravest cases, ranging in age from 20 to 80. Some were allowed to get up on the day after their entry into hospital; others a few days later. As a rule, the hours from 2 till 6 p.m. were selected, owing to their convenience. The patients, clothed in a dressing-gown and a covering for the legs, were helped by a nurse on to an armchair close to the bed. On being comfortably settled, they were encouraged to give their impressions of the change of posture, and especially to give warning when they wished to return to bed. Only one asked this after two hours' sitting. He said he "did not feel bad, but he had had enough." The others would gladly have remained seated beyond 6 p.m. had it been possible. No one made any complaint; all wished to renew the experiment on the following days; some even swore when bedtime came, especially one patient, who felt a stitch in his side only when recumbent. Asked what they thought of the sitting treatment, they said they breathed much more easily, expectoration was more abundant and less painful, sweating ceased, and they enjoyed a pleasant euphoria; they also appreciated the relief from the incessant need to arrange their pillows comfortably. Objectively, Mille. Cottin noted that cyanosis became much less intense, respiration slower and deeper, pulse fuller and often slowed by 10 to 20 beats a minute. In a fat, delirious, alcoholic pneumonic, aged 55, it was found that his pulse, which was very irregular during recumbency, became perfectly regular every time he was seated. The same thing was seen in a case of double pneumonia, where the patient's cardiac state was so grave that the physician hesitated momentarily as to the wisdom of trying the treatment. Usually the temperature fell from some tenths of a degree to 13°, and it was lower in the evening after sitting than in the morning during recumbency in bed. In no case

was any cardiac faintness or weakness induced by sitting. The author thinks that sitting for part of the day should be adopted more often in pneumonia than it has hitherto been, and even in other acute respiratory affections, but she would not try it in all pneumonias. The earlier it is tried the better, and she specially urges its use in those who are dyspnoic, congested, and arrhythmic, and in those whose hearts are nearest to exhaustion, for she finds that cases of cardiac insufficiencies gain more relief by it than any other cases. The benefit she attributes partly to derivation of blood to the lower limbs and partly to increase of diaphragmatic breathing. In support of this belief, she found that after sitting for two hours there was an increase of $\frac{1}{2}$ cm. in the thigh and calf of one patient, and in another patient, while sitting in bed with the legs extended, there was on the sound side a pulmonary expansion of $\frac{1}{2}$ cm., whereas with the legs hanging over the edge of the bed it rose to 3½ cm. (It seems probable that the mere hanging of the legs out of bed might well be tried in cases in which sitting up out of bed appeared inadvisable.) The results obtained were as good in women as in men, but it was found that pneumonias of the upper lobe were less influenced in their evolution than those of the lower lobe.

39. Injections of Alcohol in Trigeminal Neuralgia.

LEIVSON (*Hospitalstidende*, May 5th, 1915) has treated 28 patients, suffering from trigeminal neuralgia, with injections of alcohol. In 12 cases the observation period was sufficiently long for an estimate to be made of the permanent effects of this treatment. Of the 7 who were "cured," 4 were given only one injection each, and 3 required several injections. The remaining 5 patients were relieved of pain for periods ranging from three to twelve months. Of the 16 patients whose treatment had been started only about a year earlier, 11 had shown no relapse, 2 had relapsed, 1 had benefited only slightly, and 2 had derived no benefit from the treatment. The author has practised injecting alcohol into the Gasserian ganglion in the dead body, and has twice succeeded in the living subject, the injection into this ganglion on one occasion being unintentional. The danger of wounding blood vessels is slight, and only on two occasions did blood escape from the needle and a haematoma develop. But, though the patients in both these cases were debilitated, no complications ensued. It was difficult to limit the injections of alcohol to the trigeminal nerve, and in 1 case headache and paralysis of the oculo-motor and abducens nerves were provoked, probably because the needle had penetrated to the cranial cavity. In 2 cases the needle entered the pharynx. But, in spite of these accidents, the author considers the difficulties and dangers of this treatment are no greater than those of other operations on the trigeminal nerve. One drawback to the treatment is the difficulty experienced in locating the nerve affected. In some cases patients suffering from marked supraorbital neuralgia obtained no relief till the second branch of the trigeminal nerve was treated. Patients frequently complained of pain in areas supplied both by the second and third branches, and in areas where the first and second branches approach each other. The author confines this treatment to severe cases, but he considers the prognosis is best in those cases which have not lasted many years. The treatment was of no use in the neuralgia of patients suffering from neurasthenia, hysteria, or melancholia. In one case the neuralgia was traced to malaria and was quickly cured by quinine. Although no stringent antiseptic precautions were taken, no infection followed the injections, probably because of the antiseptic action of the alcohol. As a rule, the benefit derived from the injections lasted longer than that derived from resection.

40. Intradural Injections of Tuberculin in Tuberculous Meningitis.

J. BACIGALUPO (*Muevich. med. Voch.*, February 16th, 1915) has cured 2 cases of tuberculous meningitis by intradural injections of tuberculin. A series of experiments showed him that even in tuberculous meningitis there is free communication between the intradural space and the blood vessels. It would, therefore, at first sight seem sufficient to treat intradural disease with remedies which could reach this space through the blood. In spite of this consideration the author decided to abandon the subcutaneous injection of tuberculin in favour of direct injection of tuberculin into the intradural space. The first injection was given in a case of tuberculous meningitis, which was regarded as hopeless as it was complicated by military tuberculosis. Twenty-four hours later some of the cerebral symptoms abated, but the child died on the third

day after the first injection. A little later, 2 cases of pure tuberculous meningitis were treated in the same way, the diagnosis in these cases being confirmed by the demonstration of tubercle bacilli in the cerebro-spinal fluid. In the course of twenty days both patients recovered completely, two injections having been given in one case and three in the other. In all these 3 cases the intradural injections had the unexpected effect of reducing the temperature by about 1° C. and keeping the temperature at this relatively low level. As there are, apparently, only 22 published cases of recovery from tuberculous meningitis, and as all other methods of treating this disease offer little prospect of success, the intradural injection of tuberculin deserves further trial. Indeed, as this method of giving tuberculin seems harmless, the author recommends it in cases in which tubercle bacilli have not been found in the cerebro-spinal fluid and the diagnosis of tuberculous meningitis is not absolutely certain. The dosage of tuberculin is the same as for other methods of administration. A little more than 1 mg. of old tuberculin may be given in the first injection in a child of 5. If the symptoms are unaffected by the first injection, a somewhat larger dose of tuberculin suspended in cerebro-spinal fluid may be injected twenty-four hours later into the intradural space.

41. Iodine Vapour in Ophthalmic Therapeutics.

BONNEFOY reports his experiences of the use of vapours of iodine in various eye diseases (*Congrès de la Soc. Française d'Ophthalmol.*, Paris, May 4th to 7th, 1914). He obtains the nascent vapour of iodine by heating iodoform in a special ampoule. Iodine vapours have a marked reaction on the eye, provoking pain, conjunctival oedema, and sometimes a fibrinous exudation with congestion of the free borders of the eyelids and a secretory reaction of the lacrimal sac. The vapour has a modifying action on chronic affections of the lacrimal sac, and favourably influences diseases of the eyelids, especially ulcerating blepharitis, as well as corneal ulcers and trachoma with pannus.

PATHOLOGY.

42. Haematology of Mumps.

CH. AUBERTIN and H. CHABANIER (*Archives des maladies du coeur, des vaisseaux, et du sang*, January-February, 1915) have been led to make a study of the haematology of mumps by the fact that the five articles which up to the present have been published on the subject by different workers agree in stating that a mononucleosis is the dominant change, whereas, as a rule, in infectious diseases the essential phenomenon is a neutrophile poly-nucleosis followed by a certain degree of mononucleosis at the time of the crisis and of eosinophilia at convalescence. The authors have investigated 16 cases of mumps. In each case the blood was examined four times a day, and cases were chosen for examination at as early a stage as possible of the disease. The conclusions at which they arrived were that at the beginning of an attack of mumps a condition of polynucleosis is present. The polynucleosis attains relatively high proportions—70 to 79 per cent.—the absolute numbers being in some cases above 7,000 per cubic millimetre. The polynucleosis is only seen on the first, second, or, at latest, the third day of the disease, and it lasts for a very short time at most. If one gland is affected later than the other there is a return of the polynucleosis at the time of swelling of the second gland, even although there may be no return of fever. The polynucleosis is, indeed, to a certain extent independent of rise in temperature and may be sufficiently clearly marked even when the temperature is almost normal. The polynucleosis gives place quickly to a mononucleosis, in which the proportion of mononuclears may be as high as 70 per cent., and their absolute number be 4,500 per c.m.m. There is increase in the three forms of non-granular cells, but the most interesting is the increase in the lymphocytes, which may on certain days reach a proportion of 25, 30, or 40 per cent. At the same time as the mononucleosis is an eosinophilia which may go beyond 10 per cent. This eosinophilia is not one of convalescence, but occurs early and lasts as long as the mononucleosis. Orchitis is accompanied generally, but not always, by a marked polynucleosis, and the fever which may precede any symptom of orchitis is also accompanied by polynucleosis, as was shown in one of the cases here recorded. The discrepancies between the results arrived at by the authors and those by other workers are due to the early stage at which the polynucleosis is seen and to its short duration.

AN EPTOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

43. Glycosuria in Chronic Intestinal Stasis.

ALFRED C. JORDAN (Reprint from the *Proceedings of the Royal Society of Medicine*, 1915, vol. viii, Electro-Therapeutical Section) draws attention to the connexion between glycosuria and chronic intestinal stasis and the changes in the pancreas which occur as the result of the chronic intestinal stasis, causing it to become nodular, a condition of chronic pancreatitis which yields to successful treatment of the stasis. In glycosuria we have usually to deal with the subjects of chronic intestinal stasis, and it is frequently associated with long-standing gastro-intestinal disorders, and occurs in the subjects of rheumatoid arthritis and of Graves's disease, etc. Notes of two cases are given. The first, an officer aged 22, had an attack of appendicitis four months previously, and an abscess in the right iliac fossa was opened, and a pint of pus let out, with a small leaden shot, thought to have been swallowed with some game. A fortnight later phlebitis of the left leg and thrombosis of the femoral vein developed, but he eventually made a good recovery. Ten days prior to examination he became constipated and suffered from flatulence, and the bismuth meal showed extreme delay in the lower end of the ileum, the last coils of which were enormously dilated, and subsequently great retardation in its passage through the large intestine, practically the whole of the bismuth being in the transverse colon after ninety-eight hours. Prior to operation a large percentage of sugar was found in the urine, and the patient died soon after in diabetic coma without the operation having been performed. The second case was that of a woman, aged 47, who at the age of 30 had had Graves's disease, which yielded to treatment by rest, diet, and aperients. Beyond being the subject of chronic rheumatism, she remained in fairly good health till five months before coming under observation, when she complained of thirst, loss of appetite, occasional nausea, and wasting. She became constipated, and the urine was found to contain a large percentage of sugar. Six hours after a bismuth meal half was still in the stomach and half in the lower ileum, the terminal coil of which was tortuous, hyperrophied, and felt like a thick cord, and was firmly tied down in the right iliac fossa. At the end of twenty-three hours the lower ileal coils were still well filled, indicating extreme ileal stasis, and the ileal kink was present. At the end of thirty hours all the bismuth was in the large intestine, but after forty-seven hours none had advanced beyond the middle of the transverse colon, only a little having entered the descending colon, thus pointing to an extreme degree of stasis. This patient died a few days later in diabetic coma, no operation having been possible. On several occasions in other patients slight or transitory glycosuria has been present in the subjects of stasis, and the above two cases point to the very definite relation which exists between diabetes mellitus and chronic intestinal stasis.

44. Clinical Study of Blood-Sugar.

SOLOMON STROUSE, assisted by IRVING F. STEIN and ALAN WISELEY (*Bull. Johns Hopkins Hosp.*, June, 1915), gives an account of the newer methods of determining the amount of sugar present in the blood in health and in disease by the use of small amounts of blood. They give a full description of their technique, which is a modification of Kowarsky's method. They conclude that the method affords an efficient and accurate means of studying blood-sugar in man; that the normal blood-sugar, as shown by a study of 61 determinations, varies from 0.04 to 0.12 per cent. (in one instance 0.14 per cent.), with an average of 0.084 per cent.; that these variations are due to the varying factors in the ordinary day of any normal individual, especially to the diet factor; that carbohydrate in the diet raises the blood-sugar; that the blood-sugar of a normal man describes a curve, reaching its lowest limits before breakfast and before dinner, and invariably showing a rise one hour after meals; and that blood-sugar determinations, to be of any value, must be performed before and after an ordinary meal containing carbohydrate. They relate a case which illustrates the value of blood-sugar determination: A young man had for about thirty

days multiple furuncles which refused to heal despite active surgical intervention. Physical examination showed a very healthy man with no obvious cause for the persistent furunculosis. The urine for several days gave, for a twenty-four hour specimen: Amount 2,500 c.cm., specific gravity 1012; no albumin, no sugar; microscopically nil; certainly not the kind of urine to make one suspect a disturbance of carbohydrate metabolism. Yet because the persistence of the furunculosis suggested diabetes and because the patient's mother had died from diabetes, a study of his blood-sugar was made and a definite alimentary hyperglycaemia was found. The surgeon handed the case over for medical treatment, and a strict carbohydrate-free diet was given. In twenty-four hours the furuncles then present had begun to heal; within forty-eight hours no new ones had developed; and by the end of a few days all the old ones had healed. "In this case the test, as applied by us, was of distinct therapeutic value, whereas had we done only a single examination without relation to diet, we might have missed the post-prandial hyperglycaemia."

45. Hypertrophy of Thymus: Thymus Death.

LE BOUTILLIER (*Archives of Pediatrics*, May, 1915) discusses hypertrophy of the thymus gland and thymus death, with a report of 4 cases. At birth the average normal weight of the gland appears to be about 7.4 grams, but in determining this average the nutritional condition of the infant is of importance, since in healthy infants dying shortly after birth the thymus is much larger than in those who show signs of malnutrition, for in these latter the gland shows decided atrophy in common with other bodily structures. During the first four years of life the gland increases in size, after which it gradually decreases until puberty, when it either disappears or remains in a much atrophied state. While some regard a gland weighing over 30 grams as abnormal, others allow normality up to 15 or 20 grams. Anatomically, the phrenic nerves and pericardial phrenic artery border the thymus on both sides, while its lower pole rests on the pericardium, reaching to the fifth costal cartilage. The posterior surface lies upon the right auricle and ascending aorta, reaching sometimes to the bifurcation of the trachea, and it is in contact on the right with the superior vena cava and right innominate vein, resting above the left innominate vein and upon the trachea, the pneumogastric and recurrent laryngeal nerves bordering it on the left. The gland shares in every disturbance of the general circulation, having a rich arterial supply, but only a single network of veins emerging from it, and from its position its varying shape may cause severe pressure symptoms. Five conditions may result from an enlarged thymus—namely, (1) tracheal stenosis, (2) pressure upon the circulatory system and nerves, (3) status lymphaticus, (4) laryngospasm, (5) dyscrasias caused by its functional disturbances. Of the four recorded cases illustrative of these conditions, one was a case of status thymolympathicus, the direct cause of death being probably pressure on the base of the heart and its ganglions by an enormously enlarged thymus, there being no tracheo-stenosis and no pressure on the aorta or great vessels. The general condition of infants so dying is one of good nourishment with a moderate anaemia, and is the type most frequent in newborn infants or those dying shortly after birth. The second case showed marked pressure on the trachea and a severe degree of tracheo-stenosis, the cause of death being a sudden cutting off of the air supply owing to posture causing absolute compression of an already stenotic trachea. The third case was typical of thymic asthma with paroxysmal attacks of dyspnoea; while the fourth showed the associated condition of enlarged thymus and goitre. Treatment consists of partial or complete removal, the mortality-rate of which is high, but α -ray treatment affords more favourable results, and is the most rational method at the present time. All infants and young children coming under observation, especially those showing slight dyspnoea or cyanosis without obvious cause, should be carefully examined to determine whether there is an enlargement of the thymus, and where the diagnosis is uncertain α rays should be employed to this end. As to the action of the secretion of

the gland, much further study is needed before we can state what part this plays in the causation of sudden death.

SURGERY.

46. Drainage of Abscesses with Steel Springs.

MAX TIEGEL (*Archiv f. Klin. Chir.*, vol. cvi, No. 2, 1915) raises many objections to the use of tampons in abscess cavities. The tampon often obstructs the flow of pus when it has permeated the tampon and has dried on its surface. Pus which has thus been prevented from escaping may be under a considerable pressure in the abscess cavity, the patient's general condition may become worse, and the suppuration may extend further, particularly when tendon sheaths and the interstitial spaces between muscles are involved. A further objection to the use of tampons is the practice of impregnating them with various antiseptics which are toxic and interfere with the formation of granulation tissue. This harmful action of antiseptics is most noticeable when tissues, such as tendons, which necrose readily, are affected. Tampons, again, prevent the satisfactory collapse of an abscess cavity, which, when it has been kept open for some time by a tampon, becomes rigid, owing to the formation of connective tissue, and consequently loses its original tendency to collapse. It follows in such cases that the cavity has to be filled exclusively by granulation tissue. On account of all these objections to tampons the author has devised a new method for the drainage of pus, the margins of the wound being kept automatically open by a weak steel spring, on which small oblong metal plates are fixed so as to grip the tissues with which they come in contact. The strength and size of the spring must naturally vary with the size and character of the wound into which it is to be fitted. The margins of the wound need not be held as far apart as possible, and as a rule a slight degree of separation is sufficient. The pressure exerted by the spring on the wound is very slight, and does not in the least interfere with its healing. As a rule, no appliances are required to keep the spring in place, and it has to be secured by sticking plaster only when the margins of the wound are very flaccid and undermined. When the margins of the wound have been separated by the spring, the discharge is carefully syringed away with normal saline solution or 1 in 1,000 sublimate. The wound is then covered lightly with dry gauze, which is kept in place by a dry bandage. In a few cases there may be a free hæmorrhage that plugging for twelve hours with a tampon may be necessary. After the spring has been in place for twenty-four hours it is removed and the dressing is changed. The wound is subsequently dressed daily, and pus is wiped off. While in place the spring causes no discomfort, but its removal is not altogether painless. This treatment is especially useful in superficial, smooth-walled abscesses, in connexion with the glands of the neck, axilla and inguinal region. It is also excellent in phlegmon of the hand and whitlow. Under this treatment the author has never seen phlegmon of the hand extend beyond the wrist.

47. The Magnetic Compass in First Aid.

BAUDOUIN (*Arch. d'Electr. méd.*, May, 1915) points out that the German bullets, consisting of a core of lead sheathed thinly with ferromnickel, are able, by virtue of this magnetic envelope, to influence the needle of the compass. At a distance of 1 cm. such a bullet made the needle to deviate by as much as 60 degrees. Although Lippmann some months ago recommended the employment of the old Hughes induction balance for detecting the presence of these projectiles in the tissues, no one seems to have thought of using the much simpler compass, which is an instrument largely employed for other purposes in the field. Applied to the wound, it is possible to recognize immediately the presence of this foreign body, at least when the projectile is situated superficially, and especially when it is subcutaneous. The needle may also serve to indicate, by being applied in various situations, more or less the position in which the bullet lies. The author thinks it not a matter of indifference to distinguish at once the nature of the projectile which has entered the tissues. It is well known that the wounds made by these rifle bullets, if the projectiles have not been "dum-dumized," are much less susceptible to infection than the wounds caused by shrapnel, splinters of shell, and so forth. At the base hospitals, of course, more precise methods of detection and localization will be adopted, but in the meantime it is important, if for no other reason than that of sustaining the resistance of the wounded man, that he—

supposing him to be intelligent and well informed—should know that his wound has been caused by the ordinary rifle bullet, and not by a splinter of shell, etc., which would increase the likelihood of infection.

48. Traumatic Aneurysms.

AUVRAY (*Bull. et mém. de la Soc. de Chir. de Paris*, April 20th, 1915) has operated on 15 cases of traumatic aneurysm during the course of the war. Of these, 7 were arterial aneurysms, the arteries affected being the radial artery in 3 cases, the brachial in 2, the ulnar and the superficial temporal arteries each in 1 case. Seven were arteriovenous aneurysms, 2 of which were situated in the axilla, 1 in the upper part of the brachial, 1 at the bend of the elbow, 1 on the superficial femoral towards the apex of Scarpa's triangle, 1 at the level of the popliteal space, 1 in the carotid region, the communication in this case being between the external carotid artery and the internal jugular vein. The diffuse aneurysm occupied the axilla. The arterial aneurysms were not true aneurysms, but were in fact hæmatomata. Sometimes the aneurysm was completely closed, sometimes it communicated with the exterior by one of the openings made by the projectile, and in 3 such cases the author has seen the fistulous opening become the starting point of an infection, resulting in severe secondary hæmorrhages. The treatment in all the cases was by extirpation. In no case was the author satisfied with simple ligation of the vessels, with the accompanying danger of relapse. The injuries in all the 15 cases were too complex and extensive to make it possible to carry out lateral suture in order to preserve the permeability of the arterial trunks. An essential condition for the performance of extirpation of arteriovenous aneurysms is to have a wide opening on to the aneurysm; thus, for aneurysms in the axilla the pectoralis major was divided vertically; for aneurysms in the carotid region the sterno-mastoid was divided horizontally. These large divisions of muscle do not give rise to any serious functional trouble later if the divided ends are accurately sutured together at the end of the operation. In certain cases a tourniquet was applied to prevent loss of blood and to facilitate the dissection. But where the position of the aneurysm made this impossible temporary ligation or compression of the large vessels, as close to the sac as possible, proved of service in lessening the hæmorrhage. The dissection of the sac included the separation of nerve trunks implicated in its walls. The only one of the cases in which the result of operation was thoroughly unsatisfactory was the one of diffuse aneurysm of the axilla. This case did not come under the author's care until three weeks after the injury, and had in the meantime been mistaken for cellulitis. The axilla was packed with cloths and inflamed. Gangrene supervened after the operation, and the arm had to be amputated through its upper third. In another case, in which the nerves of the axilla were included in the walls of the aneurysm and a radial paralysis was present before the operation, the paralysis has persisted up to the present, and a purulent arthritis of the phalangeal joint of the thumb has appeared, with an inflammatory state of the surrounding parts, such that it is not possible yet to say what will be the functional value of the thumb in the future. The results in the other 13 cases were uniformly good.

49. The Stomach after Gastro-jejunostomy.

WEBB AND KINGSBURY (*Archives of Middlesex Hospital, Clinical Series*, No. xiv, December, 1914) have published tables to illustrate an inquiry into the radiographic appearances of the stomach after gastro-jejunostomy. In 8 out of 25 cases examined no bismuth was seen passing out of the gastro-jejunostomy opening. All was apparently passed through the pylorus. Of these eight, four were instances of pyloric stenosis which had so far recovered as to allow of the passage of food through a previously diseased pylorus, despite the presence of an artificial short-circuit. Of eight males who had regained their normal health after the operation, in no less than five, or 62.5 per cent., the food was passing out of the stomach wholly through the pylorus. Among the females, the best clinical results were noted when the pylorus alone was acting, or where the pylorus transmitted the greater proportion of the food taken by the patient. When the gastro-jejunostomy opening was alone patent, five out of eight females were clinically no better for the operation. The patients were asked as to their appetite for fats and carbohydrates, and whether they were able to digest these articles of diet, but no conclusive result could be obtained, so that the investigators were unable to make sure that fats and carbohydrates were better tolerated by those where the pylorus was still patent.

OBSTETRICS.

50. Mortality of the Newborn.

HOLT AND BABBITT (*Journ. Amer. Med. Assoc.*, January 23rd, 1915) issue a report on 10,000 consecutive births at the Sloane Hospital for Women, New York. One-third of the deaths of the first year occur in the first month of life, and seven-eighths of these deaths come within the first two weeks. The hospital receives but few waiting women, nearly all being admitted after labour has begun, and they are regularly discharged on the fourteenth day. Sickly infants are retained beyond that term. The living births amounted to 9,318, the stillbirths (viable fetus 37.50 cm. or over in length) to 499, and the abortions (non-viable fetus under 37.50 cm. in length) to 253. In the first fourteen days 291 infants died, 159 (54.6) were premature—a notable fact; 27 died during the first two hours, such cases not being registered in the Sloane Hospital as stillbirths; 2.5 per cent. died under one week, precisely the same percentage as Kerners of Munich reported in 1912, out of 9,610 living births. The causes of death during the first fourteen days were: Congenital weakness 143, obstetrical accidents not fatal at birth 33, pneumonia 28, atelectasis 25, congenital syphilis 13, malformations 12, haemorrhage 10, sepsis 9, asphyxia 8, accidental 2, undetermined 8. Thus congenital weakness and atelectasis together made up 58 per cent. of the total deaths. The mortality from conditions intimately connected with parturition, namely, obstetrical accidents, haemorrhage, sepsis, and asphyxia made up but 20 per cent. of the deaths of the first fourteen days. The only important disease developing after birth was pneumonia. Stillbirths are one and a half times as many as the deaths from all causes during the first two weeks. Except for the larger part played by syphilis, the causes of stillbirth in no way differ from those which produce death during the first days of life. The great number of deaths from congenital weakness can only be reduced by care of the mother during gestation, whilst the number of stillbirths and deaths from causes connected with parturition may largely be reduced by good obstetrics. The close watching of the infants in a maternity institution renders statistics on early mortality more reliable than statistics based on cases in extreme maternity work or private practice.

51. Incision of Rigid Cervix.

ENRIQUEZ (*Thèse de Paris*, 1915) advocates lateral incisions when labour is solely retarded by rigidity of the cervix, and states that it has been practised for some time in Potocki's wards. He finds that bimanual dilatation, Tarnier's instrument, Champetier de Ribes's bags, and Bossi's dilator which may be an inch or even more in depth. For anatomical and mechanical reasons Potocki makes out a rule. When the fetal head is well engaged, bearing down on the portio vaginalis so that on digital exploration of the fornices the finger can be passed around the entire circumference of the head, then the head has passed beyond the level of the vaginal insertion of the cervix. The rigidity of the vaginal portion being thus made evident, by the time that the os has become dilated to a diameter of 3 cm. (1.17 in.) deep lateral incisions reaching in all cases to the vaginal insertion of the portio will be sufficient. The anatomically uppermost limits of each incision will lie in soft normal tissue above the zone of cicatrix. The fact that the level of the vaginal insertion lies above the cicatricial zone is proved by the examination of a portio which has been avulsed by circular laceration. Enriquez finds that there is no fear of haemorrhage, bleeding only occurring in one recorded case where the upper limit of the incision had been extended above the level of the vaginal insertion. The upper end may be extended by the passage of the fetal head, but as the incisions are lateral there can be no fear of damage to neighbouring viscera. An anterior incision down the portio, on the other hand, may extend into the bladder. There is no special risk of infection. All necessary precautions are taken during and after the operation. In spontaneous labours away from special hospitals, or even from any kind of medical assistance, more or less laceration of the vulva externally occurs in about nine-tenths of the cases, yet bad results are relatively rare. Potocki does not apply sutures, but touches the surface of the incisions with tincture of iodine, and prescribes two vaginal injections daily. Natural cicatrization goes on remarkably well in Potocki's wards and, on the other hand, sutures do not seem to answer well. The forceps is sometimes used after the lateral incisions have

been made, and when the child has died the incisions may be made before the os has become dilated to the extent advisable to await in more normal labours. Basiotripsy can then be performed. Enriquez adds fifteen original reports and five more prepared by other observers.

GYNAECOLOGY.

52. Tuberculous Salpingitis detected through Toxic Irido-cyclitis.

FITZGIBBON (*Journ. Obstet. and Gyn. of the Brit. Empire*, January, 1915) relates that a single lady consulted C. E. Fitzgerald of Dublin in February, 1912, for failing eyesight, and one month later obstinate irido-cyclitis developed in the left eye, greatly impairing vision. Relapses occurred frequently, notwithstanding appropriate treatment, and the patient complained of rheumatic pains whenever the eye symptoms were most marked. In February, 1914, the right eye showed signs of irido-cyclitis. The Wassermann test proved negative and the patient was referred to the author. She was then 37 years of age. On rectal examination, the pelvis was found to be completely blocked by a firm mass, irregular in outline. It pushed the uterus forwards. The catamenia were normal and there was no pain. Abdominal section was performed on April 29th, 1914. Both Fallopian tubes were as big as hen's eggs and all the pelvic structures united into a single mass by dense adhesions. Both the bladder and the rectum were unavoidably laid open during the extirpation of the entire mass. The operation began on the left side, dissecting across the pelvis through the uterus. About the third day the rheumatic pains completely disappeared, and when the patient recovered from the operation the sight had improved. In October, 1914, C. E. Fitzgerald reported that vision had greatly improved in the left eye, and the right eye was also better; the patient could read small type by the aid of correcting glasses and was able to work again, the pain in the eyes, troublesome before the operation, having disappeared. Thus the eye complication was of toxic origin, the tubes being the seat of tuberculous salpingitis.

THERAPEUTICS.

53. Intravenous Injections of Colloidal Copper and Casein in Cancer.

MCCLURG, SWEET, LYON, FLEISHER, AND LOEB (*Arch. of Internal Medicine*, June 15th, 1915) studied the general and localized effects of intravenous injections of colloidal copper and casein in cases of human cancer. Injection of casein solutions were tolerated by almost all the patients without any resulting changes in the veins, but some changes resulted from the injection of colloidal copper, and the more intimate contact of the colloidal particles of metal with the wall of the vein the more marked were the changes, which consisted in an injury to the endothelial cells, rendering them more permeable to fluid constituents of the blood. This endothelial reaction seemed to depend on a sensitiveness variable in different individuals. Dosage commenced with 100 or 150 c.cm. of colloidal copper, being gradually raised to 400 c.cm. or more, the number of injections varying between twenty-five and seventy-three, four or five being given each week. A rise of temperature, accompanied by chill, usually followed, varying directly with the quantity injected, and becoming less marked as the number of injections became greater. The temperature following an intravenous injection of casein was higher than that following the copper injection. An immunity against the effects of casein was produced through repeated injections immediately after injections of colloidal copper. The effects of colloidal copper on the number of erythrocytes varied, pointing to the conclusion that a certain number were destroyed, but that in some cases the reparatory changes sufficed to replace them, while no noticeable alteration followed injections of casein. Leucocytosis often follows injections of colloidal copper and of casein, that following injections of casein being usually more marked than that following injections of colloidal copper. While the transitory effect consists in an absolute increase in the number of polymuclear neutrophils, the long continued effect of such injections given through a considerable period of time produces a relative decrease, with a relative increase in lymphocytes. Two classes of changes on the tumours and their surrounding tissues follow the intravenous injection of colloidal copper and casein, (1) those not repre-

senting healing processes, being characterized as a localized inflammation caused by substances introduced into the circulation at a place distant from the place of injection, and (2) those representing a healing process or a process bringing relief to the patient, as decrease in pain, secretion and putrefaction, and diminution in the swelling in the tissues or in the tumours themselves. Intravenous injections of colloidal copper have a definite effect in a certain number of tumours, while in others they are without any noticeable effect. A measurable reduction in size and shrinking of the ulcerated area may result, leaving no doubt as to the definite effect of the injections on the tumour, while in some cases there may be no appreciable effect on the tumour but marked diminution in the swelling of the surrounding tissues, thus producing a sharp demarcation of the tumour, thereby rendering a previously inoperable condition operable. A diminution in size was also seen in the metastases in some cases, with in others reduction in pain and discharge. In a considerable number, however, neither objective nor subjective improvement took place, and in almost all cases any improvement after a temporary period of progress came to a standstill. Injections of casein were not followed by any such results, or more than a partial destruction of the tumour when the injection had produced an unusually marked general effect, and this partial destruction may result in a localized process of healing. As far as the character and intensity of the local reaction is concerned three periods can generally be distinguished: In the first the inflammatory signs are most prominent, in the second there is a marked decrease in inflammatory reactions, and the third is a period of immunity against the effects of the injections. At present nothing can be positively asserted as to whether an actual destruction of tumour tissue takes place directly or indirectly as the result of the injections.

54. Treatment of Narcotic Addiction.

LAMBERT (*Cornell Univ. Med. Bull.*, April, 1915) urges that patients cannot break the morphine habit on their own volition unless some treatment is at hand to relieve the suffering following upon withdrawal of the drug. The essentials of treatment to obliterate the craving are the persistent administration of a belladonna mixture and the thorough elimination by some form of mercury as a cathartic. In detail, the treatment begins by giving five compound cathartic pills and 5 grains of blue mass, followed by a saline six hours later if necessary. After free action of the bowels the patient is given, either by mouth or hypodermically, in three divided doses, at half-hour intervals, two-thirds or three-fourths of the total daily twenty-four hour dose of morphine or opium to which he has been accustomed, with careful observation after the second dose, which equals four-ninths or one-half of the total twenty-four hour dose. Six drops from a dropper (about 3 minims) of the belladonna mixture are given every four hours for six hours, after which the dosage is increased two drops. The belladonna mixture consists of tinct. belladonnae $\frac{5}{16}$, fluid extract of xanthoxyly and fluid extract of hyoscyamus $\frac{5}{16}$, and this is continued every hour day and night throughout the treatment, increasing two drops every six hours until sixteen drops are being taken. It is continued at this dosage, only being diminished or discontinued if at any time belladonna symptoms develop, and being begun again in reduced doses when such symptoms have subsided. If, however, no dryness of the throat follows after twelve consecutive hours of the full 16 drop dosage this may be raised to 18 or 20 drops every hour until symptoms occur, and then reduced. Ten hours after the initial dose of morphine the five compound cathartic pills and 5 grain blue mass are repeated, and if no action occurs in six or eight hours a vigorous saline is given. When the bowels have acted thoroughly the second dose of morphine is given, which is usually about the eighteenth hour, and the dose should be half the original dose, that is, one-third or three-eighths of the original twenty-four hour daily dose. Ten hours after this second dose the aperient treatment is repeated, and after the bowels have acted thoroughly, at about the thirty-sixth hour, the third dose, and usually the last needed, of morphine is given, which is one-sixth or three-sixteenths of the original dose. Ten hours after this third dose, the cathartic pills and blue mass are again repeated and followed in eight hours by a saline, by which time bilious green stools appear and, when this is so and the bowels have moved thoroughly, 2 oz. of castor oil are given to clear out the intestinal tract. The withdrawal pains and aching are relieved by codein or diionin. The best hypnotic is muscular fatigue, and regular exercise should be begun as soon as possible. Similarly catharsis and the

belladonna mixture are of use in alcoholism, and though the treatment is not offered as a cure for either morphinism or alcoholism it obliterates the craving which accompanies slow withdrawal without medication and so assists in the cure, but it is clearly insisted upon that as long as a man lives after his cure he can never again take any alcohol for any purpose whatever without the risk of going again to excess. Each case has its own individual problems, and the treatment is the best means of unpoisoning the patient and of putting him into a position where we can deal with him with a clear unpoisoned mind.

55. Treatment of Onychia by Ionic Medication.

VOS HUGO (*Arch. Twentgen Day*, May, 1915) has applied ionic medication with good results in the treatment of onychia. The treatment has consisted of soaking the part for a couple of hours by means of a pad moistened with a 5 per cent. solution of zinc sulphate. A thread of lint soaked in a 2 per cent. solution of the zinc salt is gently insinuated within the nail fold, and a pad, zinc terminal, and current are then applied in the usual way. By the following day (in two cases) the angry skin had become pale, and the purulent discharge had given place to a thin sanious fluid, and a few days later recovery was complete. In a more severe case, which for eighteen months had involved practically the loss of the use of the hand, two applications of zinc ions, separated by a ten days' interval, were given. The discharge altered in character after the first application; within six weeks a new nail, with a well-formed lunula, had taken the place of the deformed nail, and there was no further trouble.

PATHOLOGY.

56. Parabiosis and Inoculated Cancer.

M. B. MORPERGO (*Ann. de méd.*, Tome II, No. 3, April, 1915) has carried out a series of experiments on rats in order to determine the influence of parabiosis on the development of inoculated cancer. In the first two experiments rats of the same race, each of which had previously been successfully inoculated with sarcoma, were united by a wide lateral colostomy. In the first experiment the rate of growth of the tumour was at the average rate for one animal, and at above the average rate for the other. In the second experiment one of the artificially united rats remained in a state of good nutrition until shortly before its death, and in this one the rate of growth of the tumour was normal; the other animal fell into a state of general atrophy after the operation, and the growth of the tumour was definitely retarded. In each of the next three experiments a rat which had been successfully inoculated with tumour was joined to one of the same race which had proved refractory to the tumour. In two instances the artificial union was musculo-cutaneous; in the third union animal was again inoculated with the tumour at the time of the operation at a point near to the line of union from which the body fluids could pass from one animal to the other. In one of these experiments the susceptible rat died on the day after the operation; the immune one was separated and lived without any development of the inoculated tumour. In the other two experiments the susceptible animals survived the operation for between two and three weeks; the animals were much wasted and the rate of growth of the tumours was retarded. There was no development of the inoculated tumours in the resistant animals, one of which survived separation. The next four experiments concerned the artificial union of animals of a very receptive race with resistant members of a race of small susceptibility. In no case did the tumour develop in the resistant animal. The conclusions from the experiments are: That artificial symbiosis does not exercise any influence on the development of the tumour, nor on the individual susceptibility of the animal, nor on the degree of susceptibility of which it is possessed by virtue of belonging to a particular race. The retardation of growth in the development of particular tumours is always connected with the progressive atrophy which is observed in the weaker of the couples. Ehrlich's hypothesis with regard to the existence of special nutritive substances on which the receptivity of an organism to a tumour would depend is not confirmed by the experiments, which show that interchange of body fluids between the non-receptive and non-receptive animals which have been united does not modify the receptivity of either, and that the limit between the receptive and the resistant tissues is exactly the line of union.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

57. Pancreatic Infantilism.

BYRON BRAMWELL records (Reprint from *Edinburgh Medical Journal*, May, 1915) a case of pancreatic infantilism due to defective or arrested pancreatic secretion, and associated with chronic diarrhoea, which was cured by the administration of pancreatic extract, and he gives reference to other cases which have been recorded since he first drew attention to the condition as a definite clinical entity in 1902. The characteristics of pancreatic infantilism are arrested bodily and sexual development, chronic diarrhoea, flatulent distension of the abdomen, and arrested or defective pancreatic secretion, probably due to chronic pancreatitis, the intelligence being good without signs of either mental defect, deformity of bones, or visceral disease. In some cases the chronic diarrhoea and infantilism are completely cured by the administration of pancreatic extract and by that treatment alone. The disease is extremely rare. The patient, a youth aged 18½, had the appearance of a boy of 10, being only 4 ft. 4½ in. in height and weighing 4 st. 7½ lb., the bodily development having been apparently arrested at the age of 10. He was perfectly formed and mentally bright and intelligent. Skiagrams showed that the epiphyseal lines, which should close between the 16th and 18th years, were still unclosed. There were no signs suggestive of cretinism, no inherited syphilis, and no suspicion of rickets or tubercle. He averaged five or six copious, liquid, yellowish-brown stools in the twenty-four hours, and the pancreatic secretion was shown to be defective or completely absent by three separate tests. One drachm of Armour's liquor pancreaticus with 1 drachm of a glycerine extract of steapsin was administered three times daily, and this, with a milk diet for three months, constituted the only treatment, which commenced at the end of 1901. During 1902, 1903, and 1904 the patient took the medicine regularly (except during the autumn of 1902) three times daily, and during 1905 and 1906 twice daily. From 1907 to 1914 inclusive he has been quite well and has not taken the medicine at all. In March, 1915, he reported ten years of good health, regularly at work as a tailor. His height now is 5 ft. 3 in. (an increase of 10½ in.), and his weight, stripped, 7 st. 13 lb. (an increase of 3 st. 5½ lb.), and during the past nine years his bowels have been very regular, averaging one formed motion a day. Before treatment the patient had not grown at all for eight years, but after treatment he began growing, and the sexual development, which was formerly quite infantile, gradually became complete, the patient losing his child-like appearance, and developing a manly voice. Notes of five similar cases reported by others are given, together with notes of two cases of infantilism associated with diarrhoea which were not pancreatic in origin, one associated with anaemia and cured on its removal, and the other with dilatation of the stomach, absence of free hydrochloric acid, and recurring attacks of severe gastric tetany, the infantilism disappearing under gastric treatment.

58. Severe Tuberculin Reaction in a Case of Erythema Induratum.

K. FRUMERIE (*Hygiené*, vol. lxxvii, No. 8, 1915) records the case of a patient, aged 18, two of whose nodules had died of pulmonary tuberculosis. She suffered from tuberculous glands of the neck. Since November, 1912, she had been subject during the winter to an exacerbating erythema, which was confined to both legs below the knees, and which was most marked on the outer side of the calves of the legs. Here the skin was cyanosed at certain areas, where cutaneous nodules of various sizes and of fairly firm consistency could be felt. An exploratory excision and a microscopic examination of one of these nodules showed them to consist of much hypertrophied subcutaneous arteries. There was also evidence of chronic inflammation in these nodules. The patient, who presented no signs of a generalized disease, was given tuberculin. Intracutaneous injections at points where the skin was healthy provoked a most violent cutaneous reaction, with haemorrhagic vesicles and ulcerations, at the site of injection. This reaction followed the injection of not only 0.1 mg. of old tuberculin, but also of one-tenth of this dose. The author considers both the erythema induratum and the violent cutaneous reaction to tuberculin as signs of

hypersensibility of the skin to the toxin of tuberculosis, and he regards the erythema induratum as a direct result of the tuberculous glands of the neck.

59. Frontal Sinus Tuberculosis.

J. B. THOMAS (*Journ. Amer. Med. Assoc.*, July 24th, 1915) says that tuberculosis of the frontal sinus must be very rare, judging from the small number of reported cases. It is generally agreed that tuberculosis of the sinuses is secondary in practically all cases to a general or localized tuberculosis of the neighbouring parts, or to both. Perforation of the sinus wall occurs, as a rule, during acute attacks, with damming back of the discharge, pressure necrosis, and thrombosis of the small vessels. Osteomyelitis, or infection of the orbit or cranium, may follow. He gives brief abstracts of the five hitherto reported cases of tuberculous frontal sinusitis, and then reports his own cases. In the first the outer table became perforated and the patient recovered after operation. She attended her mother during a number of years of chronic phthisis and had herself suffered from Pott's disease of the spine, which had left her somewhat deformed. In the second case with osteomyelitis, epidural, subdural, and cerebral abscesses, death resulted. In conclusion, Thomas says there are several factors that tend to protect the frontal sinus from infection; its high position and better drainage, the bactericidal action of the mucosa, cilia, mucus and tears, but a study of the statistics in sinus disease in *post-mortem* examinations of tuberculous patients strongly suggests the probability that it occurs more often than it is recognized. The diagnosis depends on careful bacteriological examination of the sinus secretion, using as large a quantity as possible and employing sedimentation. The so-called anti-forming method is a good one. Animal inoculation may be employed, care being taken to remove the secretion as directly from the sinus as possible. Tuberculin may be of value in the diagnosis. The other sinuses are apt to be involved and complicate the case. The brain complications are chiefly cerebral abscess, with or without meningitis. The treatment after the diagnosis should be early and surgical.

SURGERY.

60. Treatment of Wounds.

W. E. DRENNEN (*Journ. Amer. Med. Assoc.*, July 24th, 1915) records his experiences while serving as a surgeon at the American Ambulance Hospital in Paris in the latter part of 1914 and the early part of 1915. He first mentions the better mental attitude of soldiers than is seen in civilians suffering from similar injuries. The soldiers were also uniformly well nourished and healthy in appearance, showing that they had been well fed, which goes far towards minimizing shock. The modern sharp-pointed steel-jacketed bullet is, despite claims to the contrary, far from being a humane missile. These bullets, he says, are all potentially dum-dums, and, as a rule, turn sideways in the wound on account of the centre of gravity being situated far back, and the least deflection of the point after striking makes the ball turn sidewise, and gives it a wobbling motion, or even makes it rotate on the transverse axis. Modern field artillery consists for the most part of 3-in. field guns and 6-in. howitzers, and the wounds are from the fragments of the shell and the shrapnel. The iron envelope of the shrapnel shell is shattered into thousands of pieces and the wounds are often severe and lacerated, and carry more clothes than dirt into the wound. The region of distribution of injuries shows a greater number of wounds of the extremities and the head. The mortality is greatest with those perforating the spine and abdomen, and next to these, the head. Wounds of the extremities give a comparatively small mortality, the same in both the upper and lower. The battle injuries are estimated as follows: Killed, 20 per cent.; non-transportable, 8 per cent.; requiring transportation, 32 per cent.; slightly wounded and able to walk, 40 per cent. At the base hospital there were no fresh gunshot wounds of the abdomen to be seen. Occasionally a patient with an abscess or other complications was sent in for operation. Acute appendicitis was fairly common. At no time did Drennen see a bayonet wound. The main routine was: First, a radiographic examination to be used

as guides for future operations, many of which were simply dressings under ether. Irrigation with normal salt solution was much resorted to, but he prefers a 5 per cent. solution of bicarbonate of soda. The main point in the treatment of the wound consisted in establishing free drainage. The great complications most feared in military surgery are tetanus and gas gangrene. Cultures were teeming with microbes, and more than 95 per cent. of the wounds suppurated. One point especially noticed in this war, he believes, for the first time, is that infection by tetanus bacilli is apt to recur when operative procedure is carried out on an old wound previously the site of a tetanic infection. A patient may become a tetanus carrier, differing from a typhoid carrier in that he is only dangerous to himself. The other serious complication was gas gangrene, which, contrary to moist gangrene, begins at the edges of the wound. Dr. Jablonski demonstrated to Drennen a phenomenon first observed by himself—namely, the presence of very small subperitoneal blebs, mostly on the intestines but also beneath the peritoneal peritoneal membranes, making their appearance from four to five hours after death. In operating on compound infected fracture, Drennen makes the following recommendations: (1) To make large incisions; it is usually best to make the incision so that it will be dependent. (2) To remove all foreign bodies. (3) To remove all loose or detached pieces of bone. The fingers form a good guide. All pieces that can be removed by the fingers without undue effort should be taken away. (4) To maintain drainage; this is best done by the insertion of large fenestrated rubber tubes. (5) To use absolutely no foreign material of any kind in the wound, such as wire, chromicized gut, or bone plates; the use of these means nothing but trouble. (6) As to the question of amputation, the tendency is rightly more and more toward conservatism. It is now possible to save limbs and restore them as useful members, whereas formerly it would have been entirely correct to amputate. If the economic status of the patient is not to be considered, the question of amputations becomes more and more identical with the question of the limb's viability. With the recent additions to our knowledge in the realms of bone grafting and transplanting, many wonderful results are being obtained. The important points in the after-treatment of compound infected fractures are the maintenance of drainage and extension. In conclusion, Drennen speaks of the amount of plastic surgery that will be required in after-years. All Europe, he says, will be one great laboratory for such constructive surgery, and he who can will do well to avail himself of the opportunity.

61. Self mutilation by Injection of Petroleum.

At a meeting of the Paris Société de Chirurgie held on July 21st, HENRY REYNES (*Progrès médical*, August, 1915) reported a case which had come under his observation at Verdun in which a soldier had produced inflammation about the knee-joint by means of injection of petroleum with the object of getting himself sent back from the front. There was no sign of disease or wound. The injections had set up violent inflammation of the tissues, points of softening or suppuration alternating with solid patches of yellowish tissue, mortified by the action of the petroleum, which were gradually disintegrated and eliminated. The smell of the petroleum in the wound, in the pus and in the loosening shreds, are characteristic; it lasts several days. Men who disable themselves in this way are liable to be court-martialed. Similar cases have been observed in civil practice in convicted criminals and accused persons awaiting trial.

62. Fatal Arterio-sclerosis of the Intestine.

J. A. HEDLUND (*Hygien*, vol. LXXVII, No. 9, 1915) records the case of a workman, aged 61, who had been subject for some years to attacks of abdominal pain, which bore no relation to meals. On July 28th he had a severe attack of pain and constipation, which passed off when an aperient was given. But the symptoms recurred on August 3rd, when they were accompanied by vomiting. Frequent emetics afforded some relief, but in the afternoon of August 4th the pain again became severe, and there was complete retention of faeces and flatulence. Examination on August 5th showed diffuse abdominal rigidity and peristaltic movements of the intestine below the umbilicus. An examination with the sigmoidoscope was negative, the liver dullness was normal, and there was only slight hypertrophy of the heart. The pulse was 62, and the radial arteries were somewhat rigid. At long intervals the horizontal outline of a section of the intestine could be detected through the abdominal wall below the umbilicus. A laparotomy, performed on August 6th, showed the surfaces of the ileum and large intestine to be

of a greyish-white colour, thickened and rigid. The ileum was at some points compressed or deformed by adhesions, but these did not actually occlude the intestine. The lower part of the ileum was resected for a length of about 14 metres, and a termino-lateral anastomosis was made between the ileum and the upper part of the sigmoid flexure. The rigid and distended large intestine, thus short-circuited, was tapped at three points, and some gas and faeces were withdrawn. The patient died next day. At the necropsy slight calcareous changes were found in the aorta, the pulmonary artery, and the mitral valve. There were only slight sclerotic and atheromatous changes in the aorta, and the coronary arteries were practically unaffected. The jejunum looked normal except for a few small greyish-white spots scattered over its surface. The large vessels of the mesentery were not macroscopically arterio-sclerotic, but as the vessels were traced towards the intestine they were found to be more and more rigid. In the sub-serosa, which looked milky white, and consisted largely of fibrous tissue undergoing hyaline changes in many places, the blood vessels were much calcified, and at some points their lumen was completely obliterated. The muscular walls of the intestine were hypertrophied as well as infiltrated with fibrous tissue. The mucosa was atrophied, and the submucosa was in some places completely fibrous. The author suggests that the intestinal obstruction was due to lack of peristaltic movements in the rigid sections of the intestine. The disease is exceedingly rare, but one case was reported by Ortner in 1903, and another by Warburg in 1905.

OBSTETRICS.

63. Serum Studies in Pregnancy.

KOLMER AND WILLIAMS (*Lancet*, *Journ. Obstet.*, June, 1915) publish results of experiments conducted by them in the University of Pennsylvania. A placentin, No. 1, prepared by concentration of expressed placental juice, preserved with 1 per cent. glycerine and 0.5 per cent. tricresol, and injected intra-cutaneously, yielded skin reactions characterized by erythema, infiltration, and pain, in 87 per cent. of pregnant and recently delivered women, and in 66 per cent. of women who had borne children but were not pregnant at the time these tests were made. This extract also caused 20 per cent. of the men tested to react slightly. When diluted 1 in 10 with normal salt solution, this extract yielded 80 per cent. positive reactions among pregnant or recently delivered women, and 50 per cent. positive among women who had borne children. A placentin, No. 4, prepared in the same manner as the first extract, except that glycerine was not used in its preparation or preservation, yielded 40 per cent. positive reactions among pregnant or recently delivered women, and 34 per cent. positive reactions among women who had borne children. It is probable that glycerine itself acts as an irritant, especially in the over-sensitive skin of pregnant women. A placentin, No. 2, prepared from the residuum resulting from the concentration of expressed placental juice, yielded 55 per cent. positive reactions among pregnant or recently delivered women. This placentin produced slightly positive results in 20 per cent. of the men tested. A glycerine extract, placentin No. 5, upon cutaneous inoculation, yielded 50 per cent. positive reactions among pregnant and recently delivered women. Of several multiparous and nulliparous women tested, all reacted negatively. "Nephrius," or extracts of male and female kidney prepared in the same way as the placentins, produced a number of positive reactions among pregnant, multiparous, and nulliparous women. The most marked reactions were observed with the extract of human female kidney. The intra-cutaneous injection of a 1 per cent. solution of a placental extract did not produce reactions among pregnant and recently delivered women.

64. Caesarean Section after Ventrifixation of the Uterus.

G. NYSTRÖM (*Finska Läkaresällskapets Handlingar*, March, 1915) records the case of a married woman, aged 38, on whom ventrifixation of the uterus was performed in March, 1913, for retroflexion and endometriosis. At this operation the right ovary, which was surrounded by adhesions, was removed. The anterior portion of the fundus of the uterus was secured by a silk suture passing through all the layers of the abdominal wall. The serosa of the uterus was not removed at the point of fixation. The patient was discharged on March 28th. Her last menstruation occurred in April of the same year. On February 3rd, 1914,

regular labour pains began, and on the following day, at 6 p.m., the liquor escaped, and the pains became much more severe. About six hours later the cord was found prolapsed, and could not be replaced. On February 5th, at 8.30 a.m., the patient's general condition was satisfactory, the head was freely movable in the pelvis, the back of the fetus was directed towards the right, and the thumbs towards the left. The fetal heart sounds were 130, and only just audible. The external os, which admitted three fingers, occupied a high position in the back of the pelvis; and while its posterior border was thin and yielding, its anterior border was thick and very rigid. The prolapsed cord was pulsating, and all attempts to replace it failed. The risks involved in the use of forceps at this stage were too great, and the chances of rupturing the uterus by performing version were considerable. As reposition of the cord was impracticable, and the fetal heart sounds were unsatisfactory, Caesarean section was undertaken for the sake of both mother and child. At the operation, which was performed on February 5th at 11 a.m., the tubes and round ligaments were found attached low down to the anterior surface of the uterus. This was secured to the anterior abdominal wall by a wide, short adhesion. The hypertrophy of pregnancy was practically confined to the back and fundus of the uterus. It was opened in the middle line, and the incision was carried through the back and fundus of the uterus, where its wall was almost as thin as paper, being only 2 to 3 mm. thick. There was no haemorrhage, and the fetus was removed in a state of asphyxia, which soon passed off. The placenta was detached without great loss of blood from the upper right corner of the uterus. The patient made a satisfactory recovery. The author suggests that the wide, short adhesion between the uterus and the abdominal wall must have been a sequel to injury to the uterus by forceps at the time of the ventrifaction. Or it may have been due to a haemorrhage caused by the needle on which the silk suture was threaded.

65. Normal Period of Gestation in Women.

ROBERTSON (*Inter. Journ. Obstet.*, June, 1915), from a statistical investigation of 511 normal confinements of married women of the labouring classes in a maternity hospital in Adelaide, South Australia, made out the following facts: 247 labours yielded male and 264 female children. The mean length of gestations yielding males was 282.5 days, with a probable error of ± 0.55 days and a variability of 4.47 per cent., while the mean of periods of gestation yielding females was 284.5 days, with a probable error of ± 0.57 and a variability of 4.82 per cent. Hence the periods of gestation yielding females are longer than those yielding males, the probability of the truth of the conclusion based on these estimates being 142 to 1. There is but one, namely, the "normal" period at which the percentage of infants delivered by normal mothers attains a maximum. Subsequently to a very early period in the development of the fetus there is no evidence of a "critical period" in the intrauterine growth of man, such as occurs in the uterine growth of guinea-pigs. The deviation of normal periods of gestation from the mean are fortuitous in origin. The chances are a million to one against a male child being delivered at the termination of an otherwise normal pregnancy before 224 days or a female child before 222 days after the onset of the last menstruation. Hence all seven months children (210 days) may legitimately be regarded as the fruit of pathological pregnancies. The length of the period of gestation is very much less variable in normal females than the weight of the infant which is delivered. From this fact it is inferred that the length of the period of gestation in normal women is primarily determined not by the fetal development, but by a maternal cycle of events which is to a considerable extent independent of the stage of development attained by the fetus.

GYNAECOLOGY.

66. Rupture of Uterus: Prompt Hysterectomy.

FOTHERGILL (*Journ. of Obstet. and Gyn. of the British Empire*, January, 1915), contends that two-thirds of the really serious cases of rupture of the uterus can be saved by prompt abdominal hysterectomy. At St. Mary's Hospital, Manchester, this practice was established just ten years ago: 17 such operations have been performed there with no less than 12 recoveries. The condition of the cases was such that it is doubtful if any of the twelve would have recovered but for the removal of the lacerated organ. Of the 5 fatal cases, Fothergill relates one in full. The

patient was 41 years old. She had already passed safely through fourteen pregnancies, including five abortions. The final, or fifteenth pregnancy, ended five years after the last delivery at term, and four and a half before the last miscarriage. The presentation was transverse, and the patient's doctor turned and delivered. Afterwards, when removing the placenta, he felt a rent in the right side of the uterine wall. She was sent into hospital at once in a state of collapse, pulseless and gasping, and haemorrhage had been free. Abdominal section was performed at once. The lower part of the abdominal wall, in front of the parietal peritoneum, contained much extravasated blood, yet there was relatively little in the peritoneal cavity. The damage was extensive, the peritoneum was lacerated as far forward as the anterior abdominal wall and the right side of the bladder, and the rent reached backwards nearly to the lower pole of the kidney. The bladder had been detached from all the adjacent structures, except the trigone and lowest part of its left lateral portion. The uterus remained attached to its left anatomical relations, but the lower segment and the cervix on the right side were represented by shreds of tissue and clot. The caecum and appendix and the adjacent colon and ileum were torn from their bed, and the haematoma extended on to the abdominal wall far beyond the infundibulo-pelvic ligament. The uterus was removed, the peritoneum drawn together as well as possible, and a gauze drain left over the seat of injury for forty-eight hours. The patient died on the sixth day, and an abscess cavity, well shut off from the peritoneum, was found in the pelvis, the pus tracking towards both kidneys. As version had been performed and the placenta removed by hand, it was not surprising, Fothergill concludes, that the lacerated wound was infected, yet a fair chance of life was given to the patient by the hysterectomy.

67. Precocious Maturity in Girls.

BEEKMAN of New York (*Arch. of Ped.*, January, 1915) reports an instance where the patient was a girl 6½ years of age, brought to a hospital for impetigo and ringworm. The child looked like a girl of 16, the hair of the scalp thick and long, the mammae well developed with inverted nipples, which were surrounded by a wide pigmented area. An accessory nipple projected under each breast. There was much subcutaneous fat under the integuments of the thorax and abdomen. The pendula showed the conditions seen after puberty. The uterus could be defined on recto-abdominal palpation, whilst the thyroid gland was not enlarged. The child's height was nearly 4 ft. 7 in., her weight 71 lb. Her mother stated that the child was born normally, weighing about 7½ lb. The first teeth erupted at seven months, and she could walk when 9 months old. When 4 years of age and physically quite healthy she commenced to have peculiar fits of laughing, which at times lasted for an hour; consciousness was never affected. Then enlargement of the mammae occurred and menstruation was established and continued, but not with perfect regularity. The child's teachers at school found her as bright as other girls; she was fond of dolls, and played with older children than herself, her younger playmates being frightened at her fits of laughing. Beekman publishes some instructive radiograms showing union of the epiphyses at the elbow-joint and advanced development of the carpal and tarsal bones. Still more important is a radiogram of the skull, where the sella turcica is seen to be deep and the sinuses well developed. There was no evidence, on the other hand, of a hyper-nephroma. Thus this case supports the theory that precocious puberty is due to a secretion of the interstitial cells of the ovaries stimulated to premature activity by the pituitary body, which, according to the radiogram, appears to be hypertrophied. Beekman refers to other cases of this type. The prognosis is unfavourable; such subjects seem particularly susceptible to the exanthemata and the leucosis, because of lowered vitality, and a number have died of neoplastic growths in the brain or ovaries. Yet others have lived to a healthy normal adult life.

THERAPEUTICS.

68. Formol.

H. MORESTIN (*Bull. et ann. de la Soc. de Chir. de Paris*, March 30th, 1915), has, during the last three years, made constant use of a mixture of equal parts of formol, alcohol, and glycerine in the treatment of a large number of septal lesions. The addition of glycerine is of great importance in preventing the too rapid diffusion of formol in the tissues and in reducing the vaporization of the formol.

He finds that formol is specially suited for the treatment of the most severe cases of diffuse suppuration or of gas gangrene. The first case described dated from before the war, and was a case of severe laceration of the soft tissues of the thigh caused by a motor accident. The skin was torn and injured over all the anterior part of the thigh, the muscles were torn and dissociated, the upper part of the femur and the hip-joint were laid bare, and the femoral vessels showed almost uncovered. The patient had lost much blood, and the general condition was bad. Although the patient came under treatment almost immediately after the accident, and the wound was thoroughly opened up, inundated with tincture of iodine and then plugged, yet it suppurated very freely, the torn muscles became swollen and formed projecting masses, and the patient's general condition rapidly grew worse. At this stage formol applications were tried; all the surface of the wound, except in the region of the femoral vessels, was swabbed over with the formol mixture. From the first application the whole aspect of the wound changed, and it gradually diminished in size and depth. Grafting became possible. Recovery was steady, but just when cicatrization was almost complete, the patient looked well and was able to walk about, he left the hospital and was lost sight of. In this case the author believes that, but for formol, death would have ensued. The majority of the other cases described are severe cases of sepsis or gas gangrene, in which formol was used preparatory to amputation. A good example is that of a soldier who was brought in, two days after being wounded, suffering from an open and comminuted fracture of the left leg. Gas gangrene had developed, and the wound had an almost unbearably fetid smell. The general prostration was very great, and he vomited all food. Amputation was clearly inevitable, but was impossible in the present conditions. Under anaesthesia a thorough opening up of the wound was carried out and multiple incisions made in the surrounding tissues. The limb was then treated with formol, which was made to penetrate into all the interstices, and was finally enveloped in formol compresses with an impermeable outer covering. The process was repeated daily until complete analgesia had arrived at. From the third day onward gas was no longer to be detected in the tissues, and the leg and foot were in the cadaveric condition without any trace of putrefaction. Five days later, when the patient's general condition had altogether changed for the better, amputation was performed through the middle of the thigh, and healing took place without any complication. The author looks upon formol as a resource in cases otherwise hopeless. The use of formol is not without drawbacks, and care is needed in its application. It is painful, though the pain yields to morphine. When applied in large quantities and concentrated solution, it leads to mortification of the tissues, and thus might be dangerous if it were left for a long time in close contact with a large vessel. Suppuration may occur under the hard dry scabs, unless careful watch is kept. From the author's experience it would appear that formol may be applied to wounds in as large quantities as may be desired, without any disadvantage resulting from formol gaining access to the circulation. In spite of its inconveniences, the author looks upon formol as one of the most valuable agencies at our disposal.

69. The Treatment of Sciatica by Continuous Extension.

I. SVINDT (*Tageskrift for Læger*, April 22nd, 1915) reports on the results of continuous extension on sciatica in the Frederiksberg Hospital, where this treatment has been practised during the last five years in every severe case. Twenty-six patients were thus treated, the procedure adopted being the same as for the extension treatment of a fracture of the neck of the femur. A wide strip of sticking plaster was carried down from a point just above the great trochanter to a point a little beyond the external malleolus, and a similar strip was carried down the inner side of the leg from the sulcus gluteo-femoralis to the internal malleolus. Small spiral strips were carried round the leg without encroaching on the knee. A stirrup was fitted to the plaster, and extension was made by a sand-bag hanging over the foot of the bed, which was somewhat raised. After a weight of 4 kilos had been used for a day, it was increased to 7 or 8 kilos, beyond which the adherence of American sticking plaster was found to be ineffective. During the first day of extension it was sometimes necessary to give morphine or aspirin to relieve the pain, which usually disappeared when the weight was increased to 7 kilos. The extension usually lasted three weeks, at the end of which massage and vapour baths were given for eight to ten days before the patients, who

were mainly recruited from the working classes, were discharged. The immediate results of the treatment were on the whole very satisfactory. But one patient could not tolerate the sticking plaster, which provoked a rash, and two patients relapsed even before they were discharged from hospital. Inquiries addressed to patients thus treated were answered by nineteen, of whom seventeen had remained perfectly well since their discharge. A few of these had occasional "sensations" in the leg when the weather changed, but none of them limped. One patient had relapsed six weeks after the treatment, and had been treated at home by extension and massage for about two months, after which he had remained perfectly well. Another patient had relapsed after about six months, but the pain had been much less and had seldom interfered with his work. There were thus seventeen successes and only two partial failures in spite of an observation period which, in some cases, was as long as four and a half years. The results were all the more satisfactory as only the worst cases of sciatica were treated in this way. It may be claimed for the treatment that it is simple, short, cheap, and easily carried out in general practice. Its effect is probably due rather to the absolute rest which it ensures the inflamed parts than to the tension on the nerve, which, considering the weight used, cannot be very great.

PATHOLOGY.

70. Electrical Examination of Sectioned and Compressed Nerves.

IN view of the numerous nerve lesions occurring among the wounded in war, MENDELSSOHN (*Arch. d'electr. méd.*, No. 389, 1915) thinks it desirable to determine the precise diagnostic and prognostic value of electrical examination in cases of divided or compressed nerve. He insists that the reaction of degeneration is a purely muscular and not a nervous reaction, and that the quantitative alterations in electrical excitability observed in a traumatized nerve present nothing like the characteristics of the R.D. syndrome. It is probable that the total section of a nerve causes an immediate and temporary exaggeration of the neuro-muscular excitability in the territory of that nerve. Not until the end of the first week does the peripheral extremity of the sectioned nerve show a notable lessening of galvanic and faradic excitability. The response of the nerve then diminishes progressively, and during this period the paralysed muscles tributary to the nerve may present partial or complete R.D., which in incurable cases gives place to the cessation of all reaction to electrical stimulus. Compression of the nerve, also, introduces modifications in the electrical reaction. These modifications generally follow some little time after the compression, and vary in intensity according to the degree of striction. It is in the compressed part of the nerve that electrical excitability is diminished. The portion of nerve situated above the compressed region also reacts feebly or not at all, while the nerve segment subjacent to this region reacts normally. Electrical examination can thus furnish a differential diagnosis between compression and complete section, the altered excitability in the first case referring to the portion of nerve situated above the lesion, and, in the second, to the peripheral segment; but it is difficult, if not impossible, to make a differential diagnosis between compression and incomplete section. Thus the diagnostic value of electrical examination is only relative, serving as a means of corroborating functional examination in sections and compressions of complex symptomatology. The prognostic value, however, is of capital importance. Prognosis is favourable when nerve excitability ceases to diminish, and shows a tendency to return to the normal. It is less favourable, though it may still be good when the persistent diminution is accompanied by partial R.D. of the muscle. Even when R.D. becomes complete, the *restitutio ad integrum* is still possible. Only when the abolition of electrical excitability in the nerve becomes persistent at the same time that the muscle, after presenting R.D., ceases to react to all electric stimulus, is the prognosis grave. The prognosis of paralysis by compression with simple diminution of electrical excitability is generally favourable. When the excitability for both currents is sensibly diminished or abolished for the whole length of the nerve, above and below the region compressed, the prognosis is then more serious. Restitution may still be made, but after a longer time. When, however, there is non-excitability of the traumatized nerve, together with complete non-excitability of the muscles served by that nerve, the prognosis is grave, and the case should be considered incurable.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

71. The Heart Muscle in Pneumonia.

L. H. NEWBURGH and W. T. PORTER combat the widely held opinion that the heart muscle is seriously injured in pneumonia and that heart failure from this source is a frequent cause of death in this affection (*Journ. of Exper. Med.*, August, 1915). The experiments performed by them show that the cardiac ventricle from dogs that have died from pneumonia contracts as well as the ventricle from healthy dogs, provided the pneumatic muscle is fed with normal blood. When a normal ventricle is fed with pneumatic blood the contractions are much impaired. If, however, the ventricle from a pneumatic dog is fed with pneumatic blood, the contractions are almost normal in extent and may be normal in duration. Thus, in pneumonia the heart muscle is essentially normal, whereas the pneumatic blood is distinctly poisonous to heart muscle suddenly fed with it. In the body, during the gradual course of the disease, the blood is progressively affected and the heart muscle gradually adjusts itself to the poison with striking success. The authors' experiments consisted of four series of ten dogs each. In the first series the normal ventricle was fed with normal blood; in the second the pneumatic ventricle was fed with normal blood; in the third the normal ventricle was fed with pneumatic blood; in the fourth the pneumatic ventricle was fed with pneumatic blood. The organism employed was the *Bacillus pneumoniae* (Friedländer). The method of administering the culture to dogs is described, and a table is given which shows the average duration of contraction and the total weights of the contraction areas in the four series of ten dogs each. (The conclusions reached by the authors from this experimental study are on all fours with the clinical finding of Mdlle. Cottin (*Rev. méd. de la Suisse Romande*, May, 1915) that the adoption of the sitting position for four hours a day benefits pneumatic patients, especially those in whom the pulse and cardiac state appear to be very feeble.)

72. Recurrent Typhus.

A. F. PLIQUE (*Journ. de méd. et de chir. pratiques*, April 10th, 1915) discusses typhoid infections, and especially deals with the symptoms, treatment, causation, and diagnosis of recurrent or relapsing typhus. He suggests the following four points as a help to diagnosis: (1) Stupor and apathy are much less marked than in the typhoid and paratyphoid infections; often there is excitement at the outset, and delirium towards the fifth day. (2) The pulse is remarkably quick, and may be 120 from the outset, even with a temperature not up to 40° C. (104° F.). (3) The spleen is much enlarged, and is often painful or tender on palpation. The splenic tissue is much softened, so that the enlargement is more perceptible on percussion than on palpation, but both percussion and palpation need to be carried out with some circumspection. (4) Jaundice and bilious vomiting are much more frequent than in other typhoid affections, but even in severe jaundice there is no retention of bile, and the faeces remain coloured. The motile spirillum of Obermeier is present in the blood in large numbers during the febrile period, and examination of a drop of freshly taken blood settles the diagnosis. In the afebrile periods the spirillum can still be recognized in fresh blood from the spleen, but as haemorrhage from the spleen or spontaneous rupture are among the gravest complications of the disease, it is safer to wait for the next febrile attack. Where the diagnosis is not certain, the general treatment of typhoid fever is applicable. Antipyretic drugs are of no use except in the very rare cases in which the temperature remains above 40° C. (104° F.), and they should only be used very cautiously. Quinine has no effect on the parasite, and is only useful where malaria is also present. The application of an ice-bag to the spleen is useful if there is pain in this region, and it might be continued in the afebrile period if the spleen remains enlarged. In the afebrile period the patient must be protected from all fatigue or excess of any kind. Where the diagnosis is clear, specific treatment by arsenic is indicated, and recovery will be speedy. Salvarsan in a dose of 1 centigram per kilogram (0.16 grain per 2.2 lb.), given by intravenous injection either at the beginning or towards the end of an attack, will lead to the disappearance of spirilla from the blood and recovery within a few hours. The dosage of salvarsan is not

without difficulty. Too small a dose appears to immunize the spirilla against larger doses given later, while too large a dose may give rise to a violent reaction which tends to be more violent the more severe the attack. Neo-salvarsan is to be preferred as being equally efficacious and less toxic. Consell and Bienassil have given the very large dose of 1 gram 0.45 per kilogram (22.3 gr. per 2.2 lb.) without inconvenience. A very simple contrivance for the preparation and injection of neo-salvarsan is due to Robert. The method is as follows: The tube in which the neo-salvarsan is delivered has a capacity of 10 c.c.m. When the injection is to be made the tube is broken, and the necessary quantity of water is poured on the powder. The water, which is sterilized and twice distilled, is contained in an ampule of hard glass. The solution is rapidly formed, and when it is complete it is aspirated by a filter aspirator which is adapted to the syringe, and contains in its interior a plug of gauze. This fine filtration has been shown by experience to be absolutely necessary. By use of the ampoules, water which has been distilled several weeks earlier is still available for use. The method of preparation greatly simplifies the use of neo-salvarsan when no special apparatus is at hand. If albuminuria or haematuria be present the dose of neo-salvarsan should be slightly diminished and measures taken to obtain good diuresis. Specific treatment is indicated even for spirillosis occurring in pregnancy, because of the unfavourable prognosis both for mother and child when it is not given. The prophylaxis of recurrent typhoid resembles that for typhus fever, since the transmission of disease is specially due to body lice, though other parasites (head lice, fleas, bugs, ticks, mosquitos, flies) also play an important part. The exhaustion brought about by poverty and by long wars favours the spread of the disease. The mortality from the disease is often not more than 1 to 3 per cent., but in the large epidemics in war it may reach 26 per cent.

SURGERY.

73. Sympathetic Parotitis.

L. MOSKOWICZ (*Der Militärarzt*, No. 8, 1915) records the case of a soldier, aged 26, who was wounded in the right cheek by shrapnel on November 23rd, 1914. A great number of splinters penetrated the cheek in the neighbourhood of the right parotid, where they remained. Soon after he was wounded saliva began to flow from a small wound at the anterior border of the masseter. This flow was greatest while the patient was eating, and it ceased at night. Four days after the infliction of the wound the region of the left parotid, which had not been touched, became swollen. The only discomfort complained of was dryness of the mouth. On November 29th an examination in hospital showed swelling of the right parotid and a little redness of the overlying skin. There was a flow of saliva from a small fistula at the anterior border of the masseter. The swelling of the left parotid was less than that of the right. A firm dressing and a non-stimulating diet effected the closing of the fistula in a week, and it was thus clear that only a small lobe of the parotid, not one of its ducts, had been wounded. The swelling of both parotids persisted, however, for a long time, and gradually the swelling on the left side became greater than that on the right. On January 17th an x-ray photograph taken from behind the head showed fragments of shrapnel only in the right cheek. On a fluid diet the patient gradually lost these parotid swellings, and was ultimately able to eat a certain amount of solid food without provoking them. On January 30th they were scarcely noticeable. Throughout his stay in hospital his temperature was almost invariably normal, and occasional rises to 99.5° F. were due to furunculosis and a hordeolum of the left eye. Discussing this case, the author argues that it is improbable that the patient suffered from mumps, for a bilateral swelling of the parotids, lasting two months and unaccompanied by any appreciable rise of temperature, does not resemble the picture of epidemic parotitis, which, in the absence of suppuration, seldom lasts more than a week or two. The absence of other cases of mumps in the patient's neighbourhood is also against the diagnosis of mumps in his case. The swelling of the left parotid was never painful, and was therefore probably not inflam-

matory. The swelling suggested a condition which, though not described in the textbooks, has already been observed in three cases by the author. Without any apparent provocation, such as a stone in the duct, a swelling of the parotids developed in these three cases at every meal. The only discomforts were the sense of distension and the comical appearance presented by this swelling, which seldom lasted long when the diet was fluid only. In the soldier's case the wound of the right parotid evidently started a bilateral sympathetic parotitis analogous to bilateral sympathetic affections of the eyes.

74. Radiography of the Maxillary Antrum.

The most important view, when examining the maxillary antrum by x rays, is the anterior one, for which the plate is placed against the anterior surface of the head. N. S. PINZI and SECCOMBE HETT (*Archives of Radiology and Electrotherapy*, July, 1915) state that the best angle for this examination is obtained when the normal incident ray passes parallel to the base of the skull and about $\frac{1}{2}$ in. below it. To obtain this view the most convenient procedure is to place the patient flat on his back, with a sand-bag $\frac{1}{2}$ in. to 2 in. thick beneath the occiput, the head being tilted forward. The screen is so arranged as to press just a little on the patient's forehead while at the same time touching his nose. For the oblique view, which also has its importance, the head is rotated a little to one side until the shadow of the zygoma is seen on that side, crossing a rectangular clear space, which is the shadow of the orbit. The position in which the zygoma bisects the clear space will give the two antrums side by side and not overlapping. The antrum best seen in this oblique view, however, is on the opposite side to that on which the teeth are shown. The authors point out that, in the examination of the antrum, radiography and transillumination must not be regarded as substitutes the one for the other. An antrum which appears clear both to x rays and transillumination is unlikely to be the seat of disease. The antrum appears dark by both methods when it contains pus, when there is chronic degeneration of the mucous membrane with pus, sometimes when the antrum has been operated upon, and also when there is a neoplasm. An antrum will be clear on transillumination but dark to x rays when it contains polypi, when there has been a radical operation but the antrum has become healthy, or, probably, when the antrum is occupied by a large dental cyst. An antrum dark on transillumination but light to x rays may mean that there is inflammation with mucous formation, but not old-standing disease; or it may mean merely that there are big fat bones.

OBSTETRICS.

75. The Female Pelvis in the Philippines.

ACOSTA-SISON (*Journ. Amer. Med. Assoc.*, May 29th, 1915) has made a study of pelvimetry and cephalometry among patients in the obstetric wards of the Philippine General Hospital at Manila, and published his researches in full in the *Philippine Journal of Sciences*, 1914. The average diameters of the pelvis of the Filipino woman are shorter than those of the pelvis of Europeans and Americans. The relation of one diameter to another is altered in such a way that the proportion of the crests with the spines in the Filipino pelvis is much smaller than the proportion of the same diameters in the European and American pelvis, and that the proportion of the diagonal conjugate with the other diameters in the Filipino is very slightly larger than in the American. These facts, elicited by measurement of 117 cases, would seem to show that the Filipino pelvis is narrower and relatively deeper than the American pelvis. This diminution may be explained by the smaller stature of the Filipinas. Yet, though the pelvis be smaller, the transverse diameter of the pelvic outlet is the same as in the European. This relative width of the outlet, Acosta-Sison believes, is the outcome of the habitual squatting position which the native assumes. The custom of carrying the child astride the mother's or nurse's hip may also play a share in this remarkable relative enlargement of the transverse diameter of the outlet in the Filipinas. The cephalic diameters of the Filipino children are smaller than those of Americans, and are thus in normal proportion with the smaller maternal pelvis.

76. Extruterine complicating Intrauterine Pregnancy.

J. HEYMAN (*Hygica*, vol. IXxvii, No. 10, 1915) records the case of a married woman, aged 31, who had previously undergone two normal confinements, the last of which had

occurred five years earlier. Menstruation was normal, lasting four days, and recurring at intervals of four weeks. The last menstruation began on October 14th and ended on the 18th. On November 25th there was a scanty, light-coloured discharge of blood. At this date the patient suffered from nausea and vomiting. On December 9th another haemorrhage occurred, and on the following day a large quantity of blood escaped. The right lower abdomen became acutely painful, the patient became pale, and suffered from repeated attacks of fainting, as well as diarrhoea and vomiting. The pulse was over 140, and at times scarcely palpable; the temperature was 99.1°. She was very restless and groaned on the slightest movement. It was therefore difficult to make a thorough examination, but it was ascertained that the abdomen was diffusely distended; its wall, however, was not rigid. There was marked dullness in both flanks. The cervix was enlarged and spongy, and the cervical canal was somewhat dilated. The vulva and vagina were livid and boggy, there was a diffuse resistance in the right fornix, but the pouch of Douglas was empty. The uterus could not be palpated, and there was no secretion from the breasts. The acute abdominal symptoms pointed to extruterine pregnancy, while the condition of the vagina and cervix suggested the existence also of intrauterine pregnancy. It was, however, also thought possible that an intrauterine pregnancy might be complicated by diffuse peritonitis or torsion of an ovarian tumour. A laparotomy showed a large quantity of fluid blood in the peritoneal cavity. The uterus was soft, of the size of a fist, and obviously pregnant. Protruding from the right horn of the uterus was a semi-spherical swelling, almost as large as a walnut, the outlines of which were continuous with those of the uterus, without any distinct line of demarcation. A normal looking Fallopian tube passed out from this swelling, from which it was clearly defined. At the back of the swelling was a 3.5 cm. long rupture, within which an ovum, of the size of a cherry, was found, densely covered with villi. The left uterine appendages were healthy. The swelling in the right horn of the uterus and the right uterine appendages were removed, and the wound in the uterus was satisfactorily closed in spite of the friable state of its walls. The intrauterine pregnancy was not interrupted by the operation, and on January 24th was progressing satisfactorily. The excised tube looked perfectly healthy and was 5.6 cm. long. A probe could be passed from its fimbriated end to the point where the egg-sac, which measured 3.5 by 2.5 cm., united the tube to the uterus.

77. Autoinfection in Obstetrics.

ZANGEMEISTER and KIRSTEIN (*Archiv f. Gynaek.*, vol. civ, 1915) have carried out investigations which discredit the view, commonly held less than a decade ago, that bacteria found in the vagina of a pregnant woman not previously examined have nothing to do with puerperal infection. According to this view, infectious matter is always ex-traneous, and either the midwife or the doctor is to blame for every infection. But the use of sterilized rubber gloves for every examination and operation have not reduced puerperal infections; and the source of these infections must accordingly be looked for elsewhere. An examination by Kirstein of women in labour, not previously examined, showed the presence in every case of putrefying bacteria on the inner side of the labia majora and minora. In 89 per cent. he also found these bacteria in the lower section of the vagina. In 25 per cent. he found them in the upper section of the vagina and on the cervix. After examination with sterile gloves, a previously sterile vagina was usually found to be contaminated by putrefying bacteria. In other words, infection had been carried from the vulva to the vagina by the examining finger. Zangemeister has made three series of observations on this part played by streptococci in autoinfection. In the first series only 7 per cent. of the women were febrile during the puerperium, whereas 62 per cent. of the women with anaerobic streptococci in the vagina were febrile during the puerperium, and 50 per cent. of the women with haemolytic streptococci in the vagina were febrile during the puerperium. In the second series the respective percentages were 4, 14, and 75. In the third series the respective percentages were 4, 16, and 55. These figures show that streptococci, existing in the vagina before any examination is made, are of importance in the etiology of puerperal fever. Zangemeister insists that bacteria of both the vulva and the vagina may be rubbed into the surface of a wound by the fingers, either during an examination or an operation. Both authors attach great importance to autoinfection as a cause of puerperal fever.

and they define autoinfection as a process dependent on bacteria existing in the vagina at the beginning of labour, before an examination has been made. Kirstein holds that in 90 per cent. of all the cases of "intoxication" fever no one is to blame.

GYNAECOLOGY.

78

Dilatation in Ureteral Fistula.

TOWNSEND (*Surgery, Gynaecology, and Obstetrics*, August, 1915) reminds the operator that the fact that the distal segment of the damaged ureter, in cases where ureteral fistula develops, undergoes atrophic change within a relatively short period appears to indicate that the early trial of dilating the stump through the bladder in a rational attempt to preserve its integrity may save the kidney or at least render a ureteral anastomosis needless. In urethral fistula any stenosis will ensure its perpetuation, and so, Townsend insists, it is with ureteral fistula. He relates some cases which illustrate his teaching. A large uterine fibroma was removed by supravaginal hysterectomy. Severe bleeding occurring from an enlarged branch of the uterine artery, the bleeding area was clamped, the operator then separating the individual vessels and tying them off one by one. A week later the vaginal pads were found soaked with urine, which was seen on examination to issue from the stump of the cervix. Townsend used the cystoscope and catheterized the ureters. A No. 7 catheter passed readily up to the left kidney, and the same instrument could be introduced for an inch and a half along the right ureter till it met with obstruction. Within a few hours after this catheterization, it was found that much less urine came away. Further attempts at dilatation were therefore made. Townsend succeeded in slipping a No. 10 French catheter beyond the obstruction upwards into the renal pelvis. He desired to retain the catheter as in cases of urethral stricture, but to this the patient would not consent. Fortunately the drainage of urine through the vagina ceased at once, and cystoscopy with ureter catheterization showed an equal quantity of normal urine issuing from both ureters. Henceforth the patient had no more trouble, and was restored to perfect health. In another instance the right ureter was torn in the course of an ovariectomy. An end-to-end anastomosis was at once performed. Several days later urine began to soak the abdominal dressings, and the discharge of that fluid became very free. Townsend estimated the output of the left kidney, and then passed a catheter into the right ureter; it met an obstruction about 1½ in. above its orifice. After careful moderate pressure the instrument passed above the point of resistance. A very free flow of urine came away through the catheter, indicating that hydronephrosis had developed. The catheter was retained. Immediately the escape of urine through the abdominal wound ceased. At the end of a week the catheter was removed. Within one hour urine began to issue once more from the abdominal wound. Townsend, who had not ordered the removal of the catheter, tried to reintroduce it, but failed, and ultimately it was found necessary to remove the right kidney. Extensive adhesions had developed, so that the precise pathological nature of the damage to the ureter and the subsequent changes could not be defined. Lastly, Townsend reports an instance of injury to the right ureter in an exploratory operation on a man suffering from an appendiceal abscess. It had been already opened and drained, the appendix being left untouched. In the second operation the right ureter was exposed; no injury was recognized, but five days later urine began to run out of the abdominal wound. Townsend catheterized the right ureter. He met with obstruction just 4 in. above the ureteral orifice in the bladder, but succeeded in getting the instrument to pass beyond the stricture. Urine came through the catheter, and two days later no urine escaped from the wound, which at once began to heal. Ultimately the patient recovered, and perfectly normal urine passed through both ureters. Thus catheterization, when skillfully undertaken, may save the patient from distressing complications, and obviate the necessity of a serious operation.

79. Fibromyoma of Uterus Weighing 92 lb.

PETTY AND PITFIELD (*New York Medical Record*, January 9th, 1915) describe an instance of neglected fibroid disease, adding a photograph of the patient, a widowed negroess aged 54, in Philadelphia. Her history was obscure; she had once been pregnant and aborted, and the abdomen had

been enlarging. She had undergone an exploratory operation, but the tumour was not removed. The patient was exhausted by the weight of the tumour and chronic ileocolitis. She could not lie on her back without support by a nurse. Yet until two months before her death she was able to get about her house. The tumour was a globular mass, freely fluctuating. It measured 48 in. in the plane parallel to the long axis of the body, and 52 in. around the umbilicus. The patient sank, after admission into hospital. The necropsy showed the right lung adherent and the seat of fibroid phthisis, the left completely collapsed, the pleura being filled with clear fluid. The right kidney was riddled with small abscesses, and there was a large collection of pus in the pelvis of the left kidney. The uterine tumour was a fibromyoma with central cystic degeneration; it weighed 92 lb., and the cystic cavity contained 7½ gallons of turbid brown fluid. It adhered to the ovaries and bladder.

80. Neglect of Bladder Symptoms in Gynaecology.

C. E. JOSEPHIN (*Hygiea*, Nos. 5 and 6, 1915) points out that in an almost incredibly large proportion of cases pain in the lower abdomen is due to cystitis, associated in a few cases with pyelitis. The physician often neglects to make a further examination of the urine after failing to find albumin. But chronic cystitis, and even pyelitis, cannot thus be excluded. In every suspicious case a catheter specimen of urine should be obtained and centrifugized, the sediment being stained and examined under the microscope. In many cases there is a history of acute cystitis, which has been relieved by internal remedies. These are only palliative, whereas irrigation with silver nitrate or collargol is radically effective. In chronic cystitis the cystoscope shows a desquamating thickened patch in the trigonum. The urine contains many epithelial cells, but only a few leucocytes. Though pyelitis may not be excluded at first, it is advisable to delay catheterization of the ureters till the result of irrigation with silver nitrate is observed. If the sediment disappears under this treatment, catheterization of the ureters, which in cystitis is not free from danger, is superfluous. The author records the case of a 5-para, aged 39, who had been treated a year earlier for cystitis with drugs given by the mouth. Shortly after menstruation, and as the result of a chill, she developed fever, haematuria, and abdominal pain, which was most severe on the left side. She was kept in bed for a fortnight, and her medical attendant reported that the urine was normal. The author could find no explanation for her symptoms till the examination of a catheter specimen of urine revealed epithelial cells, leucocytes, and diplococci. Cystoscopy showed the thickening of the trigonum characteristic of chronic cystitis, and after the bladder had been irrigated for some time the symptoms disappeared. The author emphasizes the importance for the gynaecologist of the practical knowledge of cystoscopy, neglect of which has led to tumours and stone of the bladder being treated as haemorrhagic nephritis and impacted stone of the ureter being treated with futile irrigations of the bladder. The omission to examine the urine for sugar is also a common cause of mistaken diagnoses by the gynaecologist, and it is not generally realized that, even in young subjects, vague symptoms in the lower abdomen may be due to diabetes. The author confesses to failing to diagnose a case of diabetic neuritis in a young married woman, whose pain was regarded as hysterical till 6 per cent. sugar was found in the urine by a chemist to whom the patient's husband had sent a specimen for analysis.

THERAPEUTICS.

81. Treatment of Neuritis in the Wounded.

DISCUSSING the value of physical agents in the treatment of neuritis following wounds received in war, DELHEM and DUCSSET (*Paris medical*, June 26th, 1915) state that in those cases in which the traumatism has determined a neuritis exclusively sensory as distinct from a motor neuritis or a mixed neuritis, radioradiotherapy has proved very efficacious. The irradiation should take place more particularly in the region which is the site of the traumatism, as many ports of entry being utilized as possible on a length of some centimetres around the point where the nerve has been involved. It is the authors' practice to give on each region an amount of radiation equivalent to 5 Holzknecht units in three sittings, separated each by some days' interval, and after having received the full dose of rays the region is left alone for three

weeks. Among other procedures the authors recommend ionization, either with sodium salicylate or quinine. It is doubtful whether these medicaments exercise a marked action on the nerve trunks, but they may exercise a very real sedative action on the nerve endings at the skin. Diathermy also is efficacious, while the hot-air douche frequently has a sedative value for simple neuralgias. Of all the sedative methods, however, treatment by galvanization (of which ionization, indeed, is a variant) is frequently the most efficacious. The intensity is as high as the patient can support—20 to 50 milliamperes—with well-padded electrodes. When there is overexcitability of the skin, however, the galvanic current should be utilized at a feeble intensity or be replaced by another procedure. All the above may be classified as sedative methods. Of revulsive methods the simplest is faradization. To excite the nerve terminals with the maximum of effect it is essential that the skin should be dry, in order that the current may be localized to the tegument. The revulsive method, other examples of which are the static spark, high-frequency currents, and Hertzian friction, is not indicated in neuralgias with hyperaesthesia, trophic troubles, or too acutely painful manifestations. This is, however, the method of excellence in neuralgias which are torpid, or in the painful manifestations consecutive to traumatism only involving the small nerve filaments of a region. In the treatment of traumatic motor neuritis the continuous current is the best procedure, while mechanotherapy and thermolumino-therapy have their various indications.

82. Novocain in Epididymitis.

ASCH (*Amer. Journ. Surg.*, June, 1915) reports good results from the injection of novocain in acute gonorrhoeal epididymitis; 6 c.c.m. of a sterile 1 per cent. solution of novocain were injected directly into the epididymis with an ordinary hypodermic syringe with a very fine needle. The fluid was evenly distributed throughout the inflamed area by reinserting the needle in different parts without withdrawing it through the skin. One injection of 6 c.c.m. was usually sufficient, but in some cases two were given. Pain ceased directly, and the temperature became normal in forty-eight hours. The swelling subsided in two or three weeks. The author claims that this method is painless, and can be carried out without confining the patient to bed.

83. Blood Transfusion by Citrate Method.

LEWISOHN of New York (*Surgery, Gynecology, and Obstetrics*, July, 1915) practises blood transfusion with the aid of sodium citrate. The donor is put on a table, a tourniquet applied to the arm, and the vein punctured with a cannula. The blood is received in a sterile graduated glass jar (500 c.c.m.) containing 25 c.c.m. of a 2 per cent. sterile solution of sodium citrate at the bottom. While the blood is running into the glass jar it is well mixed with the citric solution by means of a glass rod. After 250 c.c.m. of blood have been taken, another 25 c.c.m. of citrate solution are added. If less than 500 c.c.m. be taken as in infants, the amount of citrate solution added to the blood is reduced accordingly. In cases where Lewisohn expects to take more than 500 c.c.m. of blood, he has ready to hand another glass container (500 c.c.m. capacity) ready to be used in exactly the same manner. The glass jar containing the blood is then set aside and covered with a towel in order to safeguard against contamination. It is not necessary to immerse the jar in hot water or to surround it with an asbestos covering. The blood is then taken either into the recipient's room or the recipient is brought into the operation room. Thus more than one of the disadvantages of direct arm-to-arm transfusion are avoided. The recipient's vein is then punctured or exposed by a small incision; the cannula is next introduced and attached to a salvarsan flask or a glass funnel. It is advisable to fill the rubber tubing connexion between flask and cannula with some saline solution so as to prevent air from getting into the circulation. After the connexion is made, the blood is poured into the salvarsan apparatus. It is advisable, above all in free transfusions, to stop the flow of blood from time to time by compressing the rubber tubing. After the blood has been injected the cannula is removed, and the transfusion is thus complete. The whole procedure can be performed with the greatest ease and without any hurry, for, as experiments have shown, the citrated blood can be kept for two or three days in the glass jar without danger of clotting. The method has been employed by Lewisohn in 23 transfusions on 18 patients—operable carcinoma, 3 cases; pre-operative transfusions, 3; purpura haemorrhagica and allied conditions, 5; lymphatic leukaemia, 1; severe anaemia, 2; gastric haemorrhage, 2; actinomycosis, 1; puerperal sepsis, 1. Out of these 18, 4 were transfused twice within short intervals. Polyuria was noted in a few cases without any morbid changes in the urine. A marked rise of temperature was detected in five patients, associated in three cases with a chill after the transfusion. Though there were three chills in Lewisohn's own series, this complication, he reminds us, is yet more common after transfusion by other methods, Lindeman reporting no less than 22 chills in 62 cases where simple saline solution was injected. The results were fairly satisfactory, but the total was, as Lewisohn admits, too small for definite conclusions, and more than one patient neglected advice, or, in hospital cases, insisted on discharge before complete convalescence. Citrate transfusion seems, the author maintains, as good, on the whole, as any of the older methods, and is superior to them in its extreme simplicity. Lewisohn therefore feels assured that it has come to stay.

PATHOLOGY.

84. Urino-genital Tuberculosis in the Male.

ON a basis of 200 necropsies in which tuberculosis of the urino-genital system was found in the male, SIMMONDS (*Deut. med. Woch.*, January 21st, 1915) draws the following conclusions: Without exception, urino-genital tuberculosis is accompanied by tuberculosis of other organs. In 43 per cent. of all cases of urino-genital tuberculosis there is combined disease of the kidneys and bladder. (This combination occurs only in 8 per cent. of all cases of urino-genital tuberculosis in the female.) The disease almost invariably spreads from the kidney downwards, but the process may be reversed when the bladder is obstructed, and possibly also when antiperistaltic movements of the ureters are induced. In the genital system the disease may spread either way. When it spreads towards the testicle, antiperistaltic movements of the vas are usually to blame. The disease may spread from the genital to the urinary system, and from the urinary to the genital system; but it also happens in combined urino-genital tuberculosis that the disease has started simultaneously from different centres. In the genital system, the prostate is most often affected, being involved in 76 per cent. of all cases. The vesiculae seminales come next with 62 per cent., and the epididymis with 54 per cent. In 40 cases in which only one organ of the genital system was diseased, this organ was the prostate in 20 cases, the vesiculae seminales in 10 cases, and the epididymis also in 10 cases. In other words, in uncomplicated genital tuberculosis the prostate is affected in every other case, and the vesiculae seminales or epididymis in every fourth case. It is from these three centres that tuberculosis spreads in the genital system in either direction. The histological changes are usually the same, whether the disease has spread by the blood or by the ducts of the genital system. Only in the prostate—and then only in a few cases—are interstitial metastatic miliary nodules found. On the other hand, microscopic, subepithelial tubercles of the urethra are very frequently found associated with tuberculosis of the prostate. Tuberculosis of the testicle is either interstitial and metastatic, or the result of extension of the disease from the epididymis and through the lymphatic channels of the seminal vessels. The prognosis of genital tuberculosis is bad, and every third case ends fatally with miliary tuberculosis and tuberculous meningitis. The importance of the part played by genital tuberculosis in the causation of tuberculosis of the brain is shown by the fact that genital tuberculosis has been found in 50 per cent. of all men dying of tuberculous meningitis. The prognosis is worst for tuberculosis recovery from tuberculosis of the vesiculae seminales is exceedingly rare, whereas tubercles in the testicle often heal of themselves. In cases of bilateral disease of the epididymis, an operation should be confined to removal of the whole of one testicle and excision of the epididymis belonging to the other testicle, which should be left in place for the sake of its internal secretion. The author pleads for more frequent removal of the vesiculae seminales, in combination with castration, than is usually the case. In 20 cases in which castration had been performed before he made the necropsy, death being due to other tuberculous lesions in 19 of these cases, he found that the prostate was invariably diseased, and the vesiculae seminales involved in 17 cases.

AN EPILOGUE OF CURRENT MEDICAL LITERATURE.

MEDICINE.

90. Raynaud's Syndrome: Raynaud's Disease.

OSBORNE (*Amer. Journ. of Medical Sciences*, August, 1915) discusses Raynaud's disease, and gives notes of 11 cases illustrating the varying grades of severity of the syndrome, it being urged that this, as every disease, severe in its entirety, may occur in mild forms, or even in "missed" cases. The condition is one of such vascular disturbance as to cause more or less complete anaemia, or a prolonged passive hyperaemia of various parts of the body, internal as well as external. Though no definite cause has been discovered, the syndrome occurs mostly in women, and is frequently associated with disturbances that are recognized as due to disturbances of the thyroid gland or of the menstrual function. There may be a local spasm of the arterioles or venules, or of both, and, if of the arterioles, the cyanotic type of congestion occurs, preceded by an anaemia; while, if of the venules alone, a hot congested form simulating erythromelalgia may occur, the associated symptoms being pain, coldness, numbness, impaired function, and trophic disturbances, as evidenced by eczemas, blisters, ulcerations, or even gangrene. In a few instances the syndrome is the cause of abdominal and nervous disturbances. The grades of severity are as follows: (1) Cases so mild as not to be recognized, the patients suffering from cold hands and feet, irregular pains in various parts of the body, and there may be so much contraction of peripheral vessels as to cause dilatation of internal vessels, especially the abdominal, causing attacks of diarrhoea, albuminuria, ovarialgia, etc. (2) Cases of medium severity in which iciness of hands and feet, chilblains, sore fingers, headaches, and erythromelalgic symptoms of red face and red hands occur. Faintness, dizziness, disturbances of vision, and recurrent albuminuria or haematuria may be present. (3) Severe cases with deep ulcerations of fingers and toes, and serious cardiac, cerebral, or abdominal symptoms. (4) Rarely, more serious cases presenting such uncontrollable spasms of the blood vessels as to cause gangrene and sloughing, or even possibly fatal heart attacks. The disease is not a distinct entity but a syndrome caused by the disturbance of one or more internal secreting glands. Primarily there is no real disease of the blood vessels, but vasomotor control is so abnormally upset as to produce profound contraction of certain vessels, with possibly abnormal dilatation of others. Though probably more than one of the ductless glands is at fault, there always appears to be some disturbance of the thyroid secretion, and thyroid treatment improves the majority and cures some of these cases, while nitro-glycerine and local heat are among the remedies affording temporary benefit.

86. Idiopathic Necrotic Tracheo-bronchitis.

IN the last six years C. HART (*Berl. Klin. Woch.*, April 19th, 1915) has observed four cases of necrotic tracheo-bronchitis, to two of which he has applied the term "idiopathic." These cases were distinct from the necrotic tracheo-bronchitis of diphtheria, measles, and scarlet fever, and there was nothing in the history to suggest that steam or chemicals were responsible. One patient was a musician, aged 18, who was admitted to hospital much collapsed. The abdomen was very rigid, the temperature was 38.4, the respiration was weak and superficial, but there was only slight dullness on percussion over the lungs. Perforation of the gastro-intestinal tract was suspected, but a laparotomy revealed nothing amiss. The patient died soon after the operation, and a few hours before death he developed loud tracheal rales, and brought up about two teaspoonfuls of blood. At the necropsy the pharynx and tonsils showed no disease. There was also no false membrane anywhere in the respiratory tract, but, from the glottis to the small bronchi, the lining of the respiratory passages was of a dirty grey colour, and yielded a little dirty matter when scraped with a knife. The microscopic examination showed this matter to consist of a homogeneous detritus and numerous diplococci. There was much blood-stained froth in the small bronchi, and the pleura of the right lower lobe was covered by a recent fibrinous exudate. The lungs were rigid, heavy, and dark red on section, and, on light pressure, yielded much frothy blood. Throughout the substance of the lungs there were

numerous areas, no larger than a small coin, which were more dark, firm, and prominent than the rest of the lung. They were not, apparently, identical with pulmonary infarcts, to which they bore a superficial resemblance. The tracheo-bronchial glands were softened and enlarged, and on section their appearance was moist and haemorrhagic. The lining of the aorta contained some small fatty foci, but the remaining organs were healthy, and there was no septic enlargement of the spleen. A microscopic examination of the trachea and bronchi showed complete necrosis of the mucosa. Even the subepithelial elastic fibres had been destroyed, as well as the ducts of the mucous glands as far as their course ran through the mucosa. In the submucosa the blood vessels were much dilated and congested, and were surrounded by an irregular, round-celled infiltration. The blood vessels of the lungs were also much congested, and clumps of leucocytes and masses of bacteria were found scattered throughout their substance. Though both his cases were rapidly fatal, the author believes the disease in its milder forms may be a precursor of bronchiolitis fibrosa obliterans, which runs a chronic course.

87. Family Periodic Paralysis.

EDSALL AND MEANS (*Amer. Journ. of Medical Sciences*, August, 1915) report their observations upon a case of family periodic paralysis as regards its chemical pathology, summarizing the results of former investigators upon the neurology, urinalogy, etc. The patient was a male, aged 35, presencing typical periodic attacks, lasting from six to forty-eight hours, of complete flaccid paralysis of all the skeletal muscles except those of the face, eyes, and deglutition. Normal respiration was not involved, but the accessory muscles were affected. The disease had been in the family for six generations. The patient came into hospital for a month merely for the purposes of investigation, the clinical aspect of the case having been already fully described by Taylor in 1898 in the *Journal of Nervous and Mental Diseases*. Save for an enlarged spleen, physical examination was negative, there being no signs of cardiac weakness during the attacks, such as is described by other observers. Examination of the urine gave negative results except for a rather high amount of indican, which increased during the attacks. The basal metabolism was determined, and, with a view to discovering whether any acidosis occurred during the attacks, the alveolar CO₂ tension was investigated, when a striking fall was noted which suggested the presence of an acidosis during the attacks. After leaving hospital he remained for four months on a low protein (no meat) diet, during which time he was singularly well and free from attacks. After returning to a general diet, he had several mild attacks during the first month, since when he has been better than ever in his life. Of all the observations the fall in CO₂ tension, as shown by two entirely different methods, was the most striking, and this is probably due to an increased sensitivity of the respiratory centre caused by some intoxication. Sufficient positive findings were obtained to warrant the hypothesis that the disease is one of metabolism rather than of nervous origin, and the question of acidosis and the hydrogen ion concentration of the blood require further investigation. A low protein diet is certainly worthy of a trial, and may, over a long period of time, have some influence over the number and severity of the attacks.

SURGERY.

88. Quinine after Operation.

EDMOND BONNET AND A. H. CLEVELAND (*Journ. Amer. Med. Assoc.*, August 7th, 1915) describe a method of administering quinine murate. Ten grains, dissolved in 2 oz. of water at 100° F., are given by the rectum immediately after operating; this is followed by saline proctoclysis or—in septic cases—by 6 oz. of olive oil. The quinine is repeated every six hours for from four to six doses. In large or stout individuals the first two doses are given four hours apart. If the saline proctoclysis is used it should follow the quinine in about thirty minutes for the best results. The post-operative backache has been practically eliminated, and only about 2 per cent. suffer

any gas pain to speak of, and, if so, one enema relieves. Post-operative nausea and vomiting are less frequent and reduced in duration, though vomiting occurs. Frequently a single stomach wash ends all nausea and vomiting permanently. Post-operative thirst is delayed, and is absent in 60 per cent. The patient usually has a free bowel reaction within twenty-four hours when morphiae has not been given. The treatment is of special advantage when there is much trauma, and did not interfere with pregnancy in a pregnant woman. It has been used in only 2 cases following chloroform. One did well, but in the other it had to be discontinued, as exsanguis appeared. When it is used after chloroform the authors advise waiting until the patient has regained consciousness. Patients feel comfortable after operation, and morphiae is seldom, if ever, required. Sodium bromide (20 grains) was associated with each dose of quinine in fifteen laparotomies with good results, and seemed to reduce the nausea and vomiting. The beneficial action of the bromide so administered was especially marked in 8 gaitre cases. The only complications observed were einchomism in 3 cases and 1 case of drug eruption lasting three days, but the patient did not suffer at all.

89. Partial Resection of Lower Jaw for Cancer.

FOOTE (*Amer. Journ. of Medical Sciences*, July, 1915) records his experience of partial excision of the lower jaw in fourteen patients. Three methods are described: (1) Resection from within the mouth, only suitable for tumours of not greater malignancy than an epulis, or for primary ones in an early stage and not involving the bone; (2) external resection without disarticulation, a course indicated in malignant tumours of the jaw itself, or of the mucous membrane or adjacent soft parts, in which the incision will lie outside the diseased area; and (3) external resection with disarticulation, suitable for malignant tumours situated far back, and especially if recurrent. The chief dangers of operation by external resection arise from (a) anaesthesia, rectal anaesthesia being the ideal, one part of ether (3 oz. to 25 lb. of body weight) mixed with two parts of paraffin oil being injected slowly into the empty rectum half an hour prior to operation; (b) excessive haemorrhage, which should be guarded against from the outset, large vessels being clamped before division; (c) blood in the throat, which can be prevented by a good sized pad of gauze in the mouth frequently changed and clamped as a safeguard against swallowing; and (d) falling backward of the tongue when its attachments are severed—a danger which can be prevented by traction on a heavy thread passed through the tongue. When the digastric and muscles anterior to it are divided the tongue sometimes almost snaps back into the throat, but if held forward for a few minutes this tendency grows less as the remaining muscles become accustomed to the change. For a few hours after operation the patient requires constant watching to guard against recurrent haemorrhage or a blocking of the throat by the loosened tongue, and no nourishment should be given by the mouth until he has shown his ability to swallow water. Several suggestions have been made for preventing the remainder of the jaw from swinging towards the operated side, but, since good functional results follow without resort to wiring or the insertion of a prosthesis, it is best to avoid the insertion of any foreign bodies provided the patient has been freed from the malignant disease. Of the 14 cases operated upon, 13 were males, and the ages varied from 50 to 75, more than half being between 45 and 55. The growth started in the mucous membrane of the jaw in 8 cases, in the cheek in 3 cases, in the angle of the jaw in 2, and probably from the periosteum in 1. Eleven resections were performed for recurrences, and though merely palliative in 4 cases the operation secured a clean mouth for varying periods of time. Ten resections were performed with the hope of a permanent cure, but although such a result is probably too much to expect, the prognosis following partial resection of the lower jaw for cancer is more hopeful than is generally supposed.

90.

Incarceration of the Epiglottitis.

F. PESCHARD (*Ugeskrift for Læger*, March 4th, 1915) records the case of a woman, aged 34, who had been treated for several years by various physicians for hysteria. For many years she had experienced difficulty in swallowing, and the food had often "gone the wrong way." She had to bend her head forward and press her lower jaw downwards towards the chest when eating, and by practising this manoeuvre and eating slowly, she could usually take nourishment without difficulty. She could drink only one mouthful of water at a time, and while

doing so she had to hold her head in the same position. While swallowing she sometimes felt and heard a little click. During the past two years she had also suffered from attacks of pain in the neck, which varied in intensity and were described as burning, stabbing, pricking, or cutting. Sometimes, particularly at night, they were accompanied by a sense of choking. The pain was often so violent, and came on so suddenly, that she had to jump out of bed and sit upright for the rest of the night, struggling with a sense of choking. These attacks occurred most often when she suffered from a cold in the head, on which occasions she usually felt a movable lump in the neck. An examination of the throat showed hypertrophy of the lingual tonsil, particularly the posterior portion, under which the free upper border of the epiglottis was hooked. The posterior surface of the epiglottis was very red, but there was only slight hyperaemia of the larynx. The author succeeded in liberating the epiglottis with a sound, but after the patient had swallowed twice, the epiglottis was again incarcerated. A solution of cocaine and adrenalin was, accordingly, applied, and a little strip of gauze was inserted between the epiglottis and the lingual tonsil, being secured by two strings passing out of the mouth. The patient held her tongue out while a large, flat galvano-cautery was applied to the lingual tonsil under the control of a laryngoscope. After this operation had been repeated three weeks later, the patient lost all her symptoms, the base of the tongue was perfectly flat, and the redness of the back of the epiglottis was diminishing. While most of the symptoms were due to the mechanical effect of the incarceration of the epiglottis, the attacks of choking were probably a reflex nervous symptom.

91. Enteroliths Diagnosed by X Rays.

PFÄHLER and STAMM (*Surgery, Gynaecology, and Obstetrics*, July, 1915) report the case of a woman, aged 40, who complained of soreness in the right inguinal region; she had already detected a rounded, freely movable mass in the right iliac region. Stamm found no abnormal condition of the abdominal or pelvic viscera. X-ray examination was undertaken by Pfähler, in order to eliminate movable kidney, renal tumour, or ureteral calculus. The mass was diagnosed as an enterolith; it transpired that the patient had been subject from childhood to chronic constipation, and had taken large doses of magnesium daily to overcome it. Stamm prescribed abdominal massage, with glycerine and olive-oil enemata taken twice daily in the genupectoral position. This treatment was continued for three months, at the end of which time Stamm removed the enterolith piecemeal from the rectum, as the patient could not expel it spontaneously. The authors add that Le Wald of New York has sent to them a report of a similar case. A girl, aged 17, had been constipated for years and was troubled with constant oozing of mucus from the rectum. A body was detected in the abdominal cavity suspected of being a movable kidney, a tuberculous or lymphadenomatous mass, or a sarcoma or carcinoma. An X-ray examination of the urinary tract gave negative results, but a bismuth meal study showed an elongated sigmoid flexure at the seventy-second hour. A cleansing enema was given, after which a skiagram showed a large globular mass 2½ in. in diameter. The enterolith was removed by rectal instrumentation. The authors also report a third instance where a single woman, aged 42, had been subject for over three years to headaches, nausea, and vomiting. There was constant pain in the left lumbar region, and occasional tenderness over the appendix. Jaundice set in at times. The X-rays showed two opaque bodies in the right iliac fossa, about two inches external to the normal track of the ureter. Injection of the colon showed the bismuth surrounding these bodies in the appendix, and they were removed accordingly. The enterolith taken from the first case was examined chemically, and, as was to be expected from the history, it was found to consist mainly of magnesium phosphate.

OBSTETRICS.

92. Partus Unilateralis in Utero Dydelpho.

V. LUCAS (*Wien. med. Woch.*, March 20th, 1915) records the case of a primipara, aged 29, who menstruated last in the middle of September, 1913, and whose labour began in July, 1914. On the evening of July 4th she sent for a medical man, who found the following condition: The uterus was displaced to the right, its fundus was between the umbilicus and the xiphoid process; fetal heart sounds

were audible above the symphysis, and to the left, above the os pubis, a small prominence, suggestive of the foot of the fetus, was palpable. A vaginal examination showed the head of the fetus to be covered with a thick membrane and displaced to the right. In the left side of the vagina was a channel leading up to the os, which barely admitted the tip of the finger. In spite of careful examination of the introitus vaginae no part of the head could be felt except through the membrane. The patient was admitted to hospital early next day, and when a speculum was introduced into the vagina a very small portion of the head, only about 1 cm. wide, could be seen on the right side, the rest of the head being covered by the membrane. On the left side of the vagina a channel was found, passing up to the os, out of which blood escaped. In the middle of the vagina was a septum, which extended completely across the vagina and formed the membrane covering the fetal head. It was now clear that there was a double uterus, that the right uterus was pregnant, and that the small prominence detected through the left abdominal wall was not a fetal limb, but the left, non-pregnant uterus, from which decidual blood escaped. Expectant treatment was adopted, as the general condition was satisfactory, the pains were adequate, and the rate and rhythm of the fetal heart sounds were normal. At 9 a.m., on July 5th, the patient suddenly became unconscious and convulsed. The pulse was 120, the temperature 100.8°, and the urine contained a trace of albumin. Episiotomy was therefore performed, forceps were applied, and an asphyxiated male child was born. The child recovered rapidly, but weighed only 2,000 grams, and was 40 cm. long. There was no post-partum haemorrhage, the uterus contracted satisfactorily, and the placenta was expelled two hours later. The course of the puerperium was normal, the patient got up on the eighth day, and left the hospital on the twelfth. The correct diagnosis was not made in this case till the vagina was illuminated with a strong light thrown through a speculum. On digital exploration, the finger invariably passed into the vagina of the non-pregnant uterus, for the vagina of the pregnant uterus was filled by the fetal head, which was almost completely covered by the vaginal septum. It is strange that, in spite of the child being small and the pains being strong, labour was not completed spontaneously.

93. Rupture of Gravid Uterus Bicornis Unicollis.

TOVEY (*New York Medical Journal*, April 17th, 1915) was called in consultation on a case of pregnancy at the fourth month in one horn of a gravid uterus. The patient, aged 29, had borne children, and her doctor's assistant had attempted to dilate the cervix and remove the fetus and membranes, but it was found that much difficulty was experienced owing to the abnormal condition of the uterus. The uterine cavity was packed with iodoform gauze. The gauze was removed next day, regular pains having come on, but the pains suddenly ceased and the patient's doctor found her collapsed. A sound was passed into the uterus, and then the ovum forceps was introduced; some omentum was brought down, much to the operator's alarm, but the fetus and placenta were extracted and the uterus irrigated with strong solution of iodine to cause contraction, and it was noted that all the solution came back. Tovey thought that it would be wiser to open the abdomen than to wait. He found a double uterus, and one cornu was gravid and was perforated, a hole of the size of a silver dollar lying close to the septum separating it from the other cornu. The cornual cavity contained a piece of placenta. The opposite non-gravid (right) cornu and its appendages were fully developed. The single cervical canal was perfect and dilated. The pains set up after the packing, when ergot was also administered, seemed in Tovey's opinion to have caused the rupture. The patient recovered.

GYNAECOLOGY.

94. Perforation of Uterus by Chorion-epithelioma simulating Ruptured Ectopic Sac.

HYDE (*Amer. Journ. Obstet.*, June, 1915) writes of a woman, aged 48, who was admitted into his hospital in a state of shock, the face pallid and anxious, whilst no pulse could be felt, and sighing respiration was marked. She was an Italian, and the necessary history could not be elicited. The last period had occurred two months previously, and the patient remained in good health until the day of admission, when she was seized with hypogastric pain while walking upstairs. Ruptured ectopic gestation was diagnosed by an Italian doctor, who sent her to the hospital. The uterus was of the size of a three months pregnancy,

and movable, the cervix large and in normal position, and remarkably tender. The lateral fornices were free, but exploration caused much pain. The patient was placed in the Trendelenburg position, and a morphine administered hypodermically. On the next day abdominal section was undertaken. There was much fluid and clotted blood in the peritoneal cavity. The tubes were found to be normal, but free haemorrhage was discovered issuing from a rent nearly 2 in. long in the posterior wall of the uterus below the left cornu. Perforation by a curette, employed to clear away the products of conception, was suspected, but the patient was in so alarming a condition that the laceration was simply closed with sutures, hysterectomy not being attempted. The patient died within twenty-one hours. The whole of the left side of the body of the uterus was found to be the seat of a new growth, and there were metastatic deposits in the lungs, all bearing the characters of chorion-epithelioma. After the patient's death a clear history was obtained. Sixteen months before the rupture of the uterus the patient was delivered of a vesicular mole, and her Italian doctor made use of the curette. The medico-legal aspect of the case was important, and the fact that there was amenorrhoea was very misleading.

95. Primary Syncytoma of Ovary: Hypremestis.

RIES (*Amer. Journ. Obstet.*, July, 1915) reports an instance of deciduoma or syncytoma of the ovary in a woman, aged 48. She had been about eight times pregnant; in all her four full-term gestations nausea and vomiting had continued from the beginning to the end, and the last ended ten years before the tumour was removed. There had been three, or possibly four, abortions; the last, which took place two years before the last full-term pregnancy, was brought on instrumentally at the second month. In August, 1914, after the patient had been subject for fifteen months to almost continuous uterine haemorrhages, always associated with nausea and vomiting, a tumour was detected in the abdomen. There was great loss of weight. The genital tract was in a prematurely atrophic condition. There was a fibroid as big as a goose's egg in the left horn of the uterus and right ovarian tumour. On September 14th, 1914, supravaginal amputation of the uterus was performed, the appendages being also removed. The ovarian tumour was of the size of a child's head and almost entirely solid. The typical syncytial masses and Langhans's cells, with extensive haemorrhagic and necrotic areas detected on microscopic examination, left no doubt that the tumour was a syncytoma. No similar new growth was detected in the opposite ovary or in the uterus, nor was any evidence that other organs were involved made clear at the operation. Convalescence was slow, and the patient was discharged on the thirtieth day. Then she began to vomit, attacks occurring nine times on one day. The sickness was treated by the knee-chest position solely, and it ceased completely. Ries finds that his is the seventh authentic case of primary syncytoma of the ovary on record. He gives summaries of the earlier cases. This kind of tumour is very malignant, yet Ries's case was alive and apparently free from metastases seven months after the operation. It is possible, he admits, that the haemorrhages preceding the appearance of the tumour originated in an abortion.

THERAPEUTICS.

96. Permanent Bradycardia and Atropine.

E. COTTIN (*Archives des maladies du coeur, des vaisseaux, et du sang*, June, 1915) describes two cases of permanent bradycardia—one of organic, the other of nervous origin. The second case is of much interest in view of the fact that up to quite recently it was generally held that true bradycardia of nervous origin was always paroxysmal, never permanent. The first case presented no very special features. The patient was a man 72 years of age suffering from cancer of the stomach. The pulse-rate varied between 38 and 40 per minute, and was regular. A series of tracings were taken. The auricles contracted at the rate of 85 a minute, and all relation between the contractions of auricles and ventricles was broken. Atropine had no effect upon the contractions of the ventricles, nor indeed upon those of the auricles. The absence of effect upon the auricles diminishes the value of the atropine test, but the same phenomenon has been observed by other workers, and in this case it may have been concerned with the advanced age of the patient. At the autopsy the auriculo-ventricular bundle of His was found to be completely invaded by a dense sclerotic tissue, and,

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

99. Cerebral Oedema in Chronic Alcoholism.

SCLEETH AND BEIFELD say (*Amer. Journ. Med. Sciences*, June, 1915) that after long-continued over-indulgence in alcohol (seven to ten years) an individual develops delirium tremens for reasons as yet undetermined. The disease usually manifests itself in three stages—the incipient form, the fully developed classical form, and the comatose form (wet brain). The writers, who see about 2,500 cases of alcoholism every year, find that about 10 to 15 per cent. of the cases of delirium tremens pass into the comatose form. The transition from delirium to cerebral oedema is fairly well marked. The semi-coma which succeeds the active delirium is striking, and the delirium now becomes the low muttering type. The symptoms of wet brain are essentially meningeal—semi-coma, generalized hyperaesthesia, and muscular rigidity (Kernig's sign and neck rigidity) standing out prominently; the more marked are the latter two features the graver is the prognosis. The cerebro-spinal fluid is to all appearances normal. The mortality is nearly 75 per cent. Associated with the cerebral oedema complex there is very often a patchy bronchopneumonia, which clouds the diagnosis and is usually responsible for death. Necropsy reveals no gross lesions apart from the more or less marked fluid accumulation in the pia arachnoid space, a widening of the sulci, and a narrowing of the convolutions, to account for the symptoms of changes in the brain. The differential diagnosis must concern itself particularly with the possibility of a concomitant skull fracture, which may easily be obscured by the nervous manifestations of comatose delirium tremens. Among other conditions from which "wet brain" has to be diagnosed are: (1) A grave asthenic form of delirium tremens characterized by profound asthenia, pallor, cold skin, a rolling of the eyes from side to side, and often subnormal temperature; (2) the various forms of meningitis, which can, however, usually be ruled out by the negative bacteriological, serological, and chemical cerebro-spinal fluid tests, according to the type present; (3) uraemic coma, which shows cardiovascular signs, retinal changes, commonly exaggerated knee-jerks, absence of hyperaesthesia, and occurrence of convulsions and vomiting; (4) cerebro-spinal lues; (5) cerebral haemorrhage, thrombosis, and embolism; and (6) certain conditions due to alcohol—namely, pachymeningitis haemorrhagica interna, and the acute superior poliomyelitis of Wernicke; in these, however, gross nervous changes are distinguishing characteristics. The duration of "wet brain" varies; commonly it is about three weeks, but may be from two to twelve. Apart from symptomatic treatment but little can be done. Cardiac stimulants are in order, and persistent efforts must be made to force liquids; in the severer cases nasal tube feeding may be needed. Elimination must not be neglected. The writers have found ergot harmful here, whereas it is useful in the asthenic form of delirium tremens which they have specially described in this paper. Lumbar puncture, praised by Dana, has failed to do good in their cases. They suggest a trial of scientific hydrotherapy whenever it is available.

100. The Effects of Typhoid Fever on the Soldier's Heart.

ROHMER (*Deut. med. Woch.*, July 22nd, 1915) has come to the conclusion that heart failure in patients suffering from typhoid fever is much more common among soldiers on active service than among civilians. The physical and mental strain imposed on the soldier in war are apt to cause more or less severe cardiac symptoms. In the healthy subject these symptoms usually disappear quickly with rest; but the prognosis is far worse when the soldier, suffering from these cardiac symptoms, develops an infectious disease, notably typhoid fever. The author was struck by the frequency with which the subjects of typhoid fever suffered from cardio-vascular symptoms, which often terminated fatally, even when the epidemic seemed in other respects to be running a mild course. Among fifteen fatal cases which came under his observation all but three presented the signs of progressive heart failure. Indeed, in many cases heart failure was the only cause of death. In other cases showing signs of pneumonia the pulmonary symptoms were so slight that the

author believed that death, even in these cases, was due rather to the cardiac than to the pulmonary condition. Some of his patients had continued on active service in the trenches after the development of symptoms; and in these cases the disease ran a particularly severe course, owing to the weakness of the heart. But even in cases admitted early cardiac symptoms were extraordinarily common, and it was exceptional to find a normal heart, even in the subject of a slight attack of typhoid fever. The signs of cardiac insufficiency included diminution or cessation of the first sound over the base of the heart, accentuation of the pulmonary as compared with the second aortic sound, a fall of blood pressure, increased frequency of the pulse, extension of the cardiac dullness, and various systolic adventitious murmurs. In times of peace the vascular symptoms induced by typhoid fever are mainly due to paralysis of the vasomotor centre, leading to relaxation of the blood vessels. The heart meanwhile is seldom directly affected. But under the conditions of modern warfare the symptoms point to a primary cardiac insufficiency, due, no doubt, to the detrimental action of physical and mental exhaustion on the heart. At first the author followed directions from head quarters, and gave early prophylactic doses of digitalis preparations, that is, "digipurat" and "digalen," by the mouth. But he abandoned this procedure because it seemed to do no good, and because it interfered with the intravenous injection of strophanthin when the patient's condition was critical. He found this intravenous medication most effective, and he was also satisfied with the effects of camphor, caffeine, and suprarenin.

101. Some Ocular Complications of Mumps.

FÉLIX RAMOND AND GABRIEL GOUBELET (*Bull. et mém. Soc. Méd. des Hôp. de Paris*, July 29th, 1915) record some little known ocular complications of mumps met with by them in a military hospital. It is not surprising that ocular complications should occur in mumps when we bear in mind the close connexion of the fundus of the eye with the meninges of the brain; in more than 50 per cent. of cases of mumps there is a more or less definite lymphocytosis present, according to some French observers. Out of 115 cases of mumps the writers found in 45 lachrymation of variable intensity, affecting chiefly the bulbar conjunctiva. Many patients complained of visual disturbances, ranging from mistiness of vision up to inability to read more than a line of the newspaper. In one case there was dactylo-adenitis. The fundi of 16 cases were examined; some showed a markedly increased rosy colour of the optic disc; others a softness of the disc, with disappearance of its contour; others an appreciable swelling of the retinal veins; one case showed a congested iris, with a disturbance of the aqueous secretion. In one case there was definite papillary stasis. All these ocular complications were temporary; usually they disappeared with the disappearance of the inflammation of the parotid gland. But sometimes they persisted for a month after the recovery from the mumps. The prognosis is always favourable. In no case was albuminuria seen.

SURGERY.

102. Aluminium Plates to make Good Cranial Defects.

PIERRE DUVAL (*Bull. et mém. de la Soc. de Chir. de Paris*, June 22nd, 1915) describes three cases in which he successfully introduced a metal plate to make good a loss of cranial bone. The loss of bone was very extensive, the dimensions of the gap in one case being 9.5 cm. by 7.5 cm. (3.7 in. by 2.9 in.). In two out of the three cases the operation was rendered to some extent more complicated because the original wound, followed by trephining, had left a large scar, which bound together skin, dura mater, and cortex. Duval employed the only metal at his disposal—namely, aluminium, intended for the making of military equipment, of a thickness of 0.4 mm. (0.015 in.), and this in spite of the fact that a certain amount of absorption was sure to occur. A surgeon dentist assisted by taking an impression of the cranial gap in each case and by preparing the plates. In two cases hammered metal was employed, a margin of untreated metal of 2

depth of 2 cm. (0.78 in.) being left all round the hammered area, which could be cut as required at the operation. In the third case unhammered metal was employed with excellent results, though this might possibly prove to be too malleable. In each case a very large incision was made, much larger than the gap in the bone, in order that the cutaneous suture might everywhere be far outside the edges of the plate. The periosteum was reflected with the skin to the borders of the bone. In the cicatrized area the incision was of a good depth, it being impossible to determine the level of the deep surface of the skin. At intervals round the metal plate small prolongations, 1 cm. by 5 mm. (0.39 in. by 0.19 in.) in area, were cut out, for the purpose, as it were, of hooking the plate on to the skull. The edges of the bone were freshened, and small openings were made in the diploë between the two tables of bone to receive the metal prolongations. Before being definitely put into position the plate was "flamed" at a Bunsen burner. In one case in which the supraorbital ridge was fractured and depressed the plate was shaped into a raised ledge and anchored to the osseous border at the two ends, and the result, when seen after four months, was perfect. In all three cases excellent results were obtained. In the first case—one of depressed fracture of the frontal bone, including the supraorbital ridge—the frontal lobe was found to be compressed. The depressed bone was removed and replaced by the metal plate. The patient had previously complained of violent and continuous headaches, giddiness, supraorbital neuralgia, and of a sense of impairment of memory. Complete recovery followed the operation and the headaches almost entirely disappeared. The second patient had had a complicated fracture of the skull, with infected wounds on the left temporal and parietal regions, with aphasia and right hemiplegia. Trephining had been done a few hours after the patient reached the base hospital; depressed bone in the temporo-parietal region and numerous fragments of bone which had penetrated into the cerebral substance had been removed. When first seen by the author, six months after the injury, the power of movement had returned to the lower limb, and to some extent to the upper limb, but there was much enfeeblement of the memory and of the intellectual faculties, and language remained very imperfect in spite of attempts at re-education. The loss of cranial bone was almost as great in extent as the palm of the hand, and the skin was adherent to the brain over the whole of this area. The plate was introduced according to the method already described, and recovery was complete at the end of five weeks. The third case presented the largest loss of bone, and involved the temporal bone. In this case the plate was curved into a sort of beak, which turned inwards and wedged into the base of the skull. The cases are of interest in view of the large surfaces of bone involved and the success attained.

103. Nerve Repair.

E. G. KIRK AND DEAN LEWIS (*Journ. Amer. Med. Assoc.*, August 7th, 1915), after noticing the uncertainty of results of attempts to repair severed nerves by the various methods in use, say that, while the best results in transplantation are obtained from tissues removed from the same individual, nerves and blood vessels frequently cannot be sacrificed to bridge defects in nerves. A tube formed of fascia that would not collapse and undergo secondary cicatricial contraction would be ideal as the supply is unlimited, and fascia, when appropriate conditions are provided, contracts no adhesions and remains viable. They have experimented with tubulization of the sciatic nerve in forty dogs. Ten of these are still living, from seven days to nineteen weeks after operation, and seven specimens have not been studied histologically. An account is given of the study of twenty-two specimens, the animals having been killed at periods varying from one day to sixteen and a half weeks after operation. After exposure of the nerve and the removal of a section of it, a rectangular piece of the fascia lata was taken. The smooth, shiny under-surface was used for the lining of the tube. Care was taken to avoid injury to the nerve fascia and surrounding tissue, and hæmorrhage was made as perfect as possible. The suture was applied loosely so as not to strangle any portion of the nerve, and hæmorrhage from the nerve ends controlled. The tube was made of sufficiently large lumen to be twice the size of the nerve end to guard against secondary contraction. Dogs of all ages were used. Immediately after death the nerves were excised, stretched on glass tubing, carefully oriented, and fixed. Usually two methods were employed in the histologic study, the most important being the Cajal silver method, as modified by Ranson. The criteria as to the success of bridging are stated. Recovery

of function, which will require months, cannot be used on account of some anatomical peculiarity of innervation in the dog, for fair function returns about as soon as the post-operative tenderness is gone. Improvement in the foot-drop is probably indicative of success, but a failure of it to appear in the earlier weeks does not mean that the defect has not been successfully bridged. The reaction to electric stimulation cannot always be depended upon in estimating the amount of repair, and the best criteria of regeneration are the gross appearance and the histologic findings. Kirk and Lewis give the details as observed after various periods in the experimental animals. The axis cylinders and medullary sheaths of the distal segment degenerate almost completely in the second and third weeks, while a solid downgrowth from the proximal stump gradually invades the pulpy material in the tube. The axis cylinders develop first, most rapidly along the side of the tube, and at the end of the fourth week the gap of 1 cm. or less in length is almost completely filled with a white substance longitudinally striated. By the fifth week the proliferative and regenerative changes are very marked. A serious objection raised against fascial tubulization is its tendency to contraction, but that it can be used successfully was shown by a patient operated on by one of the authors who had a complete return of function after its use. Their experiments showed them that defects in nerves can be successfully bridged by fascial tubes, the time required depending on the length of the defect and the age of the animal. They believe that the possibility of cicatricial contraction of the fascia is precluded when the proper technique is employed, and the fascia inserted only under proper conditions.

104. Subcutaneous Rupture of a Digital Tendon.

A. TROLLE (*Geskrift for Læger*, July 22nd, 1915) describes a case of subcutaneous rupture of the extensor tendon of the fourth finger at the point where the tendon is partly attached to the capsule of the last interphalangeal joint. The patient was a man, aged 37, who had previously been well. After playing tennis, he was pulling his stockings off, when he felt something snap in the fourth finger of the right hand, but he did not otherwise feel any discomfort. Later, he noticed the position of his finger was abnormal, and he could not extend it properly. The ungual phalanx of the fourth finger was held flexed at about an angle of 30 degrees, and it was impossible to extend the finger at the last interphalangeal joint. Under general anaesthesia a longitudinal incision was made, 3 cm. long, in the middle line, from a point just above the nail, upwards; the skin was drawn aside, and it appeared that the last interphalangeal joint was open, the capsule of the joint being transversely torn from one side to the other. The extensor tendon was torn a little above the capsule, and its proximal end was retracted about 1 cm. The tendon and the capsule were sutured with silk, and the incision through the skin was closed. After three weeks' immobilization with plaster-of-Paris, the bandage was removed and the wound was found to have healed. Massage and passive movements were prescribed. Eighteen days later the movements of the finger were normal. A subcutaneous rupture like this is very rare, and can probably only be provoked by sudden extension of the finger at the first interphalangeal joint, while the ungual phalanx is still kept extremely flexed. Even if the lesion be quite small, it must not be neglected, lest the finger become a hindrance to work. The alternatives are, therefore, either to acquire complete mobility by treatment, or else to remove the phalanx. The diagnosis is not difficult, as, on careful examination, the extreme phalanx is found slightly flexed, without being capable of active extension, whereas the passive movements are quite free, and there is no sign of fracture or dislocation. When the rupture is complete, the treatment consists of suture of the tendon.

OBSTETRICS.

105. Diagnosis of Pregnancy.

A SIMPLE method, based on the presence of specific enzymes in the urine, for the diagnosis of pregnancy, a modification of the method of Kiutsi, is described by R. H. MALONE (*Journ. Amer. Med. Assoc.*, May 15th, 1915). Kiutsi's method is the following: By filtering urine of a pregnant woman through animal charcoal, the urine is clarified and protein and peptone taken off. Let it filter through animal charcoal several times until the biuret reaction is no longer positive. Then 5 c.cm. of urine so treated is put into a test tube and 0.1 gram of Kiutsi's placenta is added. The mixture is left for from six to

fourteen hours. The entire liquid is then filtered through a filter paper into another test tube, and 2 c.c.m. of sodium hydroxide is added. After shaking the contents a little, the test tube is held in a slanting position and the copper sulphate solution, in a 1 c.c.m. pipette, is allowed to run slowly on the side of the tube. If, where the two liquids meet, a brilliant purple colour is formed, the reaction is positive; but if no such coloration takes place, the reaction is negative. Kiutsi claims that this method has never missed in his hands, and also claims that he has been able to diagnose cancer, nephritis, tuberculosis, renal glycosuria, and other diseases by this method, using the proper substrate in each case. While Kiutsi is careful not to give the details of his preparation of the dried substrate, which gives an unfavourable impression, Malone has found the method in general so reliable, using his own ways of preparation, that he thinks it of interest. The use of animal charcoal as recorded by Kiutsi for the purpose of removing bodies giving partial biuret reactions was found unsatisfactory, and shaking with kaolin was tried as a substitute. Experiments were made to determine the amount required, the optimum incubation period, the effect of acidity or alkalinity of the urine and of the bacterial growth on the reaction. His method is described: "A freshly-passed specimen of urine from a pregnant woman is tested for albumin by the biuret test. If the test be positive, 15 c.c.m. of urine are shaken with 0.3 gram of kaolin for ten minutes in a mechanical shaker, filtered and retested again; the biuret test should now be negative. If it is still positive, the process must be repeated. Ten c.c.m. of biuret-negative urine are then neutralized with either 1 per cent. acetic acid or 2 per cent. sodium carbonate solution, 0.2 gram of dried placenta added, and the whole well shaken. The shaking I find essential. Toluene 0.5 c.c.m. is added to restrict bacterial growth. The mixture is incubated for twelve hours, filtered, and 5 c.c.m. tested by the biuret test. If negative, the remaining 5 c.c.m. are left in contact with the substrate, incubated for four hours longer, and tested again." Control urines from males and non-pregnant females are also tested in the same way, with and without substrate, and the substrate is also tested in 10 c.c.m. of distilled water. The urine of the pregnant female should give a positive biuret reaction, and the controls negative ones. The colour of a positive test varies from deep purple to lilac or rose, in different cases. All blues and greens are negative. Up to the present 59 cases have been examined, and since using the kaolin method and taking the precautions mentioned, the results have been very satisfactory.

106. "Siamese Twins" Ten Months Old.

OBIEB (*Indian Medical Gazette*, January, 1915) reports an unusual case of "Siamese twins," adding a radiogram and two photographs. They were 10 months old and well-nourished when he reported the case, and of dark complexion, coming from the Central Provinces. They were joined together at a point corresponding to the pubes. The surface of the abdomen from each costal arch presented a perfectly level plane, with no vestige of external genitals. There was but one umbilicus. The twins when seen lying on their backs presented an absolutely straight line. Each possessed a separate pelvis, perfect save for the absence of the symphysis pubis. The pubic bones lay 4 inches apart. The lower extremities projected from the normal pelvic articulation. When each pair of legs was extended, the legs of the twin placed uppermost lay above those of the other, and crossed at the knee-joints. The heart and liver were normal in both. There was a common abdominal cavity, the recti diverged outwards from their attachment at the costal arch, each pair meeting the other at the termination of an imaginary line drawn across the common umbilicus, leaving between them a diamond-shaped area. On close inspection rudimentary labia minora with a meatus urinarius were detected, but there was no vaginal orifice. Each twin had a separate anus, and micturated and defaecated independently. The twins were remarkably similar and were distinguished by the ornaments which they wore. Both were happy and healthy; the mother nursed them simultaneously, one at each breast. She was mother of a normal child aged 5, and of another 3 years of age with hare-lip; both were living. The first twin presented at the vertex, and during delivery a pair of feet were seen pressing into its axillae; then the trunk came to both followed, and next the feet of the first fetus pressing on the corresponding axillae of the second. Lastly the shoulders and head of the second child were delivered. There was a common cord and umbilicus. The twins were, it appears, born in a perfectly straight line. The labour lasted from 8 a.m. on one day to 6 p.m. on the third day.

GYNAECOLOGY.

107. Haematometra and Haematocolpos simulating Gonorrhoea of the Uterine Appendages.

V. FRANÇÉ (*Deut. med. Woch.*, July 15th, 1915) records the case of an unmarried woman, aged 25, who had complained for six months of pain in the right side. She had for a long time been treated without effect by many physicians, who had all apparently mistaken the haematometra and haematocolpos for gonorrhoeal disease of the right uterine appendages. A laparotomy had been performed, a small ovararian tumour removed, and a uterus duplex separatus found by a surgeon, who, as the symptoms did not disappear after the operation, sent the patient to the author. Had not the duplication of the uterus been detected at the operation, its recognition by other means would have been very difficult, for a vaginal examination showed no sign of this malformation. The left uterus was, indeed, considerably displaced to the left, while to the right a tumour could be felt loosely attached to the single cervix. As the patient showed signs of chronic appendicitis, the author performed a laparotomy and removed a chronically inflamed appendix. On the right side a perfectly functional and well developed, but somewhat dilated, uterus was found at this operation. It opened into a vagina which was distended with blood, ball-shaped, and closed at its lower end. No difficulty was experienced in removing this accessory uterus and vagina, after the ligation of the blood vessels and the division of a thin solid strand of tissue passing from the accessory uterus and vagina to the cervix of the left uterus. The patient made an uneventful recovery. Discussing this case, the author points out that it would have been easy to open the haematocolpos from below, and to unite the vagina of the accessory uterus with that of the left uterus. This procedure was not adopted because the patient's one functionally active uterus was sufficient; whereas if she had retained the accessory uterus it might subsequently have given rise to complications during labour. Thus in Prague the author had once to perform Caesarean section on a patient whose second non-pregnant uterus had become fixed below the head of the child, from which position it could not be dislodged.

THERAPEUTICS.

108. Ethylhydrocuprein (Optochin) in Pneumococcal Infections.

FOR more than a year the German medical press has teemed with almost as many articles on Professor Morgenthau's drug as it did a few years ago with salvarsan articles. As far as pneumococcal infections of the eye, notably ulcus corneae serpens, are concerned, writers are almost unanimous in giving unstinted praise. It appears that the ophthalmologist is at last equipped with a drug which rapidly cures lesions that have proved refractory to every other form of treatment. And this cure is effected at little or no cost to the structures involved. In pneumococcal infections of the lungs, however, the action of this drug is less certain, and there seems to be a certain proportion of cases, particularly when treated late, in which the drug is totally ineffective. Of the most recent literature on the subject we would refer to a paper by Professor AXENFELD and Dr. R. FLOCHER (*Deut. med. Woch.*, July 15th, 1915) on the treatment of pneumococcal infections of the eye. They state that at the ophthalmological hospital of the University of Freiburg the instillation into the eye of a 2 per cent. solution of optochin in cases of ulcus corneae serpens was rapidly beneficial even in severe cases, the process of healing being accompanied by relatively slight scarring. As the optochin caused acute pain before its anaesthetic action came into play, it was found necessary to give a preliminary application of holocain; cocaine was unsuitable for this purpose, as it injured the epithelium. The authors are opposed to the use of optochin in the treatment of ulcus serpens in general practice; for, though it is permissible to give a preliminary instillation of optochin before sending a patient to hospital, it is only in an eye hospital that the satisfactory treatment of this condition with optochin can be carried out. The authors further suggest that the prophylactic instillation of optochin before operations on the eye are undertaken would do much to prevent infection of the wound. Two papers by Dr. GEORG ROSENOW (*Berl. Klin. Woch.*, April 19th, 1915; *Deut. med. Woch.*, July 15th, 1915) on the treatment of pneumonia with optochin, deal with a series of 60 cases. In his second paper, in which he

tabulates the details of his last 34 cases, he gives the following account of his observations. The drug was given by the mouth six times a day, 0.25 gram being given every four hours by night as well as by day. Thus, the total dose in twenty-fours was 1.5 grams. Other drugs were withheld, both because they were considered superfluous, and because they were apt to interfere with the chemio-therapeutic action of the optochin. Camphor, for example, has been shown to diminish the action of optochin on the pneumococcus; and when cardiac tonics are called for, digitalis, caffeine, or adrenalin should be given instead of camphor. The optochin was given for several days after the temperature had fallen, and the total amount given in each case ranged from 5.5 to 16 grams. Of the 34 cases, only 2 terminated fatally. In one of these cases the patient was not admitted to hospital until the fifth day of the disease, when he was exceedingly ill, and all the lobes of the right lung were involved. A blood culture yielded many hundred colonies of pneumococci. In the second fatal case there was also a very virulent infection, which was totally refractory to the optochin. In no case was the optochin given before the pneumococcus was found. In 24 cases the optochin was given within three days of the development of pneumonia, and its direct action on the temperature was clearly demonstrable in 14 cases. In 6 cases this action was doubtful, and in 4 cases the drug seemed totally inert. In 9 cases the drug was given relatively late; it had no effect in 4 cases, and in 5 cases it was definitely beneficial. This shows the importance of giving the drug at the earliest opportunity. But even when the drug was given early it occasionally seemed to be totally inert, and in some cases a slight fall of temperature was succeeded by a rise, the fever thenceforth being unaffected by further doses. In none of his 60 cases did the author observe any ocular symptoms, and only in 2 cases were transitory auditory disturbances provoked. In spite of occasional disappointments, the author is convinced that optochin marks a definite advance in the treatment of pneumonia.

109. Treatment of Infective Gangrene.

L. OMBRÉDANNE (*Bull. et mém. de la Soc. de Chir. de Paris*, January 19th, 1915) has had at the military hospital at Verdun a very large experience of cases of infective gangrene since the beginning of the war, the majority of the cases of infective gangrene from an army corps and from the troops defending Verdun having been sent to the hospital. Almost all the known methods of treatment have been tried with variable results. During January, however, as a result of the bacteriological findings of Michaux of Paris, ether has begun to be used for the wounds, and has given extraordinarily good results. The preliminary treatment remains the same. The wound is opened up, projectiles are removed, the edges are debrided, and parallel incisions are made in all the area of crepitation. The wound is then washed with ether, gauze soaked in ether is passed under the bridges of skin, compresses of ether are applied on the skin, and then the whole rapidly enclosed with an impermeable covering which is itself covered with cotton-wool. The dressing is completely changed twice a day for three or four days. The results have been wonderfully beneficial. In all the cases treated, even in those in which crepitations and gangrene were already present, the infection has been checked in from three to six days. The author has published these facts promptly, without waiting to get together a body of statistics, because he is convinced that the treatment, if brought into use, will save many limbs and many lives.

110. Treatment of Goitre by Intestinal Disinfection.

FR. MESSÉLIER (*Rev. méd. de la Suisse Romande*, March 20th, 1915) has made a second series of investigations as to the effect upon goitre of continuous intestinal disinfection. Eleven cases are described. The patients were recruits in the Army Medical Service. As before, the author in some of the cases gave benzo-naphthol 0.5 gram (7.7 grains) three times a day, but in other cases he gave either thymol 0.1 gram (1.5 grains) twice a day, salol 1 gram (15.4 grains) twice a day, cresote 0.05 gram (0.77 grain) three times a day, or, in two cases, laxative pills containing aloes, jalap, resin, and rhubarb; the pills last named were intended to disinfect the intestine mechanically by the light purgation they induced. The measurements of the thyroid were made at two levels in each case. The length of treatment varied in the different cases from twenty to thirty-eight days, but in most cases was thirty-eight days. The goitre in 8 cases was follicular hypertrophic goitre, in the remainder was parenchymatous. A large majority of the patients came from the country, and

had been accustomed to a country diet, with little meat and much potatoes. The results were definitely good. In one case treated by salol the two measurements of the thyroid came down from 45 cm. (17.5 in.) and 41 cm. (15.9 in.) to 40 cm. (15.6 in.) and 37.5 cm. (14.6 in.) respectively; in another case from 41 cm. (15.9 in.) and 35 cm. (13.6 in.) to 35.5 cm. (13.8 in.) and 34 cm. (13.2 in.). Thus the larger diameter was diminished in one case by 5 cm. (1.9 in.), in the other by 5.5 cm. (2.1 in.), and in a third case it was diminished by 3.5 cm. (1.3 in.). On the whole the three cases treated by salol gave the largest decreases in diameter, but falls of 4 cm. (1.5 in.) or of 4.5 cm. (1.7 in.) were obtained from each of the drugs employed. In one of the two cases treated by laxative pastilles the diameters fell by 4 cm. (1.5 in.) and 3 cm. (1.17 in.) respectively in twenty days, but in the other one only by 1 cm. (0.39 in.) and 1.5 cm. (0.58 in.) in thirty-one days—the poorest result obtained in any of the series. These examples of treatment of goitre appear to be sufficiently conclusive, and they agree with the results of the author's previous investigations, with the observations of Gaylor and of Plehn, and also with those of MacCarrison, who in India in each of several cases appeared to determine the onset of goitre by the administration of impure water, and to determine its disappearance by the administration of intestinal disinfectants. In four of the present series of cases the water which the patients had been in the habit of drinking came from streams which became turbid after heavy rains. The author concludes that the experiments strongly support the view that the cause of endemic goitre is related to the use of water to which the parasite or parasites giving rise to goitre have gained access. It is not yet decided whether intestinal antiseptics are beneficial in virtue of direct action upon the specific agent causing the disease, or in virtue of their action in diminishing the number of the ordinary intestinal organisms, and therefore diminishing their toxic products, which might lead to exaggeration of an already existent thyroid enlargement. The author proposes further to continue his investigations.

PATHOLOGY.

111. The Duodenum in Diabetes Mellitus.

N. MUTCH (*Practitioner*, May, 1915), brings forward evidence which, he thinks, shows that specific lesions are present in the duodenum of diabetic patients which probably precede the dissolution of the pancreas. In healthy subjects the vertical length of the duodenum shadow, measured orthodiagraphically after a bismuth meal, is less than $3\frac{1}{2}$ in. in adults. In nine severe cases of diabetes in adults the length varied from 4 in. to $5\frac{1}{2}$ in. But the duodenum is not only elongated but is also increased in calibre; and on examination after death the walls are seen to share the same change, being thick and fleshy and somewhat milky in appearance. The same structural alterations can be traced also in the upper jejunum. This enlargement is almost invariably associated with ileal or colonic stasis, and in some patients delay is so extreme, and the consequent modification of the lower bowel so advanced, that there can be no doubt but that alimentary stasis preceded the onset of diabetes. This was the case in a patient, mentioned by the writer, whose duodenum showed strong antiperistaltic movements. The increase in size of the upper part of the small intestine is held by Mutch to be the predominant change in the alimentary canal in these diabetic cases, while lower bowel delay and duodenal regurgitation, although present, are not sufficiently pronounced to account for the enlargement. He gives particulars of observations on the duodenal contents removed at laparotomy in a variety of conditions, and adds the following summary of the facts substantiated in his paper: (1) Diabetes mellitus is associated with great enlargement of the duodenum which cannot be accounted for wholly by coincident intestinal stasis. (2) A profuse growth of *Streptococcus brevis* was obtained from the duodenum of a boy suffering from severe diabetes. Such an infection has not been found in any other condition. (3) Ileal stasis is usually present in diabetes mellitus, and, in proportion to its severity, affects the prognosis adversely. (4) The urine of diabetic patients usually contains one or more products of the action of *B. coli* on tryptophane and tyrosin. In conclusion, Mutch suggests that the explanation of these phenomena is that chronic duodenitis is the determining factor in the production of diabetes mellitus, and that ileal delay increases the severity of the disease by causing stagnation in the duodenum.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

112. Fibrinous Bronchitis without Dyspnoea.

ISRAËL-ROSENTHAL (*Ugeskrift for Læger*, September 2nd, 1915) records the case of a boy, aged 6, admitted to hospital with the diagnosis of bronchitis. He had suffered for some years from otitis media, and had also undergone an attack of bronchopneumonia on the right side between two and three years earlier. He had recovered completely from this attack, during which von Pirquet's reaction, tested on three occasions, was invariably negative. A few months before admission to hospital he had developed dry pleurisy on the right side. On January 10th, 1915, he was discharged from hospital apparently cured. But from this date till his readmission to hospital on March 3rd he was febrile and subject to attacks of sweating. The temperature was 38.7° C., the pulse 120, and the respiration about 60. The scleræ were bluish, the veins of the skin were very transparent, and the appearance of the child was scrofulous. Von Pirquet's reaction was now positive. The spleen could be felt from one to two fingerbreadths below the costal arch. There were signs of generalized dry bronchitis, with numerous coarse and fine rhonchi. The fingers were not clubbed, and the urine was normal. At first the temperature was high, exceeding 40° on one occasion; but it gradually fell, and the patient's general condition improved steadily. On March 15th he coughed up large, solid, white masses, which, when rinsed out in water, were seen to be fibrinous casts of the whole bronchial system, from the main bronchus to the smallest branches. The only micro-organism found in this cast was the *Staphylococcus pyogenes albus*, the examination for diphtheria and tubercle bacilli being negative. The patient continued to bring up similar casts without effort or dyspnoea. On March 16th slight dullness was found over the lower half of the right chest, where the respiratory sounds were diminished and somewhat bronchial. Over the rest of the chest only a few scattered rhonchi were audible. The respiration was 36, the voice was weak, but not hoarse, and the temperature was but slightly raised. Although the patient continued to bring up two or three casts a day, the general condition improved; and as the casts were dwindling in size, and the temperature was practically normal, the prognosis seemed good. But on April 5th the patient suddenly collapsed, and died two minutes later. The necropsy showed death to be due to impaction of a fibrinous cast in the larynx and upper portion of the trachea. The absence of dyspnoea in connexion with the fibrinous casts was now explained, for the right lung was found to be practically out of action owing to fibrinous thickening of the pleura, and to a dense deposit of milium tubercles throughout its substance, the tubercles being most numerous in the lower lobe.

113. Tumour of the Bulbar Olive.

DE MONTELL AND DE LA HARPE (*Rev. méd. de la Suisse Romande*, June 20th, 1915) record a case of tumour of the inferior olive, in which the clinical picture was one of a typical thalamic syndrome. The clinical study by the writers was limited to a single examination in the year 1911: the patient died in 1912. The symptoms began in 1908 with paresis, hemianæsthesia, and pains on the left side, with certain fleeting cranial nerve palsies. In 1910 there were atetotic movements of the left hand; rubbing the skin by a piece of paper gave an intolerable sensation. In 1911 the writers found (1) complete loss of deep and other kinds of sensibility on the left side; in places there was imperfect perception of painful and thermal stimuli; (2) left paresis with exaggerated reflexes and left extensor plantar response; (3) left ataxy; (4) slight contracture of left arm with typical atetosis of left hand; (5) six weeks' pains in left half of body, "as if the arms were being twisted or squeezed by pliers." The fundi of eyes were normal, there were no cranial nerve palsies, arterial pressure was very high, there was no albuminuria, and no syphilis. The diagnosis made was either a haemorrhagic or vascular (softening) focus in the right thalamus or hypothalamic region. Necropsy revealed the right bulbar olive to be greatly increased in volume, forming a veritable tumour; its cells were degenerated, but its structure was preserved to a large extent. It extended forward to the pons at the level of exit of the trigeminal nerve, involving the sensory paths and compressing the pyramidal tract. It ended

anteriorly in two caps having an olivary structure, which bordered on a small vascular focus with extreme proliferation of the cells, giving the impression of a vascular endo- or peri-thelioma; there was proliferation of the neuroglia. There were no diseased foci whatever in either the cerebellum or the optic thalamus. As to the nature of the olivary tumour, the hypothesis of a glioma was rejected, and it seemed improbable that it was a case of heterotopia with secondary vascular transformation. It was held that the vascular focus must be primary, the olivary swelling secondary. The production of atetosis by a lesion situated so low down is exceptional; the writers regard it as an instance of "morphological modification at a distance."

114. Failure of Percussion in the Diagnosis of Apical Phthisis.

A. SCHNEIDER (*Deut. med. Wochs.*, August 5th, 1915) considers the confidence placed in the percussion of the apices of the lungs in the diagnosis of phthisis to be mistaken, and he holds the importance attached by Krönig to percussion of the apices to be much overrated. In many hundred cases in which there was no sign of phthisis he usually found the right apex less resonant than the left. In these cases the *x* rays frequently showed the right apex to contain a little less air than the left, but there was no actual shadow. It was therefore evident that consolidation of the apex, indicated by dullness on percussion, did not really exist. The author suggests that this dullness over the right apex may be due to slight scoliosis of the upper thoracic vertebrae towards the right. In the very few cases in which he found dullness over a healthy left apex there was invariably scoliosis towards the left. Owing to this common difference in the percussion note of the two healthy apices, early tuberculosis of the left apex is apt to be overlooked. Thus, disease of this apex may reduce its resonance just enough to make the percussion note on the two sides equal; and as these notes are often equal in health, the physician may fail to detect the incipient consolidation in the left lung. The author has frequently found definite tuberculous catarrh of the right apex unaccompanied by definite dullness or retraction of this apex. In some cases, again, of tuberculosis confined to the left apex, the right apex was found to be more dull and more retracted than the left. He therefore concludes: (1) That the first physical signs of apical tuberculosis are to be detected by auscultation. (2) The slight dullness and retraction of the right apex brought into prominence by Krönig must be taken with reserve in the diagnosis of tuberculosis. (3) It is never possible to exclude apical tuberculosis because the apex is neither dull nor retracted. There are cases of apical tuberculosis in which the results of percussion are perfectly negative, although there is considerable catarrh of the apex. (4) Apical tuberculosis is, as a rule, not demonstrable by percussion until it is also demonstrable by the *x* rays.

SURGERY.

115. Cranial Decompression.

SHARPE (*Amer. Journ. of Med. Sciences*, April, 1915) urges the value of the subtemporal method of cranial decompression as being an almost ideal operation for intracranial conditions which require the relief of increased pressure or an exploration. Its advantages consist in the facts that the underlying cortex of the temporo-sphenoidal lobe is a comparatively silent area of the brain; it exposes an area of the brain most frequently involved; the removal of the squamous bone is technically less difficult than that of other portions of the skull because of its relative thinness; and the opening made is amply protected by the overlying temporal muscle, so that, if the attachment of the muscle to the parietal crest is carefully preserved, a hernia cerebri is practically impossible. The operation is advisable for the relief of intracranial pressure as a preliminary to removal of cerebral tumours, to allow unlocalized tumours to become clinically localized, and for the prevention of secondary optic atrophy in irremovable tumours of the base and mid-brain. In fractures, indicated only when the fracture is associated with high intracranial

pressure. In brain abscess, particularly of either temporo-sphenoidal lobe, it is wise to perform a subtemporal decompression over the suspected lobe, thus relieving pressure, permitting of exploration, and, if an abscess is present, affording free drainage through the lower angle of the split temporal muscle. It is of value also in selected cases of spastic paralysis due to an intracranial haemorrhage at birth. Unless the clinical signs indicate a lesion of the left hemisphere, or the patient is left-handed, decompression should always be performed on the right side in order to avoid the motor speech area. The anaesthetic requires the most careful administration in order to avoid an extreme cyanosis and congestion, and to prevent coughing or laboured respirations, it being necessary to deepen the narcosis just prior to the incision of the dura, otherwise the sudden relief of pressure will allow the patient to show signs of consciousness by coughing, etc. The incision is made vertically upward from a point just above the zygoma and half an inch anterior to the external auditory meatus to the middle of the parietal crest, parallel with the fibres of the temporal muscle, which is separated from the underlying bone by a sharp periosteal elevator, care being taken not to destroy its attachment to the parietal crest. After removal of the underlying bone in a circular opening having a diameter of 2½ in. to 3 in. all oozing from the bony margins is stopped with sterilized bone wax before opening the dura on a grooved director. Before closing the opening a rubber tissue drain is inserted at the lower angle of the wound and inside the dura beneath the temporo-sphenoidal lobe. The opening in the dura is left unsutured, and the muscle, fascia, and subcutaneous tissues are brought together with fine black silk. Post-operatively hot saline is administered per rectum every four hours for the first day, the wound being dressed and the drain removed on the second day. The operative mortality is low, and as a rule there is but little if any shock.

116. Colon Exclusion.

SMALL (Surgery, Gynaecology, and Obstetrics, August, 1915), considering Lane's operation and the numerous modifications suggested and practised, finds that his own method seems the most advantageous. The resection of the terminal end of the ileum, caecum, and ascending colon is circumvented by the anastomosing of the ileum with the lower segment of the sigmoid. The operator first ligatures the ileo-colic, colica dextra, and a slender branch from the superior mesenteric artery, anastomosing in the terminal six inches of the ileum with the ileo-colic. The structures supplied with blood by these arteries are then separated from their attachments, "mobilized," and lifted out of the abdominal incision, where the bowel is clamped and resection completed with a negligible loss of blood. The raw base from which the structures have been removed is then covered by the parieto-mural flap made fast by interrupted catgut sutures to the opposing meso-peritoneal margin. In conclusion, an ileo-sigmoidostomy is performed. Small contends that by this method there is the least amount of manipulation of the intestines, and therefore the least amount of shock to the patient. It eradicates the fountain-head of infection in 90 per cent. of the extreme cases of intestinal stasis. It displaces the ileum in the least degree from its normal position and downwards, so that gravity aids rather than retards action; and, lastly, the omentum is left undisturbed.

117. Obscure Gangrene of a Testicle.

GJESTLAND (Norsk Magazin for Lægevidenskaben, September, 1915) records the case of a man, aged 37, who had contracted gonorrhoea ten years earlier. Though there was a family history of tuberculosis he showed no signs of this disease; there was also no history of syphilis or rheumatic fever. After an excursion on ski he developed pain on one side of the scrotum, which did not, however, prevent his dancing the same evening. When he reached his bedroom at 2 a.m. the pain became very severe, and lasted for the rest of the night. The scrotum became swollen, and after four days was as large as a fist. After he had been in bed a fortnight he consulted a doctor, who applied camphor and cotton-wool to the scrotum, which he secured in a suspensory bandage. The pain abated, but five weeks later a fistula developed in front of the scrotum. With the development of this fistula the pain ceased completely, and the patient felt perfectly well although the temperature was 99.5° in the evening. The pulse was 85, and an examination of the abdomen, lungs, and heart showed nothing amiss. The right side of the scrotum was somewhat swollen and oedematous behind, and the epididymis could not be distinguished from the rest of the swelling. Chocolate-coloured pus, containing a few

strands of tissue, escaped from two small perforations in front of the scrotum. There was apparently no urethral discharge. The diagnosis of tuberculosis of the right testicle and epididymis led to their removal, but when the right testicle was incised after the operation it showed no signs of tuberculosis. The testicle itself was completely gangrenous, while the swollen epididymis contained a few necrotic foci. On the anterior aspect of the epididymis there was a small abscess leading to the perforations. A microscopic examination also failed to show any sign of tuberculosis. Cocci, of no particular type, were found in the abscess, but no micro-organisms were demonstrable in the epididymis. A few days after the operation a little pus, containing Gram-negative cocci, was pressed out of the urethra. Wassermann's reaction was negative. The author is uncertain whether the gangrene of the testicle was the cause of, or the sequel to, the suppuration in the epididymis. At the operation there was no sign of torsion of the testicle, but this condition may possibly have existed some weeks earlier. Although the examination of the heart was negative, embolism of an artery above the level at which the cord was divided might have been responsible for the gangrene of the testicle. But both embolism and torsion would probably have caused thrombosis of the veins of the cord, yet no thrombi were found. The etiology of the gangrene was therefore obscure.

118. High-Frequency Current for Bladder

Papillomata.

BEER (Annals of Surgery, June, 1915) records his experience in the treatment of benign papillomata of the urinary bladder with high-frequency cauterization, urging the primary importance of obtaining specimens from the growths, since all malignant tumours should be excluded from this treatment. Although mistakes in diagnosis may occasionally occur, malignancy can usually be recognized by carefully weighing the evidence obtained by cystoscopy, response to cauterization, palpation, and microscopic examination of excised and voided specimens. Cases that are not definitely benign and all malign cases require treatment by wide excision. The Oudin, or unipolar, current is preferable to the d'Arsonval, or bipolar, current for the purpose of destroying the growths, since it produces a more marked focal action at the point of application of the electrode and a less marked distant action, being thus more controllable. Use of the bipolar current frequently causes annoyance from the fact that the dead tumour remains attached by its dead pedicle for a very long time, whereas the more explosive action of the Oudin current largely prevents this. Possibly a combination of both may be found to give more rapid results, a primary brief bipolar treatment followed by the unipolar current, thus combining the virtues of both. The size of the tumour is no contraindication for such treatment, as it can be used satisfactorily in the largest growths, one as large as a good-sized orange being destroyed at six sittings, enough tumour tissue being obtainable through the sheath of the cystoscope at the second sitting to fill a 60 c.c. bottle. Tumours situated at the neck of the bladder, especially those which bleed profusely when injured by the introduction of the cystoscope, will usually require to be operated upon by suprapubic cystostomy and papillomization. As to end results, the author feels certain that a definite cure can be brought about by high-frequency cauterization, there being no sign of recurrence after four years. By recystoscopy every three or four months satisfactory control can be obtained, and if at the first examination there is no sign of recurrence *in loco*, a local recurrence or recrudescence of the original tumour need scarcely be feared. Inaccessibility, traumatic severe haemorrhage, intolerance of the patient, and malignancy, are the important contraindications.

OBSTETRICS.

119. Nephrectomy during Pregnancy.

HARRIGAN (Surgery, Gynaecology, and Obstetrics, June, 1915) has collected 36 cases of removal of the kidney during pregnancy, giving short abstracts of each case. He adds a case in his own operative practice. A married woman, aged 21, suffered during the fourth month of her first pregnancy from an alveolar abscess. It was left to burst spontaneously, and unilateral haematogenous infection of the right kidney developed. Harrigan removed the diseased organ through a right lumbar incision parallel to and 1 in. from the last rib. Four months later the patient became restless and there was jaundice. The urine, never quite free from albumin since the operation, became more albuminous. Labour was induced, a healthy

and well-developed child was born, and the puerperium was uneventful. Two years after the nephrectomy the patient was in perfect health, suffering no inconvenience from the loss of the kidney. Of the 36 remaining cases six authors do not mention the immediate result. All the remaining 30 recovered excepting 2 (Lenger, hydro-nephrosis and eclampsia; Tuffler, ruptured kidney, death from embolism). Of the 28 remaining cases the obstetrical after-history is noted in 24. Twenty were delivered without accident or complications, 2 aborted spontaneously, and in the remaining 2 abortion was induced just as in Harrigan's case. Among the six incomplete histories is Oepfel's, where a kidney affected with pyonephrosis was removed in the seventh month of pregnancy and abortion occurred spontaneously on the same day. The pathological conditions for which the operation was undertaken were extremely varied. It was noted in 31 cases besides that of Harrigan. The conditions were: Rupture 1 case, secondary haemorrhage from nephromyoma 1, congenital pelvic kidney 1, echinococcus 1, "cyst" 2, adenomyosis 5, adenoma 2, multilocular fibrocystic adenoma 1, tuberculosis 4, persistent fistula secondary to a previous nephromyoma 1, interstitial nephritis 1, and lastly 11 cases of distinctly suppurative conditions.

120. The Forceps in the Nineteenth Century.

ARLUCK and GISDANSKY (*New York Med. Journ.*, May 22nd, 1915) have issued a report on the indications and contraindications of the obstetric forceps, based on six thousand cases at the Jewish Maternity Hospital, New York. Since the introduction of pituitrin in 1909 the authors have been able to dispense with forceps in a large majority of cases. It is not a panacea, and the authors limit its use to cases where the cervix is dilated or dilatable, the presenting part well engaged, the bony outlet normal, and the fetal heart sounds audible. It acts best in dystocia due to dry labour, and posterior or parietal positions where no disproportion exists. The total percentage of forceps cases at the hospital was 5.3, or 334 out of 6,083 labours—a very low rate, but the patients as a rule were not pampered, and hence there were few "forceps of convenience" cases. The high forceps (32 cases) has been practically eliminated as an operative procedure, thereby materially decreasing the infant mortality. Caesarean section and pubiotomy have proved admirable substitutes, and with more experience and improved technique are giving better results. There were 63 Caesarean sections, the mortality 6.3 per cent., and 15 pubiotomies with a mortality of 6.6 per cent. In the hospital series of "twilight cases," introduced in 1914, the use of forceps was markedly increased. Induction of labour, the most rational procedure in the treatment of contracted pelvis, offering on the whole the best results to mother and child, was always substituted if possible for the use of the high forceps, when the case could be seen early. Krause's method (the passage of a bougie or large rectal catheter, uninked, between the posterior uterine wall and the membranes, which must not be ruptured) was usually practised. But hospital patients are not careful about coming back punctually to the date recommended to them after a careful examination, therefore statistics taken from public institutions are, excepting as regards technique, of little value to the practitioner.

GYNAECOLOGY.

121. Combined X-ray and Radium Treatment of Inoperable Uterine Cancer.

BERGONIÉ and SPÉDER (*Arch. d'électr. méd.*, No. 391, 1915) make use of a military analogy in comparing x-ray and radium applications in the treatment of uterine cancer. The x-rays, they say, may be likened to machine guns which, stationed on the crests of hills, concentrate their fire on enemy troops in the hollow, and are able also to rake isolated detachments distributed on the further side of the opposite slopes. Radium, on the other hand, has the effect of bombs exploding in the central positions of the enemy, leaving the outer ring unscathed. The authors find that the reaction on the skin after an exposure of five hours to the ultra-penetrating radiation of 18 eg. of radium placed 2 cm. away is about equal to that which follows an x-ray irradiation for twenty minutes, the rays being filtered through 3 mm. of aluminium, the anticathode placed 20 cm. from the skin, and the current being 3 ma. The x-ray intensity, therefore, is about 1,500 times greater than the intensity of the radium. The employment of radium, however, is of considerable value when the neoplastic tissue is of no great thickness, and

the extreme penetrability of the radium rays is advantageous from the point of view of homogeneity in the immediate distribution of the effect. The authors recommend a combined method of x-ray and radium applications. The x-rays are concentrated upon the same mass of tissue through a number of converging ports of entry. The anterior inferior abdominal wall is divided into four, six, or eight fields (according to the copulence of the subject and the probable extent of the lesion), and the sacro-iliac region into four or six fields. These fields receive successively an x-ray dose of 15 to 18 Holzknecht units. The rays are filtered through 4 mm. of aluminium, and with these a very large dose may be given without a reaction beyond that of radio-epidermatitis, which requires for its evolution eight days at most. By means of a speculum further radiation is introduced by way of the vagina, the mucosa of which has a remarkable power of resistance to x-ray action. This means of irradiation by the vagina, through which a total amount of 50 Holzknecht may be given, enables one to act on the prolongation of the neoplasm in the large ligaments and in the walls of neighbouring organs. The treatment of the various fields and of the vagina may be spread over a period of ten or fifteen days, followed by another series of sittings at the end of a month. The authors have treated 5 cases of inoperable uterine cancer or relapses after operation by a combined method consisting of (1) local radium therapy, with 18 eg. of radium bromide, of which only the ultra-penetrating radiation is utilized, the total duration of the applications being 100 to 150 hours; and (2) deep radio-therapy. The cases are too recent to admit of a definite judgement, but in all of them within two months there has been an improvement locally, and the neoplasm itself, which in two cases had the character of a diffuse infiltration, has become limited to a hard mass. In one case of cancer of the neck of the uterus which was operable, but was treated by radiation because the patient refused surgical intervention, no trace of the trouble has been found for three months, and no induration is perceptible on palpating the uterus.

THERAPEUTICS.

122. Electrical Treatment of Nerve Injuries,

LARAT and LEHMANN (*Paris méd.*, June 26th, 1915) analyse the 1,500 cases of nerve injury and associated paralysis with which they have had to deal at the Val-de-Grâce military hospital in Paris since last October. They classify the paralyzes in the order of frequency as follows: Radial 27 per cent., median and cubital each 18 per cent., external popliteal 14 per cent., circumflex of brachial plexus 9 per cent., sciatic or internal popliteal 7 per cent., superior radicular of brachial plexus 2 per cent., facial 2 per cent. The radial paralyzes are generally unassociated, though at times they coincide with paralyzes of the circumflex. Those of the median and the cubital are often associated; the radial-cubital association is more rare. Clinical signs of nerve degeneration resulting from wounds in war are of the usual variety; motor disturbances, which are predominant, and of insidious onset, include paralysis of the injured territory, with diminution or abolition of the corresponding tendinous and cutaneous reflexes; sensory disturbances include anaesthesia or paraesthesia, pain of variable character, and sensations of superficial tingling; there are also trophic disturbances, such as muscular atrophy, and a peculiar appearance of the skin, which becomes tender, thin, and bright. The authors leave the delicate details of electrodiagnosis for more elaborate discussion, and confine themselves to the subject of treatment. The therapeutic purposes are of three descriptions: (1) To lessen the pain, if this exists; (2) to stay the degeneration of the muscular fibre in the territory of the wounded nerve; (3) to assist in the recovery of the nerve. For lessening pain the galvanic current is indicated. The ascending current should be used; that is to say, the positive should be placed at the extremities, while the negative is disposed towards the nerve root. The intensity may vary from 5 to 15 milliamperes. Whenever possible, the ordinary galvanic application should give place to diathermy. A very large electrode is applied to the spine at the point of emergence of the nerve, and another envelops the extremity of the member. The intensity is 300 to 1,000 milliamperes, according to the tolerance of the subject; the duration of the sitting is fifteen to twenty minutes. As to the second therapeutic indication, all electrotherapists are agreed in limiting the employment of the faradic current to cases where there is no neuromuscular degeneration, but relative anatomical integrity

of the tissues. The indications for faradization are recognized in abarticular paresis, and in paresis or paralysis which is purely functional or follows upon a severe contusion. Beyond these cases, and when the galvanic nerve itself is attacked, it is always to the galvanic current that one should have recourse. As to the third indication, which is fulfilled at the same time and by the same procedure as the muscular excitation, the authors raise the question as to the way in which the current may act in the regeneration of a sutured nerve. Their own cases are too recent for a useful comparison to be made with those which have had no electrical treatment, but, *a priori*, the utility of electrization would seem indicated by its undoubted efficiency in ordinary peripheral neuritis. As traumatic degenerations do not differ anatomically from ordinary neuritis, the authors conclude that the traumatized nerve recovers more quickly and thoroughly if it is submitted to methodical electrization. As to the duration of treatment, if the nerve degeneration is to be cured, the process may occupy, in the slightest and more favourable cases, three or four months, and in average cases eight or twelve months.

123. Glucose Solutions as Prophylactic against Shock.

BURNHAM (*Amer. Journ. of Med. Sciences*, September, 1915) urges the value of glucose solutions as a prophylactic against post-operative shock. It has been shown that fat administered to animals and presumably stored in the liver increases the susceptibility of the organ to the injurious action of chloroform, the fat determining the fixation of the chloroform and the occurrence of necrosis, while experiments with carbohydrates, on the contrary, show that they protect the body proteins from disintegration. It is therefore important that patients should be put through a course of forced carbohydrate feeding for a short period immediately preceding operation, and should receive them in an available form soon after operation. When there is no contraindication to oral feeding the patient should be given a meal containing a considerable quantity of carbohydrate food in the shape of bread or cereal eight to twelve hours before operation, and about three hours before anaesthesia is commenced a feed containing 100 to 200 calories in the shape of easily absorbable carbohydrate—for example, six ounces of coffee or orangeade to which has been added one ounce of lactose. By such means the organism is assured of a good store of readily available glycogen during the anaesthesia. Where oral feeding is impossible, as during or soon after anaesthesia, subcutaneous or rectal injections of glucose solutions afford a clinically available method for nutrition, the solutions being freshly prepared and sterilized as they are more easily contaminated than ordinary saline. For hypodermoclysis 4 per cent. to 5 per cent. solutions are recommended, as much as 2 to 3 litres, representing from 80 to 210 grams of glucose, being given in twenty-four hours according to symptoms. For protoctysis 12 to 16 oz. of a 5 per cent. solution dissolved in ordinary tap water may be given during the operation, and its administration continued by the Murphy drip method after the patient is back in bed. By either or both of these methods from 300 to 500 calories a day may be given without discomfort, and though the quantity is not sufficient to supply all the total energy requirement, it is of importance in the prevention of excessive nitrogen waste. Notes of three cases are given in which glucose solutions were administered as a routine procedure without regard to urinary findings or symptoms of acidosis, being used as a prophylactic against shock in cases where saline solution would be ordinarily used. When acidosis is suspected and acetone is present the administration of alkalis or of carbohydrates is indicated, sodium bicarbonate being given until the urine becomes neutral, often as much as 50 to 100 grams being needed before this takes place. To summarize: Glucose solution should be given (1) as a routine after every operation where post-operative shock is to be feared; (2) as a routine where post-operative oral feeding may be difficult or insufficient for a considerable time; and (3) either before or after operation as an emergency measure for the relief of an existing or threatened acidosis.

124. Intravenous Injections of Colloidal Sulphur in Acute Articular Rheumatism.

LOEPER AND VAHRAM have made more than 300 intravenous injections of colloidal sulphur in all kinds of acute and chronic rheumatic affections, whether articular, muscular, infective, or toxic (*Soc. Méd. des Hôp. de Paris*, July 16th, 1915). During recent years colloidal sulphur

has often given good results in articular rheumatism when given by mouth in doses of 0.20 gr., or by hypodermic injection in doses of 0.05 to 0.10 gr.; it diminishes pain and swelling and sometimes even bony deformity. For the intravenous method the writers use ampoules of 1 or 2 c.c.m. containing 0.33 to 0.66 mg. of colloidal sulphur. The injection is made slowly into a vein of the arm by a fine needle with the usual precautions. Apart from the resulting rigor and elevation of temperature, which varies in degree according to the patient, his previous state, and the dose injected, the writers have never seen any bad results. They give particulars of 17 cases of acute articular rheumatism thus treated; some were mild, others moderately bad, and others very severe. After the febrile reaction which follows the injection the temperature falls, and the pain is very soon greatly relieved, and also the swelling a little later. In the milder cases recovery occurs after one or two injections; in the moderate cases after four or five, and in severe ones after ten. Complications may disappear; thus, in one case a pleural effusion cleared up, in another a pulmonary congestion, and in another an albuminuria which had resisted salicylates. The writers begin with an injection of $\frac{1}{2}$ c.c.m., and increase this dose daily up to 2 c.c.m. in the severer cases; in less severe ones they give a daily dose for five days; and in the mildest one or two successive injections. It is uncertain whether the sulphur acts as a stimulant or an antiseptic. The writers think it acts as a specific for the joint, whatever be the nature of its acute inflammation, rather than as a specific for the disease itself. The early relief of the pain is very marked. At a later meeting of the same society (July 23rd, 1915) the writers, with BERTHOUMIEU, described their experiences with this therapy in subacute and chronic rheumatic conditions: twenty six cases were treated, ranging from 20 to 60 years of age; pains and crackling were common; some cases had nodular thickenings, and several had bony deformities and calcareous infiltrations. In chronic cases the first two injections have often given a momentary increase of the pains; but the sedative action is as marked as in the acute cases, and the bony thickenings soon become less marked; the crackling is less influenced. Injections are given daily for a period of ten days; sometimes five or six will cure, but the majority need ten or more. In the subacute cases one period of ten days' injections is usually enough; the chronic may need two or more such periods in a year. The action is more marked than by the mouth or even hypodermic injection; it is more certain, deeper, and more constant. A reaction like that seen in the acute cases may occur, but is much milder, and is specially slight in the chronic cases. The treatment is avoided in patients who are feeble or affected by cardiovascular or renal disease. In the chronic cases, as in the acute, intravenous injections of colloidal sulphur give a temporary leucocytosis, the proportion of blood corpuscles increases progressively, and the arterial pressure rises temporarily. In the subacute and chronic cases the sulphur seems to act, as in the acute cases, as an elective agent on the joint, quite irrespective of the nature of the disease.

PATHOLOGY.

125. Aberhalden Reaction in Cancer.

ISAAC LEVIN and J. D. VAN SLYKE (*Journ. Amer. Med. Assoc.*, September 11th, 1915) report the results of applying a quantitative method reported a year ago by Van Slyke and Vinograd, for the detection of the ferment activities of the blood serum. The technique is described; the occurrence of proteolysis is shown, and its extent measured by the increase in ammoniogen. The results are given in tabulated form, as are also those in a second series of tests made on eight normal individuals and nine cancer patients with a slightly modified and more accurate technique. In both series the increase in nitrogen gas formation varied within the same limits in the normal as in the carcinomatous serum. The authors say the analysis of the results of the present investigation seems to indicate that the more accurate and objective test employed for the detection of the specific ferment reactions in the blood serum, the less difference can be detected between the reactions obtainable with normal and supposedly specific serums. They conclude that the diagnostic value of the Aberhalden reaction in cancer is, to say the least, doubtful, and it must be stated very emphatically that for the present the method belongs to the research laboratory and not to the clinic.

AN EPIITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

196 Radiological Types of Pulmonary Tuberculosis.

WALSHAM AND OVERTON (*Archives of Radiology and Therapeutic Radiology*, No. 181, 1915) make a provisional attempt to classify more definitely than has hitherto been done the various types of pulmonary phthisis as seen by means of radiography. 1. *Tuberculosis of bronchial glands:* (a) Fine shadow outside sternum in neighbourhood of vertebral ends of third, fourth, and fifth ribs is produced by swollen tracheo-bronchial glands; (b) a dim area at or just below the level of the vertebral end of the sixth right rib, joining that of the hilum, denotes enlargement of bifurcation glands; (c) normal hilum opacity is at level of vertebral ends of fifth, sixth, and seventh ribs, and when affected becomes abnormally dark, broad, and contains a number of circumscribed shadows; (d) isolated foci within pulmonary fields and apices, found in adults, are often entirely unconnected with hilum, and may represent residues of an early peribronchitis tuberculosa or of a localized aereogenous infection. 2. *Peribronchial phthisis*, in which the lymphatic ducts as well as the glands are implicated: (a) P. tuberculosa simplex, in which the tubercles unite to form small seed-like bodies of variable size, with a tendency to fibrosis or encapsulation by connective tissue; (b) P. tuberculosa exsudativa, in which bacillary processes are predominant, production of fibrous tissue deficient, the nodules increase in size, become cloudy in appearance, and irregularly rounded in outline, enlarging possibly to the size of a cherry and still remaining discrete; (c) P. tuberculosa disseminata, in which there is an extensive distribution of small peribronchial tubercles, as if there had been a sudden centrifugal dispersal of bacilli from deeper parts; (d) P. tuberculosa fibrosa, or chronic indurative or fibroid phthisis, in which proliferation of connective tissue is exuberant, and spreads to the interstitial and interlobular connective tissue, producing increased opacities and irregular, often honeycomb-shaped, outlines corresponding to the superficial lobular divisions. 3 and 4. *Bronchopneumonic and pneumonic phthisis*, the latter type being merely an extension of the former. The exudative and disseminated forms of tuberculous peribronchitis, especially the former, readily lead to the formation of consolidations in the vicinity of the hilum alone or within any of the lobes of the lung. 5. *Pleuritic phthisis*, cases of almost pure pleuritic involvement, where the invasion has spread either to the surface of the lung from a superficial peribronchial focus, or along the surface of the pleura from tuberculous tracheo-bronchial and bifurcation glands. On account of its density, when extensively developed, the condition of the deeper parts of the lung may be concealed. 6. *Apical phthisis:* (a) Peribronchial type, with deposition and scattering of nodules; (b) apical bronchopneumonic, with general or localized uniformity of shadow and great tendency to cavitation; (c) apical miliary; all these three varieties being liable to be obscured by (d) apical pleurisy, which leads to the formation of a dense pleural cap, to linear shadows which may be calcareous plates, or to atelectasis. 7. *Miliary tuberculosis*, which may at first be peribronchial and perivascular; the bacilli may come from extrapulmonary situations, as in tuberculous meningitis, when the dissemination becomes general. Types most liable to render clinical diagnosis dubious are (1) the purely glandular type, (2) the simplex and disseminated type of peribronchitis, (3) the pleuritic, and (4) the hilum-infiltrating (central phthisis).

127. Symptoms following Accidental Vaccination of an Infant.

R. FORSUS (*Finska Läkaresällskapet Handlingar*, June, 1915) records the case of an infant, 5 weeks old, who had developed fever, vomiting, diarrhoea, and sores on the mouth a week earlier. There had been three to five green mucous motions a day for two days. Then constipation had followed, and had lasted four days. Vomiting had occurred after every breast feed; but as the sores on the mouth developed the child ceased to suck, and also to vomit. Finding some white spots on the lips of the infant, the mother suspected diphtheria, and consulted the author. An examination showed the child to be well developed and well fed, but somewhat flabby. Practically the whole of the upper lip, and the mucous membrane of the frontal

portion of the alveolar process, were covered by a thick, greyish-yellow mass. A smaller mass was found on the lower lip, and another on the right nostril. There were also partially ulcerating and slightly bleeding foci on the hard palate and dorsum of the tongue. Their size ranged from that of a lentil to that of a pea. The author was mystified until he detected a typical vaccine pustule, of the size of a small coin, behind the right ear. The glands at the angle of the jaw and the submaxillary glands were slightly swollen and very tender. The throat was unaffected, but the temperature was 38.2 C. Further investigations showed that, twelve days earlier, the infant's father and sister had been revaccinated. The patient had shared the father's bed, and had been nursed by the sister. Neither the father nor the sister had worn dressings over the sites of vaccination. The mother had not been revaccinated, as she was suckling the infant, who was considered too young to be vaccinated. Some days after the infant developed sores on the lips, large, partially ulcerating vaccine eruptions appeared on the nipples and areolar regions of both breasts, three on the right, and eight on the left. As suckling was painful for the mother, and difficult for the infant, it was fed on the mother's milk artificially withdrawn. The milk was contaminated with vaccine, but as the infant had obviously been immunized, this did not matter. Both mother and infant recovered. The author suggests that the gastro-intestinal symptoms may have been due to vaccine pustules in the digestive tract; but he also admits the possibility of these symptoms being due to the patient's general condition.

128. Angina Pectoris and Raynaud's Disease.

SCHOTT (*Deut. med. Woch.*, July 15th, 1915) records the case of a bricklayer, aged 37, who had not contracted syphilis, and who was a moderate drinker and smoker. He was employed for five months in an ammunition train, the jolting of which pulverized a yellow explosive. This was deposited on the patient's uniform and inhaled by him, causing him to cough up deep yellow sputum. The taste of this powder, which was probably nitro-toluol, was very bitter, and it made him cough, sneeze, and vomit. Though he had never been subject to chilblains, he noticed, after he had been employed in the ammunition train two to three weeks, that the little finger of the left hand was occasionally perfectly white and anaesthetic. This condition generally spread to several other fingers, and recurred more and more frequently. The anaemia sometimes lasted three-quarters of an hour, and when it was passing off the metacarpophalangeal joints became swollen and cyanosed. This condition did not pass off till the fingers had been rubbed for some time. Subsequently the toes were involved, and there was a sense of tension and tiredness in all the fingers. Meanwhile the temperature was normal and the pulse was 76. Later vesicles developed on the hands and fingers and broke down, leaving superficial ulcers. There was no atrophy of the muscles, no ataxia, and no sensory disturbances in the legs, except the toes, which were anaesthetic. The urine contained neither albumin nor sugar. After the patient had been in hospital several weeks inequality of the radial pulses was observed. Thus, the left radial pulse would be full and bounding, then it would become small and even cease to be palpable, while the right radial pulse, which had previously been normal, would become full. Again, the radial pulses would synchronize or they would follow each other. The arteries in the legs also showed marked variations in fullness from time to time. The physical signs over the heart varied much, and sometimes an adventitious murmur was audible over the tricuspid valve when the patient lay on his back. The blood pressure, however, was persistently high. An x-ray examination of the heart showed that within quite a short period it underwent changes in shape and volume independent of systole, diastole, and respiration. As the patient complained of pain in the middle of the sternum and increasing dyspnoea, nitro-glycerin and Naubheim baths were prescribed. Great improvement was effected in the cardiac symptoms, whereas the Raynaud's disease was unaffected. The author traces these symptoms to the nitro-toluol, which was converted in the blood into nitrobenzoic acid. This was undoubtedly responsible for the reduction of the haemoglobin to 65 per cent., and for the headache, restlessness, and stabbing pains in the limbs of which the patient sometimes complained.

SURGERY.

120. Perforating Gunshot Wounds of Abdomen.

G. ERELY (*Annals of Surgery*, June, 1915) records the result of experience derived from a consecutive series of 27 cases of perforating gunshot wounds of the abdomen, with 3 deaths. The youngest case operated upon was 7 years of age, and the oldest 57; the average length of time elapsing between the shooting and the operation was eight or nine hours, the earliest being three hours and the latest thirty-six hours after injury. The average number of perforations was about nine, two being the smallest number and twenty-two the largest. In five of the cases the injury involved the upper abdomen only, and in three others both upper and lower abdomen were affected, while in the remaining nineteen the upper abdomen was uninjured. The ureter was divided in one case, and in about ten cases serious haemorrhage resulted from injury to the mesenteric vessels. Shock was more marked in the white than in the coloured races. Exploratory operation is advised in practically every case of gunshot wound of the abdomen, as it is the only certain way of determining whether or not perforations have occurred; and while this should be promptly done it should not be hurriedly done, as a fair number of these cases, especially where shock is present and haemorrhage not serious, will be rendered safer surgical risks by allowing them a reasonable time to react from the primary effects of the injury. Except where the injuries are unusually severe the ordinary case is a good surgical risk when operated upon from four to twelve hours after the injury, but if surgical treatment affords only one chance in a thousand for recovery any time limit should be considered artificial. It is important to get as correct an idea as possible as to the track of the bullet in order to save time and to avoid unnecessary handling of the abdominal viscera, all manipulation being as gentle as possible, since afferent impulses resulting therefrom have a more pronounced effect on the vasomotor centre than those resulting from the handling of the parietal peritoneum and skin in opening the abdomen and in retracting the edges of the wound. General irrigation of the abdominal cavity through a two-way irrigator was practised in practically every instance, and a Keith's glass drainage tube was placed into Douglas's pouch with the patient in the exaggerated Fowler position. Unless the large intestine had been injured the patient was given continuous rectal instillation of normal salt solution, and, as about 5 per cent. of such injuries die from tetanus, an immunizing dose of antitetanic serum was administered on the first, fourth, and sixth days following the injury. It is very important that any rent in the mesentery should be sutured to prevent the possibility of the occurrence through such rent of an incarcerated bowel with obstruction.

130. Pneumococcal Abscess of the Spleen.

N. PAUS (*Norsk Magazin for Laegevidenskaben*, August, 1915) records the case of a married woman, aged 38, who had contracted valvular disease of the heart after successive attacks of rheumatic fever. In October, 1914, she developed acute bronchitis, with pain in the chest and rigors. The sputum was blood-stained, and dullness and crepitation were demonstrable over the lower lobe of the left lung. Over the apex of this lung râles were also heard. The temperature was about 39.2 C., and fell by lysis. From December 7th to 25th the temperature was normal, but from the latter date it ranged about 38°. On November 12th the patient developed diarrhoea, lasting for three days; and an examination showed a painless swelling, of the size and shape of a pear, under the left costal arch. The tumour gradually became tender, and on December 7th it had extended to the umbilicus and was plainly fluctuating. A fortnight later an exploratory puncture of this tumour yielded a reddish-yellow fluid, in which many round cells were found. The tumour was now as big as a child's head, its surface was smooth, and its upper part disappeared under the left costal arch. It moved freely on respiration, and could also be displaced on palpation towards the middle line. Though fluctuation was easily elicited it was impossible to decide whether the fluid was under high pressure or not. An examination of the urine, bladder, ureters, and kidneys showed no abnormality. When the colon was distended by a rectal injection of gas it was found to lie median to, and partially in front of, the tumour. Although the examination of the urinary system was negative, the position of the tumour in the lumbar region suggested the presence of a renal tumour, and this view was supported by the absence of any marked degree of leucocytosis, which is usually associated with tumours

of the spleen. Accordingly, on January 7th, the left kidney was explored, but was found to be perfectly normal. The incision in the lumbar region was therefore closed, and the abdomen in the lumbar region was therefore opened in the position of the spleen. The tumour was then incised in order completely to evacuate the pus, which was under high pressure. The abscess cavity was then plugged and drained, and the patient recovered completely. A bacteriological examination of the pus revealed 4 pneumococci, which probably were derived from the endocardium, whence a bacterial embolus had passed into the spleen, giving rise to an infarct followed by suppuration.

131. Intestinal Obstruction.

A. McGLANNAN (*Journ. Amer. Med. Assoc.*, August 21st, 1915) says that though aseptic surgery has revolutionized the mortality statistics of acute intra-abdominal disease, the death rate from intestinal obstruction remains almost as high as it was thirty years ago. In the series of 276 cases studied by him the mortality was 45.7 per cent. In 161 cases the obstruction occurred in the small intestine, and 46.6 per cent. died. Seventy-five were cases of large intestine obstruction, and the mortality was 44 per cent. In 49 cases the exact position of the obstruction was not given, though probably it was in the small intestine. In the jejunum the obstruction was fatal in 52 per cent. of the cases. Much experimental work has been done to determine the cause of death, and it indicates that the secretion of the duodenal mucous membrane is involved in the fatal factor. Hartwell and Hoguet, in their experiment, show that dehydration is an important element in a fatal outcome. In pathological obstruction of the human intestine met in clinical work an intact mucous membrane is never seen. Earlier effect is shown in the altered nutrition of the bowel caused by interference with the circulation. The slow onset of toxæmia and its slight degree in chronic obstruction may be due to the development of a resistant epithelium with a compensatory hypertrophy, occurring in the loop of bowel above the obstruction; or it may be the result of the gradual development of a vicarious function of resistance by another organ. From the work so far done, McGlannan points out that the toxæmia arises from the duodenal secretion; all facts point to the absorption of a chemical compound of the cholin group of substances as the underlying essential cause of death in intestinal obstruction. The causes of death in the present series in the fatal cases were: Toxæmia, 75 per cent.; peritonitis, 12 per cent.; post-operative shock, 5 per cent.; miscellaneous, 8 per cent. In these 127 cases there were 20 in which the bowels were gangrenous. Fourteen of these patients died of toxæmia, 3 of peritonitis, and 3 others, fifteen, twenty-nine, and twenty-six days, respectively, after operation, from pneumonia, tuberculosis and embolism. The toxæmia is combated with great difficulty. Its main effects are on the heart and vasomotor system, and the secondary effects on the kidneys, liver, and other important organs tend to disaster. Early recognition and prompt treatment offer the only hope of reducing mortality. In the present series of cases the average duration of symptoms before operation in the cured jejunal obstruction was $\frac{1}{2}$ and two-thirds days. In the fatal jejunal cases two and five-sixths days; in the ileum cases the average duration of the cured was three and one-third days, of the fatal, six days. As a rule, the higher the obstruction the more fatal the outcome. McGlannan describes the symptoms of the three stages, which at the onset are pain, nausea and vomiting with or without constipation or diarrhoea coming on suddenly without regard to ingestion of food. Movements of the bowels or stomach washing will not relieve the pain, and with these symptoms the diagnosis should be promptly made and the operation performed. If there is any hesitation a second lavage should be done after one hour. The presence of nodular material in the washings at this time makes a diagnosis certain. In eighteen cases of operation made on these symptoms the obstruction was found, and the patient recovered. In the second stage there are persistent pain, distension, a visible and palpable spastic coil of intestine, visible peristalsis, with ladder pattern, and local tenderness; frequently, gangrene of the bowel and localized peritonitis. In the third stage toxæmia overshadows everything, and is the principal object in treatment. Sixty-three of the 276 cases were post-operative, and 20 of the patients died. Nearly 40 per cent. of these followed drainage after operation for appendicitis, which is a potent argument for early operation in those conditions when no drainage will be required. Operative methods vary with the stage of the disease. In

the third-stage entostomy will be the only method justified. When the toxæmia has developed it must be combated regardless of what must be done for the direct relief of the obstruction. After the entostomy a large quantity of water should be supplied, best by hypodermoclysis, to prevent dehydration. Epinephrin may be injected intravenously or with the subcutaneous water to counteract the effect of the toxin on the heart and blood pressure.

152. Comparison of Wassermann and Luetin Tests.

VEDDER and BORDEN (*Journ. Amer. Med. Assoc.*, November, 1914, p. 1750) have compared the Wassermann reaction with Noguchi's cutaneous reaction with luetin—an extract from pure culture of the *Spirochaeta pallida*. The two tests were applied to 744 discharged soldiers, with the object of detecting the percentage of those infected with syphilis. In the luetin test a very strong reaction was indicated by double plus, a strong reaction by plus, and a slight reaction by plus minus. Only the double plus and plus reactions were considered diagnostic of syphilis. In the Wassermann test a plus reaction was not considered diagnostic unless supported by history or clinical signs of syphilis. But, even if both plus and double plus reactions were counted as positive indications of syphilis and plus minus and negative reactions as negative indications in both tests, it was found that the luetin test gave 32 per cent. positives and the Wassermann only 20 per cent. Hence, the luetin test is the more delicate, or else it gives a number of false positives. The authors conclude that the former explanation is correct, and that, in tertiary, latent and treated cases, the luetin test is considerably more delicate in detecting syphilis than the most efficient Wassermann test.

OBSTETRICS.

133. Nitrous Oxide and Oxygen in Labour.

HEANEY (*Amer. Journ. Obstet.*, July, 1915) strongly advocated this anaesthetic mixture in a paper recently read before the American Gynaecological Society. Klekovich introduced it in 1880, and Clarence Webster, Lynch, and Heaney himself had recently made free use of it on a large scale in a public institution. They found that with a proper machine and a nasal inhaler nitrous oxide might be given to the extent that patients did not experience pain during labour yet maintained their consciousness, and could follow, when called upon, the directions of the doctor. When oxygen was administered at the same time this stage of analgesia was more easily maintained, and headache, frequent after the inhalation of pure nitrous oxide, was rare. The method was remarkably cheap. Manual dilatation of the cervix could be undertaken without the patient feeling any pain though quite conscious. The child was seldom cyanosed, the nose inhaler obviating to a great extent this danger. Thus the mixture was specially suitable in Caesarean section, as the operator could dismiss the child from his mind immediately after extraction, whilst when ether was given there must always be anxiety about it. Heaney declared that the mixture could be given in private just as in a hospital, for no expert anaesthetist was needed, since with a little instruction a layman might give the gas under the careful control of the obstetrician. In the discussion Vinberg stated that he had found out one objection to the nitrous oxide mixture in plastic surgery, for it made the blood almost black. Frank remarked that he had had much experience in the mixture in obstetrical practice, including three cases of Caesarean section. He disagreed, on the other hand, with Heaney as to the safety of administration. The mixture was the most dangerous of all anaesthetics in unskilled hands, whilst when given by skilled experts it was the safest.

134. The Blood in Pregnancy.

J. B. MILLER, N. M. KEITH, AND L. G. ROWNTREE (*Journ. Amer. Med. Assoc.*, August 28th, 1915) give the results of a study of the blood plasma in pregnancy. From the beginning to the middle of the nineteenth century it was believed that the total volume of circulating blood increased during pregnancy; hence the theory of the plethora of pregnancy and the treatment of outward symptoms by bleeding and cupping. Later it was shown that in the last months of pregnancy the red cells and albuminous contents of the blood decreased, while the white cells and water content increased; hence the theory of chlorosis of pregnancy was developed and increased diet replaced bleeding in the treatment. After describing the technique and methods

used, the authors say that the determinations of plasma and blood volumes were made before or after labour or both in a series of thirteen women. While they do not attempt to announce any far-reaching conclusions, they hold that their studies indicate that an absolute and relative increase in the volumes of both plasma and blood exists late in pregnancy with a slow return to normal during the puerperium. Their findings confirm the work of Zantz and of Heidenhain, Spiegelberg and Gschiedlen on animals.

GYNÆCOLOGY.

135. Treatment of Pelvic Inflammation.

G. GRAY WARD (*Amer. Journ. Obstet.*, June, 1915) notes how the treatment of pelvic inflammatory exudates has altered within fifty years. In Marion Sims's days the doctor waited anxiously for the formation of a well-defined area of fluctuation at the vaginal vault or inguinal fold, and then timidly made a little incision and allowed the abscess to drain. In later years Lawson Tait fearlessly opened the abdomen, and when he could not extract a suppurating sac entire he sutured the abscess wall to the abdominal incision and drained it extraperitoneally. The extreme of radical surgery was reached by Péan and Segond, who extirpated the uterus through the vagina so that the abscess might be the more readily reached and drained. Ward followed up 39 cases of pelvic abscess under his own observation and treatment, and they led him to infer that a large proportion of parametritic exudates resolve without abscess formation if let alone, and that if pus does form it may be absorbed in small quantity, frequently without prejudice to the functions of the pelvic organs. In a very large percentage of cases too ready resort to the curette or to other intrauterine manipulations at the onset of uterine infection is responsible for the formation of exudates. Unnecessary or premature operations promote dissemination of the infection, retarding convalescence, and sometimes causing fatal complications. Incision and drainage must not be employed until the indications of a localized collection of pus are well defined and associated with evidences of septic absorption. The selection of the proper form of drainage applicable to each case is important. In some instances rubber tubing and in others gauze are needed. In cases of well-defined abscess cavities which hold much pus a free and long maintained opening is required, and the drainage tube will be much more efficient than gauze. Failure to cure a pelvic abscess by vaginal incision and drainage is nearly always due to neglect in not keeping the incision open the necessary period. In acute pelvic suppurations, when the indications for interference are present, the operation of choice should be a simple incision and ample drainage with the object of conserving the organs.

THERAPEUTICS.

136. Intratracheal Anaesthesia.

C. H. WATT (*Journ. Amer. Med. Assoc.*, September 4th, 1915) states that since the introduction of intratracheal anaesthesia in 1909 it has been employed successfully in the Johns Hopkins clinic in all types of cases, but chiefly in operations about the head and neck and in the thorax and spinal canal. The distinguishing features of the method are that pure air is brought directly into the larger bronchi, while the vitiated air is forced out by the returning air streams, and the dead space in the mouth, pharynx, larynx, and trachea is eliminated. A practically continuous recurrent air stream prevents the invasion of indifferent or infectious foreign matter from the pharynx into the trachea. In perhaps no domain of surgery is a quiet, uniform anaesthesia so important as in that of the brain and cord. The increased intracranial pressure embarrasses the respiration through its centre, and cyanosis is likely to occur and may add enormously to the difficulties. Especially in cerebellar operations is this matter of cyanosis important. By the use of intratracheal anaesthesia the anaesthetist has been relieved almost entirely from the embarrassment due to cyanosis. Among the minor advantages of the method is that it permits ready manipulation of the head, and the anaesthetist may, undistracted, give himself wholly to the general condition of the patient. Up to December, 1914, the insufflation method was employed in the Johns Hopkins clinic 35 times in operations on the brain and cord. In all these

close attention has been given to all points in which it could be compared with the drop ether method. The difference in the effect on the pulse is marked. With intratracheal anaesthesia the average increase was 27 beats, as against 47 with the drop ether. The average duration of the intratracheal anaesthesia is two hours and thirty-four minutes; with the drop ether two hours and twelve minutes. In none of the 35 cases was there cyanosis, while in 4 of the drop ether cases it was so great as to cause apprehension, and in 2 of them the operation had to be abandoned on account of the haemorrhage and cyanosis. In one case in which the intratracheal method was used the operation was abandoned twice on account of haemorrhage, attributed to a spongy and vascular condition of the bone. There was no other case of haemorrhage in the series, while there was terrific haemorrhage in 6 cases with the drop ether method. It was noted repeatedly that the patients regained consciousness much more rapidly than after the drop ether. There were no cases of post-operative pneumonia. Local anaesthesia seems rarely used in America for such operations. The intratracheal method has all its advantages without its disadvantages. The chief point of advantage seems, to the author, to be the ease with which the intubation can be done. He sums up by saying that this method is much safer than the drop ether method, and the anaesthesia is smoother and offers the most efficient means of artificial respiration if needed.

137. Therapeutic Use of Oculo-Cardiac Reflex.

THE different proceedings usually recommended as treatment in attacks of tachycardia have for their object stimulation of the pneumogastric nerve, and CAMILLE LIAN (*Archives des maladies du coeur, des vaisseaux, et du sang*, July, 1915) recommends that in the other simple measures should be added the therapeutic use of the oculo-cardiac reflex. It is known that strong compression of the ocular globes causes, in the majority of persons, a diminution of pulse-rate which varies greatly in degree in different persons; thus the diminution may be only one-twentieth or one-tenth of the former rate, or may even be one-half or two-thirds, a pulse of 60 falling to 30 or 20. As a rule, the slowing of pulse-rate does not appear for four or five seconds after the beginning of the compression, and it is found, on palpation of the radial pulse, to be due not to a uniform increase of the duration of the pulsations, but to the production of successive unequal pauses. Unfortunately, the author has not yet been able to test clinically the value of the proceeding in suitable cases of paroxysmal tachycardia. The only case in which he has tried it was a most severe case in which all the customary measures, such as the administration of ipecacuanha as an emetic, the swallowing of large caftels, etc., as well as the use of the oculo-cardiac reflex, all failed, and recovery only occurred when digitalis was injected intravenously. Points in favour of compression of the eyeballs as a therapeutic measure are that the proceeding is a safe one, easily carried out, and well borne by the patient. Although in healthy persons the diminution of pulse-rate is greatest during the actual compression, yet it persists to a less degree after compression has ceased; for example, when compression lasts a quarter of a minute the pulse-rate is often found to return to normal only after from one to two minutes, and since in paroxysmal tachycardia the paroxysms end abruptly, such a fall might easily determine the cessation of the attack. Moreover, the procedure can be repeated several times, or can be used in combination with other methods. A strong compression, lasting for from fifteen to thirty seconds, is found to have more effect upon pulse-rate than one of medium strength lasting one or two minutes or longer. The author recommends that there should be four or five strong compressions, with an interval of from a quarter of a minute to a minute between each, so that the cardio-inhibitory action of one compression shall merge into that of the next. In order to try to prolong the result obtained, the strong compressions might be followed by medium or light ones applied for several minutes. The treatment should be applied as soon as possible after the beginning of an attack.

138. Intradural Medication with Mercuric Chloride for General Paralysis.

IRELAND AND STUART WILSON (*Journ. Amer. Med. Assoc.*, September 25th, 1915), in Washington State, where the high cost of salvarsan and its scarcity in the market of the Western United States have prevented them from general use of the Swift and Ellis method, have adopted the Byrnes method, because of its apparent freedom from

danger and low cost. 40 c.c.m. of blood are taken from one of the veins of the forearm and the serum allowed to separate. To 12 c.c.m. of clear serum is added 1 c.c.m. of a sterile solution of mercuric chloride containing $\frac{1}{2}$ grain and 17 c.c.m. of sterile normal salt solution prepared from freshly distilled water. This total of 30 c.c.m. is heated to 56 C. in a water bath for thirty minutes. Lumbar puncture is performed, and from 15 to 30 c.c.m. of fluid are withdrawn, and the 30 c.c.m. of diluted mercurialized serum is slowly injected. A 25 c.c.m. LÜHER SWINGLO was employed for the purpose. The authors publish abstract notes of twenty-three patients under their care. The treatment has proved safe. Autogenous serum is found to be preferable to pooled serum. The reactions are found a little more severe than those which follow the Swift and Ellis 40 per cent. salvarsanized serum treatment. Seventy-five per cent. of the authors' cases showed a clinical improvement after four or five treatments, but a tendency to relapse to their former condition was noted in about 40 per cent. of those at first improved. The clinical is more marked and more rapid than the serologic improvement. The authors desire that it should be known that the after-histories of their cases are too short for them to count on permanent improvement, and that therefore they will publish a later report of the same series. The colloidal gold test is most resistant to change; it is possible to have clinical general paralysis with a negative Wassermann reaction in blood serum and spinal fluid, but in this series the colloidal gold test was uniformly positive.

PATHOLOGY.

139. Experimental Hydronephrosis.

KEITH and SNOWDEN (*Archives of Internal Medicine*, February 15th, 1915) studied the functional changes which occur from day to day in animals whose only deviation from normal was an increased intratracheal pressure. The work of previous investigators has shown that increased back pressure on the kidney causes definite functional changes, the amount of urine excreted varying with the degree of intratracheal pressure, there being an increased flow with low pressures and a diminished flow with higher pressures, but the effects resulting from back pressure extending over a longer period of time, and more nearly approaching conditions met with clinically, have not hitherto been investigated. In order, therefore, to study the effects of back pressure on the kidney over an extended period of time, an obstruction in one ureter was produced with removal of the other kidney, functional tests after a unilateral nephrectomy alone having previously shown no departure from the normal. A method for partially obstructing the ureter was devised by placing an elastic band loosely around it so that it was permeable at a pressure of from 20 to 30 cm. of water, which was considered to be the pressure most likely to produce the desired effects. During the first period following such an obstruction in dogs nothing objectively abnormal was noted, the only evidences of derangement being a mild polyuria, well-marked thirst, and certain cumulative phenomena in the blood. The animals were bright and lively, and such toxic symptoms as loss of appetite, vomiting, or diarrhoea appeared but rarely. The thirst was secondary to the polyuria, for the urinary output frequently exceeded the fluid intake. There was no sign of oedema or anaemia, but all the cases showed a steady gradual loss of weight. After a varying length of time a severe and rapidly fatal toxæmia set in, with loss of appetite, vomiting, progressive weakness, and frequent fluid stools containing mucus and traces of blood. Slight tremblings and muscular twitchings were present, but convulsions, drowsiness, or coma were absent. During this second period functional tests showed marked renal insufficiency with pyelocystitis. Determination of the amounts of incoagulable nitrogen showed a sharp initial rise with a relatively greater increase in the urea nitrogen content, the latter sometimes amounting to 90 per cent. of the total. Following the first sharp rise, the nitrogen generally maintained a fairly constant level to within a few days of death, when, coincident with the terminal symptoms, there was a great increase in the nitrogen content of the blood, and a very low phenolsulphophthalein output. In each of the eight experiments a hydronephrosis developed, causing the definite renal functional disturbances characterized by polyuria, traces of albumin, diminished output of phenolsulphophthalein, and delayed excretion of lactose, but no delay in the appearance of a glycosuria after the injection of phenylidiazin.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

110. Peripheral Nerve Lesions and Muscular Contractions.

MAURICE DUCOSTÉ (*Gaz. hebdomadaire de médecine et de chirurgie de Bordeaux*, July 18th, 1915) has made a study of the contractions which follow peripheral nerve lesions, and enunciates two laws with respect to them—the first the law of contraction upwards and the second the law of neuromatous contraction. The first law is as follows: That a lesion of a nerve below the point or points at which motor branches come off results in immediate and lasting contraction of the muscles supplied by the motor branches. The cause of the contraction is, in the present state of knowledge, inexplicable, but the author believes that it is a law without exceptions. A good example is to be found in lesions of the ulnar nerve. If the ulnar is injured below the points from which the branches to the flexor carpi ulnaris and the inner half of the flexor profundus digitorum are given off, the second phalanges of the fourth and fifth fingers are at once flexed, the fifth metacarpal is flexed, and carries with it the fourth metacarpal, and the hand rotates on its ulnar edge. No such flexion is observed if the lesion is in the upper arm—that is, above the muscular branches. That the flexion is the result of contraction, not of paralysis, is shown by anastomosis of the muscles, which give out the characteristic contraction sound, and by the elastic resistance which is experienced if an effort is made to overcome the flexion by traction upon the phalanges. Occasionally the middle finger also becomes flexed as a result of the injury, probably because in these cases the third head of the flexor profundus digitorum is supplied by the ulnar instead of the median. Where the injury to the nerve is incomplete the flexion of the fingers is only of moderate degree and is easily overcome. An apparent exception to the rule is in cases in which the nerve is injured in the upper arm but the flexion of the fourth and fifth fingers is not immediate but is retarded and progressive in character. The explanation in such cases is that the flexion is due to the flexor sublimis digitorum innervated by the median, not by the ulnar nerve, and is in accordance with the second law enunciated by the author—that of neuromatous contractions. The author's conclusions, with respect to his first law are: (1) That, in opposition to what has previously been taught, a lesion of sensory branches of mixed nerves not only results in disorders of sensation but also in certain constant disorders of motion. (2) That the constancy, the localization, and the similarity of these contractions make it impossible to attribute them to hysteria. (3) That treatment by electricity, by suggestion, or by blind surgical intervention are to be rejected as useless or injurious. (4) That in the case of contractions limited to a group of muscles it is necessary to seek, in accordance with the above law, for the nerve which might be the cause and to explore it; that it is not impossible that a nerve attacked by a non-traumatic neuritis might react in the same fashion. Before the second law of contraction can be followed certain facts with regard to neuromatous need consideration. When a nerve has been divided, either in the physiological or the anatomical sense, a neuroma develops at the seat of the lesion. The neuroma, as soon as it reaches a considerable size, is excitable, and if it is excited by rubbing or by light blows a sensation as of an electric current is felt along its course, the sensation not being limited to the extremity, as would be the case according to Müller's law. (This sequence of events does not always occur if the neuroma be situated on the median nerve.) If the nerve be compressed below the neuroma by means of a ligature, the sensation only descends as far as the ligature. But, in addition, and especially in the case of the ulnar nerve, a current may be felt in the ascending direction, which also may be checked by compression. Moreover, excitation of the nerve well above the lesion gives rise to both ascending and descending currents. Again, if the ulnar nerve is injured in the forearm or even the wrist, excitation of the neuroma or of the nerve above or below the lesion awakes the sensation of an ascending current up to the level of the elbow or even of the axilla. At the end of a variable length of time it will be found that excitation of the ulnar and also of the internal cutaneous in the arm well above the lesion gives rise to a descending

current; then the second and third intercostals are affected and give, on compression of the corresponding intercostal spaces, the same sensation. Thus some pathological process passes upwards, from the original point of injury, along the whole length of the ulnar nerve and invades all the nerves with which it anastomoses. The zone affected when the neuroma shows marked excitability is situated on the front of the thorax in the second, third, and fourth spaces, and it is as a rule accompanied by a not very extensive zone in which the characteristic features are less well marked. There are always present at the same time painful points which can be elicited by pressure on the posterior branches of the intercostal nerves and on the cutaneous branches anterior to their points of emergence. The pathological process may even be propagated symmetrically to the opposite side of the thorax. The muscular contractions take place in accordance with the author's second law, which is, however, subject to some exceptions still in need of explanation. This law is: The neuroma excites and contracts the muscles whose innervation comes from the same roots as the nerve on which it develops, and secondarily excites and contracts other muscle groups whose innervation comes from neighbouring roots, the effect being more marked the nearer the roots are to the original ones; the neuroma provokes hyper-reflectivity of the tendons and at the same time cutaneous hypo-reflectivity. The neuromatous contractions are late and develop gradually, as opposed to the upward contractions dealt with in the first law which are immediate and react their maximum almost at once. At first the neuromatous contractions do not modify the position of the limbs, but they gravely injure the force, precision and amplitude of movements, thus explaining cases in which certain movements are very imperfect although the muscles which give rise to them show exaggerated contraction. For a variable time the contractions can temporarily be easily overcome; later they become permanent, and the positions imposed upon the limbs by them become irreducible; finally the muscles atrophy. It appears that in the latest stages the neuroma disappears. The author points out how largely the two laws above enunciated will diminish the number of cases of contractions which can rightly be considered to be hysterical in nature and for which fatalism of the muscles is the right treatment.

141.

An Atophan Rash.

ACCORDING TO KISSMEYER (*Ugeskrift for Læger*, May 20th, 1915), atophan has been given during the last three or four years for arthritis urica with good results. The drug was introduced in 1908 by Nicolaier and Dohn, and the first results of treatment with this drug were published in 1910. Judging by the publications which have subsequently appeared, the drug seldom causes complications, and only in eight cases does it appear to have given rise to purpura, urticaria, or a scarlatiniform rash. The author records the case of a man, aged 70, who had suffered for many years from arthritis urica. During the past two years he had taken large quantities of atophan, from which he had greatly benefited without suffering any discomfort. Early in December, 1914, he took atophan for a gouty attack. He had not taken the drug for some time. After he had taken six tablets (the dose of each tablet is not stated) in the course of twenty-four hours, red spots appeared on the face and neck, and the lips and eyebrows became oedematous. The rash and oedema disappeared in a few days, at the end of which the patient again took three tablets in one dose. The rash flared up again at once and crusts appeared on the oedematous lips. The patient was accordingly admitted to hospital, where the forehead, cheeks, and neck were found to be covered by red plaques, varying in size from a 10 öre to a krone piece. They were partially confluent, but were sharply outlined against the normal skin. Several of the plaques showed a fine desquamation. There was slight conjunctivitis and the eyelids were red and swollen. The lips were very oedematous and fissured and were covered by a few black crusts. The rash did not invade the scalp or the mucous membranes. It disappeared in the course of a week, during which the patient was subfebrile. As several of the joints continued to be painful, 1 gram of atophan was given about six weeks after the last dose. Six hours later the rash recurred in the same places as before, and

in some places it was vesicular. A couple of black crusts appeared on the left upper eyelid and on the right cheek. There was no rise of temperature and no discomfort apart from itching, and the rash again disappeared in the course of a week. The author regards this case as an example of a condition which Jadassohn has called "geweichte Idiosyncrasie." Many features of this condition suggest anaphylaxis, and it occurs also after repeated doses of quinine, mercury, and salvarsan. H. THOMSEN (ibid., June 3rd) has observed a similar case in a woman, aged 30, after 4.5 grams of atophan had been given in the course of three days. The rash disappeared in five to six days and was unaccompanied by oedema or crusts.

SURGERY.

142. War Deafness from Lesions of Internal Ear.

A. GOT (Gaz. hebdomadaire, July, 1915) has had under observation since the beginning of the war about a hundred cases in which deafness was due wholly or in part to affections of the inner ear. He gives notes of 32 of these, in which he has been able to make detailed examination and which he has classified from the point of view of the cochlear and vestibular apparatus. All the cases showed cochlear hypoeccitability. Of 17 deaf as the result of explosions of shells, bombs, grenades, or mines, etc., 4 were hyperexcitable as regards the vestibule, 11 hypoeccitable, none were unexcitable, 2 normal. Of 13 deaf as the result of wounds in the neighbourhood of the ear, 5 were hyperexcitable, 4 hypoeccitable, 2 unexcitable, 2 normal. Of 2 cases in which the patients had been buried as the result of an explosion, 1 was normal, the second hypoeccitable. Of these cases, 1 out of the group of 17 and 2 out of the group of 13 were completely deaf, and showed hypoeccitability in each case, 1 out of the group of 17 was completely deaf and had normal excitability. Of the whole 32 cases, 4 presented cicatricial atresia of the auditory canal, 12 had lesions of the middle ear and 16 showed no objective lesion visible on otoscopy. From the etiological standpoint the cases fall into the two groups, one in which the injury is the result of explosions acting through the air as intermediary, the other in which it results from projectiles which inflict direct wounds on the head. Of these the injuries in the second group may be more severe and may, as in two of these cases, cause total destruction of the internal ear. Moreover, the nearer the wound to the petrous bone the more grave the lesion, even when it may be impossible to diagnose fracture of the bone. Anatomically, judging from what happens in the case of the eye, it seems probable that, apart from the cases of fracture of the petrous bone, the causative lesions are haemorrhages, more or less considerable, into different parts of the internal ear combined with detachment of Corti's membrane. In the cases due to shell explosion without a direct wound, the haemorrhages are probably less violent than in the other form, but there is probably concussion of the organs of Corti with or without disintegration of the membrane. Clinically the cases cannot be satisfactorily classified until later, when only the symptoms corresponding to the regions destroyed will remain. A positive diagnosis can as a rule be made rapidly from the presence of deafness, tinnitus, and vertigo, and examination will show nystagmus, spontaneous or able to be provoked, troubles of equilibrium and electrical reactions. In a hyperexcitable patient nystagmus is induced with the help of hot water at a temperature of 44° C. (111.2° F.); in a hypoeccitable one, cold water at 15° C. (59° F.), or better by cold air. To differentiate between organic and functional deafness the study of the voice resonance is most helpful, but only in the cases where the deafness is very marked or is absolute. In total deafness of organic origin the patient's voice very quickly acquires the characteristic of the deaf, while in functional lesions the voice remains normal. Where the deafness is absolute, the voice normal, and the cochlear and vestibular reactions normal, the question arises whether the case is one of simulation. In settling the question points of importance are—the history of onset, the attitudes and appearance of the patient, his willingness or otherwise to attempt lip reading, and the effects of psychotherapy, and as a last resource the patient in convalescence may be sent home under the control of gendarmes, who will keep watch as to the degree of deafness. With regard to prognosis, most cases improve fairly quickly, even with regard to the cochlear reaction, but the only cases in which the author has seen a complete cure are psychic cases. In organic cases, during improvement from the vestibular point of view, the vertigo is usually the first symptom to disappear along with the nystagmus, then little by little

the powers of equilibrium will become more normal; from the side of the cochlea symptoms will more or less persist. Time and rest are obviously the main factors in treatment. In addition there is counter-irritation or leeches to the mastoid, hypotensive drugs, spinal puncture for vertigo (as recommended by Babinski), and treatment by bromides and iodides for tinnitus.

143. Syphilis of the Stomach.

F. SMITHIES (Journ. Amer. Med. Assoc., August 14th, 1915) records the results of a clinical study of 26 cases of dyspepsia associated with positive Wassermann-Noguchi reactions. In all these the diagnosis of syphilis was highly probable or was confirmed by exploratory laparotomy. He remarks that gastric syphilis has by no means so rare as was formerly considered, as no fewer than 25 cases have since been recorded in the United States during the past six years. Smithies's series of 26 are taken from the examinations of 7,545 cases, making a percentage of about 0.34. There were gastric symptoms in a much larger number, many of whom were syphilitic. The lesion may be congenital or acquired, and may produce several pathological types, which may be summarized as those associated with chronic gastritis, ulceration, gastric tumour, and perigastritis, often with involvement of adjacent organs. Fifteen of the patients were men, eleven women. The minimum age was 20, the maximum 66, the average age being slightly greater in the men than in the women. Difficulty was met in some in obtaining a history of the primary sore, especially so in females, and the period passed before gastric symptoms is only approximately correct. The minimum period was four years in both sexes, the maximum for men being thirty-eight years and for women forty-five years. There were no congenital cases, and in all but two the gastric disorder appeared in the tertiary stage. Only two of the whole number had had a thorough treatment of mercury and iodides. Three had taken salvarsan for "anaemia," within four years of their coming under observation. The average duration of the dyspepsia was 8.7 years for the group, with practically no difference in the two sexes. The cases are classed in three groups: (1) Those in which a persistent gastric derangement appeared in persons previously healthy; (2) cases in which a constant dyspepsia followed years of antecedent intermittent indigestion; and (3) cases in which continuous gastric upset occurred in persons who had had stomach trouble for some past period, but who had been free for some time. Each of these classes was studied in detail. In the second type the symptoms closely simulated gastric ulcer, but the gastric analysis revealed moderately high total and free hydrochloric acid with no increase above the normal formol index, and only irregular manifestations of positive Wolff tests. Even laparotomy sometimes left the matter in doubt. In the third group these symptoms were irregular, but the terminal stage laparotomy findings closely resembled those of the second type. Roentgenoscopy afforded no pathognomonic signs; but with a positive Wassermann-Noguchi test they afford a positively certain diagnosis. The best results in treatment were obtained by intravenous injection of salvarsan followed by a thorough mercurial course and iodides. Iron and arsenic are sometimes needed for the coincident anaemia, and the dyspepsia may also need attention. Smithies thinks one should be cautious in making any definite statements about the cure of gastric syphilis, but 4 patients of the total 26 were relieved for so long as a year; 12 patients appeared to be improved, and 3 were not benefited.

144. Appendicitis in Typhoid Fever.

GAGE (Annals of Surgery, August, 1915) reviews previous records of the association of acute appendicitis occurring in the course of typhoid fever, pointing out how easily a simple typhoid may be mistaken for an acute or subacute appendicitis, the differential diagnosis being rendered more difficult from the fact that the appendix shares to a greater or less extent in the intestinal lesions of typhoid. Notes are given of a case of acute gangrenous appendicitis occurring at the beginning of convalescence from an attack of typhoid. A youth, aged 19, complained of severe headache ten days after a possible exposure to typhoid infection. Five days later Vidal was positive, and on the tenth day typical rose spots and a palpable spleen were present. Defecation was gradual, the temperature being normal from the fourteenth to the nineteenth day, when he awoke with severe abdominal pain, most intense in the right quadrant and accompanied by spasm of the right rectus. He vomited once, and the leucocyte count, previously 7,000 to 8,000, rose to 18,000. On a diagnosis of probable

perforation the abdomen was opened, when a mass was felt in the region of the appendix containing an ounce of thin pus and an acutely inflamed appendix, gangrenous at one point and covered with a thick exudate, but unruptured. Convalescence was uneventful after removal. Microscopic sections showed everywhere marked polynuclear infiltration of all coats of the appendix, and those through the point of ulceration presented a characteristic lesion of typhoid, the lymphoid tissue of the mucosa showing areas infiltrated with endothelial leucocytes. Cultures from the appendix abscess showed *Bacillus typhosus* and *Bacillus coli*. The presence of the typhoid bacillus in the exudate and in the walls of the appendix indicate that it took an active part in the process, and it is probable that true typhoid appendicitis is more common than is generally supposed. When the condition occurs after the temperature has become normal, and the possibility is not much more difficult than in cases of simple uncomplicated appendicitis. For differential diagnosis the symptoms are not very unlike, and the indications for operation are identical, but the prognosis is more favourable when the lesion is in the appendix than when in the intestine, probably because there is less danger of faecal extravasation. A rising blood count is important, since the appearance of a leucocytosis in the course of typhoid fever points to an early stage of some inflammatory complication.

OBSTETRICS.

145. Intussusception Complicating the Puerperium.

G. NYSTRÖM (*Finska Läkarsällskapet Handlingar*, March, 1915) records the case of a 9-paræ, aged 43, who gave birth to a male child on February 14th, 1914. Labour was easy, but there was some liquor, and the placenta came away normally soon after the completion of labour. On February 17th the patient got up in the morning to eat, and during the meal, which consisted of porridge and milk, she developed severe abdominal pain and felt very ill. Later in the day vomiting supervened, and there was complete retention of faeces and flatus. During the night the pain increased, and on the morning of February 18th an examination showed the abdomen to be somewhat distended and a little tender. The pulse was 85, and the rectal temperature 100.4°. Active peristaltic movements of the small intestine could be detected through the flaccid abdominal wall. Below and to the right of the umbilicus a swelling could be felt and was suggestive of invagination of the intestine at this point. A median laparotomy was therefore performed. A considerable amount of blood-stained exudate was found in the abdominal cavity. At a point about 10 cm. above the ilco-caecal valve there was an intussusception of the lowest section of the ileum, whose attachment to the posterior abdominal wall was re-epitoned and passed horizontally inwards from the caecum. No difficulty was experienced in reducing the invagination, and the patient made an uneventful recovery. Discussing this case, the author suggests that the evacuation of the uterus facilitated the development of the intussusception by relaxing the tension of the abdominal wall, and thus giving the intestines greater freedom of movement. A further, but less important, factor in the production of the intussusception might be the diminution in the volume of the abdomen caused by the contraction of the uterus. Finally, the character of the attachment of the ileum to the posterior abdominal wall at the point where the intussusception occurred has already been associated by some surgeons with intestinal invagination.

146. Haemolysis in Obstetric Cases.

RUDOLPH HOLMES (*Surgery, Gynaecology, and Obstetrics*, August, 1915) reports three instances of this complication. A parous woman, aged 32, was cured for profuse haemorrhage, the fact of an early abortion not being determined. Three months later she took a saline purgative, and it caused dizziness, emesis, pain in the back, and profuse purging. Next morning, when the periods were due, alarming haemorrhages occurred. The tampon was applied, and within an hour or so the skin and conjunctivæ became deeply bronzed, more so in Addison's disease than in any type of icterus. The liver was distinctly enlarged. By the second or third day the pigment had entirely disappeared and the skin had become of an alabaster whiteness. The temperature was 104°, no urine was of the colour of liquid extract of ergot, yet no blood cells could be detected, thus there was true haemoglobinuria. The pulse was very high, the temperature falling, and repeated small haemorrhages associated with haematemesis

occurred. Death ensued within three weeks. There was no necropsy, but, according to clinical findings, the cause of death was acute pneumococcal infection, a true bacteraemia, hepatitis, nephritis, and colitis. In the second case abortion had been induced. The resident medical officer, taking the patient's history on her admission into a hospital, noticed that her skin steadily changed colour, and within half an hour it became deeply bronzed. There was haemoglobinuria, as in the first case, and a blood smear showed streptococci in pure culture. Death occurred within twelve hours after admission, and decomposition advanced rapidly so that the viscera, and even the muscles of the leg, were softened and quite useless for examination. The third patient had an attack of gall-stone colic during a previous difficult instrumental labour. Two years later feverishness preceded an easy labour, with pain in the hepatic region. Some atypical haemorrhages followed labour, and the tampon was applied twice, and the patient's skin became very pale but bluish-brown, just like the integuments in the first case when the bronzing was passing off. The blood appeared like watery port wine. Death occurred within a few hours. The infective process during the last days of pregnancy emanating from the biliary tract was the cause, in Holmes's opinion, of the failure of coagulation. As events followed on so quickly it was impossible to obtain specimens of blood and urine for examination, but if the process had not been so fulminating the peculiar discoloration of the skin would have developed into the same form of haemolysis as in the first two cases.

GYNAECOLOGY.

147. Tuberculosis of Urachus.

EASTMAN (*Amer. Journ. Obstet.*, October, 1915) observed this condition in a married woman aged 19. She had been married two years and was the mother of one child; gestation and the puerperium were normal, and the child was alive. She had no signs of pulmonary or other form of tuberculosis. Ten months before she came under Eastman's observation she felt a pain between the umbilicus and the symphysis pubis, when working in her garden, and she then found that a lump had formed in that region. It was of the size of a small apple, and not very tender or painful. The lump remained stationary for three months, and then a pin-point opening appeared, discharging for a week a clear watery fluid. Then a crust appeared and closed the opening, and gave way and reformed several times within a few months. The lump did not increase in size, and the discharge was never fetid, and never, the patient declared, urinous. There were no signs of disease of the uterus, bladder, or intestines. Eastman found the patient in good health. There was a discharging sinus below the umbilicus, and a sound introduced into it could be passed downward below the symphysis. The fistulous tract was dissected up; it passed downwards from the discharging orifice, in front of the peritoneum, crossing the space of Retzius, and terminating in a thin cord attached to the anterior bladder wall in the median line and near to the junction of the urethra and bladder. When laid open, the definite tubercle structure was found to be thin-walled, showing no evidence of inflammation or pathological change excepting an ulcerated area on the dorsal wall of the tube near the orifice of the sinus. The tumour mass, the lump which had persisted for ten months, showed on section giant cells, lymphocytes, and epithelioid cells. Some granulation tissue in the ulcerated area was found on microscopic examination to be infiltrated with large round "epithelioid" cells, while several well-developed miliary tubercles were detected. By means of the cystoscope the mucosa and the ureteric openings; and trigone appeared normal, nor could any communication with the patent urachus be traced. The wound closed slowly but completely, and there have been no symptoms of disease of the genitourinary tract or of local or disseminated tubercle. Eastman notes that only one other case of tuberculosis of the urachus has been recorded (Bridson and Eliot), and in that instance the patient was, as in the above reported case, a young woman.

THERAPEUTICS.

148. Prolonged Fasting in Diabetes.

ALLEN (*Amer. Journ. of Med. Sci.*, October, 1915) records his experience in the treatment of 44 cases of severe diabetes by prolonged fasting, based upon experiments in animals, in whom it was found that the persistence

of glycosuria resulted in a downward sequence of lowered tolerance, emaciation, and death, with parallel degenerative changes in the islands of Langerhans, while the prevention of glycosuria resulted in the animals remaining lively and strong, though thin, the islands being spared. In even the severest types of the disease the glycosuria may be cleared up with advantage by an initial fast, which should last until that end is accomplished and then for one or two days longer, the subsequent diet being so regulated as to keep glycosuria and acidosis permanently absent, with as many interspersed fast days as may be found necessary for that purpose. The necessary duration of the fast may be as long as eight or ten days. Both the glycosuria and acidosis were known to be relieved by the occasional fasts which had been employed previously by some observers in the treatment of diabetes, but both conditions are found to be still further reduced by the more prolonged fasting suggested. Just as the fasting is continued as long as is necessary to produce sugar freedom, so the subsequent diet is governed, not by any theoretical standard of protein or calories, but by the amount of each food which each individual case can take, while keeping the urine free. Any trace of glycosuria is the signal for a fast day, and routine fast days are often used as frequently as once a week even though glycosuria is absent. In the management of severe cases two principles are evident—namely, the benefit of keeping the patient permanently below weight and the advisability of restricting the quantity of fat taken. By keeping severe diabetics permanently at a low level of weight and metabolism downward progress and the return of symptoms are prevented, and since the addition of fat to a fixed diet will cause a return of both glycosuria and ketonuria, the patient's tolerance for fat and calories should be followed in the same way as the tolerance for carbohydrate and protein. Under this treatment it is found that the diet, while not overtaxing tolerance, sufficiently satisfies the patient, so that he will follow it at home; that there is an absence of craving for carbohydrates and a contradiction of the idea that most diabetics cannot be trusted; that there is no need for alkalis for more than a few days, thus avoiding the disturbances due to acidosis or prolonged doses of soda; and that there is the advantage gained of clearing up the urine quickly, and thus being able to devote the greater part of the stay in hospital to educating the patient in the simple means of controlling his own condition through his diet, his weight, and the daily testing of his own urine with Benedict's solution. Reports from other clinicians agree that the results under this method of treatment are more favourable than those under the older methods, and its relative simplicity, together with the fact that it stops glycosuria without risk of acidosis, renders it available where hesitation existed as to withdrawing carbohydrate or stopping glycosuria in cases with any marked ketonuria. Two conclusions seem justified by present knowledge: (1) that the treatment removes glycosuria and acidosis more quickly and surely than has been the practice heretofore; and (2) that patients do better when glycosuria and acidosis are removed than when they are allowed to continue.

149. Sterilizatio Magna with Salvarsan.

DURING the last five years M. v. ZEISSL (*Berl. Klin. Woch.*, August 23rd, 1915) has treated more than 2,000 patients, suffering from syphilis, with old or new salvarsan; and he has been able to follow the subsequent course of the disease in almost all these cases, of which the following is the most instructive. A man, aged 24, had been infected in the beginning of June, 1910, and when he consulted the author on July 24th, a superficial syphilitic sore, of the size of a bean, was found in the retro-glandular sulcus. There were no eruptions on the skin or mucous membranes, but the inguinal glands on both sides were swollen. After an intramuscular injection on July 27th of 0.5 gram of old salvarsan, the patient suffered no discomfort apart from slight pain at the site of injection on the following day, and he returned to work on July 29th. He was under the author's daily observation until January 31st, 1911, during which period there was no symptom of generalized syphilis, and no antisyphilitic treatment was given. On August 15th, 1910, the chancre had completely healed. Wassermann's reaction was negative on January 18th, 1911, and also on August 18th, 1911; and from this date till April, 1915, he was perfectly well. He was wounded in April, 1915, and, after recovering, he was on leave in Vienna, where, on June 16th, he indulged in an extra-marital coitus. Three weeks later he noticed two erosions on the upper and outer surface of the prepuce. The lymphatic trunk on the dorsum of the penis felt like a hard strand,

and the inguinal glands on both sides were swollen. When, on July 20th, a coarsely papular syphilitic eruption on the limbs and trunk, a course of mercurial injections was resorted to, with the result that this eruption quickly faded. Both chancres rapidly healed under a dermatol plaster, and a course of neo-salvarsan, mercury, and iodides was given. It is evident in this case that the single intramuscular injection of 0.5 gram of old salvarsan completely cured the first infection. The second infection with syphilis in June, 1915, also showed that, when salvarsan is given soon after infection, *sterilizatio magna* is feasible. The author records other cases which show that by energetic antisyphilitic treatment, that is, a combination of salvarsan with mercury and iodides, Wassermann's reaction soon becomes negative. Although he succeeded in effecting *sterilizatio magna* with a single dose of old salvarsan, the author recommends the repetition of intramuscular injections of 0.45 gram every three or four weeks as being safer than the large single dose.

150. Treatment of Cerebro-spinal Fever.

PONTIGACCIA (*Pediatrics*, September, 1915) relates his experience in 9 cases of cerebro-spinal fever. In 1914 he had 2 cases, rather severe in type, both treated with intraspinal injections of antineurococcic serum and both recovering. In 1915 he had 7 cases giving a meningococcus in the cerebro-spinal fluid and in the pharyngeal mucus. Six of these were injected frequently and without any appreciable benefit. The seventh case concerned a boy, aged 10, suffering from symptoms of grave cerebro-spinal fever—violent headache, vomiting, rigidity, unconsciousness, etc. The first lumbar puncture gave 20 c.c.m. of turbid fluid containing intracellular meningococci. In spite of repeated puncture and injections of serum the patient showed no improvement. The author then (the sixth day) injected into the spinal canal 5 c.c.m. of a 20 per cent. solution of oxygenated water. This had a rapidly beneficial effect, and the patient slept for six hours as if he had been given a narcotic, the temperature fell and remained low for two and a half days, the general condition also improving. Next day the temperature went up and the symptoms returned. Another injection of peroxide solution was given with the same good effect. A third injection of 2.5 c.c.m. was given, after which improvement was so steady and continuous that no more were required. One case does not prove much, as the author points out, but the results in this case seemed fairly attributable to the H₂O₂ injections, and suggest a further trial of this remedy.

PATHOLOGY.

151. Recurrent Syphilitic Infection.

IN 1914 R. KRETTING prophesied that, owing to the efficacy of salvarsan, it would not be long before a case was observed in which a patient had been infected thrice, and had developed a new chancre on each occasion. Since then he has observed the following case (*Norsk Magazin for Laegevidenskaben*, October, 1915) which fulfils his prophecy. A business man, aged 26, first contracted syphilis in the summer of 1913 in Hamburg. The *Spirochaeta pallida* was found in the hard chancre on the penis. During the following six weeks he was given six injections of salvarsan and five of mercury. No rash developed, and Wassermann's reaction was negative in November, 1913. On March 5th, 1914, he presented himself to the author with two red and slightly infiltrated sores on the glans. A small hard lymphatic gland was palpable in the left inguinal region. Wassermann's reaction was negative, but the *Spirochaeta pallida* was again found in the sores. The person by whom the patient had been infected had also infected another patient under the author's care. The first patient was given four injections of salvarsan, of 0.4 gram each, at intervals of two to three weeks. Wassermann's reaction throughout this treatment was negative, and it was negative again on September 1st, 1914, and on February 10th, 1915. On April 7th, 1915, he again consulted the author for a characteristic indurated chancre near the frenulum. The left inguinal glands were swollen, and the *Spirochaeta pallida* was again found. Wassermann's reaction was now slightly positive. It was learnt that he had often been exposed to infection, and the author estimates that the actual infection had occurred about seven weeks earlier. Although this is the first recorded case of a second reinfection with syphilis, the author points out that there is nothing remarkable in such an event, seeing that a second infection is by no means rare. In fact, he has observed twelve undoubted cases of reinfection.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

152. Tumour of the Pituitary Body simulating
Tabes or General Paralysis.

The observation recently made by Oppenheim that the clinical picture of tumours of the pituitary body closely resembles that of tabes or general paralysis is confirmed by G. KAHLMETER (*Hygica*, vol. lxxvii, No. 9, 1915), who records two cases. In the first case the patient was a man, aged 40, whose first symptom was a transitory paralysis of some of the ocular muscles a few years earlier. Subsequently simple atrophy of the optic nerve developed, and the patient complained of shooting pain in the limbs, progressive difficulty in maintaining his balance while walking, and impotence. An examination showed atrophy of the optic nerve resembling that of tabetic atrophy, and the patellar reflexes were absent. The diagnosis of tabes was maintained until the Roentgen rays showed disease of the sella turcica, and Wassermann's reaction was found to be negative. The second patient was a man, aged 50, who for some years had suffered from failing eyesight and glycosuria. Recently his character had undergone a striking change. Originally a quiet, modest man, he had become garrulous, boastful, and rough, and he suffered from alternate moods of exaltation and depression. An examination showed loss of patellar reflexes and simple atrophy of the optic nerve resembling that of tabetic atrophy. These symptoms led to the diagnosis of general paralysis, and this mistake was not rectified till the Roentgen rays showed erosion of the sella turcica and Wassermann's reaction was found to be negative. The glycosuria in this case was not incompatible with the diagnosis of general paralysis, for glycosuria occurs in 9 to 10 per cent. of all cases of general paralysis. Glycosuria is, however, also often associated with tumour of the pituitary body; and the coincidence is too common to be accidental. But the nature of the relation of the one condition to the other is not yet known. The difficulties of diagnosis in the author's second case were further increased by the possibility that all the symptoms might be traced to diabetes alone. For in diabetes the patellar reflexes may often be weak or absent, either as the result of peripheral neuritis or of degeneration in the posterior horns of the cord. Again, atrophy of the optic nerve has been associated with diabetes, both by Gräfe and Naunyn. Finally, the psychic phenomena might be interpreted as the result of diabetes as well as of general paralysis.

153. Williams's Sign in Early Pulmonary
Tuberculosis.

WALSHAM and OVEREND (*Archives of Radiology and Electrotherapy*, September, 1915) discuss the nature and causation of Williams's sign in early pulmonary tuberculosis. Williams's sign consists in a diminution in the extent of the inspiratory depression of the diaphragm on the affected side. The authors state that there are cases of undoubted early phthisis which do not exhibit a trace of Williams's sign. It is possible to discriminate three groups of movements: In the first the afferent nerves, those of the pleura in particular, escape, and the diaphragmatic movements are normal; in the second the contractacs are jerky and erratic, and perhaps not much curtailed. This may be due to simple afferent inhibition, accompanied by a spasmodic, incomplete, and irregular reciprocal reflex; in the third the latter is well established, and the activity of the recti and obliqui is easily discernible. The issue is then a reduction in the duration and amplitude of the inspiratory wave with a definite measure of protection and rest for diseased areas of the lung.

154. Paralytic and Persistent Sequelae of Migraine.

HUNT (*Amer. Journ. of Med. Sciences*, September, 1915) records his experience of a rare group of cases bearing out the clinical fact that migraine may occasionally be the cause of serious and permanent sequelae. Notes of 4 cases are given in which attacks of migraine were associated with ophthalmoplegia, two clinical types being recognized—namely, a recurrent or periodical palsy followed by complete recovery, and periodic exacerbations of a pre-existing paralysis of some branches of the third nerve. Two instances are recorded of migraine eventually

followed by permanent hemianopsia, and one in which hemiplegia followed a severe migrainous paroxysm occurring in a woman who had suffered from severe attacks of migraine since childhood. In association with lesions of the optic nerve a case is recorded of a woman, aged 31, subject to migraine since childhood, in whom a severe attack was followed by a unilateral retrobulbar neuritis with paracentral scotoma. In explanation of the symptomatology of migraine there appears to be a periodical recurrence of an auto-intoxication chiefly affecting the sympathetic and vascular systems, producing conditions of localized vasomotor spasm or dilatation of the cerebral circulation, such spasm being regarded as the cause underlying the frequently associated transient focal symptoms. The influence of recurring attacks of migraine upon an already existing arterial sclerosis is of importance when considering the permanent sequelae, since in the presence of even slight cerebral arterio-sclerosis crises of hemianopsia would be more liable to cause such vascular accidents as thrombosis or haemorrhage than would be the case in normal vessels. In the recognition of migraine paralysis the essentials points are: (1) A definite clinical history of genuine idiopathic migraine, and (2) a direct relationship of the paralysis or other complication to the migraine paroxysm.

SURGERY.

155. Extension of Cancer from Breast to Ovary.

V. FRANQUE (*Deut. med. Woch.*, July 22nd, 1915) records the case of a woman whose left breast was amputated in April, 1914, for carcinoma. The operation was radical, and was followed by energetic x-ray treatment of the scar. At the operation the fat in the axilla was found to be permeated by numerous milium nodules. In November the patient complained of pain in the area supplied by the left lateral cutaneous nerve, and a few weeks later she developed typical severe sciatica on the left side. At this date there were no abdominal symptoms. On December 24th a vaginal examination showed a small, coarsely nodular tumour of the left ovary. As it grew rapidly an operation was advised, and was performed on January 7th. Though the tumour was found to be somewhat firmly impacted in the pouch of Douglas, it was not actually fixed by adhesions. It was perfectly solid, of the size of a small fist, and studded with yellow nodules, visible both on the surface and on section. The uterus and right ovary were perfectly healthy, and no other cancerous deposit could be found at the operation. The patient died of progressive heart failure four days later. The necropsy showed a few carcinomatous lymphatic glands above the division of the aorta and to the left of the vertebral column. Two similar carcinomatous glands were also found under the left parietal pleura close to the sternum. Discussing this case, the author does not consider the tumour of the ovary was primary and independent of the tumour of the breast. His view that the tumour of the ovary was due to metastasis from the breast was confirmed by the microscopic examination, which showed the structure of the tumours of the breast, lymphatic glands and ovary to be essentially identical. The structure of the tumour of the ovary was characteristic of metastatic carcinoma of this organ. There were small, solid epithelial cell nuclei, and the carcinomatous cells were freely scattered in an oedematous loose network of connective tissue. The malignant cells were in many parts hydropic and vesicular, but they did not present the typical signet-ring structure which is often found in cancer of the ovary secondary to cancer of the digestive tract. The author points out that this case illustrates the wisdom of the old rule always to examine the vagina and rectum of the woman who complains of sciatica.

156. Leather-bottle Stomach.

PORTER (*Annals of Surgery*, July, 1915) records a case of leather-bottle stomach in which subtotal gastrectomy was done. Pathologically, the stomach walls become diffusely thickened and hardened, the condition being possibly precancerous and bearing somewhat the same relation to scirrhous cancer that gastric ulcer bears to gastric carcinoma. More common in men than in women, it is

essentially a disease of adult life, and, unless relieved by surgical means, it is invariably fatal. The patient, a man aged 46, complained of pain low down in the left side, which commenced about five weeks prior to observation, when it was localized just under the navel, and was described as feeling as though there was a heavy case there. All food tasted sour, and he was troubled with flatulence and dyspnoea on exertion and when the pain was present. There was no loss of weight. Physical examination revealed slight accentuation of the cardiac second sound and a large tender growth in the epigastrium extending down to the umbilicus and 3 in. to the left. At the operation practically the whole stomach was found to be involved in the tumour, and a subtotal gastrectomy was performed. There was no glandular enlargement, and the under surface of the liver was adherent to the pyloric end of the stomach over an area corresponding to an ulcerated area on the mucous surface. Operation afforded pronounced and satisfactory relief, with freedom from symptoms for some time. Later, a tumour in the epigastrium developed and the patient died six months after operation, no autopsy being made. With the exception of the fundus the whole of the stomach was involved, the walls being universally thickened and firm, and cutting almost like cartilage, and on the mucous surface there were several ulcers, and the capacity was diminished. The rapidity of the process was marked, as the patient considered himself quite well five weeks prior to operation, and he only lived seven and a half months from the onset of symptoms, notwithstanding the complete temporary relief from the gastrectomy. The dyspnoea on exertion, accentuation of the cardiac second sound, and presence of anaemia support Krompecher's theory that the stomach changes are due to cardio-vascular disease. Other points of particular interest in this case were the absence of glandular enlargement and the relative absence of adhesions, the operation being entirely free from difficulties when once the stomach had been separated from the liver, which was done without difficulty.

157.

Bunions.

M. S. HENDERSON (*Journ. Amer. Med. Assoc.*, October 16th, 1915), after defining a bunion as "a painful bursitis superimposed on a hallux valgus," describes an operation that has been used in the Mayo clinic and has given very satisfactory results. "A semilunar incision with the curve upwards is made at the metatarsal phalangeal joint of the great toe. The skin is dissected back, being careful not to puncture it. A flap including the bursa is then taken with its base attached to the proximal phalanx, having its convexity extending on to the head of the first metatarsal. The fat is then pushed back from around the head of the bone and a large bone-biter is introduced from without inward, aiming to take off most of the articulating surface of the head of the metatarsal bone, leaving sufficient of the enlarged end to serve as a weight-bearing portion. This bone-biter is introduced at an angle of about 75 degrees so that the outer side of the metatarsal bone is a little longer than the inner side after the piece is removed. With a rongeur bone-biter the prominence left on the inner side is smoothed down. The flap is then tucked in and the base of the flap sowed to the periosteum of the first metatarsal by two mattress sutures of chronic catgut. This serves to straighten the toe and put it in its proper line. The skin is then closed with one or two sutures of silk-worm gut and closer approximation is secured by interrupted horsehair sutures. A pad of gauze is inserted between the great and second toes to straighten the great toe. A dressing soaked with alcohol is applied and carefully bandaged." In the after-treatment no splints are required, but pressure from bedclothes is avoided by using half barrel-boops, and the wound and dressing are resoked with alcohol twice daily. Stitches are removed in a week, weight-bearing allowed in ten days, and use of the foot encouraged. A small pad between the first and second toes is advised, and a proper shoe with straight inner side is insisted on.

158. Deformity Reduced by Graft of Adipose Tissue.

H. MORESTIN (*Dull. et mém. de la Soc. de Chir. de Paris*, June 15th, 1915) describes a case of marked deformity of the face following injury by a fragment of a shell successfully treated by plastic operation and grafting of adipose tissue. The soft parts over a large area had been lacerated and the inferior maxilla broken at its angle. During healing much attention was given to the prevention of constriction of the jaws and cicatrization was obtained without any irregularity of the dental arcade and without difficulty in the articulation of the teeth; there was, however, a certain amount of limitation of movement of the

jaw. Six months after the injury a fistulous opening into the mouth persisted at the centre of the scar. The scar itself was thick, adherent, and very resistant. Morestin performed two operations. At the first he excised a part of the scar and dissected away all the edges of the fistulous opening. After having removed all that was possible of the scar tissue bordering on the lower jaw, he closed the opening in the mucous membrane by catgut sutures. To close the cutaneous wound it was necessary widely to separate the skin from the underlying tissues both on the side of the face and neck; the edges of the wound could then be brought into apposition, and healing was obtained by first intention. The cutaneous layer as thus constituted was not in exact apposition with the deeper layers, and the intervening space was drained by a tube inserted at the most dependent point. Good results were obtained, in so far that the fistula healed. Massage and movements were again undertaken to render supple the muscles of mastication and to obtain wider separation of the jaws. About seven weeks later a further excision of scar tissue was made, but even then it could not be completely removed. An extensive freeing of the skin was again undertaken. A mass of fat of suitable volume was taken from the gluteal region and insinuated into the cavity between the skin and the subjacent tissues and the wound hermetically closed. The result obtained was very satisfactory. The fistulous opening is now definitely closed, the cicatricial surface has been considerably reduced, and the scar is supple; the very marked depression resulting from the elimination of the soft parts of the cheek and of fragments of the inferior maxilla is perfectly filled out, the patient can open his mouth widely, and can energetically masticate solid food.

159. Hydro-neprosis of a Pelvic Kidney.

BRENIER (*Surgery, Gynaecology, and Obstetrics*, August, 1915) reports that a young man, aged 21, enjoyed good health till an attack of what was diagnosed as intermittent fever with pain in the left loin and hip when he had reached the age of 19. Thenceforth similar very acute attacks came on at short intervals, lasting for from two days to a week. A physician diagnosed "movable kidney." Skiagrams showed no calculus. The ureters were catheterized and the right ureter was found viable throughout, the left seemed to be obstructed 5 in. above its vesical orifice, but at length a No. 7 catheter was passed for an inch or two higher. On this occasion purulent urine dripped from the instrument. There was clearly an obstruction of the left ureter with a resulting hydro-neprosis. The obstruction was thought to be intra-abdominal, and tuberculous glands were suspected. An exploratory incision was made through the outer border of the left rectus abdominis. A retroperitoneal mass, lying on the sacro-iliac joint, was easily brought into view. On opening the retroperitoneal space and dissecting back the peritoneum, a thick-walled cystic structure, covering the whole anterior aspect of the mass, was found. The mass when opened was seen to be the dilated pelvis of the left kidney, with greatly thickened walls. The ureter was very short, and the operator easily stripped it down to the bladder; it was cut through and the distal end cauterized where it entered the bladder. The proximal end of the ureter serving as a guide, the mass was dissected from below upwards. The glandular part of the kidney was hardly a fourth of the mass, the remainder being the dilated renal pelvis. This ectopic kidney was supplied by three or four small vessels derived from the aorta and the left common iliac artery. The exact mechanism of the obstruction could not be accurately defined, but the opening from the pelvis into the ureter was very small and there was an abrupt angulation of the ureter on the pelvis.

OBSTETRICS.

160.

Twilight Sleep.

J. O. POLAK (*Journ. Amer. Med. Assoc.*, September 18th, 1915) defends the scopolamin-morphine treatment in labour. In over 400 labours in which it has been employed at several Brooklyn hospitals and which have been studied by R. M. Beach and himself, there has been no maternal mortality and less than the usual morbidity. No child has been born dead and no cases of post-partum haemorrhage followed any of the deliveries. A moderate degree of oligopnoea was present in 15 per cent.; real asphyxia was less frequent than after ordinary labour. Three children died within the first ten days, but in none of them was there any evidence that the deaths were in

any way due to the method. The cases might be called selected cases; over 50 per cent. were private patients, and "the records include 11 cases of cardio-vascular disease, in which there had been or was present a break in the cardiac compensation; 2 cases of exophthalmic goitre; 6 cases of pulmonary tuberculosis; 8 eclampsias and 22 borderline contractions in which a test of labour was given." To use the method properly a fundamental knowledge of the principles of obstetrics, a rational conception of the degree of anaesthesia wanted, the attendance of trained operators, willingness on the part of the operator to give the necessary amount of time to the work, and finally a proper hospital environment, are essential. Polak cannot explain the failures of others, unless they have done too little and expected too much to secure success. The same obstetric principles apply just as much to the conduct at labour according to this method as with any other method. Anaesthesia and a practically painless labour may be expected in from 70 to 80 per cent. of the cases. He considers the method applicable when there is no primary inertia, marked pelvic contraction, or presence of obstetric accidents. It is especially applicable to nervous women of the physically unfit type and valuable in the management of the border-line contraction. It is particularly useful in cardiac cases, as it relieves the nervous apprehension and secures dilatation with less effort. It diminishes the shock of labour, it does not diminish the milk supply or predispose to *post-partum* haemorrhage, but it does decrease the number of high-forceps operations, and has a distinct place in hospital obstetrics.

161. The "Octuplet" Twin Legend.

PARKER of Cambridge, Massachusetts (*Doston Medical and Surgical Journal*, April 22nd, 1915), has exposed the fallacy of a report published in the *Doston Medical and Surgical Journal*, vol. x, p. 224, 1872, where it was stated that a woman living in Ohio gave birth to eight twins in August, 1872, all living and healthy, "though quite small," about a month later. It was added that she was herself a triplet, her mother and father being twins and her grandmother the mother of five pairs of twins; she herself had given birth to two pairs of twins and now eight more, making twelve children in six years, that is since her marriage, when she weighed 275 lb. or nearly 20 stone. This case was afterwards quoted in the *American Journal of Anatomy* and other works. Parker has corresponded with the authorities at the place where the octuplets were reported to have been born, and they have assured him that there was no truth or foundation in the report whatever. A practical joker went into one of the newspaper offices in the town of Warren, Ohio, and set up an article which he succeeded in having printed. It was afterwards sent to a New York paper. The report was cleverly worded, yet it is strange that it was ever quoted as authentic. Among the latest cases of multiple twins, one most carefully reported, with a photograph of the five twins and the placenta, will be found in the *Journal of Obstetrics and Gynaecology of the British Empire*, vol. vi, 1904, p. 32, the author being Nijhoff of Groningen. That writer collected 27 cases of quintuplets reported within the last two centuries. Lloyd Roberts reported a quadruplet birth in 1903.

GYNÆCOLOGY.

162. Cancer of the Cervix.

S. M. D. CLARK (*Journ. Amer. Med. Assoc.*, October 2nd, 1915) says that until Percy experimentally proved that cancer cells would be destroyed when exposed to a temperature of 113° F. for twenty minutes while normal tissues lived in a temperature as high as 131.9° F., the application of heat could not be established on a rational basis. Percy worked out a method of applying heat to cervical cancer on a more elaborate scale than had been possible before, and thus marked a brilliant epoch in the cancer problem. Clark, however, does not think that it is a method to be used alone; it is rather a valuable adjunct. He gives his experience of a procedure involving extensive ligation of the arteries, cutting off the uterus from any blood supply except through one ovarian artery, thus retarding the growth in combination with the heat application. He divides cervical cancer into four groups: (1) Incipient cases, ulceration not extending beyond the cervix and no constitutional disturbance. (2) Growth extending to vaginal walls and bleeding copious, the uterus still movable, but there is secondary anaemia, and the patient is constitutionally below par. (3) There is either a crater or a large cauliflower mass in the vaginal vault, and the vaginal wall is involved at least an

inch from the cervix; mobility is decidedly impaired, there is pain in the side, and marked cachexia and anaemia. The fourth group is hopelessly advanced with metastases, and general cachexia and anaemia. His conclusions are summarized as follows: (1) The heat method alone has doubtful curative properties, and should be viewed in the light of a valuable adjunct in the treatment of cervical carcinoma. However, in extremely obese women it offers the best and only chance for a permanent cure. (2) Heat should be used as a routine in all types of cervical carcinoma except in hopelessly advanced cases (Group 4). (3) The ligation of both internal iliacs and one ovarian possesses definite merit, and, when combined with heat, furnishes the best means of converting the border line cases into frankly operable ones. (4) It cannot be too strongly emphasized that the combined application of heat and ligation of the vessels on the one hand and total extirpation on the other, in all except clearly operable cases, should be done as a two stage operation. (5) In the combination of heat with starvation we have a valuable means of markedly increasing the operability and of decreasing the primary mortality of radical extirpation. (6) Heat combined with extensive arterial ligation, followed by radical hysterectomy, offers the greatest possibilities for permanent cure.

THERAPEUTICS.

163. Salvarsan Poisoning.

EBERLY (*Journ. Amer. Med. Assoc.*, November 13th, 1915) publishes full details of a case where a man, aged 36, without a clear history of syphilis, was found to be suffering from typical early tabes. Through an error, 0.6 gram of salvarsan was mixed in 10 c.c.m. of freshly distilled water, only a part of it dissolving. This unneutralized solution of salvarsan was injected into the right cephalic vein, and the patient almost immediately complained of a choking sensation and constriction of the pharyngeal muscles, and there was dyspnoea, with small, weak, and rapid pulse. The needle was at once removed, about 5 c.c.m. having been injected. Prostration, with cough, vomiting, and pain in the region of the left kidney, followed, and $\frac{1}{15}$ grain of nitro-glycerine was administered by the mouth every twenty minutes until the pulse improved. Then there was suppression of urine, with general myalgia and phlebitis in the punctured vein, which became obliterated. Under alkaline therapy the toxic symptoms and anuria subsided almost immediately. Eberly did not feel sure that the marked toxic symptoms were due to the acidity of the solution or to the salvarsan independently of the reaction in this case.

164. Drug Habits in Sucklings.

LICHTENSTEIN (*New York Med. Journ.*, October 30th, 1915) reports the case of an infant under his care in a prison. The mother was 21 years of age; there was no history of any morbid condition, and the only relative with a drug habit was the husband, who had taken heroin and morphine for about a year. The child was born in a hospital, and when the mother returned home she was seized with abdominal pains. A friend gave her a sniff of a white powder, and she fell asleep. On awakening after a long slumber she vomited and was attacked with severe cramps. Yet she was persuaded to take another sniff, and she continued to inhale the powder till it became a confirmed habit. All the time that she inhaled the snuff she also nursed her infant. It slept for very long and when awake would curl up in cramps and cry until nursed. It desired to be nursed every hour. Whenever the mother felt the need of the drug heroin, which it appears was known to her as *yen yen*, the child would yawn and sneeze and perspire freely, cry, and suffer from cramps. It was subject to diarrhoea. The supply of milk never failed when the mother was taking the heroin, although it is generally taught that opium and its derivatives lessen the amount of milk. After seven months the mother was not able to get any heroin, and so began to use morphine hypodermically. Then the milk excretion steadily diminished, so that she had to nurse the infant more frequently. When arrested and imprisoned the mother's mammary glands were small, and little milk was excreted. The catamenia, completely suspended during the eight months that she took the drugs, returned two days after they were withdrawn. Lichtenstein also reports another instance in his experience in which an infant 16 months of age had contracted, so to speak, the drug habit in lactation. It was very anaemic, yet not emaciated, the pupils were contracted to a pin-point diameter and did not react to light. It slept all the afternoon and night, and next

day had strong cramps and sweated profusely. The author felt obliged to administer paregoric. Then the child was fed by the bottle, but the mother nursed it every twenty-four hours, preferably at night. The infant took three times daily a minim of tincture of nux vomica and five of camphorated tincture of opium to the drachm. At the end of four days the child seemed more cheerful and the cramps had ceased. Castor oil, 2 drachms, was given on the first and third night.

165. Ethylhydrocuprein in Scarlatina and Measles.

HIRSCHFELDER and SCHULTZ (*Arch. Klin. Med.*, September 20th, 1915) have experimented with ethylhydrocuprein in cases of scarlatina and measles treated in Minnesota, U.S.A. In 7 cases of scarlatina the drug was given in doses of 0.1 to 0.5 gram, according to the age of the patient, three times a day. The average duration of the fever in these cases was 8.9 days. In 7 similar control cases of scarlatina in which the drug was not given the average duration of the fever was only 7.4 days. From this the authors conclude that the drug is of no use in scarlatina. In 11 cases of measles, chosen at random, the average duration of the fever of the patients treated with ethylhydrocuprein was 4.3 days. The average duration of the fever in the 10 control cases not treated with ethylhydrocuprein was 7.9 days. From this the authors conclude that the treatment of measles with ethylhydrocuprein deserves further study.

166. Inhibitive Effect of X Rays upon Malignant Cells

NEMPSTER (*Archives of Radiology and Electrotherapy*, No. 179, 1915), in discussing the action of x rays upon the morbid cells of an epitheliomatous area, states that while the action of x rays is such that any cell, whether malignant or non-malignant, young or old, can be completely destroyed, and in such order that the young cell is selected for destruction in preference to the old cell, and the malignant cell in preference to the healthy cell, yet in order to cause the disappearance of a new growth it is quite unnecessary to destroy a single cell. There is another influence which can be brought to bear and which is in the end more efficient and safer to the healthy tissues—this is the influence of inhibition of the power of division and subdivision of the cells; in other words, inhibition of proliferation, for there appears to be at this period of the life-history of the cell a greater susceptibility to the effect of x rays, resulting in its power of proliferation being checked or delayed. The quantity of irradiation required to accomplish this is not sufficient actually to kill the cells themselves, but is capable of destroying their power of reproduction.

PATHOLOGY.

167. Identification of the Typhoid Bacillus in the Stools.

BARD and P. GAUTIER (*Rev. méd. de la Suisse Romande*, July 20th, 1915) have tested for the presence of the typhoid bacillus in thirty cases, making use of the rapid method recently suggested by Carnot and Weill-Hallé. For carrying out this test glass tubes are employed of a U shape, the communicating branch being narrower than the parallel arms; the arms are 33 cm. long (12.8 in.) and 5 to 6 mm. in diameter (0.19 in. to 0.23 in.). Into one branch (Branch I) fine sifted, washed and calcined Voges sand is introduced to a height of 10 cm. (3.9 in.); this sand when it is quite dry can be manipulated like a fluid by means of a pipette. The apparatus is plugged with cotton-wool and sterilized by dry heat, all later operations being performed aseptically. Branch I is now completely filled with neutral red broth. The broth slowly penetrates through the sand and comes to rest at the same height in the two branches; it should be sufficient in quantity to be above the upper limit of the sand. If the broth has been too much decolorized by filtration through the sand, a further drop of the neutral red is added. In order to avoid the inclusion of many air bubbles, it is advisable that the broth inserted into the warm tubes should itself be warm. The fluid for the inoculation of the broth is obtained by irrigation of the intestine after a preliminary evacuant irrigation. The fluid obtained from the second irrigation should be almost clear, and contain only small particles of intestinal mucus, etc. A few drops of this fluid is added to the broth in Branch I of the U tube, and the apparatus is then put into an incubator at 37° C. (98.6° F.) for about 18 hours, when it will be found to be coloured a fluorescent yellow by the *E. coli* from the intestinal fluid. Of the numerous intestinal flora which will

develop in Branch I of the U tube only those which are motile will penetrate the sand and reach Branch II, and they will arrive in the order of their comparative motility. Since the typhoid bacillus is, as a rule, the most motile, in positive cases a pure culture of this bacillus will be obtained. In making use of the apparatus the following cases will arise: (1) Typhoid bacilli present. At the end of eighteen hours' incubation the fluid in Branch I is yellow in colour; that in Branch II red and slightly turbid. The turbidity is due to Eberth's bacillus, and if a drop of the broth is examined microscopically numerous motile bacilli are seen. (2) Paratyphoid bacilli present. After the same interval the broth in both tubes will be yellow, since the paratyphoid bacillus acts on neutral red like the colon bacillus, and is motile. Examination of a drop of broth from Branch II shows numerous motile bacilli. (3) No typhoid or paratyphoid bacilli. The broth in Branch I is yellow; that in Branch II is red and clear, and will be found to be sterile. Occasionally the colon bacillus may penetrate the sand and falsify the results obtained, and therefore absolute reliance cannot be placed upon the test. Carnot and Weill-Hallé recommended that to verify the results the bacillus isolated in Branch II should be agglutinated by an antityphoid or antiparatyphoid serum. The present authors have used the test in 30 cases. In none of the cases was a non-motile organism found in Branch II, so that the sand was an effective barrier against all such organisms. The cases tested fall into three groups: (1) Six out of 30 were cases diagnosed clinically as cases of typhoid; in each of these cases the test acted perfectly, the broth in Branch II was red in colour and slightly turbid, and contained motile bacilli which were agglutinated by an antityphoid serum. (2) Twelve cases were suffering from complaints other than typhoid, for example, pneumonia, influenza, etc.; Branch II was red in colour and sterile in 5 cases, red with motile bacilli in 6, yellow with motile bacilli in 1. (3) Twelve cases were without fever; in these Branch II was red in colour and sterile in 5, red with motile bacilli in 5, yellow with motile bacilli in 2. In only one instance, however, in the last two groups did the bacillus found agglutinate with antityphoid or antiparatyphoid serum, and in this case further laboratory tests showed the organism to be *Bacillus coli*. In those cases also in which agglutination did not take place the organism present was the *Bacillus coli*. The colon bacillus may, therefore, by its motility (although it is less motile than the typhoid bacillus) falsify the results. Although the proceeding is not infallible, it presents the great advantage of separating mechanically the motile from the non-motile bacilli. Once separated the agglutination tests can be applied or other laboratory tests, and identification will be more rapid than by other tests. This rapid and easy method will have the great advantage of permitting of more frequent tests being carried out.

168. Tonsillitis and Hand Infections.

Mock of Chicago (*Surgery, Gynaecology, and Obstetrics*, October, 1915) writes on the treatment of hand infections from an economic standpoint, based on a study of 1,600 cases, among stockyard workers, etc. Predisposing causes, such as anaemia and chronic disease, are taken into consideration. Mock finds that tonsillitis, one of the chief causes of sick disability among the workers, likewise plays a marked part in the cause of hand infections. In the winter months, when tonsillitis is most prevalent, infections are correspondingly high in the stockyard. Coincidence of tonsillitis and finger and hand infections was noted so often that Mock made bacteriological researches and found that as a rule the same germ was found to be the cause of both. In January and February, 1913, there were 327 cases of tonsillitis and 83 of hand infections. The total number of days of disability from hand infections was 63, and the number of hand infections associated with tonsillitis ("at time or just before infection developed") was 15—that is, 18 per cent. In 1914 an epidemic of streptococcal tonsillitis occurred in Chicago. The total number of cases of tonsillitis under Mock's observation in January and February of that year was 603, and the total of hand infections 117. The total days' disability from hand infections was 208. The number of hand infections associated with tonsillitis was 32, or 27.9 per cent. This greatly increased disability in 1914 was due to 24 very bad cases with marked lymphangitis and tenosynovitis; and Mock is careful to note that all had tonsillitis; 12 were traced to a haemolytic streptococcus, and the same germ was found in the patient's tonsils; 12 others had a marked lymphangitis, and though the organism was not ascertained, yet the infections were undoubtedly streptococcal and closely related to the tonsillitis.

AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

169.

Nephritis.

W. OPHÜLS of San Francisco (*Journ. Amer. Med. Assoc.*, November 13th, 1915) gives the results of his investigations on nephritis. The material comprised 8 cases of amyloid disease associated with chronic parenchymatous nephritis, 34 of general arterio-sclerosis with cardiac hypertrophy, in which the kidneys were slightly involved in 12, and moderately diseased in 22 cases. In addition there were 8 cases of general arterio-sclerosis, with more extensive renal lesions of the type described by the author in a previous paper as arterio-sclerotic nephritis. "The most interesting group was that of 32 cases of glomerulo-nephritis, of which 4 were acute, 8 subacute, 17 chronic; in addition, belonging to the last group, there were 3 cases in children which it was difficult to classify on account of the peculiar mixture of subacute and chronic lesions in them." The cases thus classified are discussed, with their symptoms, etiology, and so forth, and Ophüls summarizes his conclusions as follows: 1. Nephritis from an anatomic point of view may be best subdivided into: (a) acute, subacute, and chronic parenchymatous nephritis, which is very frequently associated with amyloid; (b) acute, subacute, and chronic glomerulo-nephritis, to which class belong most of the cases with continued definite urinary findings, renal hypertension, uraemia, and other definite symptoms of renal disease. 2. Hypertonic cardio-vascular disease may involve the kidneys more or less extensively, often causes certain functional disturbances in the kidneys, may cause contracted kidney, but should be segregated entirely from true nephritis. 3. The cause of true nephritis is continued bacterial septicaemia, and the lesions in the kidneys are probably due to rapid bacteriolysis and incidental liberation of large doses of toxic material in and about the affected glomeruli. 4. The lesions in the arterioles, in at least some of the more chronic cases, are due to the organization of a hyaline (thrombotic?) deposit on the inner surface of the arteries which at times is found underneath the endothelium.

170.

Amaurotic Family Idiocy.

ISADOR H. CORIAT (*Boston Med. and Surg. Journ.*, July 16th, 1915) records the occurrence of the following phenomena in amaurotic family idiocy which have been either completely overlooked hitherto or only briefly described: (1) Explosive laughter was observed in three cases; in two of these there was marked mental deterioration. It is uncertain whether the explosive laughter was a sign of the mental deterioration or was due to some lesion of the optic thalamus. (2) Hydrocephalus was seen in one of Coriat's cases, and it has been previously noted in a few instances. (3) Bulbar symptoms occurred in one of his cases; there was drooling of saliva, spells of choking, difficulty in swallowing, and attacks of dyspnoea. The child died suddenly from bulbar paralysis. (4) Nystagmus, lateral and rotary, occurred in three of his cases, and in one it persisted throughout the whole course of the disease. (5) Hypotonia was seen in two cases; the marked rigidity of the limbs resembled that of Oppenheim's amyotonia congenita; this feature was previously recorded by Kowarsky. (6) Abnormal reflex phenomena: increased reflex reactions to auditory, visual, and tactile stimuli. On plantar stimulation there was either marked tremor of the leg on the side stimulated or else a contralateral knee-jerk, but a contralateral extensor plantar reflex was never seen. Coriat invokes pathological irradiation of reflexes as an explanation of these excessive reactions to stimuli, and points out their resemblance to the reflex phenomena of strychnine poisoning.

SURGERY.

171.

Amputation by the Flap Method.

BAYNAUD (*Bull. et mém. de la Soc. de Chir. de Paris*, July 27th, 1915), who during the last five or six months has performed more than 150 operations by the flap method, advocates the use of this method rather than the different circular methods. Among the advantages of the flap method are: (1) It exteriorizes the infection as much as the circular method, always supposing that the flaps are not

sutured, but that they are kept separated and even raised by the dressing. (2) When the injury or the infection has spared one aspect of the limb, the making of a flap on this aspect permits of the preservation of a greater length of limb than would the circular method. (3) In the thigh the large anterior flap through the quadriceps is superior to the circular method. The advantage is most marked in amputation through the lower part of the thigh. (4) By having cutaneous, non-muscular flaps, the limits of conservation can be reached—amputation of the leg may suffice when musculo-cutaneous flaps would have necessitated amputation through the thigh, or a disarticulation through the hip may be possible, even when all the muscles are invaded, provided that several centimetres of skin are available to bring over the end of the bone. In the author's opinion the merits of flaps which are exclusively cutaneous are not sufficiently recognized in France. The principal advantage is to permit of extreme eradication of muscle while permitting the utilization of skin already affected. Even when the skin has been riddled with projectiles and shows inflammatory lesions, it will recover if it be dissected off from the deeper tissues to a certain height, turned back like a sleeve, and dressings applied in this position during several days. The author is in favour of a more conservative treatment of upper than of lower limb lesions, because of the much greater danger which accompanies infection in injuries of the calf or of the thigh. He is convinced that too temporizing methods with regard to the lower limb, though they will save some limbs, will lose many lives. Moreover, if amputation has to be performed, a primary amputation preserves more tissue. The flap method is suitable in all cases, though in a minority of the cases of primary amputation the circular method may be preferable. In amputation by the flap method the flaps will include muscle when the operation is through healthy tissue, but when through doubtful tissue it is safer to sacrifice the muscles and have only cutaneous flaps, especially in the region of the leg and the thigh. The author gives statistics dealing with 171 amputations which he has performed in the last six months, almost all of them secondary amputations undertaken because of gangrene: 30 of these were amputations of the upper limb, with 7 deaths, or a mortality of 20.33 per cent.; 3 of the deaths were altogether independent of the amputation, the remainder were principally due to spread of gangrene. 141 amputations of the lower limb resulted in 52 deaths, or a mortality of 37 per cent. The percentage mortality increased very noticeably in amputation through the femur the higher the operation was performed. Thus, 16 operations through the lower third of the thigh gave a mortality of 25 per cent., 21 amputations through the middle third gave one of 42.7 per cent., 45 through the upper third 44.5 per cent. The mortality for 16 disarticulations of the hip was the same as for amputation through the upper third of the thigh, or 44.75 per cent. The author believes that the total mortality could have been considerably reduced if earlier amputation had been performed. With regard to technique, almost all the operations, especially the disarticulations of the hip, were performed under cover of a preventive haemostasis. In each of the more serious cases the patient received an injection of 1 gram to 1.5 grams of physiological serum into the principal vein, and, thanks to this precaution and to the fact that operation was not begun till the pulse was palpable, no case was lost as a result of operation shock. Very painful dressings were done under ether or ethyl chloride anaesthesia.

172.

End Results of Bone Fractures.

In the *Annals of Surgery*, September, 1915, Dr. W. L. ESTES, Chairman of the Committee of the American Surgical Association for the investigation of the end results of bone fractures, gives the report and recommendations arrived at. The investigations were confined to fractures of the long bones, the three points more especially considered being: (1) To ascertain the average present-day anatomical and functional results of both simple and compound fractures, and the average time of disability in the several age groups; (2) the comparative value of the conservative or closed methods and the operative or open methods of treatment; and (3) the comparative value of immediate or delayed treatment. As a general principle, fractures should be treated by a skilled surgeon, and x rays should be employed by a competent

radiographer before the permanent dressing is applied, at least two skiagrams being taken from opposite perpendicular directions. Skiagrams should also be taken after the application of permanent dressings to prove proper reduction, and at the end of treatment to record the result. Statistics show markedly that better results follow when treatment is begun at once, so that fractures should be reduced immediately if the proper splints or retaining apparatus are at hand, it being not only useless but cruel to subject the patient to the pain of manipulation unless such proper fixation is at hand, and the patient is where a permanent dressing can be applied. Unless contra-indicated, general anaesthesia should be used to facilitate reduction and prevent pain. Neither the non-operative nor the operative method is recommended exclusively, each having its indication for employment according to the circumstances of the case. Non-operative methods are, generally speaking, more effectual under 15 years of age, but from then up to 60 operative methods are indicated when non-operative treatment has proved ineffectual in reduction or for controlling the fragments in position, the operation being delayed not longer than a week after injury. In operative cases the best fixation method appears to be some form of bone plating or an Albee inlay. Open operations for simple fractures should be undertaken only by experienced surgeons who are thoroughly equipped to meet all possible indications. The American Surgical Association is strongly urged to set its seal of approval upon the Committee's findings, so that they may form a part of the routine records of fracture patients, both for the protection of hospitals and surgeons, and for the collection of valuable material towards attaining better results in the treatment of fractures.

173. The Electro-magnet as an Aid to the Localization of Foreign Bodies.

BERGONIE's method of employing an electro-magnet (in practice the inductor of an X-ray coil) excited by an alternating current of 110-120 or 220-240 volts in order to bring about a vibratory action in a projectile of magnetizable nature (that is to say, a body having a base of iron, steel, nickel, or cobalt) embedded in the tissues has already been described in the BRITISH MEDICAL JOURNAL (June 5th, 1915, page 979). Bergonié now states (*Arch. d'élect. méd.*, No. 393, 1915) that the electro-vibrator, as it is called, is capable of making almost all metallic bodies vibrate, even those which are non-magnetizable. This it does by means of induced currents. For this purpose a more powerful instrument (one of 8 or 10 kilowatts) is necessary. The vibrations induced in the metal are more perceptible to the touch in inverse ratio to the product of the specific resistance of the metal multiplied by its density. Thus aluminium is found to vibrate most strongly in the series of non-magnetizable metals, copper and silver less strongly, gold and zinc still less, while it is difficult to get German silver, platinum and lead to vibrate at all, and almost impossible to get mercury. The vibration of aluminium, copper, brass, and zinc, therefore, is now a possibility, but the lead of shrapnel and the German silver which forms the envelope of revolver bullets present a more difficult problem, and in these cases, if the tactile sense of the surgeon is to be assisted by the electro-vibrator, the induction of the instrument must be still further increased. Writing from the surgeon's point of view as distinct from the electrician's, LE FUR (*ibid.*, No. 395) describes his experiences with the electro-vibrator at a military hospital. He states that although, after the first incision, the main vibrating work is done by the finger guided by the vibrations set up in the foreign body, yet when the projectile is deeply situated, retractors, dissecting and haemostatic forceps, and a vibrating sound must be employed for dissociating aponeurosis and muscle, and all these instruments should be in bronze so as not to be the seat of conflicting vibrations. If ordinary nickel instruments are employed care must be taken that they are not brought into action at the same time as the vibrator. The operation in such a case will resolve itself into a series of alternate explorations with the finger and dissociation of the tissues by means of the instruments, the current being cut off while the instruments are in use. Sometimes a foreign body which was thought to be immediately below the skin or aponeurosis proves to lie beneath several muscle layers. The vibratory effect is much diminished, or may be effaced altogether, if the projectile is covered by an osseous surface, or even if it is situated deeply in the abdominal or lumbar region. The chief advantage of the method is the sureness and rapidity with which the projectile may be extracted. The author has extracted in thirty seconds a foreign body situated very deeply in the buttock, and in

six minutes one buried deeply in the nape of the neck. The possibility of extracting many small and scattered fragments with the least damage to the muscles and soft parts is a further advantage. The author has extracted by this method twenty or thirty small fragments of shell from one case. Other advantages are the ease with which the surgeon may extract foreign bodies enclosed in the muscular masses and moving with them, the ability it furnishes to correct the occasional error or inadequacy of radiographic localization, and to search with security for foreign bodies embedded in dangerous areas, such as the great vascular regions.

OBSTETRICS.

174. Treatment of Placenta Praevia Centralis.

CALDWELL (*Amer. Journ. Obstet.*, June, 1915) maintains, on the strength of experience in the Bellevue Hospital and the Manhattan Maternity New York, that the older treatment of placenta praevia by gauze packing should not be rejected in favour of dilating bags and Caesarean section. Five cases of placenta praevia centralis occurred within a year under Flint in the Bellevue Hospital and all were treated by gauze packing. Out of the 5 patients, 1 died from praecox coma on the ninth day, and the fatal result can hardly be charged to the misplaced placenta; the remaining 4 were all discharged in good condition. Of the infants, 2 were dead, 1 being macerated, 2 died within the first three days, and the fifth only lived for a few weeks. According to the statistics of the Manhattan Maternity Hospital, out of 11,435 births the total of placenta praeviae was 67, including 13 cases of placenta praevia centralis, where 5 of the infants were stillborn and 5 died within a few days. Gauze packing was practised in the majority of the 13 cases, though in some the dilatation was finished with bags or manually. All were more than one finger dilated on admission. After the failure of both packing and bag, *accouchement forcé* was practised in one case. Many were packed in the outdoor service and the haemorrhage was not controlled, but when properly packed under an anaesthetic in the hospital the bleeding was checked for a considerable time—in two cases for more than twenty-four hours and in one for three days—before it became necessary to remove the gauze. In all except one the dilatation had reached four fingerbreadths when the gauze was removed. One case died during delivery. The hard, undilatable cervix is more frequently associated with marginal and partial than with central placenta praevia, in which variety dilatation will usually occur in a surprisingly short time when packing is properly managed, though the cervix is friable and readily torn. Packing must be done under anaesthesia, and is best performed by the manual method. Iodoform gauze is recommended by Caldwell both before and after delivery, as it can be allowed to remain in the uterus for five or six days without becoming septic. The risk of secondary haemorrhage when the patient is in the stage of reaction is rendered less, in Caldwell's experience, by leaving the gauze in place, even to the sixth day.

175. Influenzal Puerperal Fever.

THALER and ZUCKERMANN (*Wien. med. Woch.*, July 31st, 1915) report what they hold to be the first case in which Pfeiffer's bacillus was proved to be the cause of puerperal fever, and indeed the first case in which the diagnosis of influenza of the genitals has been established by a bacteriological examination. The examination of the vaginal secretions was made after the patient, a primipara aged 19, had been in hospital for eight days, and before labour had begun. Numerous influenza bacilli were found. Labour, which began thirty-eight hours later, was accompanied by headache, apathy, fever, and a feeling of heat. During the following seventeen hours the exhaustion and fever increased. Shortly after the membranes were ruptured a healthy child, weighing 2,650 grams and measuring 48 cm., was born. Although the symptoms of influenza persisted, the respiratory tract remained unaffected, and the child was quite well. Influenza bacilli were found in the lochia on the third and fifth days of the puerperium; but from the tenth day these bacilli were no longer demonstrable, and the patient's temperature was normal.

176. Operative Treatment of Goitre in Pregnancy.

THALER is an advocate of thyroidectomy when the normal course of pregnancy is interfered with by exophthalmic goitre. In support of this view he records (*Wien. med. Woch.*, July 31st, 1915) the case of a married woman, aged 25, whose last menstruation occurred on March 25th, 1914.

When, early in June, she noticed that her neck was considerably enlarged, an examination showed typical severe exophthalmic goitre, accompanied by mental symptoms. Large doses of bromide were tried, but were found of no use. The necessity for the induction of abortion was urged by the physicians and alienists consulted; but thyroidectomy was decided on in order to arrest the growth of the goitre and to maintain the pregnancy. The isthmus of the thyroid gland and wedge-shaped portions of the lateral lobe were removed. The pulse and nervous symptoms improved, weight was gained, and the patient was soon fit again for work. The improvement thus effected was maintained throughout the rest of the pregnancy, and on December 10th the patient gave birth to a healthy child weighing 3,600 grams.

GYNAECOLOGY.

477. Operations for Prolapse of the Uterus.

In the period 1897-1912 there were 300 cases of prolapse of the uterus operated on in the gynaecological hospital of the University of Helsingfors. The results of these operations are analysed by E. A. BJÖRENHEIM (*Finska Lakarsällskapets Handlingar*, August, 1915), who finds the primary mortality was as low as 0.67 per cent. In 205 cases the subsequent fate of the patient was learnt, in most cases by correspondence and in a few cases by a medical examination. In 50 cases, or 24.4 per cent., the operation was followed sooner or later by relapse. Plastic operations on the vagina were performed in 59 cases, anterior colporrhaphy was performed by Hegar's method, without dissecting out the bladder, and colpoperineorrhaphy was performed either by Hegar's or Lawson Tait's method. The ultimate result of these operations was learnt in 32 cases, among which the percentage of relapses was 46.9. The Lawson Tait operation gave less satisfactory results than Hegar's. In 8 cases these operations were supplemented by amputation of the cervix. Of these 8 patients, 6 were subsequently examined, and 2 were found to have relapsed. Ventrifixation of the uterus, combined in most cases with plastic operations on the vagina and perineum, was performed in 118 cases. The Czerny-Terrier method of sero-serous ventrifixation was employed. In 8 cases the operation was confined to ventrifixation. The ultimate results of this operation were learnt in 80 cases, among which there were 21 relapses (26.3 per cent.). The results of ventrifixation, combined with Hegar's colpoperineorrhaphy, were decidedly better than those of ventrifixation combined with Lawson Tait's operation, the relapses in the first instance representing only 19.3 per cent., and in the second instance as much as 70 per cent. In 15 cases the patients subsequently underwent uncomplicated confinements, but in 6 of these cases the prolapse recurred. In 10 cases Schantz-Wertheim's operation was performed with only one relapse among the nine patients subsequently examined. In 3 cases the round ligaments were shortened by the Alexander-Adam method, and in 1 case by the Bldy-Webster method. In the 2 cases in which an examination was subsequently made no relapse was observed. In 92 cases hysterectomy per vaginam by Doyn's method was performed in combination with vaginal resection or a plastic operation on the perineum. In 6 of these cases a severe haemorrhage occurred within twenty-four hours of the operation, and necessitated the seizure of the bleeding parts with clamps and plugging of the vagina. The ultimate results for this operation were learnt in 68 cases, among which there were 9 relapses (13.2 per cent.). The author concludes that better results would have been obtained had the plastic operations on the vagina been performed with greater care and skill.

478. Micro-organisms and Infection of Ovarian Tumours.

WIENER (*Amer. Journ. Obstet.*, August, 1915), in describing in detail the complications of ovarian tumours, as an analysis of 240 operations, reports 6 cases of infected cysts (2.5 per cent.). Of these 1 was streptococcus infection, 1 a mixed infection of *Streptococcus pyogenes* and *Staphylococcus albus*, 1 typhoid infection, 1 a case where culture showed no growth, and 2 were cases where the organisms were unidentified. One of the six patients died. Infection had occurred from rupture of a loculus in parturition sixteen days before operation. There was a large adherent multilocular cyst, a pseudo-mucinous cystadenoma. In delivering the mass it was ruptured, and much pus escaped into the pelvis. Panhysterectomy was performed, and drainage established through the vagina, not through the abdominal wound. Death occurred in eighteen hours.

This case strongly indicates the necessity for ovariectomy during gestation, far less dangerous than when the operation is postponed as in this instance. A considerable number of micro-organisms have been found in infected ovarian tumours, according to recent authorities. They include those above noted, also the pneumococcus, gonococcus, tubercle bacillus, *Bacillus typhosus*, *Bacillus coli communis* and various saprophytic organisms. Pregnancy is by far the most common cause of infection, as in Wiener's experience, where five out of the six, including the case above noticed, had passed through labour, the exception having suffered from typhoid fever.

479. Leucoplakia of the Cervix.

I. KAARSBERG (*Hospitalstidende*, June 9th, 1915) records the case of an unmarried nullipara, aged 25, who had been treated at the age of 15 for gonorrhoea involving the urethra, the ducts of Bartholin, and the cervix, on which an erosion was found. At the age of 23 there was a recurrence of the gonorrhoea, accompanied by pain on micturition. On this occasion there was no discharge, and gonococci were not found. An examination of the cervix showed a slightly raised white patch, of the size and shape of a farthing, firmly attached to the underlying tissues near the external os. There was no hyperaemic zone, and there were perfectly healthy tissues surrounding this patch, which was uniformly smooth, dry, sharply defined, and slightly raised. Its margin was formed by a number of confluent, bow-shaped waves, some as small as a lentil and others as large as a pea, which formed a complete circle. The appearance of this patch suggested the use of a caustic, but this was denied by the patient. Attempts to cure this patch by applying various drugs, such as glacial acetic acid and zinc chloride (50 per cent.), failed, and an operation was accordingly advised. The patient, who refused to undergo an operation, absented herself for some time, but when she returned, eighteen months later, the leucoplakia, though no larger than before, was found to have broken up into a number of white filaments. In the meshes of these filaments normal mucous membrane was visible. Scattered over the cervix, a little distance from the main patch, were a few white dots no larger than a pin's head. The cervix looked as if chalk had been painted indiscriminately over it. There was now no sign of active gonorrhoea, and Wassermann's reaction was negative. Though the patient consented to an operation, it was apparently deferred a couple of months, during which no examination was made. On the operating table an examination of the cervix showed no leucoplakia, and there was nothing to be seen apart from a simple erosion. In spite of this unexpected change the cervix was amputated. Under the microscope it showed no sign of malignant disease, and the structure of the superficial layers of the cervix was not altogether characteristic of leucoplakia. Nor were the micro-organisms found, including a cocciform bacillus and two other bacteria, identified with the micro-organisms sometimes associated with leucoplakia. Discussing the literature of leucoplakia of the cervix, the author points out that in the recorded cases the condition almost invariably terminated in cancer of the cervix.

480. Fibroid Polypus in Vagina: Delivered by Forceps.

WIENER (*Amer. Journ. Obstet.*, May, 1915) recently removed from a virgin, aged 22, a fibromyomatous polypus 104 in. in circumference. The pedicle was a flat band 1½ in. broad, springing from the uterine wall immediately above the internal os. Menstruation had been established at the age of 16, and was painful until six months before operation, then it ceased, no doubt owing to the dilatation of the cervix by the extrusion of the polypus. Very free haemorrhage soon set in, without any pain or pressure symptoms, dysuria, or difficulty in defaecation. The hymen was intact, and a smooth, rounded mass blocked the vagina. Obstetric forceps were found necessary, under anaesthesia. After several strong backward and downward tractions the finger could be passed between the tumour and the symphysis, and the pedicle was then reached. The rest of the procedure was a typical low forceps delivery, except that the tumour was hard and inelastic, very unlike a fetal head. The perineum was much distended, and the parts firm and unyielding. Episiotomy was not practised, and the perineum was torn laterally to a moderate degree. The pedicle was ligatured close to the uterine wall and divided. This method avoided a tedious morcellation with possible haemorrhage in a patient already exanguinated. The uterus after the removal of the polypus was found to be exceedingly small, the sound passing 1½ in.

THERAPEUTICS.

131. Bactericidal Action of Ethylhydrocuprein on Pneumococci.

HENRY F. MOORE continues his experimental studies on ethylhydrocuprein (*Journ. of Exper. Med.*, November 1st, 1915, p. 551). He showed previously that ethylhydrocuprein inhibits the growth of, and kills, pneumococci *in vitro* in very considerable dilutions of the drug, and that it exerts a considerable protective action in experimental pneumococcal infections in mice. The drug is a derivative of hydroquinone. The following are Moore's conclusions from his present experimental work: (1) The serum of rabbits which have been previously treated with a single dose of ethylhydrocuprein (optoquin) exerts a bactericidal action on, and, later, inhibits the growth of pneumococci in the test tube. (2) These actions are most evident in the serum of rabbits when the base (optoquin base) is given in oil subcutaneously; somewhat less when the hydrochloride of the drug is given in water subcutaneously; slight when the base is given in oil intramuscularly; and least evident, or absent, when the hydrochloride in water is introduced directly into the stomach. To get these effects by the intravenous route, toxic doses must be given, and, even with toxic non-fatal doses, the effects do not last long. (3) In the case of the base given in oil subcutaneously to rabbits in a dosage of 0.1 gram per kilo of body weight, the bactericidal action of the serum is at its maximum about one hour after administration, and it passes into an inhibitory effect about four hours after the drug has been given. (4) In man the same inhibitory and bactericidal actions of the serum are present when a single dose of 0.5 gram of the hydrochloride of the drug is given by the mouth or subcutaneously, but the bactericidal action is not so marked as in rabbits. (5) When the optoquin concentration in the serum has apparently diminished to a certain point in relation to the number of pneumococci present, the pneumococci which have survived the bactericidal action for a few hours acquire the power of growing freely.

132. The Management of Enuresis.

NEWLIN (*Archives of Pediatrics*, October, 1915) considers that the method of management of enuresis, whether diurnal or nocturnal, which gives the best results consists in anticipating the involuntary act by a voluntary emptying of the bladder, and though this is the usual accompaniment of any treatment, he finds that when carried out thoroughly systematically it precludes the use of any drug, and gives almost invariably successful results. The difficulty of impressing upon the child's attendant the necessity for carrying out instructions faithfully is the chief obstacle encountered, and she must be made to understand that in order to be successful she must devote herself exclusively to the child day and night for the first three or four days, after which the vigilance may usually be relaxed. The nurse is given a chart with the hours of the day and night in a vertical row at the left-hand margin under the heading of the day of the week. If enuresis averages every two hours she must put the child on the chamber every hour for the first twelve hours, and if at any such time the clothing is wet the hour is noted on the chart. The same treatment is carried out during the early hours of the night up to about midnight, after which every second hour is usually sufficient for the first night. By this means, at the end of the first twenty-four hours there is either a clear chart, or one with several hours marked when enuresis occurred, and on the second day, guided by the record of the previous day, the length of time between the voluntary urinations may be extended, always anticipating the hours marked "wet" on the previous day. Thus on each succeeding day longer intervals may be reached. The method is easy in diurnal cases, and though the first two nights are troublesome in nocturnal cases the intervals can almost always be lengthened on the following nights. It usually happens that by the end of a week under this method of treatment the child will go from 11 p.m. to 6 a.m. without wetting the bed.

133. Chenopodium in Uncinariasis.

BISHOP AND BROSIUS of Panama City (*Geary Amer. Med. Assoc.*, November 6th, 1915) have continued Levy's researches, which showed that oil of chenopodium, a proved vermifuge, was not dangerous as a drug. It was prepared from the fruit of *Chenopodium ambrosioides*, and it was long known as a remedy for ascariasis. The authors administered oil of chenopodium to 108 patients suffering

from hook-worm disease, of whom 92 took no other drug, while the remainder were treated alternately with thymol alone and with chenopodium, or with a chenopodium-thymol mixture alternated with pure thymol. In one instance 1,379 hook-worms were expelled in a first whole stool. The patients were in many instances very ill already, but the deaths that occurred were, in all cases, clearly due to other causes than the chenopodium. A treatment consists of 48 minims, often repeated at intervals of three days, without any of the prostration and weakness not rarely occasioned by thymol. The oil was put up in capsules of 8 minims, and the authors gave two capsules to the dose, including three doses to the treatment, given two hours apart. Each treatment was followed in four hours by two ounces of castor oil. Bishop and Brosius found that the method of administration of chenopodium was simple; that the drug could be given at shorter intervals than when thymol was used; that it caused far less pain and discomfort than thymol; and, in short, that it was a more efficient vermifuge in the treatment of uncinariasis.

134. Iced Normal Salt Solution in Gonococcal Conjunctivitis.

EDWARD B. HECKEL speaks very favourably of this new local treatment of virulent gonococcal conjunctivitis (*Med. Soc. State of Pennsylvania*, September 20th-25th, 1915). He refers to the fact that ice-pads have for a long time been used in the treatment of this disease, on the theory that cold would inhibit bacterial growth. In view of this, and on the assumption that gonococci are found only in superficial tissues, he has used iced normal saline solution in a few cases. He firmly believes that it is a specific mode of treatment for virulent gonococcal conjunctivitis. He has found it to be harmless, an effective germicide, easily applied, and well borne.

PATHOLOGY.

135. Action of Arsenicals on the Adrenals.

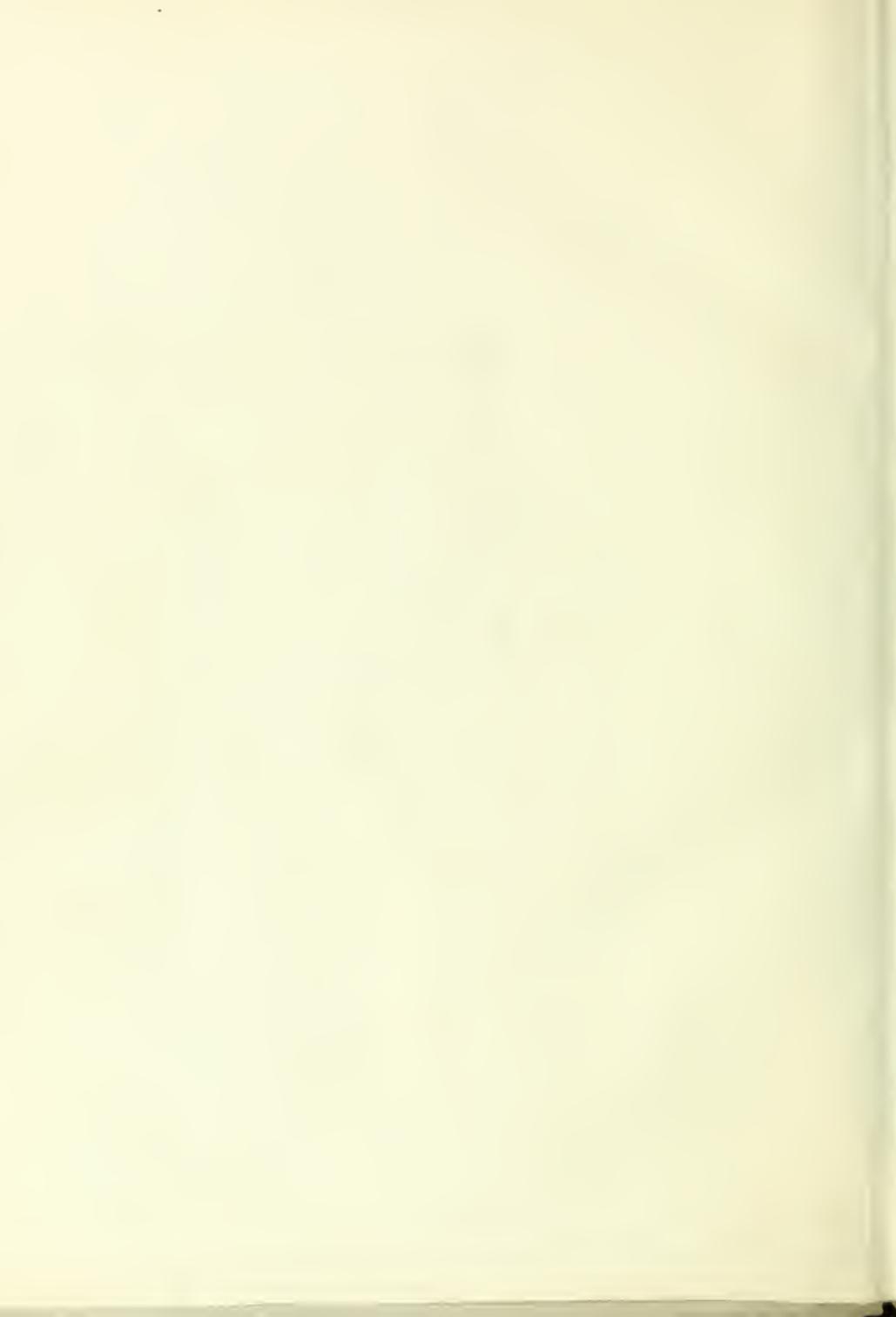
WADE H. BROWN and LOUISE PEARCE (*Journ. of Exper. Med.*, November 1st, 1915) have tested the action of arsenical compounds on male guinea-pigs weighing 400 to 500 grams, and also on rabbits and dogs, which were used in order to facilitate intravenous administration of the drugs. The compounds tested comprised arsenious and arsenic acids, sodium cacodylate, atoxyl, arsacetin, arsenophenylglycine, salvarsan, and neo-salvarsan. Sterile solutions of the substances were injected intraperitoneally. After some important observations on the histology of the normal adrenals of guinea-pigs, which differs markedly in black and in white animals respectively, the writers state their conclusions as follow: (1) Toxic doses of all arsenicals of which they have knowledge produce definite pathological changes in the adrenals of guinea-pigs. These include congestion, haemorrhage, disturbances in the lipid content, cellular degenerations and necroses, and reduction in the chromaffin content. (2) The character and severity of the injury produced by different arsenicals varies with the chemical constitution of the compounds. (3) From these facts they believe that adrenal injury is an important factor in arsenical intoxication, and we suggest that therapeutic doses of some arsenicals may produce adrenal stimulation.

136. Calcareous and Osseous Deposits in the Arachnoid.

HARVEY CUSHING and LEWIS H. WEEB (*Bull. of the Johns Hopkins Hospital*, November, 1915) find, as the result of a series of pathological studies on the cerebro-spinal fluid and its pathway, that calcareous depositions in the form of psammoma bodies or corpora amyloacea of varying stages of development and of varying size are of a common occurrence in the arachnoid of man and of the lower animals. Associated with this process of calcification there is apt to occur a hyperplasia of the arachnoid mesothelium. The deposits of lime salts are apparently laid down in cell bodies, and in this membrane can bear no relation to the blood vessels. The occurrence of true bone formation in the arachnoid of man should be regarded as a similar phenomenon, except that the process of ossification may be considered to be proliferative rather than degenerative. The so-called dural endotheliomas show histologically the small cellular arrangements with calcareous and osseous depositions that are commonly found in the arachnoid, and therefore take their origin in all probability from the mesothelium of the membrane.







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